

The SMU Trade Dashboard: Tracking and Quantifying the Trump II Tariffs*

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Abstract

The SMU **Trade Dashboard** (<https://economics.smu.edu.sg/soetrade/trade-dashboard>), developed by the SMU Center for Research on International Trade, consists of Tariff Tracker and Trade Simulation functions. The Tariff Tracker allows users to track the tariff applicable to an HS 6-digit product or an ISIC 2-digit sector by markets and country origins. The Trade Simulation presents quantitative simulation results of the effects of Trump II tariffs (and the associated tariff responses by its trading partners) on trade flows, welfare, and wages. This companion paper documents the methodologies underlying the tariff data collection protocol and the structural simulation designs.

Keywords: Trump II Tariffs; Trade Effects; Wage Effects; Welfare Effects

JEL Classification: F13; F14; F15

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1 Introduction

This companion paper documents the methodologies underlying the Tariff Tracker and Trade Simulation functions of the SMU **Trade Dashboard** (<https://economics.smu.edu.sg/soetrade/trade-dashboard>).

The information on the U.S. tariff changes from January 1, 2025 onward is collected from the executive orders (EOs) and Proclamations (Proc) published in the U.S. *Federal Register* in PDF format. Each relevant EO and Proc were analyzed to extract structured information about tariff changes, and combined with baseline tariffs from TRAINS to track the applicable tariff rates at the exporter-importer-product (HS 6-digit) level for each date from January 1, 2025 onwards. With groundtruth on tariff changes established by human expertise for the EOs issued in 2025, we develop an AI-assisted parsing pipeline for EOs issued from 2026 onward, as well as for all relevant proclamations. Going forward, the AI-assisted approach will serve as the primary method for converting new executive orders and proclamations into structured data, with human review providing quality assurance before records are incorporated into the tariff tracker. Further details on the Tariff Tracker and its contents are provided in Appendix A.

We then use the quantitative framework of [Caliendo and Parro \(2015\)](#) to simulate the impacts of the Trump II tariffs on trade flows, welfare, and factor income. The framework allows for any number of countries and sectors, featuring input-output (IO) linkages, trade in intermediate goods, and sectoral heterogeneity in production, with market-clearing conditions in general equilibrium. The baseline model is calibrated to the latest pre-2025 edition of the inter-country input-output (ICIO) tables, based on either the OECD ICIO Tables or the ADB MRIO Tables. We simulate the counterfactual equilibrium for each date a new EO (or Proc) tariff measure takes effect, and identify the equilibrium impact of the tariff change by comparing the resulting counterfactual economy to the pre-change baseline economy. Further details on the model structure, calibration of model parameters, and simulation designs are provided in Sections 2–5.

2 Quantitative Model

The quantitative model follows that of [Caliendo and Parro \(2015\)](#), featuring a multi-country, multi-sector framework with input-output (IO) linkages, trade in intermediate goods, and sectoral heterogeneity in production. Each sector uses labor and composite intermediate goods from all sectors according to Cobb-Douglas technology, implying that cost and price changes propagate through the IO network. Countries are indexed by i and j , and sectors

by k and l . In any pair of country indices, the first index denotes the exporting country and the second denotes the importing country. Similarly, in any pair of sector indices, the first index refers to the originating sector and the second the destination sector.

Define $\hat{x} \equiv x'/x$ as the ratio of the counterfactual value relative to the factual value of a variable x . Let $\tau_{ij,k} \equiv (1 + \mathfrak{t}_{ij,k})$ denote one plus the ad valorem tariff rate in sector k that importer j levies on exporter i . Consider a counterfactual tariff structure $\tau' \equiv \{1 + \mathfrak{t}_{ij,k}'\}_{ij,k}$ and the corresponding counterfactual equilibrium, relative to that under the factual tariff structure $\tau \equiv \{1 + \mathfrak{t}_{ij,k}\}_{ij,k}$. The following specifies how the endogenous variables change in response to the tariff changes.

Cost of the input bundles. Given the Cobb-Douglas production technology, the relative change in the unit cost of sector k in country j is given by:

$$\hat{c}_{j,k} = \hat{w}_j^{\gamma_{j,k}} \prod_l \hat{P}_{j,l}^{\gamma_{j,lk}}, \quad (1)$$

where $c_{j,k}$ denotes the unit cost of production in sector k in country j ; w_j is the wage rate in country j ; $P_{j,l}$ the price index for the composite intermediate good of sector l in country j ; $\gamma_{j,k}$ is the ratio of value added to gross output in sector k of country j ; and $\gamma_{j,lk}$ is the cost share of sector k 's spending on goods from sector l as intermediate inputs in country j . Note that $\sum_l \gamma_{j,lk} = 1 - \gamma_{j,k}$, given that the production follows a Cobb-Douglas technology with constant returns to scale using labour and materials from all sectors as intermediate inputs.

Price index. The composite intermediate good of each sector is a CES (constant-elasticity-of-substitution) aggregator of a continuum of intermediate goods sourced from the lowest-cost suppliers across countries. Given Fréchet distributions for productivity with a shape parameter θ_k for sector k (and a location parameter that can possibly vary across countries and sectors), the relative change in the price index for the composite intermediate good of sector k in country j is given by:

$$\hat{P}_{j,k} = \left[\sum_i \pi_{ij,k} (\hat{c}_{i,k} \hat{\tau}_{ij,k})^{-\theta_k} \right]^{-1/\theta_k}, \quad (2)$$

where $\pi_{ij,k}$ is the share of country j 's expenditure on goods from country i in sector k .

Bilateral trade shares. The relative change in bilateral trade shares is given by:

$$\hat{\pi}_{ij,k} = \left[\frac{\hat{c}_{i,k} \hat{\tau}_{ij,k}}{\hat{P}_{j,k}} \right]^{-\theta_k}, \quad (3)$$

where the productivity dispersion parameter θ_k also translates into the trade elasticity of sector k .

