



U.S.-Produced Value in U.S. Imports from NAFTA

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Executive Summary

Analysis of newly released data from the Organization for Economic Cooperation and Development (OECD) on the source of value added in bilateral imports shows that the share of U.S.-produced content in manufactured imports from Mexico and Canada has eroded significantly since the mid-1990's. The share of U.S.-produced content in manufactured goods imported by the United States from Mexico was 16 percent in 2011, down from 26 percent in 1995, the first year for which the data are available. The same holds true with Canada: the share of U.S. content in imports from Canada fell from 21 percent in 1995 to 15 percent in 2011.

This pattern of declining share of U.S.-produced value in NAFTA imports is also seen in the United States' largest import from NAFTA, motor vehicles, where the share of U.S. content in imports from Canada and Mexico each fell by more than 8 percentage points over the same period. The pattern is also evident, although to a lesser extent, in U.S. imports of basic metals, the United States' second largest import from NAFTA.

Introduction

In March 2017, the Organization for Economic Cooperation and Development (OECD) expanded its database on Trade in Value-Added (TiVA) to include, for the first time, a separate table on the source of value added in bilateral imports. This expansion facilitates the examination of how value originally produced in the U.S. is incorporated into products imported into the U.S. from specific countries.¹ Prior versions of the TiVA database only presented this data at the global level. The TiVA database includes annual data for all years from 1995 to 2011, allowing for the examination of trends over this time period.

This report focuses on the source of value-added in U.S. imports of manufactured goods from its North American Free Trade Agreement (NAFTA) partners Mexico and Canada. Subsequent versions of this report will examine imports into the U.S. from our other major trade partners. The focus in this report is on manufactured products as they are more likely than services or agricultural products to be produced within global production chains. This report also examines the two manufacturing industries in the OECD database where U.S. gross imports from NAFTA were the largest in 2011: motor vehicles and basic metals.

Trade in Value Added²

During production, goods and services may move across multiple national borders in order to produce a final product. As a result, goods and services that are traded can be composed of inputs sourced from various countries around the world. However, these multiple sources of inputs are not reflected in conventional trade statistics which are based on the gross commercial value of products as they enter and exit a country's borders. The TiVA database addresses this issue by decomposing the value of traded products into the contributions made by each country at different points in the production chain. This allows for an examination of trade flows based not only on where the good or service was exported from but also where the value in the good or service was created.

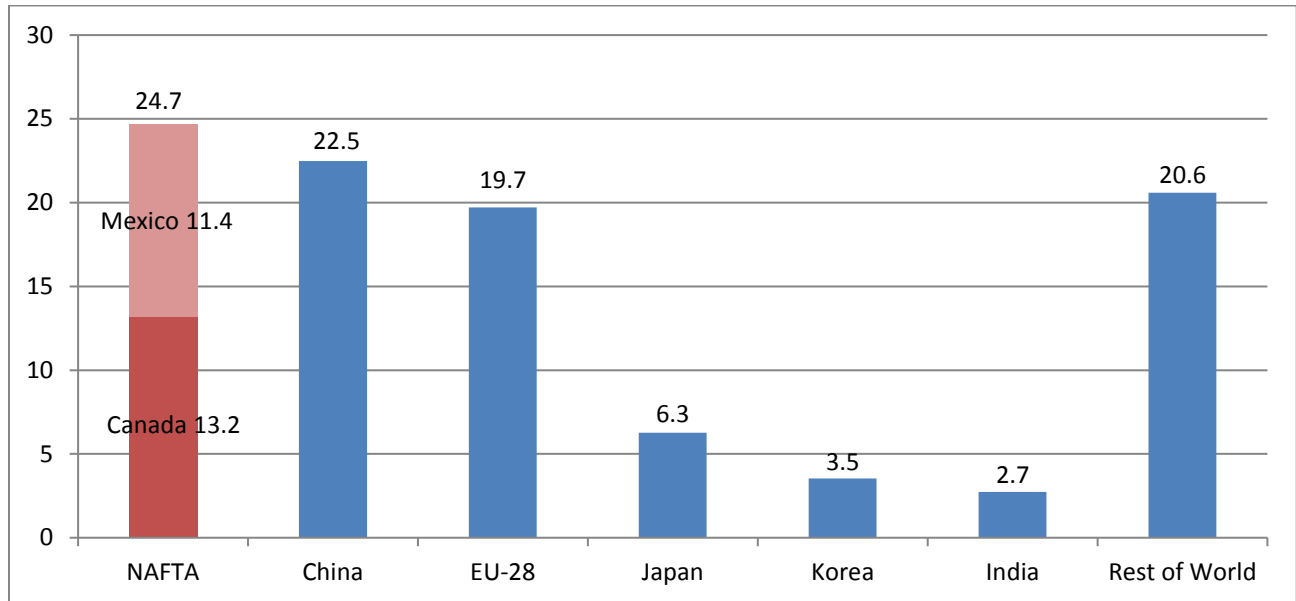
¹ See <http://www.oecd.org/industry/ind/measuringtradeinvalue-addedanoecd-wtojointinitiative.htm> for additional information on OECD's work on trade in value-added. The data used in this report are available on the OECD's website: <https://stats.oecd.org/index.aspx?queryid=75537>

