# The Optimal Macro Tariff

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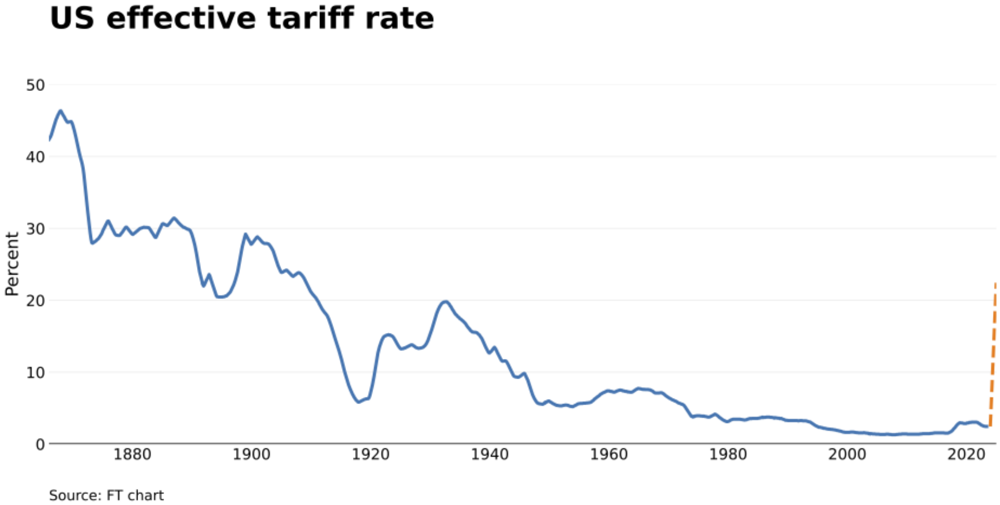
# Motivation


US effective tariff rate
50
40
30
20
10
0
Percent
1880
1900
1920
1940
1960
1980
2000
2020
Source: FT chart

# Motivation


US net exports of goods and services
Share of GDP, quarterly
Percent
0
−1
−2
−3
−4
−5
−6
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
Source: BEA via FRED series A019RE1Q156NBEA.

# Motivation

1. **Can tariffs close permanent trade deficit?**

2. **Do larger trade deficits imply higher optimal tariff?**

3. **Do tariffs undermine U.S. “exorbitant privilege”?**

# Country Budget Constraint: Taxonomy of Models

Long-run **trade deficit** is determined by the country's **financial position**:

$$\underbrace{-\sum_{t=0}^{\infty}\bar{R}^{-t}NX_t}_{\text{permanent trade deficit}} = \underbrace{\bar{R}\,\mathcal{B}_{-1}}_{\textcircled{0}\text{ exogenous initial NFA}} + \underbrace{(\mathcal{R}_0-\bar{R})\mathcal{B}_{-1}}_{\textcircled{1}\text{ on-impact valuation effect}} + \underbrace{\sum_{t=1}^{\infty}\bar{R}^{-t}(\mathcal{R}_t-\bar{R})\mathcal{B}_{t-1}}_{\textcircled{2}\text{ future excess returns}}$$

where $\mathcal{B}_{-1}$ are initial net foreign assets, $\bar{R}$ is risk-free rate, and $\mathcal{R}_t$ are portfolio returns

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where $\mathcal{B}_{-1}$ are initial net foreign assets, $\bar{R}$ is risk-free rate, and $\mathcal{R}_t$ are portfolio returns

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where $\mathcal{B}_{-1}$ are initial net foreign assets, $\bar{R}$ is risk-free rate, and $\mathcal{R}_t$ are portfolio returns

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2. Tariffs generically affect exchange rates and generate valuation effects ①
   — tariffs can close imbalances, optimal tariff depends on external asset positions

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2. Tariffs generically affect exchange rates and generate valuation effects ①
   — tariffs can close imbalances, optimal tariff depends on external asset positions
3. "Convenience yields" / "exorbitant privilege" $\Rightarrow$ systematic excess returns ②
   — tariffs result in retrenchment and erode exorbitant privilege

# Related Literature

- **Classics**: Lerner (1936), Baldwin (1948), Johnson (1950, 1953), Gros (1987), Jones (1967), Razin and Svensson (1983), Diamond and Mirrlees (1971), Dixit and Norman (1980), Helpman and Krugman (1989), Bagwell and Staiger (1999), Ossa (2016), Caliendo and Parro (2022)
- **Recent**: Auray, Devereux, Eyquem (2024, 2025), Ignatenko et al. (2025), Alessandria et al. (2025), Rodríguez-Clare, Ulate, Vasquez (2025), Kalemli-Ozcan, Soylu, Yildirim (2025), Ostry, Lloyd, Corsetti (2025), Bai, Lu, Wang (2025)
- **Imbalances**: Lorenzoni (2019), Aguiar, Amador, Fitzgerald (2025), Reyes-Heroles (2016), Cuñat, Zymek (2024), Pujolas, Rossbach (2024), Costinot, Werning (2025), Davila et al. (2025), Caliendo, Kortum, Parro (2025), Hassan et al. (2025), Jiang et al. (2025)
- **Tariffs and MP**: Bergin and Corsetti (2023), Bianchi and Coulibaly (2024), Monacelli (2025), Auclert, Rognlie, Straub (2025), Werning, Lorenzoni, Guerrieri (2025)
- **Other**: Gourinchas and Rey (2007), Farhi, Gopinath, Itskhoki (2014), Itskhoki and Mukhin (2022), Lloyd and Marin (2023), Aguiar, Itskhoki, Mukhin (2024)

# BALANCED TRADE

# Setup

- **Two countries**: Home (US) and Foreign (RoW$^*$)

- **Two goods**:

$$Y = C_H + C_H^* \qquad \text{and} \qquad Y^* = C_F + C_F^*$$

- **CES preferences** with elasticities $\theta, \eta > 1$ and home bias

$$u(C_H, C_F) = \left[(1-\gamma)^{\frac{1}{\theta}} \; C_H^{\frac{\theta-1}{\theta}} \; + \; \gamma^{\frac{1}{\theta}} \; C_F^{\frac{\theta-1}{\theta}}\right]^{\frac{\theta}{\theta-1}}$$

$$u^*(C_H^*, C_F^*) = \left[{\gamma^*}^{\frac{1}{\eta}} {C_H^*}^{\frac{\eta-1}{\eta}} + (1-\gamma^*)^{\frac{1}{\eta}} {C_F^*}^{\frac{\eta-1}{\eta}}\right]^{\frac{\eta}{\eta-1}}$$

# Decentralized Equilibrium under Financial Autarky

Given tariffs $\{\tau^I, \tau^E\}$, allocation $\{C_H, C_F, C_H^*, C_F^*\}$ and prices $\{P_H, P_F, P_H^*, P_F^*\}$ satisfy

- LOP deviations due to tariffs: ▸ prices

$$P_F = \tau^I P_F^* \quad \text{and} \quad P_H^* = \tau^E P_H$$

- Household optimization:

$$\frac{u_F}{u_H} = \frac{P_F}{P_H} \quad \text{and} \quad \frac{u_F^*}{u_H^*} = \frac{P_F^*}{P_H^*}$$

- Country's budget constraint (balanced trade):

$$P_H^* C_H^* = P_F^* C_F$$

- Market clearing:

$$Y = C_H + C_H^* \quad \text{and} \quad Y^* = C_F + C_F^*$$

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$$\mathcal{S}^{-1} C_H^* = C_F$$