Total sectoral expenditure. The counterfactual expenditure on goods is given by:

$$X'_{j,k} = \sum_l \gamma_{j,kl} \sum_i \frac{\pi'_{ji,l}}{1 + \mathbf{t}'_{ji,l}} X'_{i,l} + \alpha_{j,k} I'_j, \quad (4)$$

where $X_{j,k}$ refers to country j 's aggregate expenditure on goods of sector k , including intermediate and final demand; $\alpha_{j,k}$ is the share of country j 's final consumption expenditure on goods from sector k ; and I_j refers to the final absorption of country j , which is given by the sum of labour income, tariff revenues, and trade deficit.

Disposable Income. Specifically, the counterfactual disposable income is given by:

$$I'_j = \hat{w}_j w_j L_j + \sum_k \sum_i \mathbf{t}'_{ij,k} \frac{\pi'_{ij,k}}{1 + \mathbf{t}'_{ij,k}} X'_{j,k} + D'_j. \quad (5)$$

Trade Deficit. We assume that a country's trade deficit is a fixed share δ_j of the world gross output, which implies that:

$$D'_j = \delta_j \sum_{j'} \sum_k \sum_i \frac{\pi'_{ij',k}}{1 + \mathbf{t}'_{ij',k}} X'_{j',k}. \quad (6)$$

The share δ_j is the observed trade deficit of country j relative to the world gross output in the baseline economy.

Trade Balance. The model is closed by the trade balance condition:

$$\sum_k \sum_i \frac{\pi'_{ij,k}}{1 + \mathbf{t}'_{ij,k}} X'_{j,k} - D'_j = \sum_k \sum_i \frac{\pi'_{ji,k}}{1 + \mathbf{t}'_{ji,k}} X'_{i,k}. \quad (7)$$

where country j 's import expenditure, net of trade deficit, equals its export revenues.

Welfare. Finally, the relative change in the welfare of country j can be written as:

$$\widehat{W}_j = \frac{\hat{I}_j}{\prod_k \hat{P}_{j,k}^{\alpha_{j,k}}}. \quad (8)$$

Table 1 summarizes the definitions of the parameters and variables calibrated for the quantitative analyses.

3 Mapping the Model to Data

We obtain production and bilateral trade data (in intermediate and final goods) from the OECD-WTO Inter-Country Input-Output (ICIO) tables (OECD, 2025). The 2025 edition records production and trade flows for 80 economies (and a residual Rest of the World) in 50 sectors (based on ISIC Rev.4) for years 1995–2022.

We follow the sector grouping of Beshkar, Chang and Song (2025); in particular, service sectors are grouped into one combined sector. We also consider countries in the European Union (EU) as one combined entity in setting trade policy. This amounts to a total of 23 individual sectors (including the combined service sectors) and 55 economies/regions to be used in the equilibrium analysis. Tables 2 and 3 provide the list of economies and sectors used in the study.

The data on baseline tariffs for 2022 and 2023 are sourced from the TRAINS database, downloaded via the World Integrated Trade Solution (WITS) interface. Data on U.S. import tariffs effective from January 1, 2025, onward are manually collected from the executive orders (EOs) and proclamations (Proc) published in the *U.S. Federal Register*. Further details on the compilation of the baseline tariffs and the Trump II tariffs are provided in Appendix A.

We adopt the trade elasticity estimates of Beshkar, Chang and Song (2025) for non-service sectors, as reported in Table 3. For the combined service sector, we set the trade elasticity to 6. This choice is in line with the median estimates for service sectors reported by Ahmad and Schreiber (2024) and Freeman et al. (2025).

4 Simulation Design

We evaluate the effects of recent shifts in U.S. trade policy and the subsequent tariff responses by Cambodia, Canada, China, India, Mexico, the United Kingdom, and Zimbabwe,¹ using the quantitative framework laid out in Section 2. The simulation quantifies how unilateral U.S. tariff changes and subsequent tariff responses by the aforementioned trading partners in each episode of tariff escalation or de-escalation from 2025 onward affect international trade flows, factor incomes, and welfare.

Due to data limitation, as the latest OECD ICIO tables are available only up to 2022, we use the trade and production structure of the world economy in 2022 as the baseline. The baseline tariffs for 2022 are measured by the effectively applied tariff rates reported in TRAINS. Because TRAINS does not report Zimbabwe’s tariffs as an importer for 2022,

¹The list of countries may expand as developments unfold.

we use its 2023 tariff schedule instead to maintain consistent importer-exporter-product coverage.

The information on the U.S. tariff changes from January 1, 2025 onward is manually collected from the executive orders (EOs) and Proclamations (Proc) published in the *U.S. Federal Register*. Each EO (Proc) specifies both the publication date and the effective date of the tariff changes. Throughout the exercises, all dates refer to the tariff *effective* dates. Tariff responses by Cambodia, Canada, China, India, Mexico, the United Kingdom, and Zimbabwe are sourced from the WTO–IMF tariff tracker, with all reported tariff change dates referring to effective dates ([World Trade Organization, 2025a](#)).

Due to another data limitation, as the TRAINS tariff data are available only up to 2023, we use TRAINS 2023 tariff data and the data collected above on the tariff changes to construct the current tariff rate for each effective date. For the subset of importing countries that were tracked by the WTO–IMF tariff tracker, we utilize the tariff information provided therein for January 1, 2025 (instead of the 2023 TRAINS tariff data) together with the tariff changes collected above (since January 1, 2025) to construct the current tariff rate for each effective date. The WTO Tariff Profiles indicate that tariff structures for both agricultural and non-agricultural goods changed very little from 2023 to 2024 ([World Trade Organization, 2024, 2025b](#)).

