

Policy Analysis Focus 24-14
Economic Impact of US Tariff Hikes by Sector¹

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I. Introduction

On February 11 United States (US) President Trump signed a proclamation to hike tariffs on US imports of steel and aluminum from all economies in the world by 25%. Moreover, on February 14 President Trump announced his intention to impose a world-wide 25% tariff on imports of motor vehicles. He has also expressed his concerns regarding the impact on trade of non-tariff measures (NTMs) for motor vehicles.²

This article quantitatively investigates the economic impact of US sectoral tariff hikes by means of simulation studies using a computable general equilibrium (CGE) model of global trade.³

II. Macroeconomic impact

Estimated real GDP impact of an additional 25% US sectoral tariff on imports from all economies in the world is shown in Table 1. US real GDP is estimated to decrease under almost all sectoral tariff hikes. The real GDP decrease resulting from tariff hikes on

¹ This is a supplementary report to Kawasaki (2024), “Economic Impact of Further US Tariff Hikes,” GRIPS Discussion Paper 24-12, GRIPS, December 2024. The views expressed in this article are the author’s own and do not represent those of GRIPS Alliance or other organizations to which the author belongs.

² It is observed in Kawasaki (2023), “Spillover Effects of NTM Reduction,” Policy Analysis Focus 23-5 that the world average ad valorem equivalent (AVE) of NTMs (around 2.7%) as of 2017 would not be much higher than the world average tariff rate (around 2.3%), but their various features would appear by economy and by sector, e.g., auto tariff rate of zero in Japan, but Japan’s AVE of NTMs is estimated to be 11.1% for motor vehicles and parts.

³ The framework of model simulations remains unchanged from that in Kawasaki (2024). The Global Trade Analysis Project (GTAP) 7 model (based on GTAP 11c Data Base) is solved using GEMPACK software referred to in Horridge, Jerie, Mustakinov & Schiffmann (2018), GEMPACK Manual, ISBN 978-1-921654-34-3, incorporating dynamic effects of capital and labor. The baseline data for GDP and population are updated to those for 2025 based on the World Economic Outlook (WEO) Database, October 2024, International Monetary Fund (IMF).

Table 1 Impact on real GDP

	AFF	MNG	PFD	TXL	OMF	CHM	MTL	MVH	ELE	OME
Australia	0.00	0.04	-0.07	-0.01	-0.10	-0.03	-0.07	-0.02	-0.05	-0.09
New Zealand	0.01	0.28	-0.18	-0.02	-0.12	-0.01	-0.02	0.04	0.05	-0.03
China	0.00	0.35	-0.01	-0.05	-0.10	-0.02	0.07	0.06	-0.02	-0.05
Japan	-0.01	0.39	-0.04	-0.01	-0.05	-0.06	0.04	-0.08	0.05	-0.13
Korea	-0.02	0.41	-0.02	-0.02	-0.01	-0.05	0.05	-0.01	-0.11	0.00
Chinese Taipei	-0.01	0.37	-0.04	-0.04	-0.09	-0.09	-0.06	0.01	-0.34	-0.16
ASEAN	0.00	0.46	-0.01	-0.11	-0.07	-0.03	0.07	0.09	-0.18	-0.04
India	0.01	0.38	0.00	-0.02	-0.11	-0.09	0.06	0.08	0.15	0.10
US	-0.04	-1.18	0.02	-0.04	-0.12	-0.26	-0.21	-0.54	-1.00	-0.85
Canada	-0.03	0.01	-0.26	-0.06	-0.35	-0.60	-0.33	-0.57	-0.23	-0.51
Mexico	0.06	-0.53	-0.58	-0.35	-1.23	-0.89	-0.73	-2.13	-0.99	-3.39
Russia	0.00	0.37	-0.04	-0.01	-0.06	-0.02	-0.11	0.07	0.10	0.05
EU	0.00	0.43	-0.05	-0.03	-0.12	-0.11	0.01	0.02	0.06	-0.05
UK	0.00	0.18	-0.03	-0.01	-0.07	-0.10	-0.02	-0.01	0.02	-0.06
Central/South America	0.01	0.15	-0.09	-0.06	-0.11	-0.11	-0.11	0.01	0.03	-0.04
World	-0.01	-0.07	-0.03	-0.04	-0.13	-0.14	-0.06	-0.16	-0.27	-0.31

Note: Abbreviations are as follows: AFF: agriculture, forestry and fisheries; MNG: mining;

PFD: processed foods; TXL: textiles and apparel; OMF: other light manufacturing;

CHM: chemical products; MTL: metals; MVH: motor vehicles and parts;

ELE: electronic products; OME: other machinery and equipment

Source: Author's simulations.

motor vehicles and parts (-0.54%) is suggested to be larger than that of tariff hikes on metals (-0.21%). Moreover, tariff hikes on electronic products and other machinery and equipment alongside mining are estimated to decrease real GDP more than tariff hikes on motor vehicles and parts.

Real GDP decreases in Canada and Mexico would be larger than in other economies. Meanwhile, real GDP increases from tariff hikes on electronic products and other machinery and equipment alongside motor vehicles and parts would generally be larger than those from tariff hikes on other sectors in Canada and Mexico. World real GDP is estimated to decrease more as a result of tariff hikes in the above three machinery sectors than of tariff hikes in other sectors.