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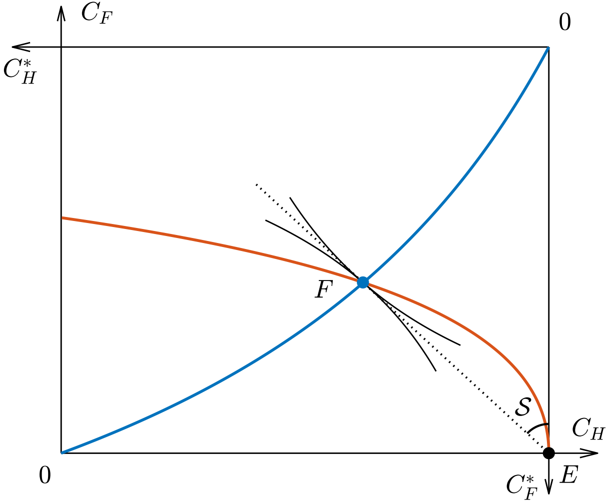

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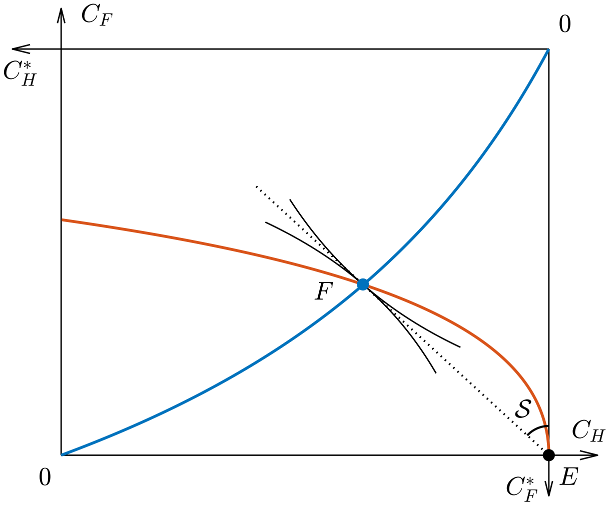


- **Lerner symmetry**: only overall tariff $\tau \equiv \tau^I \tau^E$ matters for allocation
  - same terms-of-trade $\mathcal{S} \equiv \frac{P_F^*}{P_H^*}$, different (producer price) real exchange rate $\mathcal{Q} \equiv \frac{P_F^*}{P_H}$

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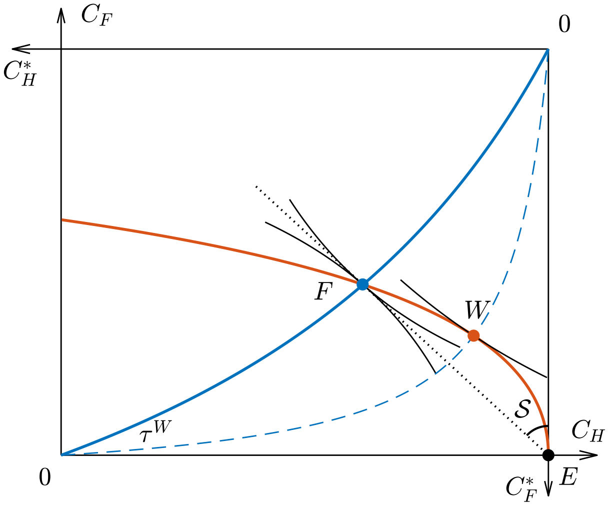


- **Optimal tariff**: $\tau^W = 1 + \frac{1}{\eta - 1} \cdot \frac{1}{\Lambda^*} > 1$, where $\Lambda^* \equiv \frac{P_F^* C_F^*}{P^* C^*} = \frac{C_F^*}{Y^*}$

# GLOBAL IMBALANCES

# Two Tariffs

- **International portfolios**: $NFA$ = FC assets − LC liabilities = $P_F^* B_0^* - P_H B_0$
- **Result**: cross-border positions in nominal/real bonds, equities and FDI can be mapped into NFA with $B_0, B_0^*$ invariant to tariffs and all valuation effects summarized by the (producer-price) real exchange rate $\mathcal{Q}$ ▸ details

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  3. Optimal policy engineers max transfer (VA) with unbounded $\tau^I, \tau^E, \mathcal{Q}$, but finite $\mathcal{S}$

# Can Import Tariff close Trade Imbalance?

- Constraints when export tax is not available $\tau^E = 1$:

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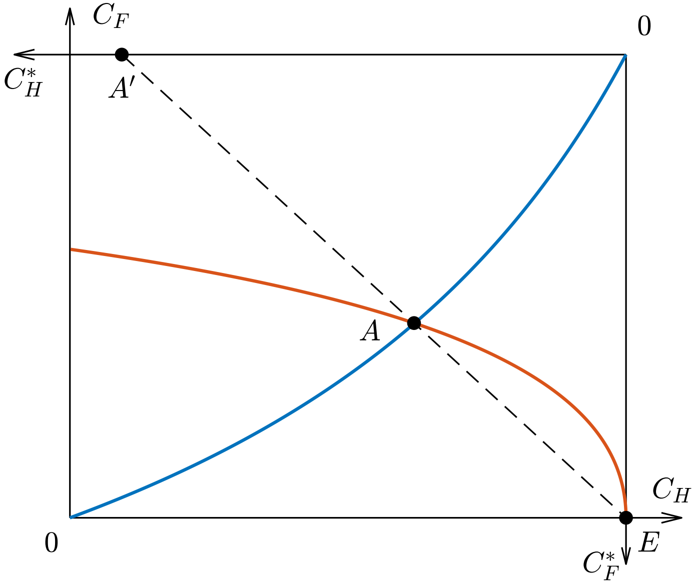


▸ NX>0 figures

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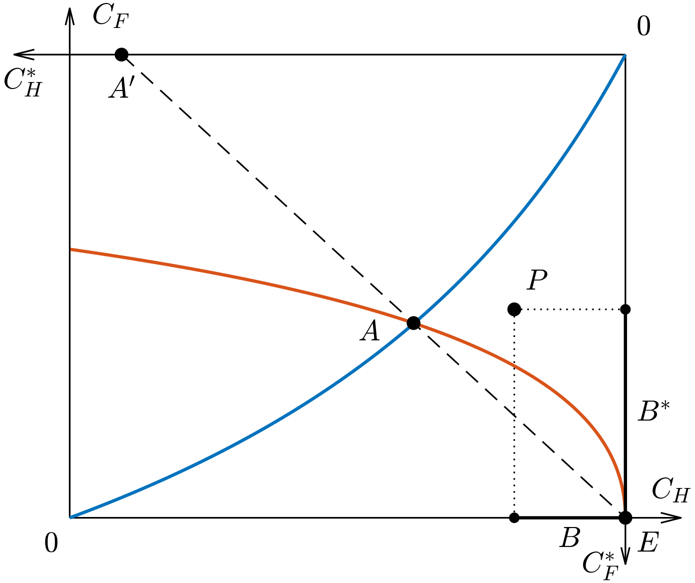


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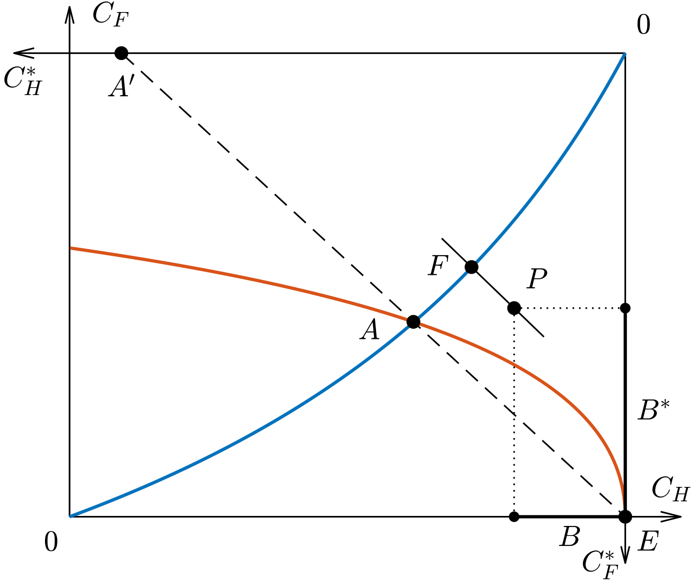