To conduct the simulation of tariff effects on trade and production, we aggregate the product-level tariff data to the ISIC Rev.4 2-digit level, aligning the tariff measures with the sectoral structure of the OECD ICIO tables. The U.S. tariff changes specified in the EOs (Proc) are reported at the HTS 7-digit to 10-digit level. We truncate these codes to the first six digits, which correspond to HS 6-digit product codes ([United States International Trade Commission, 2025](#)). Because the TRAINS database reports only goods that are actually traded, HS 6-digit records appear only for country-pair-product observations with positive trade flows. Using concordance tables from WITS and the United Nations, we map HS 6-digit codes to ISIC Rev.4 2-digit industries and compute trade-weighted tariffs at the ISIC Rev.4 2-digit level. For country-pair-products with no reported HS 6-digit trade, we assign zero trade values when aggregating tariffs from the HS 6-digit level to the ISIC Rev.4 2-digit level. Further details are provided in Appendix [A](#).

We start the quantitative analysis by conducting two counterfactual simulations:

1. 2023 vs. 2022: This simulation evaluates the effects of any tariff changes in 2023, relative to the baseline tariff of 2022.
2. effective date vs. 2022: This simulation evaluates the effects of the tariff changes as of the effective date (based on the U.S. EOs, Proclamations, and the tariff responses by

its trading partners as of the specified date), relative to the baseline tariff of 2022.

In both simulations, the 2022 trade and production structure is used as the baseline with the structural parameters calibrated according to Table 1. By taking the ratio of the simulated outcomes for effective dates of 2025 (or later) relative to 2022 and for 2023 relative to 2022, we net out the effects of tariff changes between 2022 and 2023, thereby isolating the effects of the Trump II tariffs (and the associated tariff responses by its trading partners) on trade, welfare, and nominal wages.

5 Alternative ICIO Tables

In a parallel set of simulations, we conduct the analysis based on the ADB MRIO (Multi-regional Input-Output) tables.² The 2025 edition records production and trade flows for 74 economies (and a residual Rest of the World) in 35 sectors (based on ISIC Rev.3.1), available for years 2022–2024.

We group service sectors into one combined sector, and countries in the European Union (EU) as one combined entity in setting trade policy. This amounts to a total of 18 individual sectors (including the combined service sectors) and 49 economies/regions used in the equilibrium analysis. Tables 4 and 5 provide the MRIO list of economies and sectors used in the study. We conduct trade elasticity estimations for the MRIO list of sectors following the approach of [Caliendo and Parro \(2015\)](#). The estimates are reported in Table 5.

In this alternative setup, we use the MRIO trade and production structure in 2024 as the baseline, and the same tariff data as compiled in Section 3. As the TRAINS tariff data are latest available for 2023, the TRAINS 2023 tariffs are used for the baseline economy in 2024. The current tariff rates for each effective date since January 1, 2025, are the same as those used in Section 4.

To conduct the simulation of tariff effects on trade and production, we aggregate the product-level tariff data to the ISIC Rev.3.1 2-digit level, aligning the tariff measures with the sectoral structure of the ADB MRIO tables. The U.S. tariff changes specified in the EOs (Proc) are reported at the HTS 7-digit to 10-digit level. We truncate these codes to the first six digits, which correspond to HS 6-digit product codes ([United States International Trade Commission, 2025](#)). Using concordance tables from WITS and the United Nations, we map HS 6-digit codes to ISIC Rev.3.1 2-digit industries and compute trade-weighted tariffs at the ISIC Rev.3.1 2-digit level, following procedures similar to those described in Appendix A.³

²<https://kidb.adb.org/globalization/current>.

³In this alternative, the chain of concordances is shortened to: HS 6-digit (p) \rightarrow ISIC Rev.2 4-digit (r) \rightarrow ISIC Rev.3.1 4-digit (s) \rightarrow ISIC Rev.3.1 2-digits (κ), where r , s , and κ denote the corresponding unit of

We conduct the quantitative analysis by evaluating the effects of the tariff changes as of an effective date (based on the U.S. EOs, Proclamations, and the tariff responses by its trading partners as of the specified date), relative to the baseline tariff of 2024. In the simulations, the 2024 trade and production structure is used as the baseline, with the structural parameters calibrated in the same way as specified in Table 1. The simulated outcomes for effective dates of 2025 (or later) relative to 2024 reflect the effects of the Trump II tariffs (and the associated tariff responses by its trading partners) on trade, welfare, and nominal wages.

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classification. For example, κ indexes an ISIC Rev.3.1 2-digit sector.

– , “World Tariff Profiles 2025,” World Trade Organization 2025. https://www.wto.org/english/res_e/publications_e/world_tariff_profiles25_e.htm.

A Tariff Tracker

This appendix documents in detail the compilation of the tariff and trade data underlying the “Tariff Tracker” user interface, which reports the effective tariffs, affected trade values, and the shares of affected trade values and tariff lines at both the HS 6-digit and ISIC Rev.4 2-digit levels. The tariff tracker covers the changes in U.S. tariffs and tariff responses by its trading partners.

The data on baseline tariffs for 2022 and 2023 at the HS 6-digit level are sourced from the TRAINS database and downloaded via the World Integrated Trade Solution (WITS) interface. Specifically, we use the series of effectively applied tariff rates reported in TRAINS. The same source also provides trade values at the corresponding tariff-line level.

The data on U.S. import tariffs effective from January 1, 2025, onward are manually collected from the executive orders (EOs) and Proclamations (Proc) published in the *U.S. Federal Register*. Each EO (Proc) specifies both the publication date and the effective date of the tariff changes. Throughout the exercises, all dates refer to the tariff *effective* dates. Tariff responses by Cambodia, Canada, China, India, Mexico, the United Kingdom, and Zimbabwe are sourced from the WTO–IMF tariff tracker, with all reported tariff change dates referring to effective dates (World Trade Organization, 2025a).