² For the methodology of the TiVA database see Organization for Economic Co-operation and Development and World Trade Organization (2013) Trade in Value-Added: Concepts, Methodologies, and Challenges. For other approaches to measuring trade in value-added see: Guillaume Daudin, Christine Riffart and Danielle Schweisguth (2011), Who produces for whom in the world economy, Canadian Journal of Economics, vol 44, 1403-1437; Robert Johnson and Guillermo Noguera, (2012) Accounting for Intermediates: Production sharing and trade in value added, Journal of International Economics, vol 86, 224-236; Robert Koopman, William Powers, Zhi Wang and Shang-Jin Wei (2011), Give Credit Where Credit is Due: Tracing Value Added in Global Production Chains, National Bureau of Economic Research, Working Paper 16426.

Manufactured Products

Taken as a whole, in 2011, NAFTA partners Mexico and Canada were the United States' largest supplier of manufactured products, followed by China and the European Union (EU-28) (Figure 1).³

Figure 1. Gross U.S. Imports of Manufactured Goods in 2011
Share of Total



On a value-added basis, NAFTA was also the largest provider of manufactured products to the U.S. in 2011, followed by the EU-28 and China (Table 1). Looking at individual NAFTA members, in 2011 Canada accounted for 9 percent of total value-added imports of manufactured goods into the U.S., Mexico accounted for 7 percent, and returned U.S.-produced value accounted for 6 percent of imports. U.S.-produced value in U.S. imports consists of U.S.-origin products and services that were previously exported to companies abroad and are being imported back into the U.S. as a component of a manufactured product.

³ Trade data presented reflect those in the OECD TiVA database. Trade data from the U.S. Census Bureau shows that NAFTA was the largest supplier of manufactured products to the U.S. in 2011 and every subsequent year, except 2015.

**Table 1. Source of Value-Added in U.S. Imports of Manufactured Goods
Share of Total**

	1995	1998	2000	2004	2008	2011
Total	100.0	100.0	100.0	100.0	100.0	100.0
NAFTA	26.9	28.9	29.0	25.6	21.8	22.1
United States	8.7	10.3	10.2	7.8	6.6	6.4
Canada	13.2	12.2	12.1	11.7	9.3	8.8
Mexico	5.0	6.4	6.7	6.0	6.0	6.8
Non-NAFTA	73.1	71.1	71.0	74.4	78.2	77.9
East and South East Asia ⁴	37.1	32.6	32.4	31.6	33.2	34.7
China	2.8	4.2	4.2	7.8	13.7	15.5
EU-28	23.4	24.4	22.8	25.1	23.0	20.7
South/Central America ⁵	2.1	2.5	2.6	3.5	3.5	3.6
Rest of World	10.6	11.6	13.2	14.3	18.5	18.8