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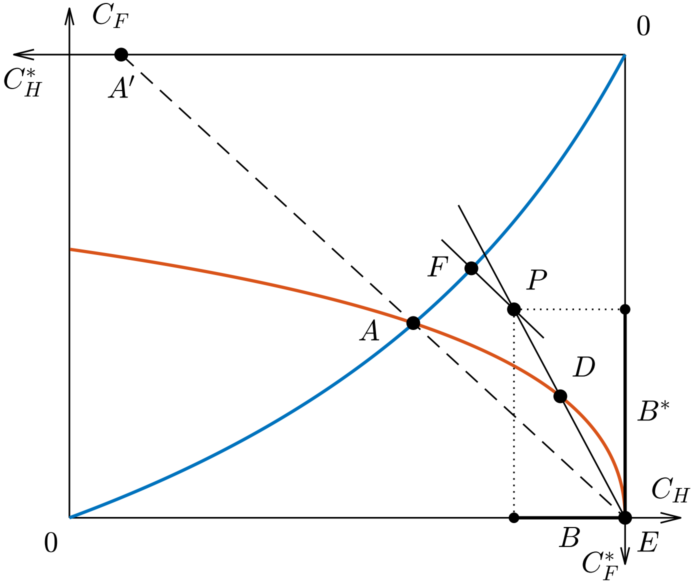


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  3. same can be achieved with export subsidy $\tau^E < 1$, unlike Lerner symmetry
     — though the resulting ToT and allocation are different

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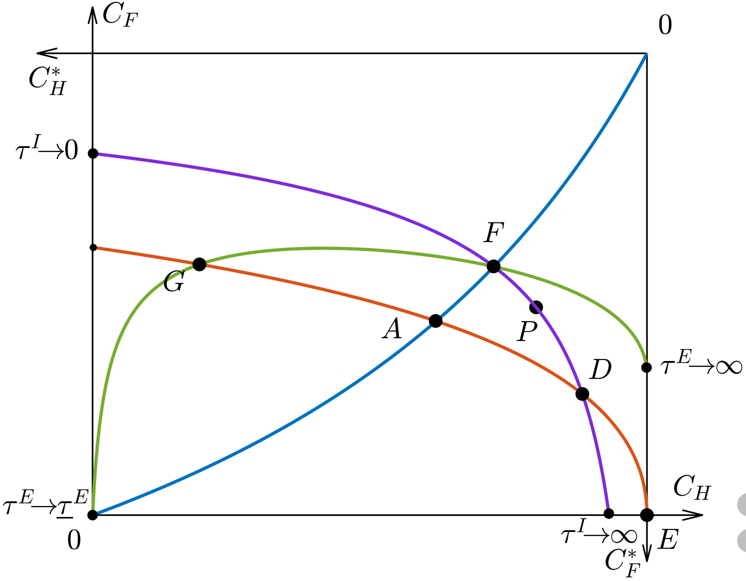


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# Is Optimal Tariff Higher under Trade Deficit?

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  - in general, $NX < 0$ neither necessary nor sufficient for higher $\tau$
- **US**: $B_0 \gg 0$ reduces $\tau^I$ from 35% to 9%, welfare gains from 1% to 0.1%
  - ToT manipulation vs. valuation effect $(\tau \uparrow \Rightarrow \mathcal{Q} \downarrow \Rightarrow NFA \downarrow)$ details figures

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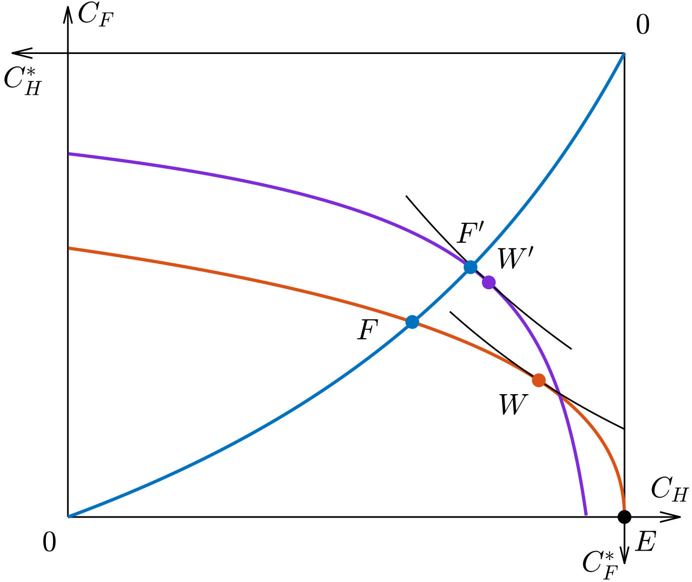

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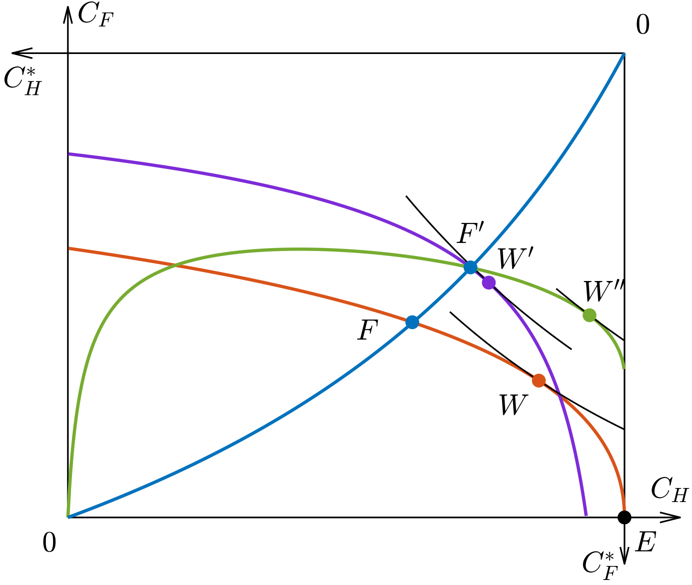

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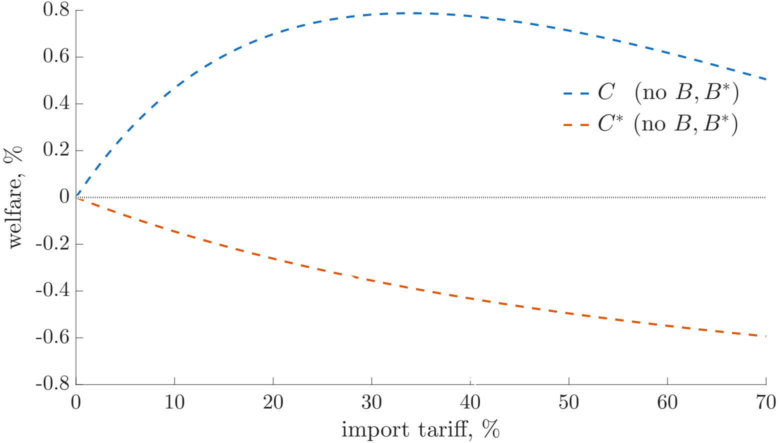
- **Optimal export tariff**:

$$\tau^E = 1 + \frac{1}{\eta - 1} \cdot \frac{1}{\Lambda^*} + \frac{\eta}{\eta - 1} \frac{1}{\theta} \cdot \frac{1}{\Lambda} \cdot \frac{\mathcal{B}}{IM} \qquad \text{and} \qquad \mathcal{Q} = \tau^E \mathcal{S}$$