The U.S. tariff changes specified in the EOs (Proc) are reported at the HTS 7-digit to 10-digit level. We truncate these codes to the first six digits, which correspond to HS 6-digit product codes (United States International Trade Commission, 2025). Using concordance tables from WITS and the United Nations, we map HS 6-digit codes to ISIC Rev.4 2-digit industries and compute trade-weighted tariffs at the ISIC Rev.4 2-digit level. For country-pair-products with no reported trade, we assign zero trade values when aggregating tariffs from the HS 6-digit level to the ISIC Rev.4 2-digit level. The following documents the specific methodologies used to compute the tariff rates and affected trade values (shares) reported on the “Tariff Tracker” user interface.

A.1 Tariffs and affected trade values (shares) at the HS 6-digit and ISIC Rev.4 2-digit levels

Denote the tariff rate and trade value of an HS 6-digit product (p) for an exporter i and an importer j at time t by t_{ijpt} and X_{ijpt} , respectively. They are expressed in percentage

points and in 1,000 USD, respectively. Let d_{ijpt} be an indicator variable that equals one if the exporter-importer-product ijp is subject to the announced tariff changes up to time t , and zero otherwise. Equivalently, d_{ijpt} corresponds to the share of trade value or tariff lines affected by the announced tariff changes at the $ijpt$ level. Thus, at the HS 6-digit level, the reported trade incidence and tariff-line incidence measures are either zero or 100%.

We then apply the following chain of concordances to map HS 6-digit codes to ISIC Rev.4 2-digit sectors (because there is no direct concordance table between the two classifications): HS 6-digit (p) \rightarrow ISIC Rev.2 4-digit (r) \rightarrow ISIC Rev.3.1 4-digit (s) \rightarrow ISIC Rev.4 4-digits (ℓ) \rightarrow ISIC Rev.4 2-digits (k), where r , s , ℓ , and k denote the corresponding unit of classification. For example, k indexes an ISIC Rev.4 2-digit sector. The chain weight from an HS 6-digit product p to an ISIC Rev.4 4-digit industry ℓ can be derived as:

$$\omega_{p\ell}^{\text{chain}} \equiv \sum_{r,s} \omega_{pr} \omega_{rs} \omega_{s\ell}, \quad (9)$$

where ω_{pr} indicates the distribution share of a product p to an industry r . In the data, the mapping from p to r is 1-to-1, so ω_{pr} is either equal to 1 or 0. Similarly, ω_{rs} indicates the distribution share of an industry r under ISIC Rev.2 to an industry s under ISIC Rev.3.1. Given an 1-to-m mapping, a weight of $1/m$ is allocated to each s mapped by r . The same rule applies in calculating the weight $\omega_{s\ell}$. It follows that these weights satisfy the condition that $\sum_{\ell} \omega_{p\ell}^{\text{chain}} = 1$ for each HS 6-digit product p . The chain weight from HS 6-digit to ISIC Rev.4 2-digit can then be derived as:

$$\omega_{pk} \equiv \sum_{\ell \in k} \omega_{p\ell}^{\text{chain}}. \quad (10)$$

Thus, ω_{pk} is a chain concordance weight that reflects the implied composition of HS 6-digit product p across ISIC Rev.4 2-digit sectors. For each product-sector pair (p, k) , the concordance provides a weight $\omega_{pk} \in [0, 1]$ such that $\sum_k \omega_{pk} = 1$. We use these weights to allocate HS product-level bilateral trade flows across ISIC sectors, and impute the total trade flows at the $ijkt$ level:

$$X_{ijkt} = \sum_p X_{ijpt} \omega_{pk}. \quad (11)$$

Similarly, we construct the sector-level trade-weighted tariff rate by:

$$t_{ijkt} \equiv \frac{\sum_p t_{ijpt} X_{ijpt} \omega_{pk}}{\sum_p X_{ijpt} \omega_{pk}}. \quad (12)$$

Correspondingly, the *affected trade value* at the sector level is defined as:

$$X_{ijkt}^{affected} \equiv \sum_{p:d_{ijpt}=1} X_{ijpt} \omega_{pk}, \quad (13)$$

and the *affected trade share* is:

$$X_{ijkt}^{share, affected} \equiv \frac{X_{ijkt}^{affected}}{X_{ijkt}}. \quad (14)$$

When measuring the incidence based on the share of HS 6-digit tariff lines affected, we calculate the number of distinct HS 6-digit lines affected by tariff changes among the set of HS 6-digit tariff lines mapped to sector k (Ω_{ijkt}):

$$\Omega_{ijkt}^{share, affected} \equiv \frac{\Omega_{ijkt}^{affected}}{\Omega_{ijkt}}, \quad (15)$$

which captures the fraction of HS 6-digit tariff lines within a given ISIC Rev.4 2-digit sector for an exporter-importer pair that are directly affected by the announced tariff changes up to time t (regardless of their trade values).

The ‘‘Tariff Tracker’’ user interface additionally reports ‘‘World’’ as an exporter at both the HS 6-digit and ISIC Rev.4 2-digit levels. For each HS 6-digit product (or ISIC Rev.4 2-digit sector), and effective date, the reported tariff corresponds to the simple average of tariff rates across all exporting countries levied by a given importing country. We also report the total import value, affected trade value, and shares of affected trade and tariff lines across all exporting countries, with respect to the given importing country, for each HS 6-digit product (or ISIC Rev.4 2-digit sector) and by the effective date. This synthetic ‘‘World’’ observation measures the average trade and tariff exposure of the world to an importing country’s tariff changes.

A.2 Methodology for Executive Order Data Collection

A.2.1 Data Scope and Identification

Executive orders (EOs) issued by President Trump from January 1, 2025, relating to tariffs and trade restrictions were identified and documented from the *U.S. Federal Register* (<https://www.federalregister.gov/presidential-documents/executive-orders/donald-trump/2025>). Each relevant EO was analyzed to extract structured information about tariff changes.

