

Analyzing Tariffs at the Budget Lab

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The Budget Lab at Yale

11/20/2026
73rd Annual Economic Outlook Conference

Roadmap

Breaking down the Budget Lab's *State of Tariffs* reports

1. **Context:** what is our value-add in the tariff analysis ecosystem?
2. **Methodology:** how do we arrive at our estimates?
3. **Results:** what are our latest estimates?

The Budget Lab at Yale

- **Nonpartisan** think tank focused on budget scorekeeping
- Goals:
 - Produce **timely** analysis of policy proposals
 - Never advocate for policies – **illustrate tradeoffs** instead
 - Be **transparent** about our assumptions
 - **Compliment** government scorekeepers, not replace them

Scorekeeping as synthesis

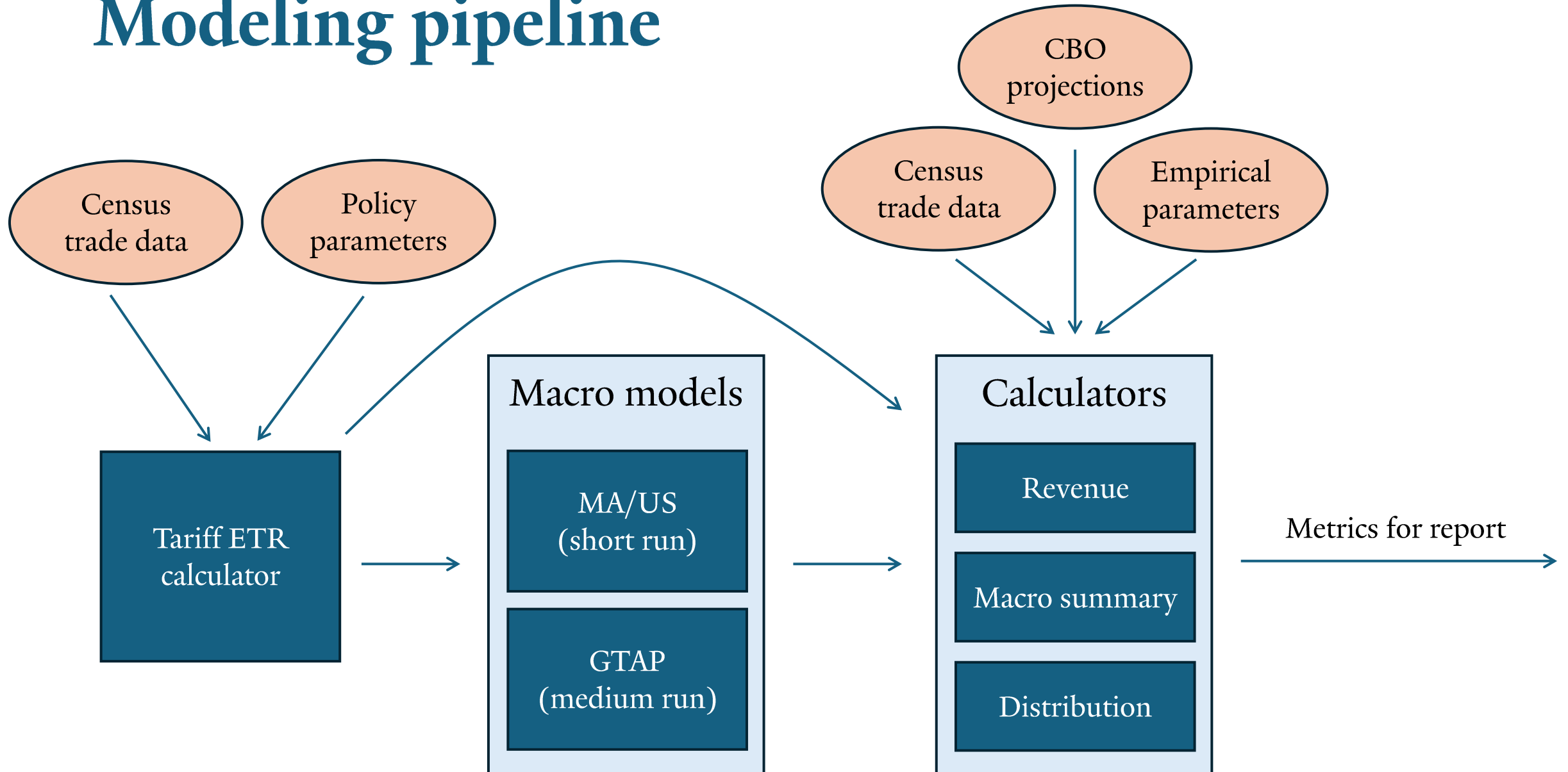
- Counterfactual scenario analysis is our product
 - “*What will happen if we adopt policy X?*”
- The Budget Lab **synthetizes** others’ work into best-guess answers
 - **Elasticity estimates** from causal literature
 - **Model frameworks** from theoretical economics
 - **Color commentary** from business and financial world
 - **Baseline projections** from forecasters
 - **Data** from public and private sources