# Retaliation and Trade War



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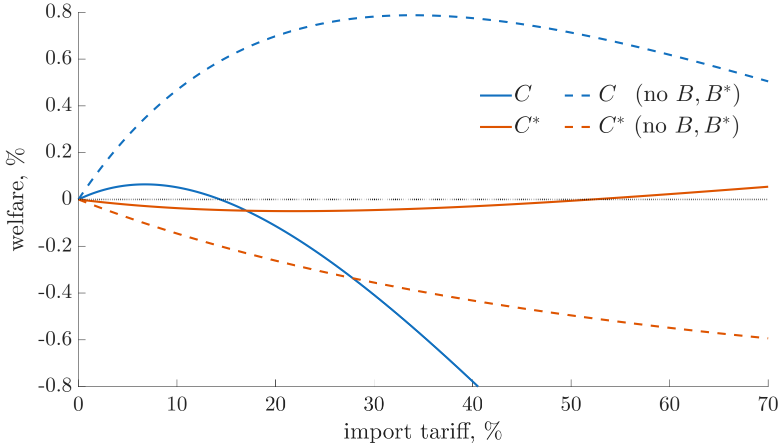


- High U.S. import tariff benefits the RoW via valuation effects

  $\Rightarrow$ no retaliation might be needed

# Retaliation and Trade War

- **Nash equilibrium tariffs** have the same structure as unilateral ones:

$$\tau^I = 1 + \frac{1}{\eta\left(1 + \frac{\mathcal{B}}{EX - \mathcal{B}}\right) - 1} \cdot \frac{1}{\Lambda^*} \qquad \text{and} \qquad \tau^{I*} = 1 + \frac{1}{\theta\left(1 + \frac{\mathcal{B}^*}{IM - \mathcal{B}^*}\right) - 1} \cdot \frac{1}{\Lambda}$$

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| | $B_0 = B_0^* = 0$ | | | | $B_0^* > B_0 > 0$ | | | |
|---|---|---|---|---|---|---|---|---|
| | $\tau^I$ | $\tau^{I*}$ | $C$ | $C^*$ | $\tau^I$ | $\tau^{I*}$ | $C$ | $C^*$ |
| Unilateral | 35.3 | 0.0 | 0.95 | -0.46 | 8.8 | 0.00 | 0.10 | -0.05 |
| Trade war | 34.9 | 40.5 | -1.61 | -0.29 | 6.7 | 6.8 | -0.08 | -0.02 |

(all in percent) details

# ENDOGENOUS PORTFOLIOS

# Dynamic Model with Portfolio Choice and Convenience Yield

- Main assumptions:
  - stochastic $Y_t, Y_t^*$, internationally-traded equities
  - separable preferences, $\eta = \theta = 1/\sigma$
  - convenience yield on US assets, $\chi \in (\beta, 1]$
  - focus on constant import tariff $\tau$

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- Preferences:

$$\max_{\{C_{Ht}, C_{Ft}, b_{t+1}, b^*_{t+1}\}} \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \left[ (1-\gamma)^{\frac{1}{\theta}} C_{Ht}^{\frac{\theta-1}{\theta}} + \gamma^{\frac{1}{\theta}} C_{Ft}^{\frac{\theta-1}{\theta}} \right]$$

- Budget constraint:

$$P_{Ht}C_{Ht} + P_{Ft}C_{Ft} + \chi \mathcal{V}_t(1 - b_{t+1}) + \mathcal{V}_t^* b_{t+1}^*$$
$$= (\mathcal{V}_t + P_{Ht}Y_t)(1 - b_t) + (\mathcal{V}_t^* + P_{Ft}^* Y_t^*) b_t^* + T_t$$

# Mapping into Static Model

- **Definition:** The permanent component of quantities $X \in \{Y, C, C_H, C_F\}$, prices $P_J$ for $J \in \{H, F\}$, trade values $M \in \{EX, IM\}$ and foreign counterparts are given by:

$$X \equiv \left((1-\beta)\mathbb{E}\sum_{t=0}^{\infty}\beta^t X_t^{\frac{\theta-1}{\theta}}\right)^{\frac{\theta}{\theta-1}}, \quad P_J \equiv \left((1-\beta)\mathbb{E}\sum_{t=0}^{\infty}\beta^t P_{Jt}^{1-\theta}\right)^{\frac{1}{1-\theta}}, \quad M \equiv (1-\beta)\mathbb{E}\sum_{t=0}^{\infty}\beta^t M_t$$

# Mapping into Static Model

- **Result** [Dynamic $\to$ Static]: The permanent components of allocations and prices satisfy the static equilibrium system and the country budget constraint generalized as:

$$\big(C_H^*/\mathcal{S} - C_F\big) + \big(B_0^* - B_0/\mathcal{Q}\big) + \Omega \cdot \big(C_H^*/\mathcal{S} - B_0/\mathcal{Q}\big) = 0,$$

where $B_0 = b_0 Y$, $B_0^* = b_0^* Y^*$, $\Omega \equiv \frac{\mathbb{E}\sum_{t=0}^{\infty}(\beta/\chi)^t Y_t^{\frac{\theta-1}{\theta}}}{\mathbb{E}\sum_{t=0}^{\infty}\beta^t Y_t^{\frac{\theta-1}{\theta}}} - 1 \geq 0$ is exorbitant privilege

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- **Result** [Static $\to$ Dynamic]: Denote with $\hat{X} = \frac{\Delta X}{X}$ change in variable $X$ (allocation, price or trade value) in response to unexpected permanent $\tau$. Then for all $t \geq 0$:

$$\hat{X}_t = \hat{X} \qquad \text{and} \qquad \Delta NX_t = \Delta EX_t - \Delta IM_t = EX_t \cdot \widehat{EX} - IM_t \cdot \widehat{IM}$$

# Tariff Equilibrium

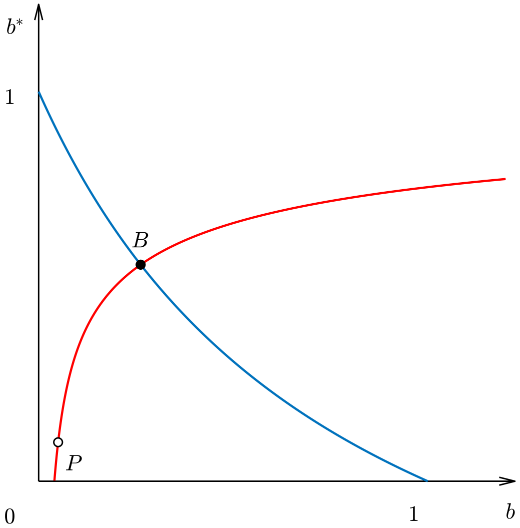
- **Proposition:** Equilibrium portfolio and consumption shares $(b, b^*)$ are constant

$$C_{Ht} = (1-b)Y_t, \quad C^*_{Ht} = bY_t, \quad C_{Ft} = b^* Y^*_t, \quad C^*_{Ft} = (1-b^*)Y^*_t$$

and determined by contract curve and ex-ante budget constraint:

$$\frac{b^*}{1-b^*} = \frac{\tau^{-\theta}\gamma\gamma^*}{(1-\gamma)(1-\gamma^*)}\frac{1-b}{b}, \qquad b^* - b^*_0 = \left(\frac{\gamma^*(1-b^*)}{(1-\gamma^*)b}\right)^{\frac{1}{\theta}} \frac{\mathbb{E}\sum\left(\frac{\beta}{\chi}\right)^t Y_t^{\frac{\theta-1}{\theta}}}{\mathbb{E}\sum \beta^t Y_t^{*\frac{\theta-1}{\theta}}}(b-b_0)$$

# Tariff Equilibrium



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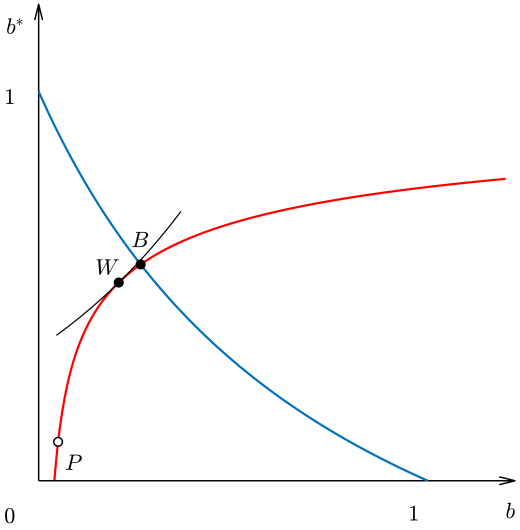