Overall, the share of total NAFTA (Canadian, Mexican and returned U.S. value-added) content in U.S. imports of manufactured products declined from 27 percent in 1995 to 22 percent in 2011 reflecting decreased shares of Canadian and U.S. value-added. Growth in the non-NAFTA share of value-added in U.S. imports was the result of an 8 percentage point increase in the share accounted for by the Rest of the World including increases of almost 2 percentage points in Russian and Indian shares over the time period. Although China's share of U.S. manufactured imports on a value-added basis grew from three percent in 1995 to over 15 percent in 2011, East and South East Asia's share as a region declined from 37 percent to 35 percent as the increased Chinese share was more than offset by declines in the value-added shares accounted for by Japan and, to a lesser extent, Taiwan.

The newly-released OECD data permits a more granular examination of how this value is transferred to the U.S. through bilateral trade. The analysis of the value embodied in manufactured goods imported by the U.S. from Mexico reveals that in 2011, U.S. production accounted for 16 percent of the value of those imports (Table 2). This is nearly triple the 6 percent share contributed by U.S. production into our imports of manufactured products from all partners.

However, between 1995 and 2011, the share of U.S.-produced value incorporated in U.S. imports of manufactured goods from Mexico declined, falling from a 26 percent share in 1995 and a peak of 30

⁴ As defined and available in the OECD database: Japan, Korea, Brunei Darussalam, China, Hong Kong, Indonesia, Cambodia, Malaysia, Philippines, Singapore, Thailand, Taiwan, Vietnam.

⁵ As defined and available in the OECD database: [Argentina](#), [Brazil](#), [Chile](#), [Colombia](#), [Costa Rica](#) and [Peru](#).

percent in 1996.⁶⁷ This decline in U.S.-produced share was the largest contributor to a decline in the share of NAFTA-produced value in U.S. imports from Mexico, which fell from 86 percent in 1995 to 73 percent in 2011. For U.S. imports from Mexico, the increase in the value provided by non-NAFTA countries is nearly evenly split between China, which captured an additional 6 percent share over the 1995-2011 period, and other non-NAFTA countries, which captured the remaining 7 percent.

Table 2. Source of Value-Added in U.S. Manufactured Goods Imports from Mexico
Share of Total

	1995	1998	2000	2004	2008	2011
Total	100.0	100.0	100.0	100.0	100.0	100.0
NAFTA	86.2	84.2	82.7	74.3	72.2	73.2
United States	26.1	27.6	27.9	20.3	16.9	15.7
Canada	1.0	1.0	1.4	1.5	1.7	1.7
Mexico	59.1	55.5	53.4	52.6	53.6	55.8
Non-NAFTA	13.8	15.8	17.3	25.7	27.8	26.8
East and South East Asia	6.4	6.4	7.3	12.4	13.6	13.9
China	0.3	0.6	0.7	2.6	5.0	6.1
EU-28	5.1	6.0	5.9	7.7	7.5	6.6
South/Central America	0.6	0.9	1.0	1.7	1.8	1.7
Rest of World	1.8	2.5	3.2	3.8	4.8	4.6

Canada shows a similar pattern, as U.S.-produced value accounted for 15 percent of the value of U.S. imports of manufactured goods from Canada in 2011, down from a high of over 22 percent in 1998 (Table 3).⁸ As with Mexico, the U.S. accounted for most of the decrease in the share of NAFTA-produced value in U.S. imports, which fell from 88 percent to 79 percent. However, unlike with Mexico, China only captured one-quarter of the lost NAFTA share.

⁶ The share of U.S.-produced content in U.S. imports of manufactures globally has also declined over this period, but at a slower rate, from a high of 10 percent in 1998 to 6 percent in 2011.

⁷ Although the share of U.S. value in imports from Mexico decreased, the value of U.S. production returned in imports from Mexico more than doubled, rising from \$11.5 billion in 1995 to \$26.2 billion in 2011.