A.2.2 Data Collection Process

For each identified executive order, the following information was systematically recorded:

- Administrative Details:
 1. EO number;
 2. Date signed;
 3. Date published;
 4. Date effective (when tariff changes become operative);
- Trade Parameters:
 5. Exporter (affected country/countries; multiple exporters possible within single EO);
 6. Importer (United States in all cases);
 7. Product name (HTSUS product classification, where available);
 8. HTSUS code (7-10 digit U.S.-specific harmonized tariff code);
- Tariff Change:
 9. d_t (change in tariff rate relative to baseline of January 1, 2025);
- Classification:
 10. Remark field indicating scope of application:
 - Not-specific: applies to all products from all countries;
 - Country-specific: applies to all products from one country;
 - Product-specific: applies to one product from all countries;
 - Country-product-specific: applies to one product from one country.

A.2.3 Tariff Change (d_t) Classification

Three primary forms of tariff modifications were encountered in executive orders:

1. Additional tariff: incremental rate added to the prevailing tariff (as of January 1, 2025) at time of EO issuance;
2. New effective tariff: absolute rate imposed regardless of existing tariff level;
3. Tariff floor: minimum tariff threshold where rates below the floor are raised to the floor level, while rates above remain unchanged.

A.2.4 Identifying HTSUS Codes for Vague Definitions

HTSUS codes were reconciled using guidance from U.S. Customs and Border Protection’s IEEPA FAQ (<https://www.cbp.gov/trade/programs-administration/trade-remedies/IEEPA-FAQ>). This source provided official mappings between EO provisions and corresponding HS 6-digit codes, particularly for:

- EO-specific HTSUS codes in special chapters (e.g., Chapter 99) that do not directly correspond to standard HS 6-digit classifications;
- Broad categorical descriptions requiring clarification (e.g., “energy and energy resources” subject to 10% tariff on Canada under EO 14193).

Government agency interpretations referenced in the IEEPA FAQ were used to determine which HS 6-digit codes fell under specific EO provisions.

A.2.5 Summary of Executive Orders Identified

The date in brackets refers to the date on which the EO was signed.

EO 14193 (Feb 1, 2025): Imposed 25% additional tariff on most Canadian imports and 10% additional tariff on Canadian energy/energy resources to address fentanyl trafficking and illegal migration across the northern border.

EO 14194 (Feb 1, 2025): Imposed 25% additional tariff on all Mexican imports to address fentanyl trafficking and illegal migration across the southern border.

EO 14195 (Feb 1, 2025): Imposed 10% additional tariff on all goods from China and Hong Kong to address the synthetic opioid supply chain.

EO 14197 (Feb 3, 2025): Paused implementation of Canadian tariffs until March 4, 2025, recognizing Canada’s cooperation in addressing drug trafficking and illegal immigration (amendment to EO 14193).

EO 14198 (Feb 3, 2025): Paused implementation of Mexican tariffs until March 4, 2025, recognizing Mexico’s cooperation in addressing drug trafficking and illegal immigration (amendment to EO 14194).

EO 14228 (Mar 3, 2025): Increased the tariff on Chinese goods from 10% to 20%, citing inadequate steps by China to alleviate the illicit drug crisis (amendment to EO 14195).

EO 14231 (Mar 6, 2025): Exempted USMCA-compliant goods from the 25% Canadian tariff and reduced potash tariff to 10% (amendment to EO 14193).

EO 14232 (Mar 6, 2025): Exempted USMCA-compliant goods from the 25% Mexican tariff and reduced potash tariff to 10% (amendment to EO 14194).

EO 14245 (Mar 24, 2025): Imposed 25% additional tariff on all goods imported into the United States from any country that imports Venezuelan oil, directly or indirectly, supplemental to duties on imports already imposed pursuant to other authorities.

EO 14256 (Apr 2, 2025): Suspended duty-free de minimis treatment for low-value imports from China starting May 2, 2025, ensuring tariffs apply to all Chinese goods regardless of shipment value.

EO 14257 (Apr 2, 2025): Imposed “reciprocal tariffs” with a 10% baseline on all countries effective April 5, and country-specific higher rates (initially 34% on China, up to 50% on others) effective April 9 to address persistent trade deficits.

EO 14259 (Apr 8, 2025): Raised China’s reciprocal tariff from 34% to 84% in response to Chinese retaliation and increased de minimis postal duties on Chinese goods.

EO 14266 (Apr 9, 2025): Raised China’s reciprocal tariff to 125% and temporarily suspended country-specific tariffs for 90 days (returning to 10% baseline) for all other countries to allow for negotiations.

EO 14298 (May 12, 2025): Temporarily reduced China’s tariff from 125% to 10% for 90 days following trade discussions in Geneva, while maintaining the 20% fentanyl-related tariff.

EO 14309 (Jun 16, 2025): Implemented the U.S.-U.K. Economic Prosperity Deal, reducing U.S. tariffs on British automobiles and aerospace materials.

EO 14316 (Jul 7, 2025): Extended the suspension of country-specific reciprocal tariffs from July 9 to August 1, 2025, to allow additional time for trade negotiations.

EO 14323 (Jul 30, 2025): Imposes a new, broad 40% ad valorem tariff on most U.S. imports from Brazil.

EO 14325 (Jul 31, 2025): Raised the tariff on certain Canadian goods from 25% to 35% (amendment to EO 14193).

EO 14326 (Jul 31, 2025): Established new country-specific reciprocal tariff rates for over 60 countries with a minimum floor of 10%, effective August 7, 2025.

EO 14329 (Aug 6, 2025): Addressed threats from the Russian Federation by raising tariffs on India due to India’s trade with Russia.

EO 14334 (Aug 11, 2025): Extended the temporary 10% tariff rate on Chinese goods established in May 2025 beyond the initial 90-day period pending ongoing trade discussions.

EO 14345 (Sep 4, 2025): Implemented the United States-Japan Agreement, establishing a trade deal with a 15% tariff on most Japanese imports.

EO 14346 (Sep 5, 2025): Modified the scope of reciprocal tariffs to exempt certain products from countries that concluded trade and security framework agreements with the U.S. (including EU implementation).