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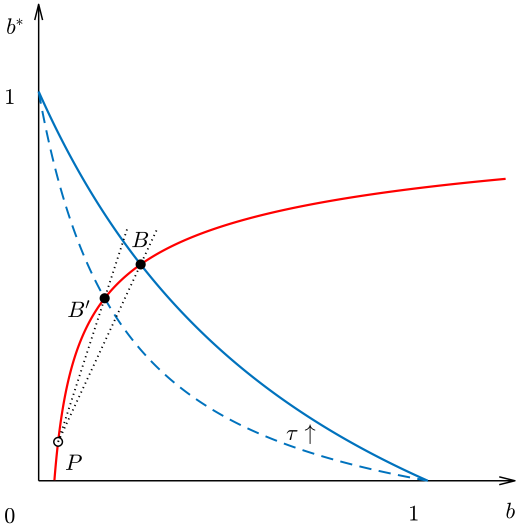


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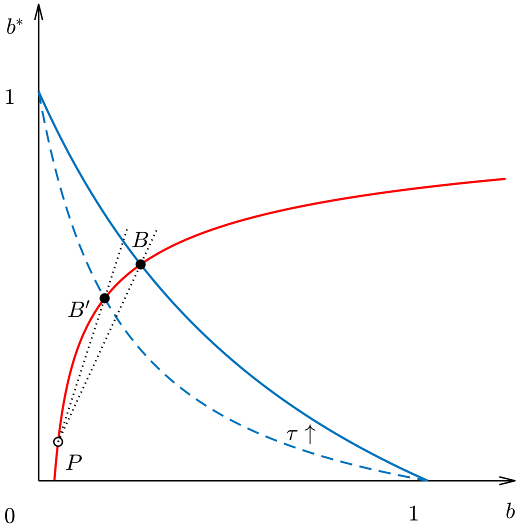


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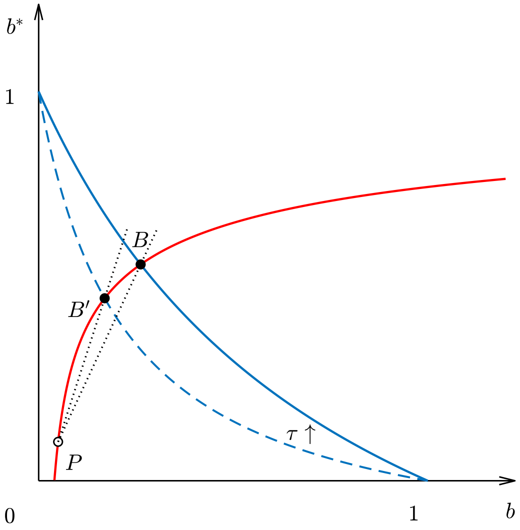


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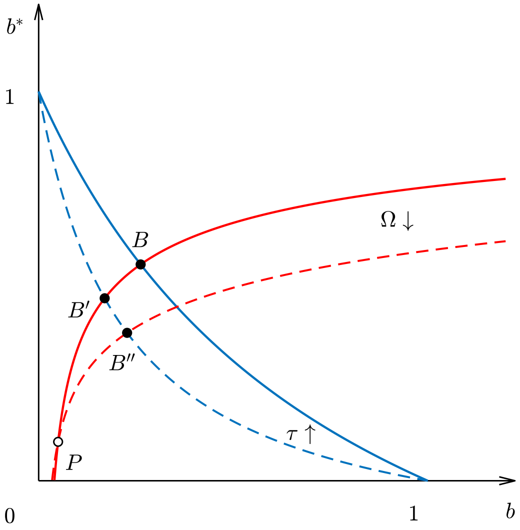


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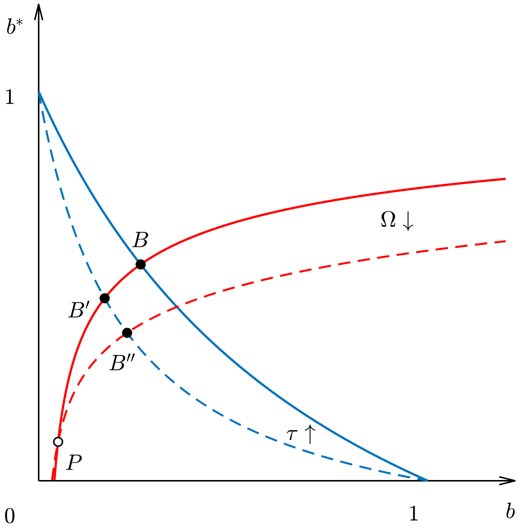


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* all work towards closing trade deficit, only $\chi \uparrow$ via depreciation

# Conclusion

1. **Can tariffs permanently close trade imbalances?**

   — yes... but only via valuation of international asset positions

2. **Is optimal tariff higher under trade deficit?**

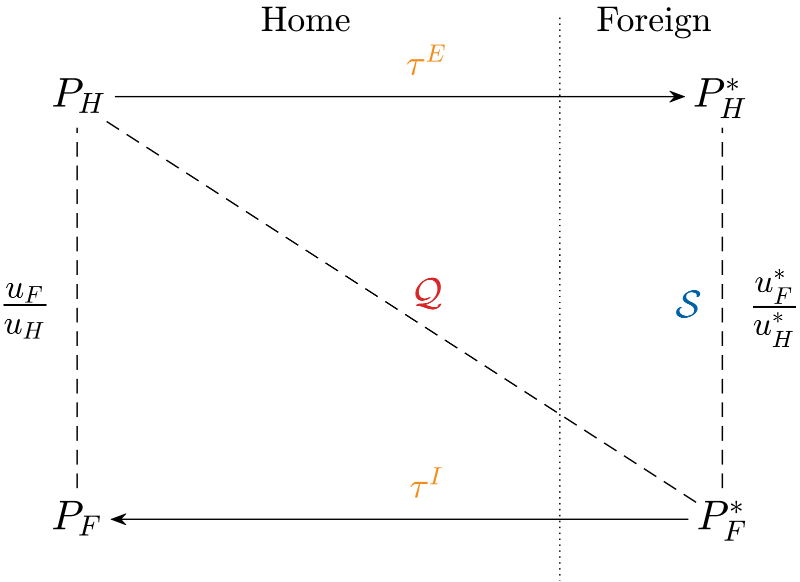
   — no... optimal tariffs much lower with cross-border asset holdings

3. **Do tariffs undermine U.S. "exorbitant privilege"?**

   — retrenchment of cross-border positions and smaller privilege

# APPENDIX

# Relative Prices

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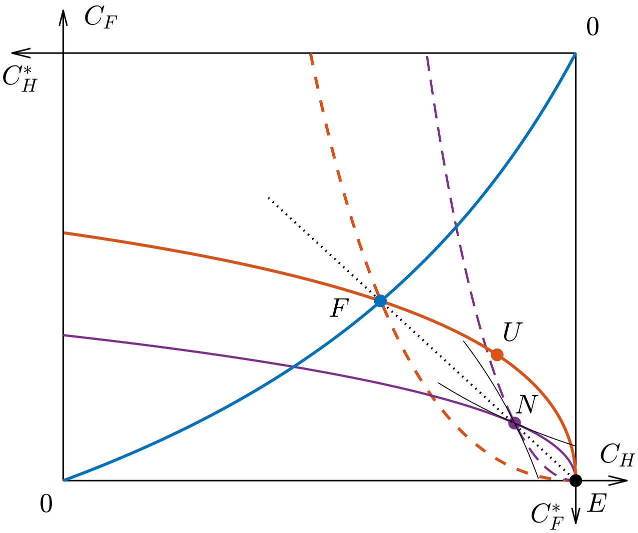
# Trade War Nash