The State of Tariffs report

“What will be the impact of new 2025 tariff policy?”

- **Prospective**, not retrospective
- **Effective tax rates**
- **Budget**
- **Macroeconomy**
 - GDP
 - Employment
 - Prices
- **Distribution**
 - Costs by household income group
 - Output effects by industry
 - Relative price impacts across products

Modeling pipeline



From statutory to effective rates

- Standalone calculator
- Takes as input...
 - **Data:** 2024 Census import data by country and product (HTS10)
 - **Policy:** statutory rates by authority, country, and product (HTS10)
- Creates as output...
 - Weighted average rates by country and product (incl. GTAP-concept)

From statutory to effective rates

The effective tariff rate change for country c in GTAP sector s is the import-weighted average of statutory tariff rates:

$$\Delta ETR_{c,s} = \frac{\sum_{h \in H_s} \tau_{c,h} \cdot M_{c,h}}{\sum_{h \in H_s} M_{c,h}}$$

where:

- h = HTS10 product code
- H_s = set of HTS10 codes mapping to GTAP sector s
- $\tau_{c,h}$ = statutory tariff rate change on product h from country c
- $M_{c,h}$ = 2024 import value of product h from country c

main

1 Branch 0 Tags

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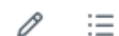
<> Code



ricco-budget-lab and claude Clean up old output backups and update documentation 5066903 · yesterday 82 Commits

📁 .Rproj.user	Implement dual IEEPA tariffs with flexible stacking rules	2 days ago
📁 config	Clean up old output backups and update documentation	yesterday
📁 resources	Clean up old output backups and update documentation	yesterday
📁 src	Fix NA gtap_code appearing in GTAP shock commands	2 days ago
📄 .gitattributes	Initial commit	3 weeks ago
📄 .gitignore	Add caching mechanism for HS10 country-level import data	3 days ago
📄 CLAUDE.md	Implement dual IEEPA tariffs with flexible stacking rules	2 days ago
📄 README.md	Clean up old output backups and update documentation	yesterday
📄 Tariff-ETRs.Rproj	Initial commit	3 weeks ago

README



Tariff ETR Calculator

Calculate effective tariff rate (ETR) changes on U.S. imports by trading partner and GTAP sector under various tariff policy scenarios. **All ETR values represent changes from an early 2025 baseline.**

About

R-based analysis of U.S. import trade data by HS10 commodity codes and trading partners

Readme

Activity

Custom properties

1 star

0 watching

0 forks

Report repository

Releases

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Packages

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Contributors 2



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claude Claude

Macro models – a blending exercise

- Wish to capture...
 - **Short-run** demand dynamics
 - **Long-run** supply dynamics
 - Changes across sector and international region
- No one model captures everything – need **model blending**
 - **MA/US** for short run
 - **GTAP** for the long run and trade detail

Macro models – a blending exercise

MA/US

- Macro-econometric approach
- Inputs
 - Aggregate ETR shock
 - VIX shock
- Outputs
 - Quarterly GDP
 - Quarterly unemployment rate

Figure 3. US Real GDP Level Effects of 2025 Tariffs to Date

U.S. tariffs implemented through November 17
Percentage point change against baseline