The impact on real GDP would be smaller in other economies than in North America. That said, differences would appear among the impacts of tariff hikes on various sectors. Real GDP decreases resulting from tariff hikes on metals would be large in Australia, Russia and Central and South America, and decreases from hikes on motor vehicles and parts⁴ and other machinery would be large in Japan. Meanwhile, it is

⁴ If the US imposed an additional 25% tariff on imports of motor vehicles and parts from Japan

estimated that real GDP decreases resulting from tariff hikes on textiles and apparel and other light manufacturing would be large for China; decreases due to electronic products tariff hikes would be large for Chinese Taipei and the Association of Southeast Asian Nations (ASEAN); and decreases due to tariff hikes on chemical products would be large for the European Union (EU) and the United Kingdom (UK).

III. Impact by industry

The impact of trade policy including US tariff hikes would be larger at the sector level than at the macro level. The estimated impact of US sectoral tariff hikes on production, by targeted industry, is shown in Table 2. World production would decrease more in textiles and apparel, motor vehicles and parts, and electronic products than in other industries.

US tariff hikes on all sectors are estimated to increase US production of each targeted industry with larger production increases in textiles and apparel and electronic products industries than those in metals and motor vehicles and parts industries resulting from sectoral tariff hikes. On the other hand, in Canada and Mexico production would largely decrease in motor vehicles and parts, electronic products and other machinery and

Table 2 Impact on production by sector

	AFF	MNG	PFD	TXL	OMF	CHM	MTL	MVH	ELE	OME
Australia	0.0	-0.2	-1.6	-0.9	-1.8	-0.4	0.7	-0.1	-1.6	-0.5
New Zealand	-0.1	-0.2	-1.9	-1.1	-2.2	-0.6	-0.5	0.2	-1.9	-1.3
China	0.0	-0.2	-0.2	-2.9	-4.3	-0.7	-0.3	-0.7	-5.8	-1.4
Japan	0.1	-0.4	-0.2	-1.6	-1.2	-1.2	-0.6	-5.8	-2.7	-2.8
Korea	0.0	-0.4	-0.4	-2.4	-1.2	-1.4	-1.2	-6.0	-2.7	-2.1
Chinese Taipei	0.0	-0.3	-0.7	-3.4	-5.3	-1.7	-3.4	-3.9	-3.1	-4.5
ASEAN	0.0	-0.2	-0.7	-6.2	-4.3	-1.3	-0.7	-0.2	-3.7	-3.4
India	1.2	1.5	2.9	33.8	9.9	7.4	8.5	11.7	26.3	15.1
US	-2.2	-0.9	-8.9	-15.5	-14.6	-12.8	-14.5	-26.6	-15.5	-16.6
Canada	-1.9	-0.4	-5.3	-12.3	-19.9	-6.0	-9.8	-20.3	-25.4	-29.6
Mexico	0.0	-0.1	-0.2	-0.4	-0.2	-1.5	-2.1	0.3	0.3	0.2
Russia	0.0	-0.2	-0.5	-1.7	-6.8	-1.7	-0.4	-0.3	-1.0	-1.0
EU	0.0	-0.2	-0.8	-1.5	-2.1	-2.3	-0.8	-1.8	-2.3	-2.0
UK	-0.1	-0.2	-1.0	-1.7	-3.0	-3.3	-1.3	-4.4	-3.3	-4.3
Central/South America	-0.4	-0.3	-0.8	-3.5	-1.8	-0.9	-3.3	0.1	-0.5	-1.3
World	0.0	0.0	-0.1	-1.5	-0.4	-0.3	0.2	-0.8	-1.4	-0.1

Note: See abbreviation for footnote Table 1.

Source: Author's simulations.

alone, it is estimated that Japan's motor vehicles and parts production would decrease by 13.9% and Japan's real GDP would decrease by 0.34%.

equipment.

In other economies, it is estimated that metals production would largely decrease in Central and South America, and motor vehicles and parts production would largely decrease in Japan, Korea and the United Kingdom (UK). Meanwhile, it is estimated that production of processed foods in Australia and New Zealand, of textiles and apparel in ASEAN, of chemical products in the EU and the UK, and of electronic products in China would largely decrease.

US tariff hikes would affect the production of other industries⁵ alongside that of targeted sectors. It is estimated that the production of industries aside from tariff hiked sectors would generally decrease in the US due to rising production costs. Multi-sector models including CGE models would be advised for the study of spillover effects of tariff hikes from one industry to other industries through examination of the input-output structures of industries.

IV. Concluding remarks

The adverse impact of US tariff hikes on motor vehicles would be larger than that on steel and aluminum. If US tariff hikes were applied to other sectors, adverse impact would be larger in a few industries. That impact of those US tariff hikes by industry would vary by economy. Meanwhile, across the range of economies on which the US imposed tariffs, macroeconomic impact would vary by economy alongside impact by industry. It is expected that trade policy making would best be based on quantitative policy analysis using appropriate economic models.

⁵ Estimated results in detail are available upon request to the author, where appropriate.