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# Manufacturing Employment

- Tradables and non-tradables:

$$u = \frac{\rho}{\rho - 1}\left(\kappa C_N^{\frac{\rho-1}{\rho}} + C_T^{\frac{\rho-1}{\rho}}\right), \qquad C_T = \left[(1-\gamma)^{\frac{1}{\theta}} C_H^{\frac{\theta-1}{\theta}} + \gamma^{\frac{1}{\theta}} C_F^{\frac{\theta-1}{\theta}}\right]^{\frac{\theta}{\theta-1}} \quad \rho \le \theta$$

- Production economy:

$$C_N = Y_N = F_N(L_N), \qquad Y = F_T(L_T), \qquad L_N + L_T = L$$

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- Labor market equilibrium:

$$\frac{P_H}{P_N} = \frac{W/F_T'}{W/F_N'} = \frac{F_N'(L - L_T)}{F_T'(L_T)} \quad \text{and} \quad \frac{P_H}{P_N} = \frac{u_H}{u_N} = \frac{u_H\big(F_T(L_T) - g(C_F), C_F\big)}{u_N\big(F_N(L - L_T)\big)}$$

# Manufacturing Employment

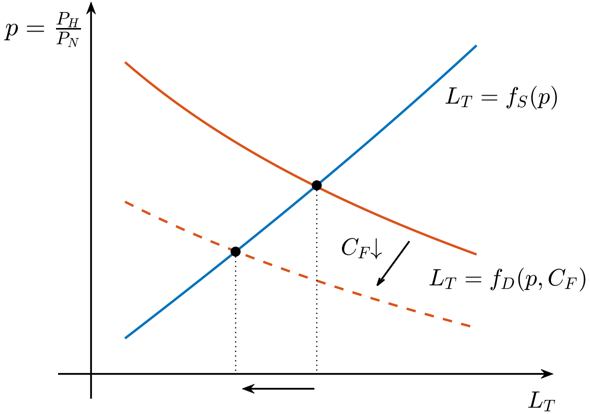



**Figure:** Tradable-sector employment

- Both a "China shock" ($Y^* \uparrow$) and tariff $\tau$ reduce tradable employment $L_T$
- **Proposition**: To increase $L_T$, the planner needs to use trade subsidy

▸ back

# Global Imbalances

- General restriction on long-run trade imbalance from country budget constraint

- In any $t$, $B^j_{t-1}$, $j \in J_{t-1}$ are asset holding paying dividend $D^j_t$ and valued at $Q^j_t$, with realized return $R^j_t \equiv (Q^j_t + D^j_t)/Q^j_{t-1}$
- $\bar{R}_t$ is the risk-free interest rate between $t$ and $t+1$ (known at $t$)
- The value of new asset positions at $t$: $\mathcal{B}_t \equiv \sum_{j \in J_t} Q^j_t B^j_t$
- The pay-out on entire NFA position: $\mathcal{R}_t \mathcal{B}_{t-1} \equiv \sum_{j \in J_{t-1}} (Q^j_t + D^j_t) B^j_{t-1}$
- Flow budget constraint:
$$\mathcal{B}_t - \mathcal{R}_t \mathcal{B}_{t-1} = NX_t$$

- **Lemma**: If there is no arbitrage in $J_t$, then there exists SDF $\Theta_{t+1}$ such that:
$$\mathbb{E}_t\{\Theta_{t+1}(\mathcal{R}_{t+1} - \bar{R}_t)\} = 0.$$

## Long-run Trade Imbalance

- **Proposition**: Long-run trade deficit is determined by the financial position:

$$\underbrace{-\sum_{t=0}^{\infty}\beta^t NX_t}_{\text{long-run trade deficit}} = \underbrace{\bar{R}\,\mathcal{B}_{-1}}_{\substack{\text{exogenous}\\ \text{initial NFA}}} + \underbrace{(\mathcal{R}_t - \bar{R})\mathcal{B}_{-1}}_{\substack{\text{on-impact}\\ \text{valuation effect}}} + \underbrace{\sum_{t=1}^{\infty}\beta^t\left(\mathcal{R}_t - \bar{R}\right)\mathcal{B}_{t-1}}_{\text{future realized excess returns}},$$

  where $\bar{R} = 1/\beta$ is the unconditional average risk-free rate.

- **Corollary**: If there is no arbitrage $\forall s \geq t$, then expected long-run trade deficit:

$$-\sum_{t=0}^{\infty}\mathbb{E}_t\{\Theta_t NX_t\} = \bar{R}\,\mathcal{B}_{-1} + (\mathcal{R}_0 - \bar{R})\mathcal{B}_{-1}, \qquad \text{where} \quad \mathbb{E}_0\Theta_t = \beta^t.$$

- Tariffs do, in general, have valuation effects on a country's international portfolio
  - but not shaped by trade shares, trade elasticities, or terms of trade
  - there is an optimal tariff even without the effect on the LR trade imbalance

# Exchange Rate Response to Tariffs

## Proposition

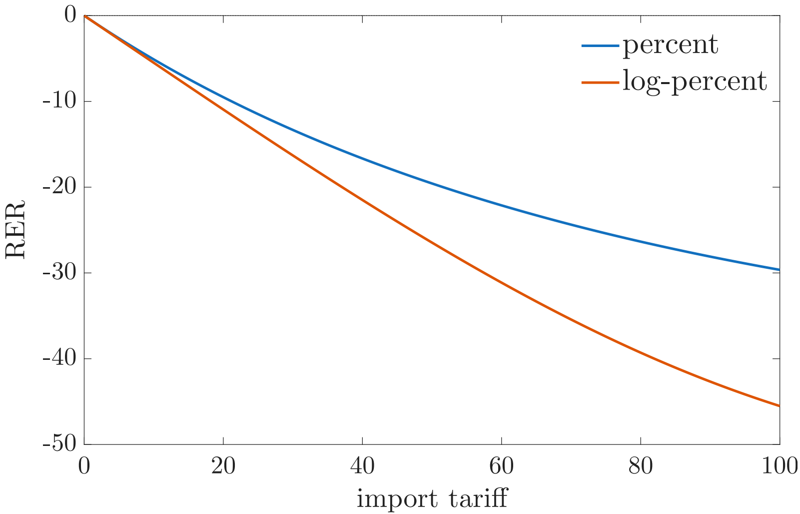
*Suppose home runs a trade deficit under free trade,* $NX_0 = -NFA_0 < 0$ *. Then there exists a unique balanced-trade equilibrium that can be implemented with an import tariff,* $\tau^I > 1$*, via the resulting real exchange rate appreciation.*

$$\Delta \log \mathcal{Q} = -\frac{(1-\gamma)\theta}{(1-\gamma)\theta + (1-\gamma^*)\eta + (1-\gamma-\gamma^*)[\frac{\mathcal{B}}{EX} - 1]}\Delta\tau^I \approx -\frac{1}{2}\Delta\tau^I$$

*while the real appreciation needed to close trade deficit* $\Delta\mathcal{Q}/\mathcal{Q} = NX_0/\mathcal{B}_0 < 0$

▸ back

# Exchange Rate Response to Tariffs

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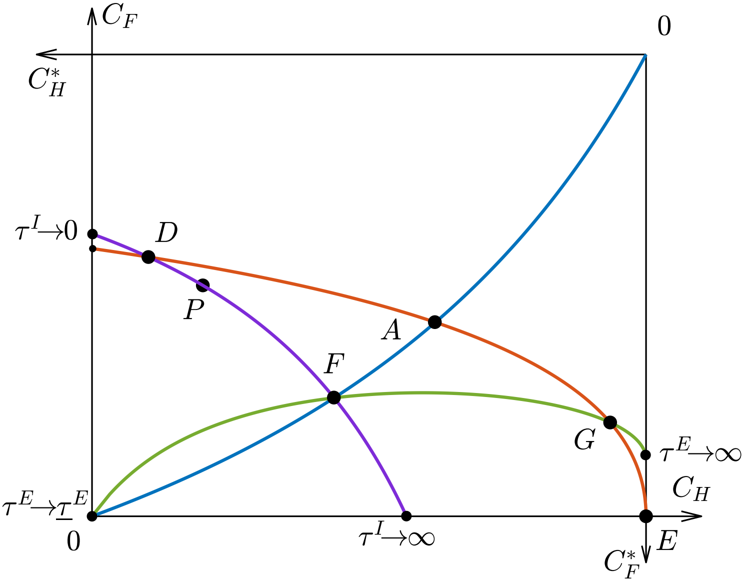
# Illustration: Closing Trade Surplus