EO 14357 (Nov 4, 2025): Reduced the 20% tariff rate from EO 14228 to 10% on Chinese goods.

EO 14358 (Nov 4, 2025): Extends the suspension of heightened tariffs on Chinese goods from EO 14334 to Nov 10, 2026.

EO 14360 (Nov 14, 2025): Modified the scope of reciprocal tariffs from EO 14257 (and later 14346) to exclude certain agricultural products.

EO 14361 (Nov 20, 2025): Modified the scope of reciprocal tariffs from EO 14323 on Brazil to exclude some products, including agricultural products.

EO 14380 (Jan 29, 2026): Threatened tariffs of unspecified rates for any country that sells or provides oil to Cuba.

EO 14382 (Feb 6, 2026): Threatened tariffs of unspecified rates for any country that imports or purchases goods or services from Iran.

EO 14389 (Feb 20, 2026): Removed all additional ad valorem duties imposed by previous EOs that invoked IEEPA (International Emergency Economic Powers Act).

A.3 Methodology for Proclamation Data Collection

A.3.1 Data Scope and Identification

Proclamations (Proc) issued by President Trump from January 1, 2025, relating to tariffs and trade restrictions were identified and documented from the *U.S. Federal Register* (<https://www.federalregister.gov/presidential-documents/proclamations/donald-trump/2025>) from 2025 onwards. Each relevant Proc was analyzed to extract structured information about tariff changes. The data collection process and the compilation of tariff changes are analogous to those for EO's in Sections [A.2.2–A.2.4](#).

A.3.2 Summary of Proclamations Identified

The date in brackets refers to the date on which the proclamation (Proc) was signed.

Proc 10908 (Mar 26, 2025): Implemented 25% additional tariff on certain automobiles and automobile parts.

Proc 10925 (Apr 29, 2025): Reduced the effective tariff rate on automobiles and automobile parts that are partially assembled in the United States, based on the MSRP (Manufacturer's Suggested Retail Price) value.

Proc 10947 (Jun 3, 2025): Increased the additional tariff on aluminium and steel products to 50%.

Proc 10962 (Jul 30, 2025): Implemented a 50% tariff on certain copper and copper derivative products.

Proc 10976 (Sep 29, 2025): Implemented a 10–25% tariffs on certain timber, lumber and wooden products, with the rates scheduled to escalate to 30–50% on Jan 1, 2026.

Proc 11000 (Dec 31, 2025): Postponed the escalation date in Proc 10976 to Jan 1, 2027.

Proc 11012 (Feb 20, 2026): Implemented a new 10% additional tariff on imports from all countries following the removal of IEEPA tariffs under EO 14389. This new tariff invokes Section 122 of the Trade Act of 1974, and includes a list of exempted products similar to those under EO 14257.

A.4 AI-Assisted Parsing of Executive Orders and Proclamations

The structured CSV data underlying the tariff tracker were compiled through a two-phase workflow combining human expertise with an AI-assisted parsing pipeline. In the first phase, we assign two research assistants (RAs) to each executive order: one RA converts the tariff provisions into the structured format described in Sections A.2.2–A.3.2, and the other RA reviews the work to correct for potential mistakes. To resolve ambiguous product definitions, the RAs also queried official external sources, including the U.S. Customs and Border Protection IEEPA FAQ. This process produced 25 human-verified CSV files covering EOs 14193 through 14382, totaling approximately 12,100 entries (covering not-specific, country-specific, product-specific, and country-product-specific tariff entries).

In the second phase, we developed an AI agent powered by Anthropic’s Claude (Opus 4.6) large language model to automate the parsing of subsequent executive orders and proclamations. The agent reads each PDF published in the *Federal Register*, extracts tariff measures, and outputs a structured CSV file following the same schema used by the RAs. The agent prompt encodes the complete set of parsing rules, including the CSV schema, row-generation logic, tariff accumulation rules, HTSUS code lookup procedures, and quality standards. The agent also automatically implements internet searches when encountering ambiguous product definitions, similar to what the RAs did.

The agent operates in two modes. In *Learning Mode*, the agent receives both a PDF and the corresponding human-verified CSV as groundtruth. It parses the PDF independently, then compares its output to the groundtruth row by row. For each discrepancy, the agent identifies the source of error and revises its output accordingly. The errors usually arise from misread codes, missed clauses, or rule-application mistakes. This iterative diff-and-reflect cycle continues until the agent’s output matches the groundtruth exactly. In *Production Mode*, the agent receives only a PDF, performs a self-check, and outputs a provisional CSV for human review. The RAs review and correct the provisional output, and any systematic corrections inform subsequent refinements to the agent prompt.

The agent's performance is reliable. All 25 EOs processed in Learning Mode achieved exact match against the human-verified groundtruth. Twenty of the 25 (80%) achieved perfect match on the first iteration; the remaining five required a second iteration. The errors that required revision fell into three categories: 1) character encoding mismatches (latin-1 versus UTF-8), 2) row-ordering conventions (grouping rows by effective date rather than interleaving by country), and 3) interpretation error, where the agent was sometimes confused about whether a tariff rate was preserved from a prior EO or newly imposed. In Production Mode, one EO (EO 14389, 1,155 rows) and six proclamations (Proc 10908–11012) were parsed by the agent and subsequently reviewed by the RAs.

Going forward, the AI-assisted approach will serve as the primary method for converting new executive orders and proclamations into structured data, with RA review providing quality assurance before records are incorporated into the tariff tracker.

