Making America great again?
The economic impacts of Liberation Day tariffs

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Background: Liberation Day Tariffs

On April 9, 2025, the Trump administration proposed reciprocal tariffs

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- The USTR reciprocal tariff formula:

$$t_i = \frac{D_i}{\varepsilon \times \varphi \times M_i}$$

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tariff on partner i

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bilateral deficit

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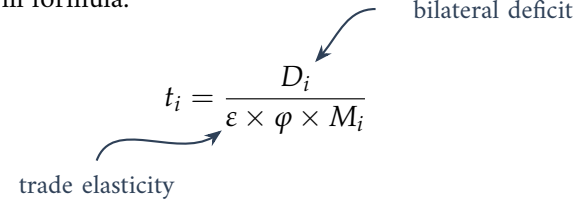

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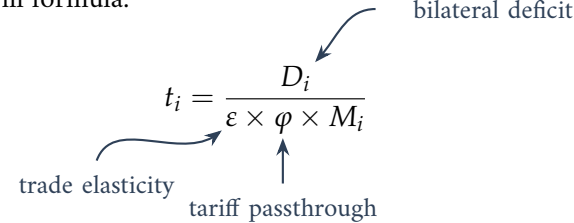

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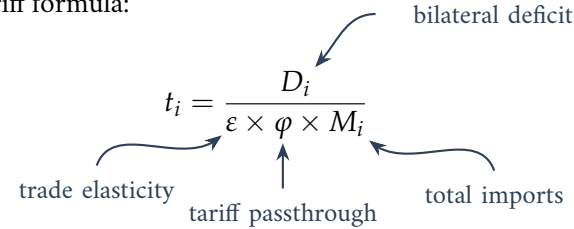

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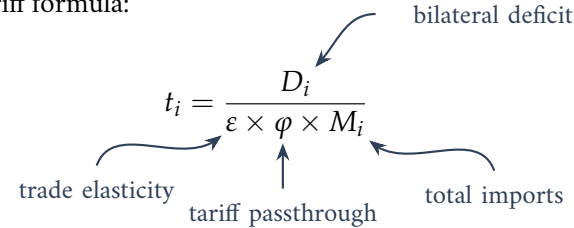

- The reciprocal tariffs were initially delayed for 90 days after announcement
- but the reciprocal tariffs may be used again, depending on the outcome of negotiations.

Research Question

We explores two questions using state-of-the-art trade theory:

1. Is there a welfarist rationale for reciprocal tariffs?
   - are these tariff unilaterally optimal?
   - can bilateral deficits be eliminated with such tariffs?

2. What are the *ex ante* long-term effects of reciprocal tariffs?
   - welfare effects?
   - employment effects?
   - deficit reduction?
   - meaningful source of revenue?

A Generalized Melitz-Pareto Framework

- We develop a generalized Melitz-Pareto model with N countries (index i, j, n).
- Let X_{ni} denote country i's expenditure on goods from n, with $E_i \equiv \sum_j X_{ji}$
- Trade shares $\lambda_{ni} \equiv X_{ni}/E_i$ are given by a flexible gravity equation:

$$\lambda_{ni} = \frac{\left(d_{ni}/(A_n L_n^{\psi})\right)^{-\varepsilon} (1+t_{ni})^{-\varphi_i \cdot \varepsilon} w_n^{-\varepsilon}}{\sum_j \left(d_{ji}/(A_j L_j^{\psi})\right)^{-\varepsilon} (1+t_{ji})^{-\varphi_i \cdot \varepsilon} w_j^{-\varepsilon}}$$

- [origin-specific terms] wage: w_n employment: L_n TFP: A_n
- [bilateral friction] iceberg cost: d_{ni} tariff: t_{ni}
- [parameters] trade elasticity: ε scale elasticity: ψ passthrough: φ_n

Key Elements of the Model

- Flexible tariff passthrough

$$\frac{\partial \ln P_{ni} \mid (w, L, X)}{\partial \ln(1 + t_{ni})} = \varphi_i$$

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share of X_{ni} paid to local workers in i as market penetration cost

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- Endogenous trade deficit

$$D_i = \bar{T}_i + \sum_{n \neq i} \left[\frac{\nu_i}{1 + t_{ni}} X_{ni} - \frac{\nu_n}{1 + t_{in}} X_{in} \right].$$

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exogenous à la DEK

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Intuition: a fraction of export revenue is paid to foreign labor to cover fixed costs:

- these payments are not recorded as foreign exports of labor services by e.g., BEA
- they allow factor income to exceed national sales in high-ν countries

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- Endogenous employment & TFP:
  - labor supply is endogenous: $L_i = \left(\frac{w_i}{P_i} \right)^{\kappa} \bar{L}_i$
  - growth in employment scale $\longrightarrow$ higher effective TFP: $A_i L_i^{\psi}$

Are Bilateral Deficits Driven by Non-Reciprocal Tariffs?

Proposition 1. Trade is bilaterally balanced *if and only if* the aggregate trade deficit is zero and trade barriers are reciprocal ($t_{ni} = t_{in}, \forall n, i$).