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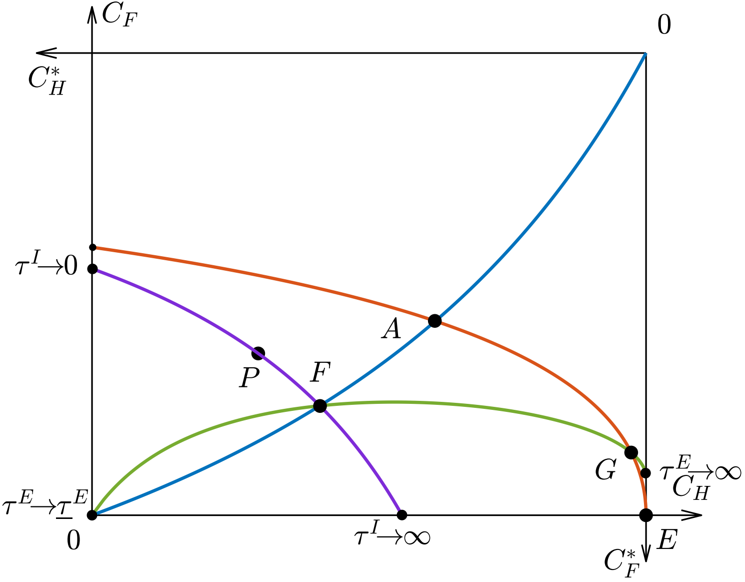


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# Multiple Assets

## Proposition

*Assume that monetary policy in each region stabilizes prices of local goods. Then cross-border asset positions in nominal and real bonds, equity and FDI can be mapped into $B_0$ and $B_0^*$ that are invariant to tariffs, and the allocation-relevant asset valuation effects of tariffs equal:*

$$\Delta(NFA/P_F^*) = = \underbrace{\frac{\Delta\mathcal{Q}}{\mathcal{Q}}}_{\text{real depreciation}} \times \underbrace{B_0/\mathcal{Q}_0}_{\substack{\text{pre-tariff real value} \\ \text{of external liabilities}}},$$

*where $\Delta\mathcal{Q}/\mathcal{Q} \equiv (\mathcal{Q} - \mathcal{Q}_0)/\mathcal{Q}$ is the tariff-induced depreciation.*

- $NFA_0 = P_{F0}^* B_0^* - P_{H0} B_0 \quad \rightarrow \quad NFA = P_F^* B_0^* - P_H B_0$

back

# Multiple Assets

| asset | returns | | |
|---|---|---|---|
| | nominal | in F goods | given MP |
| Home nominal bond | $1$ | $\frac{1}{p_F^* \mathcal{E}}$ | $\frac{1}{\tau^E \mathcal{S}} = \frac{1}{\mathcal{E}}$ |
| Home real bond | $p_H$ | $\frac{p_H}{p_F^* \mathcal{E}}$ | $\frac{1}{\tau^E \mathcal{S}} = \frac{1}{\mathcal{E}}$ |
| Home equity | $p_H Y$ | $\frac{p_H}{p_F^* \mathcal{E}} Y$ | $\frac{Y}{\tau^E \mathcal{S}} = \frac{Y}{\mathcal{E}}$ |
| Foreign nominal bond | $\mathcal{E}$ | $\frac{1}{p_F^*}$ | $1$ |
| Foreign real bond | $\mathcal{E} p_F^*$ | $1$ | $1$ |
| Foreign equity | $\mathcal{E} p_F^* Y^*$ | $Y^*$ | $Y^*$ |

back

# Multiple Countries

- The method with implementability generalizes to multiple countries

$$\max_{\{C_j^*\}} \quad u\big(\{Y_j - C_j^*\}_{j=0}^N\big) \qquad \text{s.t.} \qquad \sum_{j=0}^N u_j^*\big(\{C_j^*\}\big)(Y_j^* - C_j^*) = 0.$$

- **Proposition**: Optimal import tariffs are determined by the system

$$\tau_j = \frac{1}{\Lambda_j^*}\left[\frac{1}{\theta}\bar{\tau}_j + \frac{\theta-1}{\theta}\sum_{i=1}^N \alpha_{ji}\bar{\tau}_i\right], \quad \text{where} \quad \bar{\tau}_i \equiv \sum_{j=0}^N s_{ji}\tau_j, \;\; \alpha_{ji} \equiv \frac{C_{ji}}{Y_j}, \;\; \Lambda_j^* \equiv 1-\alpha_{j0}$$

- If foreign countries share consumption risk, then the optimal tariff for country $j$ is:

$$\tau_j = 1 + \frac{1}{\theta-1}\frac{1}{\Lambda_j^*}, \qquad \text{where} \quad \Lambda_j^* \equiv \frac{C_j^*}{Y_j}$$

# Many Countries w/ Quasi-Linear Preferences

- Multiple countries indexed by $i = 0, 1, \ldots, N$, with $i = 0$ as the U.S.
- Each country has endowment $Y_i$ of its unique good and $Y_{mi}$ of a common commodity $m$:

$$u_i = \frac{\theta - 1}{\theta} \sum_{j=0}^{N} \gamma_{ji}^{1/\theta} C_{ji}^{(\theta-1)/\theta} + C_{mi}$$

- Price of $m$ normalized to one and no tariffs on $m$, no asset positions
- **Optimal tariffs**:

$$\tau_i^E = \frac{\theta}{\theta - 1} \qquad \text{and} \qquad \tau_i^I = 1 + \frac{1}{\theta} \frac{1 - \Lambda_i}{\Lambda_i}, \text{ where } \Lambda_i \equiv \frac{Y_i - C_{i0}}{Y_i}.$$

  - each tariff is independent of the availability of other ones
  - total tariff the same as in the baseline model $\tau_i^I \cdot \tau_i^E = 1 + \frac{1}{\theta - 1} \frac{1}{\Lambda_i}$
  - bilateral balance does not affect optimal tariffs, but matters for retaliation

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# Why Did the Dollar Depreciate?

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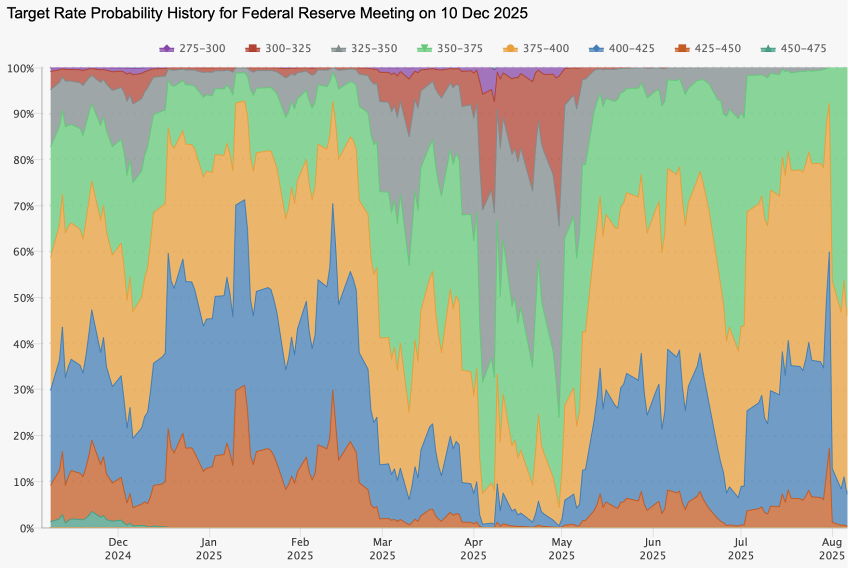

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# Why Did the Dollar Depreciate?