Table 1: Calibration of Parameters and Measurement of Variables

Parameters/Variables	Description
$\gamma_{j,k} = VA_{j,k}/Y_{j,k}$	The ratio of value added $VA_{j,k}$ to gross output $Y_{j,k}$ in sector k of country j
$\gamma_{j,lk} = \frac{Z_{j,lk}}{\sum_{l'} Z_{j,l'k}} \times (1 - \gamma_{j,k})$	The cost share of sector k 's spending $Z_{j,lk}$ on goods from sector l as intermediate inputs in country j
$\pi_{ij,k} = \frac{X_{ij,k}}{\sum_{i'} X_{i'j,k}}$	The share of country j 's expenditure $X_{ij,k}$ in sector k on goods from country i
$D_j = \sum_k \sum_i \left(\frac{X_{ij,k}}{1+t_{ij,k}} - \frac{X_{ji,k}}{1+t_{ji,k}} \right)$	The trade deficit of country j
$\delta_j = \frac{D_j}{\sum_i \sum_k Y_{i,k}}$	The ratio of country j 's trade deficit to world gross output
$R_j = \sum_k \sum_i t_{ij,k} \frac{X_{ij,k}}{1+t_{ij,k}}$	The tariff revenue of country j , imputed by tariff rates multiplied by import values
$I_j = w_j L_j + R_j + D_j = VA_j + R_j + D_j$	The final absorption of country j , imputed by the sum of value added, tariff revenue, and trade deficit
$\alpha_{j,k} = (\sum_i X_{ij,k} - \sum_l \gamma_{j,kl} Y_{j,l}) / I_j$	The share of country j 's final consumption expenditure on goods from sector k
θ_k	Productivity dispersion (or trade elasticity) of sector k

Table 2: Country List

OECD Economies			Non-OECD Economies		
ISO	Country Name	Country Grouping	ISO	Country Name	Country Grouping
AUS	Australia		AGO	Angola	
AUT	Austria	European Union	ARG	Argentina	
BEL	Belgium	European Union	BGD	Bangladesh	
CAN	Canada		BLR	Belarus	
CHL	Chile		BRA	Brazil	
COL	Colombia		BRN	Brunei Darussalam	
CRI	Costa Rica		BGR	Bulgaria	European Union
CZE	Czech Republic	European Union	KHM	Cambodia	
DNK	Denmark	European Union	CMR	Cameroon	
EST	Estonia	European Union	CHN	China	
FIN	Finland	European Union	CIV	Côte d'Ivoire	
FRA	France	European Union	HRV	Croatia	European Union
DEU	Germany	European Union	CYP	Cyprus	European Union
GRC	Greece	European Union	COD	Democratic Republic of the Congo	
HUN	Hungary	European Union	EGY	Egypt	
ISL	Iceland		HKG	Hong Kong, China	
IRL	Ireland	European Union	IND	India	
ISR	Israel		IDN	Indonesia	
ITA	Italy	European Union	JOR	Jordan	
JPN	Japan		KAZ	Kazakhstan	
KOR	Korea		LAO	Laos	
LVA	Latvia	European Union	MYS	Malaysia	
LTU	Lithuania	European Union	MLT	Malta	European Union
LUX	Luxembourg	European Union	MAR	Morocco	
MEX	Mexico		MMR	Myanmar	
NLD	Netherlands	European Union	NGA	Nigeria	
NZL	New Zealand		PAK	Pakistan	
NOR	Norway		PER	Peru	
POL	Poland	European Union	PHL	Philippines	
PRT	Portugal	European Union	ROU	Romania	European Union
SVK	Slovak Republic	European Union	RUS	Russian Federation	
SVN	Slovenia	European Union	STP	Saõ Tomé and Príncipe	
ESP	Spain	European Union	SAU	Saudi Arabia	
SWE	Sweden	European Union	SEN	Senegal	
CHE	Switzerland		SGP	Singapore	
TUR	Turkey		ZAF	South Africa	
GBR	United Kingdom		TWN	Taiwan	
USA	United States		THA	Thailand	
			TUN	Tunisia	
			UKR	Ukraine	
			ARE	United Arab Emirates	
			VNM	Viet Nam	
			ROW	Rest of the World	

Note: This table reports the list of economies used in the study, based on the OECD ICIO tables for 2022.

Table 3: Sector Classification and Trade Elasticity Estimates

Sector	ICIO Industry Code	ISIC Rev.4	Sector Description	Trade Elasticity
1	A01-A02	01-02	Agriculture and hunting; Forestry and logging	8.11*
2	A03	03	Fishing and aquaculture	8.11*
3	B05-B06	05-06	Mining of coal and lignite; Extraction of crude petroleum and natural gas	15.72*
4	B07-B08	07-08	Mining of metal ores; Other mining and quarrying	15.72*
5	B09	09	Mining support service activities	15.72*
6	C10T12	10-12	Manufacture of food products; beverages and tobacco products	1.72 [†]
7	C13T15	13-15	Manufacture of textiles, wearing apparel, leather and related products	1.26
8	C16	16	Manufacture of wood and of products of wood and cork	2.66
9	C17T18	17-18	Manufacture of paper and paper products; Printing and reproduction of recorded media	2.29
10	C19	19	Manufacture of coke and refined petroleum products	1.72 [†]
11	C20-C21	20-21	Manufacture of chemicals and chemical products; Manufacture of basic pharmaceutical products and pharmaceutical preparations	2.59
12	C22	22	Manufacture of rubber and plastic products	1.25
13	C23	23	Manufacture of other non-metallic mineral products	0.48
14	C24A-C24B	241, 2431, 242, 2432	Manufacture of basic iron and steel; Manufacture of basic precious and other non-ferrous metals	2.59
15	C25	25	Manufacture of fabricated metal products	1.72 [†]
16	C26	26	Manufacture of computer, electronic and optical products	1.72 [†]
17	C27	27	Manufacture of electrical equipment	1.72 [†]
18	C28	28	Manufacture of machinery and equipment n.e.c.	0.44
19	C29	29	Manufacture of motor vehicles, trailers and semi-trailers	1.72 [†]
20	C301-C302T309	301-309	Building of ships and boats; Manufacture of other transport equipment	1.93
21	C31T33	31-33	Manufacture of furniture; other manufacturing; repair and installation of machinery and equipment	1.72 [†]
22	D	35	Electricity, gas, steam and air conditioning supply	10.00 [‡]
23	E, ..., T	36-39, ..., 97-98	Service sectors combined	6 [§]

Note: The table reports the list of sectors used in the study, based on the OECD ICIO tables for 2022. We adopt the trade elasticity estimates of [Beshkar, Chang and Song \(2025\)](#) for non-service sectors.