Implications:

- Bilateral trade imbalances do *not* provide meaningful information about tariff reciprocity, when there are aggregate trade imbalances
- If country i runs an aggregate trade deficit ($D_i \neq 0$), its trade with some partners will be bilaterally imbalanced, even if tariffs are reciprocal.

Do Optimal Tariffs Depend on Bilateral Deficits?

Proposition 2. The unilaterally optimal tariff for country i is uniform across partners ($t^*_{ni} = t^*_i$ for all $n \neq i$) and is given by

$$t^*_i = \frac{1}{(1+\varepsilon)\varphi_i - 1 - \frac{\varphi_i \varepsilon \bar{T}_i / E_i}{(1-\lambda_{ii})(1-\nu_i)}}$$

Implications:

- The optimal tariff is increasing in the exogenous component of the *aggregate* deficit $\bar{T}_i$
- But the optimal tariff is independent of bilateral deficits $\longrightarrow$ there is no protectionist rationale for reciprocal tariffs

Mapping the Model to Data

- We use exact hat-algebra to simulate counterfactuals tariff scenarios
  - *data requirement*: initial GDP and trade flows + small set of parameters $\{\psi, \varepsilon, \kappa, \tilde{\varphi}, \nu_i\}_i$

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- We use exact hat-algebra to simulate counterfactuals tariff scenarios
  - *data requirement*: initial GDP and trade flows + small set of parameters $\{\psi, \varepsilon, \kappa, \tilde{\varphi}, \nu_i\}_i$
- Data on trade and GDP is from 2023 CEPII-BACI and WDI
- ν is recovered from firm-level balance sheets (COMPUSTAT & WORLDSCOPE):
  - $\nu_{\text{US}} = 0.27\,, \qquad \nu_{\text{non-US}} = 0.11$
  - *exogenous deficit*: $\bar{\mathbf{T}} = (\mathbf{X}^T - \mathbf{X})(\mathbf{1} - \boldsymbol{\nu})$
- Other structural parameters taken from the literature:
  - $\varepsilon = 4$ [Simonovska & Waugh, 2014]
  - $\kappa = 0.5$ [Chetty et al. 2011]
  - $\varepsilon \cdot \psi = 0.67$ [Lashkaripour & Lugovskyy 2023]
  - $\tilde{\varphi} \approx 1$ [Fajgelbaum et al. 2020; Amiti et al. 2019]

The Simulated Impacts of Reciprocal Tariffs

Country	Δ welfare	Δ deficit	Δ $\frac{\text{exports}}{\text{GDP}}$	Δ $\frac{\text{imports}}{\text{GDP}}$	Δ employment	Δ prices
Case 1: USTR tariffs + income tax relief + no retaliation						
USA	1.13%	-18.1%	-52.7%	-43.6%	0.32%	12.8%
non-US (average)	-0.58%	11.6%	-3.2%	-3.3%	-0.14%	-4.7%
Case 2: USTR tariffs + lump-sum rebate + no retaliation						
USA	-0.01%	-18.4%	-52.5%	-43.3%	-0.41%	13.1%
non-US (average)	-0.57%	11.7%	-3.3%	-3.4%	-0.14%	-4.8%
Case 3: optimal US tariffs + income tax relief + no retaliation						
USA	1.79%	-19.1%	-55.3%	-45.6%	0.51%	12.6%
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(2) USTR tariff + optimal retaliation				
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Tariff Revenue as Share of GDP and Federal Budget

			retaliation to USTR tariff	
	USTR tariff	optimal tariff	optimal	reciprocal
% of GDP	1.14%	1.35%	0.74%	0.82%
% of Federal Budget	4.95%	5.88%	3.24%	3.57%

Tariff Revenue as Share of GDP and Federal Budget

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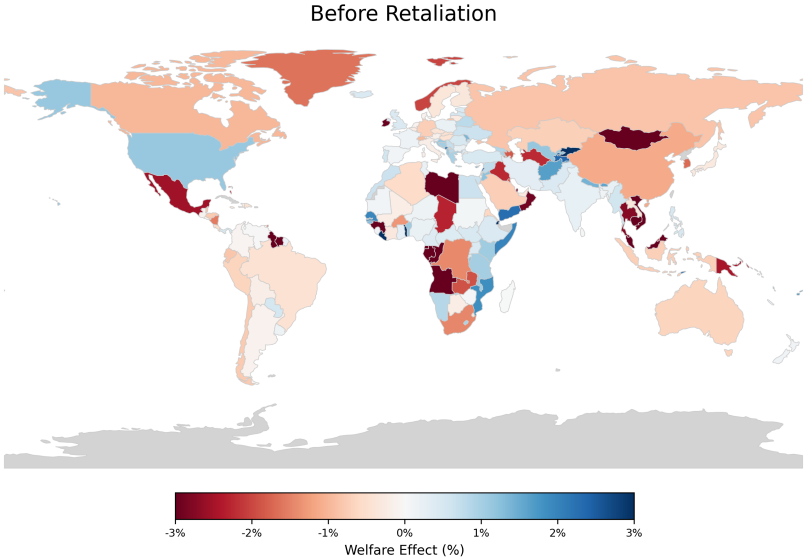
	USTR tariff	optimal tariff	optimal	reciprocal
% of GDP	1.14%	1.35%	0.74%	0.82%
% of Federal Budget	4.95%	5.88%	3.24%	3.57%