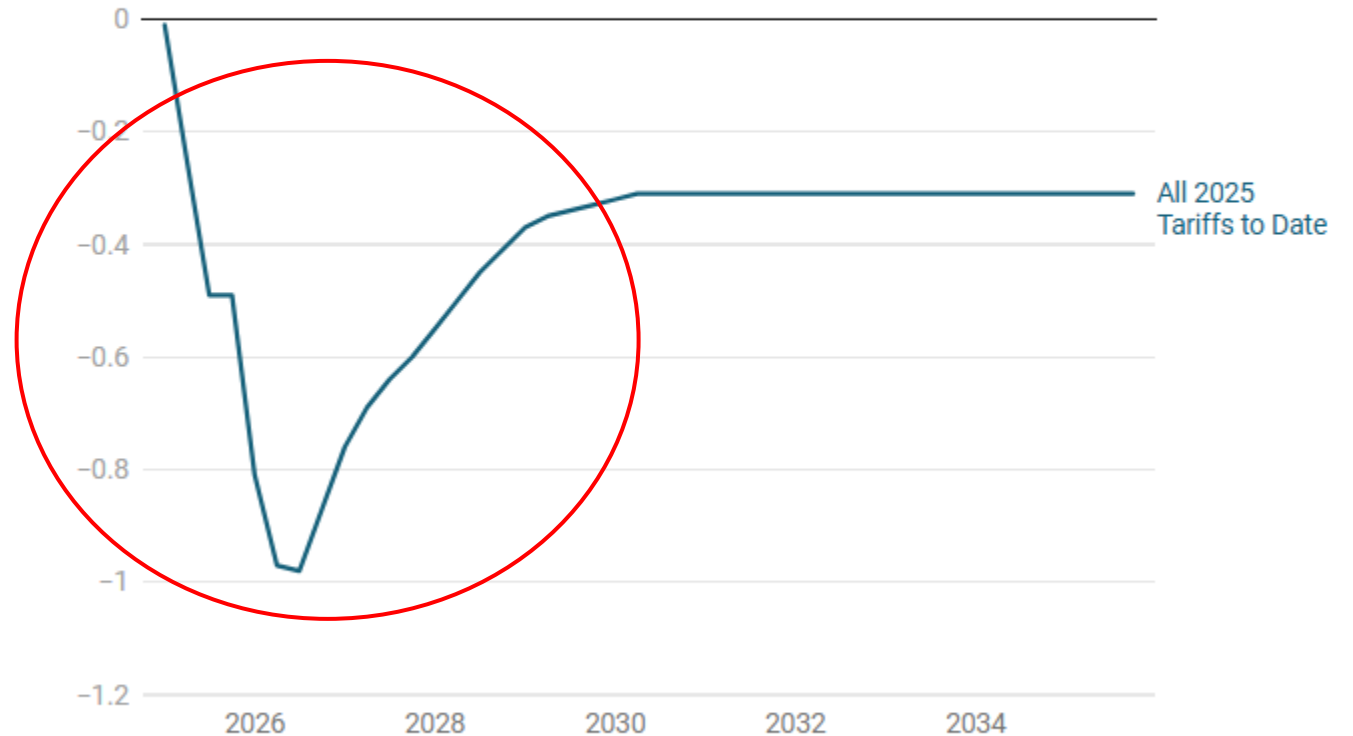


Chart: The Budget Lab • Source: Historical Statistics of the United States Ea424-434, Monthly Treasury Statement, Bureau of Economic Analysis, The Budget Lab analysis. • Created with [Datawrapper](#)

Macro models – a blending exercise

GTAP

- CGE model of trade
- Inputs
 - Sector (65) X region (9) ETR shock
 - Retaliation ETR shocks
- Outputs
 - Long-run GDP
 - Change in imports by sector and region
 - GDP by industry
 - Commodity price impacts