* The elasticity estimates for these agriculture and mining sectors are negative, and are replaced by the estimate from [Caliendo and Parro \(2015\)](#).

[†] The elasticity estimates for these manufacturing sectors are negative, and are replaced by the mean across the manufacturing sectors with positive elasticity estimates.

[‡] The elasticity estimate for this sector is negative, and is replaced by a large number (10). The choice is based on the consideration that trade flows and tariffs are sparse in this sector. Using a large elasticity value mutes the optimal tariff consideration in this sector and neutralizes its role in the analysis.

[§] We choose a trade elasticity of 6 for the combined service sector, in line with the median estimates for the service sectors reported by [Ahmad and Schreiber \(2024\)](#) and [Freeman et al. \(2025\)](#).

Table 4: Country List – MRIO

OECD Economies			Non-OECD Economies		
ISO	Country Name	Country Grouping	ISO	Country Name	Country Grouping
AUS	Australia		ARG	Argentina	
AUT	Austria	European Union	ARM	Armenia	
BEL	Belgium	European Union	BGD	Bangladesh	
CAN	Canada		BTN	Bhutan	
COL	Colombia		BRA	Brazil	
CZE	Czech Republic	European Union	BRN	Brunei Darussalam	
DNK	Denmark	European Union	BGR	Bulgaria	European Union
EST	Estonia	European Union	KHM	Cambodia	
FIN	Finland	European Union	CHN	China	
FRA	France	European Union	HRV	Croatia	European Union
DEU	Germany	European Union	CYP	Cyprus	European Union
GRC	Greece	European Union	ECU	Ecuador	
HUN	Hungary	European Union	EGY	Egypt	
IRL	Ireland	European Union	FJI	Fiji	
ITA	Italy	European Union	GEO	Georgia	
JPN	Japan		HKG	Hong Kong, China	
KOR	Republic of Korea		IND	India	
LVA	Latvia	European Union	IDN	Indonesia	
LTU	Lithuania	European Union	KAZ	Kazakhstan	
LUX	Luxembourg	European Union	KWT	Kuwait	
MEX	Mexico		KGZ	Kyrgyz Republic	
NLD	Netherlands	European Union	LAO	Laos	
NZL	New Zealand		MYS	Malaysia	
NOR	Norway		MDV	Maldives	
POL	Poland	European Union	MLT	Malta	European Union
PRT	Portugal	European Union	MNG	Mongolia	
SVK	Slovak Republic	European Union	NPL	Nepal	
SVN	Slovenia	European Union	PAK	Pakistan	
ESP	Spain	European Union	PHL	Philippines	
SWE	Sweden	European Union	ROU	Romania	European Union
CHE	Switzerland		RUS	Russia	
TUR	Turkey		SAU	Saudi Arabia	
GBR	United Kingdom		SGP	Singapore	
USA	United States		LKA	Sri Lanka	
			TWN	Taiwan	
			TJK	Tajikistan	
			THA	Thailand	
			ARE	United Arab Emirates	
			UZB	Uzbekistan	
			VNM	Viet Nam	
			ROW	Rest of the World	

Note: This table reports the list of economies used in the study, based on the ADB MRIO tables for 2024.

Table 5: Sector Classification and Trade Elasticity Estimates – MRIO

Sector	MRIO Industry Code	ISIC Rev.3.1	Sector Description	Trade Elasticity
1	c1	01, 02, 05	Agriculture, Hunting, Forestry and Fishing	8.11*
2	c2	10, 11, 12, 13, 14	Mining and Quarrying	19.41
3	c3	15, 16	Food, Beverages and Tobacco	3.41 [†]
4	c4	17, 18	Textiles and Textile Products	3.41 [†]
5	c5	19	Leather, Leather products and Footwear	1.26
6	c6	20	Wood and Products of Wood and Cork	5.23
7	c7	21, 22	Pulp, Paper, Printing and Publishing	0.61
8	c8	23	Coke, Refined Petroleum and Nuclear Fuel	8.58
9	c9	24	Chemicals and Chemical Products	5.71
10	c10	25	Rubber and Plastics	3.41 [†]
11	c11	26	Other Non-Metallic Mineral	2.72
12	c12	27, 28	Basic Metals and Fabricated Metal	4.83
13	c13	29	Machinery, Nec	3.41 [†]
14	c14	30, 31, 32, 33	Electrical and Optical Equipment	1
15	c15	34, 35	Transport Equipment	3.41 [†]
16	c16	36, 37	Manufacturing, Nec; Recycling	0.79
17	c17	40, 41	Electricity, Gas and Water Supply	10 [‡]
18	c18-c35	45, 50-52, 55, . . . , 95-97	Service sectors combined	6 [§]

Note: The table reports the list of sectors used in the study, based on the ADB MRIO tables for 2024.

* The elasticity estimates for these agriculture sectors are negative, and are replaced by the estimate from [Caliendo and Parro \(2015\)](#).

[†] The elasticity estimates for these manufacturing sectors are negative, and are replaced by the mean across the manufacturing sectors with positive elasticity estimates.

[‡] The elasticity estimate for this sector is negative, and is replaced by a large number (10). The choice is based on the consideration that trade flows and tariffs are sparse in this sector. Using a large elasticity value mutes the optimal tariff consideration in this sector and neutralizes its role in the analysis.

[§] We choose a trade elasticity of 6 for the combined service sector, in line with the median estimates for the service sectors reported by [Ahmad and Schreiber \(2024\)](#) and [Freeman et al. \(2025\)](#).