⁸ As with Mexico, although the share of U.S. value in imports from Canada decreased, the value of U.S. production returned in imports from Canada increased. The increase with Canada, however, was less pronounced, rising from \$22.2 billion in 1995 to \$28.3 billion in 2011.

Table 3. Source of Value-Added in U.S. Manufactured Goods Imports from Canada
Share of Total

	1995	1998	2000	2004	2008	2011
Total	100.0	100.0	100.0	100.0	100.0	100.0
NAFTA	87.9	86.9	85.1	83.8	80.6	79.2
United States	20.9	22.5	20.3	16.9	15.7	14.7
Canada	66.1	63.4	63.5	65.9	63.6	62.6
Mexico	0.9	1.1	1.2	1.1	1.3	1.9
Non-NAFTA	12.1	13.1	14.9	16.2	19.4	20.8
East and South East Asia	4.8	5.5	5.7	5.7	6.3	6.4
China	0.3	0.5	0.6	1.3	2.3	2.6
EU-28	4.6	4.8	5.1	5.7	5.9	5.6
South/Central America	0.3	0.4	0.4	0.7	1.1	2.2
Rest of World	2.4	2.4	3.7	4.1	6.2	6.5

Motor vehicles⁹

The share of NAFTA-produced value in U.S. motor vehicle imports from the world in 2011, 35 percent, is larger than the NAFTA-produced share for all manufactured goods, 22 percent (Table 4). The shares are also larger for each NAFTA country individually. However, the share of NAFTA-produced value in motor vehicle imports decreased faster between 1995 and 2011 than it did for all manufactured goods. This faster decline entirely reflects declining shares for Canadian and U.S. value, the share of Mexican-produced value having increased over this period.

The non-NAFTA share of value in U.S. motor vehicles imports grew from almost 54 percent in 1995 to 65 percent in 2011. This increase was due to increases in the shares of EU-28 and Rest of World. East and South East Asia's share was almost unchanged with the growth in Chinese and Korean shares being offset by a decline in Japan's share.

⁹ Includes the manufacture of motor vehicles, motor vehicle bodies, motor vehicle parts and accessories, and trailers and semi-trailers.

**Table 4. Source of Value-Added in Total U.S. Imports of Motor Vehicles
Share of Total**

	1995	1998	2000	2004	2008	2011
Total	100.0	100.0	100.0	100.0	100.0	100.0
NAFTA	46.4	47.4	44.8	38.2	32.9	34.8
United States	18.7	20.2	17.8	13.7	11.4	11.7
Canada	20.3	18.4	17.7	16.3	10.8	10.1
Mexico	7.4	8.9	9.3	8.2	10.7	13.1
Non-NAFTA	53.6	52.6	55.2	61.8	67.1	65.2
East and South East Asia	33.8	28.3	31.0	32.0	35.4	34.1
China	0.6	0.9	1.1	2.8	5.7	7.3
EU-28	16.7	19.8	19.1	23.5	22.5	21.7
South/Central America	2.2	2.6	2.8	3.1	2.4	2.2
Rest of World	0.9	1.9	2.4	3.3	6.8	7.2

Turning to bilateral U.S imports of motor vehicles, NAFTA's share of the value-added in U.S. imports of motor vehicles from Mexico declined from almost 87 percent in 1995 to under 71 percent in 2011 (Table 5). Decreases in the share of value originating both in the U.S. and Mexico contributed equally to this decline; the share of returned U.S. value in motor vehicle imports from Mexico declined by eight percentage points while share of the value in those imports originating in Mexico fell by nine percentage points.

The decline in the share of the contribution of Mexican value in U.S. imports from Mexico stands in contrast to the growth in the share of Mexican value in total U.S. imports of motor vehicles from the world over the time period. The overall growth during the relevant period of the share of Mexican value in U.S. imports despite the decreasing share of Mexican value in U.S. imports from Mexico reflects two trends. First, Mexican value accounts for a greater share of the value of U.S. imports of vehicles from 3rd countries in 2011 than it did in 1995. In particular, Mexico's share of the value-added in U.S. motor vehicle imports from Canada, the largest single source of motor vehicles imported into the U.S., more than doubled over the time period. Second, Mexico has captured a larger share of the gross value of U.S. motor vehicle imports, partially offsetting the decrease in the share of Mexican value in embodied in those imports.