Figure 3. US Real GDP Level Effects of 2025 Tariffs to Date

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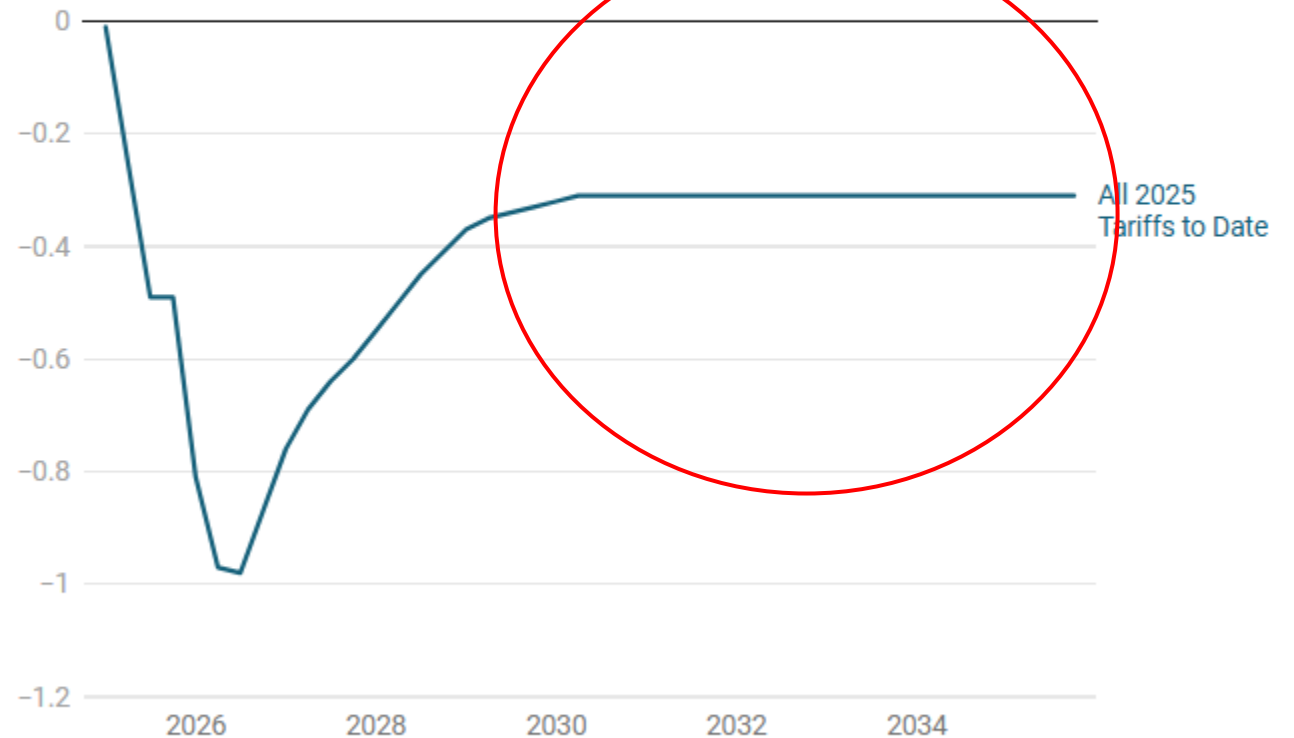