- The CBO estimates a $2.4 trillion increase in the deficit due to the One Big Beautiful Bill Act.
- Can USTR tariff revenues cover the resulting fiscal gap?
  - we project that USTR tariffs can at best cover 5% of the federal budget.
  - so, with full implementation and no retaliation, tariff revenues can potentially cover the gap .
  - but after retaliation, the revenues would drop by 40%, underscoring their fiscal fragility.

Projected Global Impacts of USTR Tariffs



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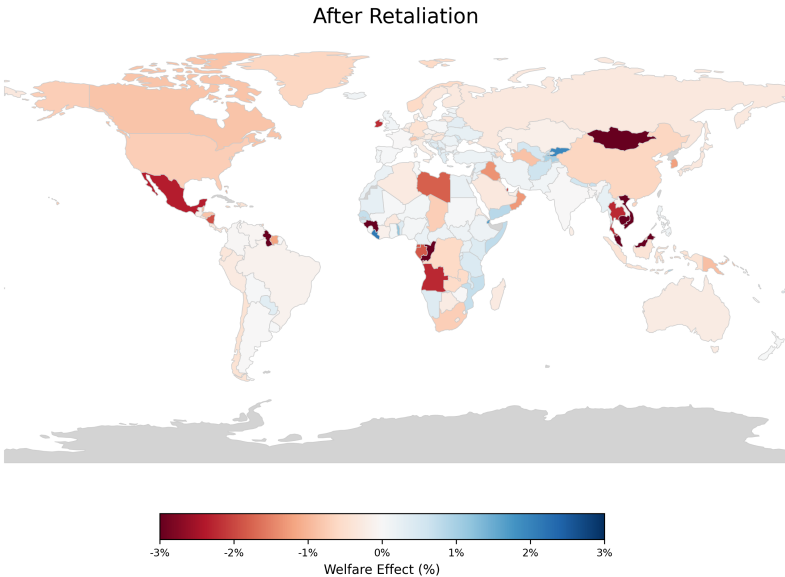

Robustness to Extensions

- We explore two extensions:
  1. input-output linkages ($\longrightarrow$ input tariffs)
  2. multiple sectors $+$ input-output linkages
- Welfare effects are amplified but results remain qualitatively similar results

Concluding Remarks

- Tariffs are globally inefficient but generate two opposing outcomes:
  1. retaliation $\longrightarrow$ prisoner's dilemma (lose-lose)
  2. no retaliation $\longrightarrow$ the hegemon extracts surplus from others
- Traditional tariff-war models focus on (1), yet evidence suggests convergence toward (2)
  - need to enrich tariff-war models with geoeconomic considerations?

Tariff Impacts under IO Linkages: *Pre-Retaliation*

	Δ welfare	Δ deficit	Δ $\frac{\text{exports}}{\text{GDP}}$	Δ $\frac{\text{imports}}{\text{GDP}}$	Δ emp	Δ prices
(1) *USTR tariffs + one sector*						
USA	0.86%	-18.4%	-53.9%	-44.4%	0.24%	12.7%
non-US (average)	-1.31%	12.0%	-3.5%	-4.0%	-0.29%	-5.0%
(2) *Optimal tariff + one sector*						
USA	2.15%	-13.0%	-39.2%	-32.1%	0.65%	6.9%
non-US (average)	-0.87%	11.7%	-3.0%	-2.9%	-0.22%	-2.9%
(3) *USTR tariffs + multiple sectors*						
USA	0.60%	-13.4%	-24.2%	-22.6%	0.01%	7.1%
non-US (average)	-1.38%	4.2%	-2.2%	-2.2%	-0.12%	-1.5%

Tariff Impacts under IO Linkages: *Post-Retaliation*

return

	Δ welfare	Δ deficit	Δ $\frac{\text{exports}}{\text{GDP}}$	Δ $\frac{\text{imports}}{\text{GDP}}$	Δ emp	Δ prices
(1) *reciprocal retaliation + one sector*						
USA	-3.38%	-27.1%	-71.4%	-56.6%	-1.20%	9.3%
non-US (average)	-1.17%	20.1%	-6.5%	-6.3%	-0.32%	-2.0%
(2) *optimal retaliation + one sector*						
USA	-5.26%	-30.9%	-79.9%	-62.5%	-1.86%	7.5%
non-US (average)	-1.13%	24.2%	-7.7%	-7.0%	-0.34%	-0.5%
(3) *reciprocal retaliation + multiple sectors*						
USA	-1.02%	-21.3%	-32.6%	-30.1%	-0.55%	4.4%
non-US (average)	-0.71%	7.8%	-3.8%	-3.5%	-0.15%	0.1%