Table 5. Source of Value-Added in U.S. Motor Vehicles Imports from Mexico
Share of Total

	1995	1998	2000	2004	2008	2011
Total	100.0	100.0	100.0	100.0	100.0	100.0
NAFTA	86.8	84.2	82.7	76.2	72.5	70.5
United States	26.5	30.2	29.6	23.1	18.3	18.1
Canada	1.1	1.3	1.8	1.9	2.1	2.0
Mexico	59.2	52.7	51.2	51.2	52.2	50.4
Non-NAFTA	13.2	15.8	17.3	23.8	27.5	29.5
East and South East Asia	5.5	5.6	6.5	9.2	11.6	14.4
China	0.3	0.5	0.6	1.9	4.1	5.8
EU-28	5.4	6.7	6.5	8.5	8.8	8.3
South/Central America	0.5	0.9	0.9	1.2	1.9	1.8
Rest of World	2.5	3.7	4.2	5.1	7.3	7.6

The non-NAFTA share of the value of U.S. motor vehicle imports from Mexico more than doubled over this period, growing from 13 percent in 1995 to over 29 percent in 2011. This increase is largely due to increased East Asian, particularly Chinese, value embodied in imports from Mexico, but also reflects increased value from the EU-28 and Rest of World.

The story of the sources of value-added in U.S. imports of motor vehicles from Canada is similar to that of Mexico: a decline in the NAFTA share of the value-added of those imports and an increase in the non-NAFTA value-added (Table 6). However, the increase in non-NAFTA share was spread more evenly between non-NAFTA countries than was seen with Mexico.

Table 6. Source of Value-Added in U.S. Motor Vehicles Imports from Canada
Share of Total

	1995	1998	2000	2004	2008	2011
Total	100.0	100.0	100.0	100.0	100.0	100.0
NAFTA	84.0	83.3	82.5	78.4	72.7	71.2
United States	34.9	36.2	32.4	28.0	27.4	26.4
Canada	47.3	45.1	47.9	48.3	42.3	40.2
Mexico	1.8	1.9	2.2	2.1	3.1	4.7
Non-NAFTA	16.0	16.7	17.5	21.6	27.3	28.8
East and South East Asia	8.1	8.0	8.5	9.9	13.2	14.0
China	0.3	0.6	0.6	1.8	3.5	4.4
EU-28	5.5	6.0	5.8	7.4	8.0	8.3
South/Central America	0.3	0.4	0.4	0.8	1.2	1.6
Rest of World	2.1	2.4	2.8	3.5	4.8	4.9

Basic Metals¹⁰

As with motor vehicles, the share of NAFTA value in U.S. imports of basic metals, 38 percent in 2011, exceeded the share in total manufactured goods (Table 7). However, unlike motor vehicles or total manufactures, NAFTA's share of the value embodied in total U.S. imports of basic metals increased from 33 percent in 1995 to 38 percent in 2011. The increase was the result of a doubling of the share of Mexican value-added from 6 percent to over 12 percent while shares of Canadian value and returned U.S. value remained largely stable.

The non-NAFTA share of basic metals imports declined from over 67 percent in 1995 to just over 62 percent in 2011. This decline was due to decreases in the shares accounted for by the EU-28 and by East and South East Asia, where growth in the share accounted for by China was more than offset by a decline in the share of Japanese value. The share accounted for by South and Central America grew by 6 percentage points, led by a 2 percentage point increase in Colombian share.