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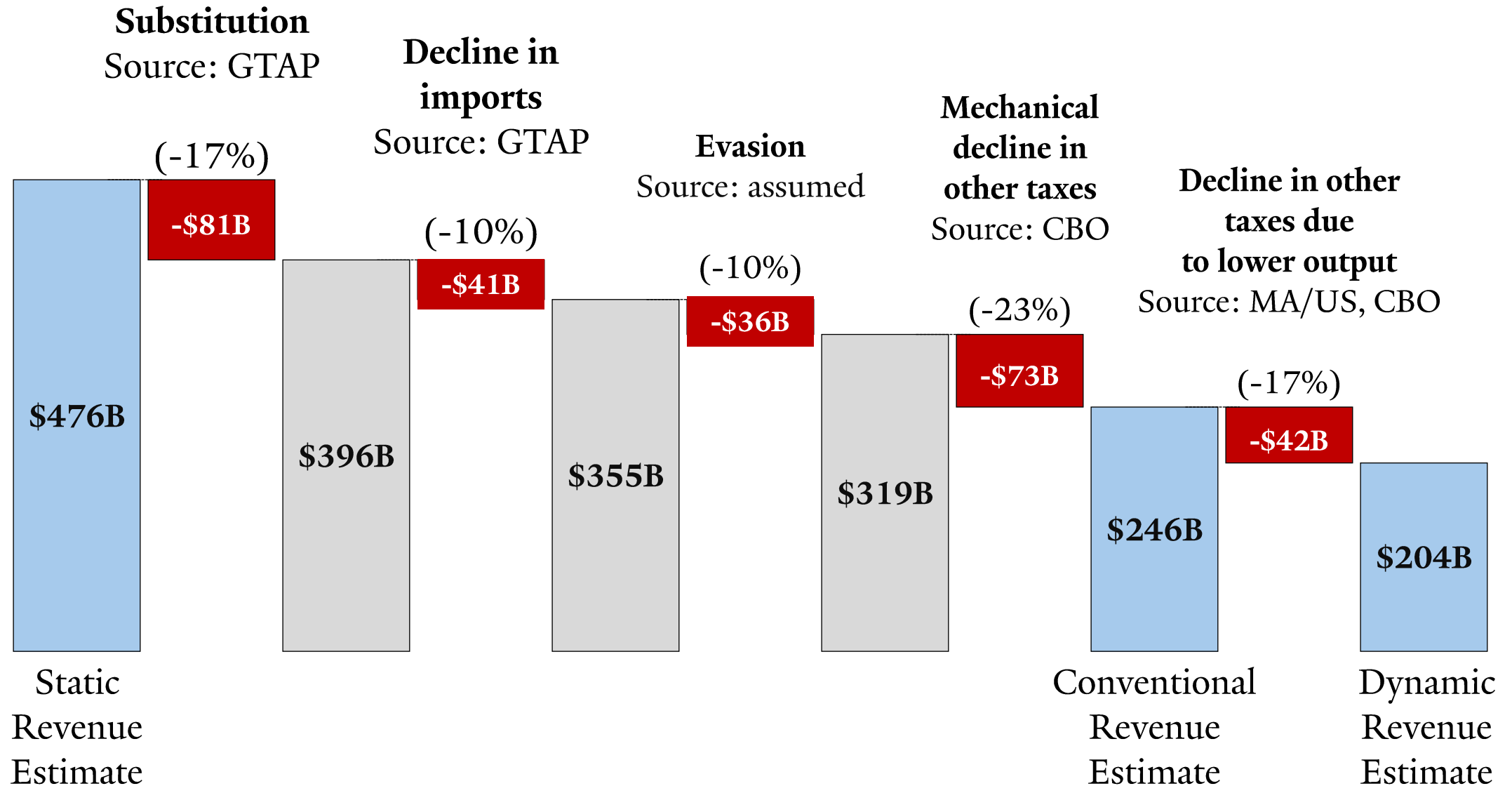
Constructing a revenue estimate

- If goods imports are \$3.4T, and the ETR hike is 14.4%, isn't it just:

$$\$3.4\text{T} \times 14.4\% = \sim \$500\text{B}$$

- No! Need to account for behavioral/economic feedback
 - Legal avoidance
 - Illegal evasion
 - Macro-dynamic feedback

Leakages in new revenue



Headline Results as of November 17

Scenario	Effective Tariff Rate		Fiscal (trillions)		Growth (pp)		PCE Price Level	
	Pre-sub	Post-sub	Conventional	Dynamic	2025	2026	Pre-sub	Post-sub
IEEPA stands	16.8%	14.4%	\$2.7	\$2.3	-0.5	-0.4	1.2%	0.9%
IEEPA struck down	9.3%	8.0%	\$1.4	\$1.2	-0.5	0.1	0.6%	0.5%

Table 2. Average Effective US Tariff Rate, New 2025 Policy through November 17

Pre- and post-substitution

	Average Effective Tariff Rate		Share of Goods Imports		Contribution	
	Pre-Substitution	Post-Substitution	Pre-Substitution	Post-Substitution	Pre-Substitution	Post-Substitution
China	24.0	22.8	13%	9%	3.2	2.0
Canada	8.1	5.3	13%	16%	1.0	0.8
Mexico	12.8	11.2	16%	19%	2.0	2.1
Rest of World	14.0	12.4	58%	57%	8.1	7.0
Total	14.4	11.9	100%	100%	14.4	11.9

Figure 4. Change in Long-Run Real US GDP by Sector from 2025 Tariffs

U.S. tariffs implemented through November 17, plus foreign retaliation.
Percentage points.