**US yields and dollar have parted company**

Rising US yields typically support the dollar, as do geopolitical tensions (as the dollar is often seen as a haven asset). Since Donald Trump unleashed his trade war, however, US yields have soared and the dollar has plunged.

The dollar usually moves in lockstep with US yields... until 'liberation day'

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   — however, small capital outflows from the U.S. and quick reversion in asset prices

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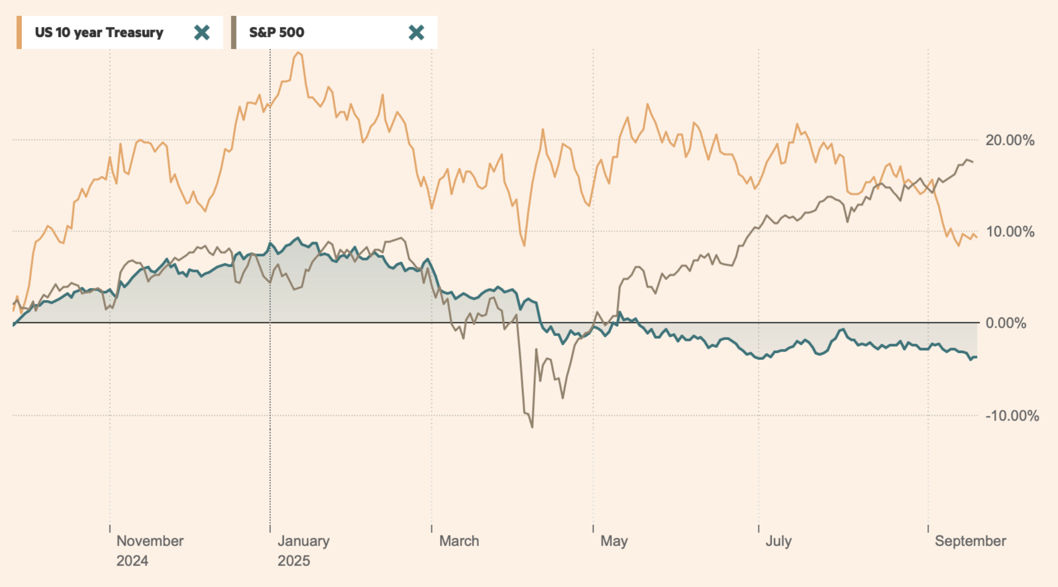

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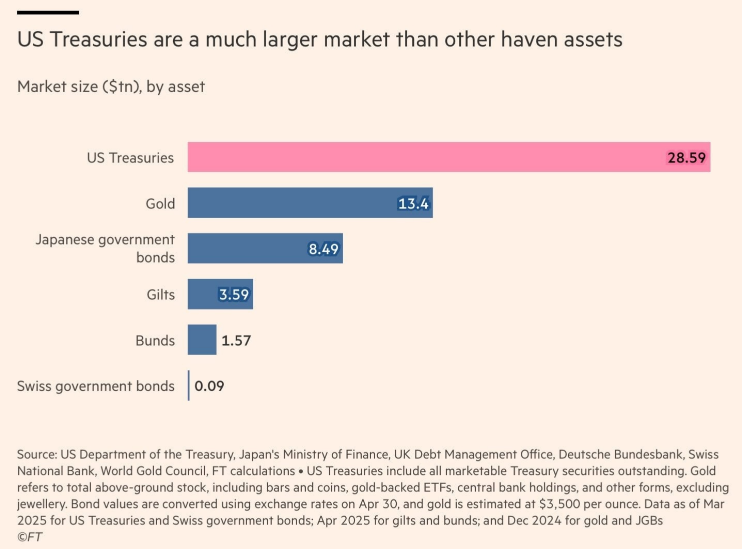

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# Why Did the Dollar Depreciate?

US dollar + Add to myFT

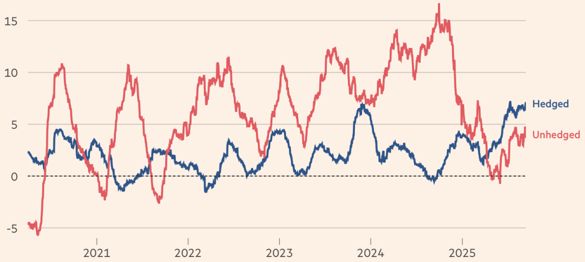
## Foreign investors in US assets rush for protection against swings in dollar

Sharp increase in hedging comes amid broad rethink on exposure to greenback

**Hedged** ETF flows into US assets now surpass **unhedged**

Foreign-domiciled ETF inflows into US assets

Rolling three-month ($bn)



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- Loss of exorbitant privilege $\Rightarrow$ weaker dollar + rebalancing of trade

$$NX(\mathcal{S}) + NFA(\mathcal{Q}) + CY(\mathbf{X}) = 0$$

# Numerical Results

| | $\tau$ | $\tau^*$ | $C$ | $C^*$ | $\mathcal{Q}$ | $\mathcal{S}$ | $T$ | $NX$ |
|---|---|---|---|---|---|---|---|---|
| Baseline calibration | | | | | | | | |
| Closing imbalance $\tau^I$ | 63.81 | 0.00 | −1.60 | −0.04 | −22.22 | −22.22 | 2.86 | 0.00 |
| Closing imbalance $\tau^E$ | −41.71 | 0.00 | −12.90 | 1.87 | −22.22 | 33.44 | −15.31 | 0.00 |
| Optimal $\tau^I$ | 8.76 | 0.00 | 0.10 | −0.05 | −4.37 | −4.37 | 1.02 | −1.61 |
| Optimal $\tau^E$ | 67.47 | 0.00 | 1.80 | −0.93 | 19.45 | −28.67 | 2.13 | −3.75 |
| Trade war $\tau^I$ | 6.75 | 6.78 | −0.08 | −0.02 | −0.22 | −0.22 | 0.76 | −1.98 |
| Fiscal tariff $\tau^I$ | 64.93 | 0.00 | −1.64 | −0.03 | −22.47 | −22.47 | 2.86 | 0.02 |
| Financial autarky | | | | | | | | |
| Optimal $\tau$ | 35.31 | 0.00 | 0.95 | −0.46 | −15.14 | −15.14 | 2.60 | 0.00 |
| Trade war $\tau$ | 34.90 | 40.48 | −1.61 | −0.29 | 3.55 | 3.55 | 1.48 | 0.00 |
| Fiscal tariff $\tau$ | 81.62 | 0.00 | 0.41 | −0.74 | −27.98 | −27.98 | 3.14 | 0.00 |
| No imbalances | | | | | | | | |
| Improving balance $\tau^I$ | 122.53 | 0.00 | −3.49 | −0.05 | −28.57 | −28.57 | 2.15 | 2.00 |
| Convenience yields | | | | | | | | |
| Closing imbalance $\tau^I$ | 14.36 | 0.00 | −1.58 | 0.36 | −5.11 | −5.11 | 1.41 | 0.00 |
| Optimal $\tau^I$ | −31.19 | 0.00 | 2.53 | −1.25 | 17.96 | 17.96 | −10.47 | −11.19 |
| Optimal $\tau^E$ | −1.82 | 0.00 | 0.02 | −0.01 | −0.92 | 0.92 | −0.23 | −2.12 |

▸ closing imbalances ▸ optimal tariff ▸ retaliation ▸ fiscal revenues

# Alternative Objectives

1. **Manufacturing employment**: ▸ details

   - tradable-employment-maximizing tariff... is a trade subsidy, i.e. $\partial L_T / \partial \tau < 0$
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