Table 7. Source of Value-Added in Total U.S. Imports of Basic Metals
Share of Total

	1995	1998	2000	2004	2008	2011
Total	100.0	100.0	100.0	100.0	100.0	100.0
NAFTA	32.5	25.7	27.0	27.0	29.6	37.9
United States	5.4	5.0	5.2	4.1	4.6	5.0
Canada	20.9	15.0	17.1	17.1	18.8	20.4
Mexico	6.2	5.6	4.7	5.9	6.2	12.5
Non-NAFTA	67.5	74.3	73.0	73.0	70.4	62.1
East and South East Asia	13.4	17.2	13.2	12.5	16.8	11.7
China	1.3	2.3	2.4	4.3	8.9	4.4
EU-28	25.0	22.1	21.5	19.1	15.7	13.8
South/Central America	5.9	6.4	8.0	9.6	10.0	12.2
Rest of World	23.2	28.5	30.3	31.7	28.0	24.5

Looking at bilateral trade, NAFTA's share of the value embodied in U.S. imports of basic metals from Mexico was virtually flat between 1995 and 2011 (Table 8). Among non-NAFTA sources of value in imports from Mexico, the slight increase in share was accounted for by small increases in the shares of value originating in China and the Rest of World, offset somewhat by a decline in the EU-28 share.

¹⁰ Includes the manufacture and casting of ferrous and non-ferrous metals.

Table 8. Source of Value-Added in U.S. Basic Metals Imports from Mexico
Share of Total

	1995	1998	2000	2004	2008	2011
Total	100.0	100.0	100.0	100.0	100.0	100.0
NAFTA	92.1	86.8	85.7	85.6	87.9	91.3
United States	12.0	11.3	12.7	10.1	8.3	6.8
Canada	0.7	0.8	1.4	1.6	1.3	1.1
Mexico	79.4	74.7	71.6	74.0	78.3	83.4
Non-NAFTA	7.9	13.2	14.3	14.4	12.1	8.7
East and South East Asia	1.7	2.8	3.0	3.0	2.6	2.4
China	0.1	0.4	0.5	0.7	1.0	1.1
EU-28	3.3	4.2	3.5	4.3	3.2	2.2
South/Central America	0.9	2.3	2.3	2.3	1.7	1.1
Rest of World	2.1	3.9	5.5	4.8	4.6	3.0

In contrast to imports from Mexico, NAFTA's share of the value embodied in U.S. imports from Canada declined from over 88 percent in 1995 to 74 percent in 2011 (Table 9). The decline was largely fueled by a decline in the Canadian value embodied in those imports from 77 percent to 63 percent. East and South East Asia's share grew by 1.6 percentage points largely due to an increase in the Chinese share of value from 0.2 percent to 1.7 percent.

Table 9. Source of Value-Added in U.S. Basic Metals Imports from Canada
Share of Total

	1995	1998	2000	2004	2008	2011
Total	100.0	100.0	100.0	100.0	100.0	100.0
NAFTA	88.5	87.7	84.4	82.5	78.4	73.8
United States	11.4	12.5	12.0	9.3	10.0	9.5
Canada	76.7	74.7	71.7	72.7	67.5	62.6
Mexico	0.4	0.5	0.6	0.6	0.9	1.7
Non-NAFTA	11.5	12.3	15.6	17.5	21.6	26.2
East and South East Asia	2.1	2.6	2.9	2.8	3.7	3.7
China	0.2	0.3	0.5	1.0	1.9	1.7
EU-28	4.6	4.8	5.3	5.1	5.0	5.2
South/Central America	0.4	0.5	0.6	1.3	2.2	5.3
Rest of World	4.4	4.4	6.9	8.3	10.7	12.1

Concluding Remarks

Analysis of OECD's trade in value-added data shows NAFTA's share of the value-added contained in U.S. manufactured imports declined between 1995 and 2011. In particular the share of U.S.-produced

content in bilateral manufactured imports from Mexico and Canada eroded significantly over the time period.

This pattern of eroding U.S. share of value-added is also seen in bilateral imports of motor vehicles and basic metals, although the rate of fall in basic metals was slower than that seen in manufactured goods as a whole or motor vehicles.