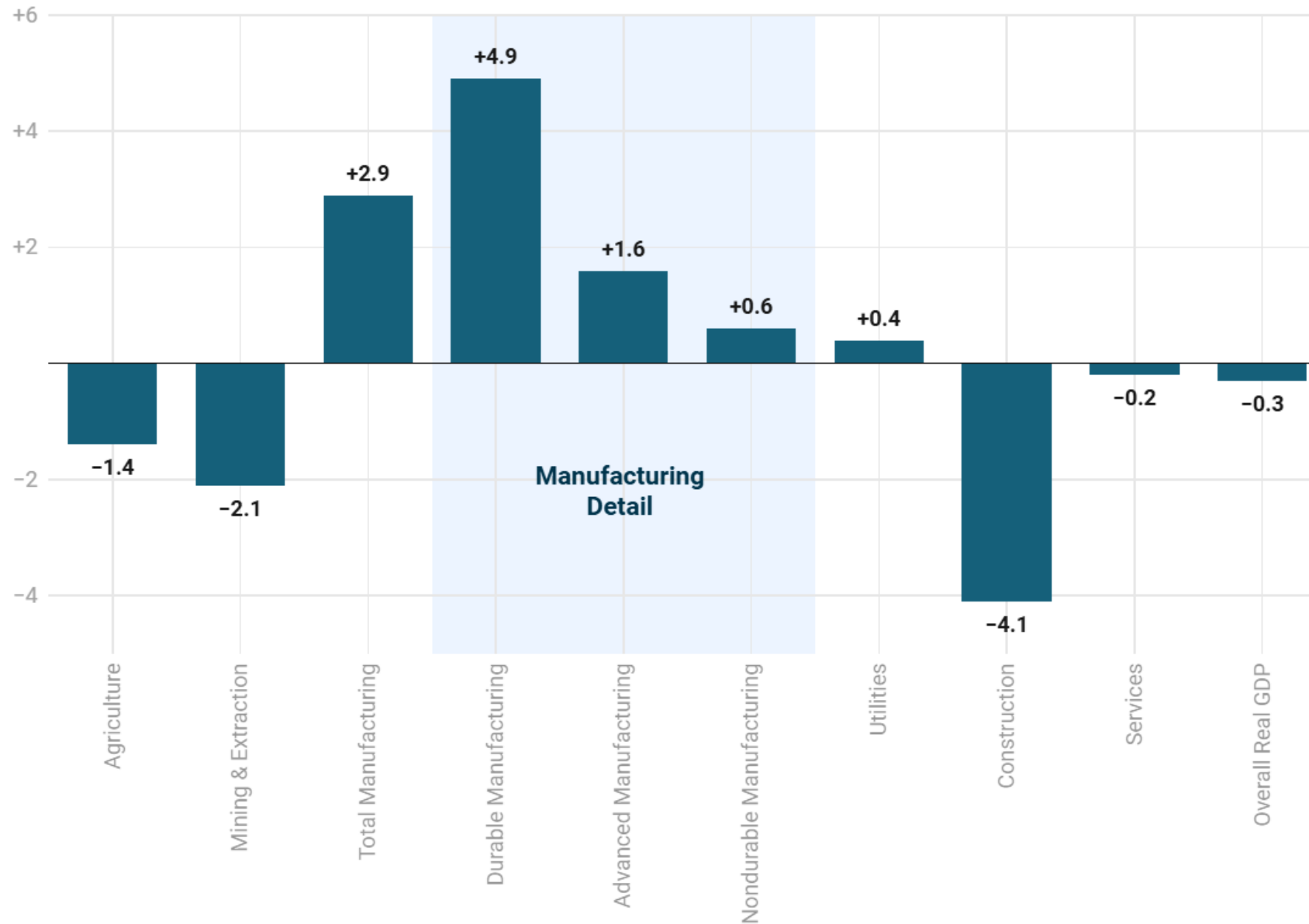


Figure 7. Commodity Price Effects from 2025 Tariffs through November 17

Percent change to price level

name	Short Run	Long-Run
Leather products	21.8	6.7
Wearing apparel	21.0	6.5
Electrical equipment	18.2	5.7
Metal products	18.1	5.0
Computer, electronic and optic	17.0	5.3
Metals nec	16.6	5.2
Textiles	13.7	4.4
Motor vehicles and parts	12.6	5.3
Machinery and equipment nec	10.9	4.1
Transport equipment nec	7.8	3.3
Manufactures nec	7.7	2.8
Rubber and plastic products	7.7	2.8

Thank you