Tariffs, Trade Deficits, and Liquidity Supply

Matias Bayas-Erazo[1] Guido Lorenzoni[2]

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[1]University of Zürich

[2]University of Chicago Booth School of Business

Tariffs

- Stated goal of Trump trade policy: reduce **current account deficit**
- Issues:
  - Misplaced focus on *bilateral* deficits
  - Unclear welfare basis for targeting deficit
- **This paper:**
  - Does it work? Through which **mechanisms?**
  - If not, what next?

Trade openness and deficits

- Traditional argument: deficits depend on **saving/investment**
  - Trade policy should have limited bite!
- But things are subtler in **GE**: [Obstfeld & Rogoff, 2000; Reyes-Heroles, 2017; …]
  - Intertemporal trade requires goods to flow *both ways* over time
  - Sand in wheels of goods trade $\Rightarrow$ harder to borrow/lend
- **Tariffs** move prices within periods, across periods & states [Costinot & Werning, 2025]
- **Question:** What are the **channels** through which tariffs affect saving/investment?

This paper

Question: *How do tariffs affect financial side of the economy?*

- Focus on two channels through which tariffs affect saving and investment:
  1. **Real interest rate:** asymmetric effects on relative prices across periods
  2. **Liquidity:** affects valuation and demand for liquid assets

- Two models with **identical** trade structure but different intertemporal dimension
  1. Standard intertemporal model with **transitory deficits**
  2. World liquidity model with **permanent deficits** and "*exorbitant privilege*"

- Revisit welfare effects & interpret **taxes on liquidity** from trade-policy perspective

Main takeaways

1. **Intertemporal model: asymmetric** effects of tariffs rely on **transitory** deficits
   - Creates real interest rate wedge, thereby reducing trade deficit
   - Retaliation *amplifies* effect

2. **World liquidity model:** interest rate channel is muted when deficits are *permanent*
   - **Perfect separation** b/w trade and financial side in simplest version $\implies$ zero effect!
   - In more realistic version, **valuation effects** can reduce deficit but retaliation *offsets* effect

3. **Welfare:** *tension* between reducing trade deficit and improving welfare
   - Valuation effects undermine welfare gains from unilateral tariffs
   - Policies that reduce deficit also hurt domestic welfare: "**Miran's dilemma**"

Plan

1. Intertemporal argument
2. A model of world liquidity supply
3. Welfare implications

Intertemporal argument

Two-period Armington model

- Simple $2 \times 2 \times 2$ **endowment** economy:
  - 2 countries: Home/Foreign
  - 2 goods: H and F with fully specialized endowments Y_H and Y_F^*
  - 2 periods $t = 1, 2$

- Armington aggregator:

$$C_t = \left(\omega^{\frac{1}{\epsilon}} C_{Ht}^{1-\frac{1}{\epsilon}} + (1-\omega)^{\frac{1}{\epsilon}} C_{Ft}^{1-\frac{1}{\epsilon}} \right)^{\frac{\epsilon}{\epsilon-1}}$$

- Role inverted for Foreign

- Home bias: $\omega > 1/2$; elasticity of substitution: $\epsilon \geq 1$

Trade deficit and terms of trade

- Goods market clearing pins down terms of trade for given D_t:

$$\mathcal{C}_H(P_{Ht}/P_{Ft}, D_t, \tau) + \mathcal{C}^*_H(P_{Ht}/P_{Ft}, D_t, \tau^*) = Y_{Ht}$$

- Write equilibrium relation for ToT as $\dfrac{P_H}{P_F} = \rho(D, \tau, \tau^*)$.

- Comparative statics: how does a small **permanent** tariff affect ToT *for given* $\{D_t\}$?

- **Proposition** (amplification): $\dfrac{\partial^2 \rho}{\partial \tau \, \partial D} > 0$

- Home tariff improves ToT more when Home runs a deficit

- Why? Home spending share is larger $\Rightarrow$ larger price response to restore equilibrium

Trade deficit

- Trade deficit:

$$\underbrace{P_{Ft} C_{Ft}}_{\text{imports}} - \underbrace{P_{Ht}(Y_{Ht} - C_{Ht})}_{\text{exports}} = P_{Ht}\, D_t$$

- **Intertemporal budget constraint**:

$$P_{H1}\, D_1 + \frac{1}{1 + i_1} P_{H2}\, D_2 = 0$$

- Choose parameters so that in equilibrium

$$D_1 > 0 > D_2$$

Euler equation

- Euler equation for Home:

$$u'(C_1) = (1 + r_1)\beta u'(C_2), \quad 1 + r_1 = (1 + i_1)\frac{P_1}{P_2}$$

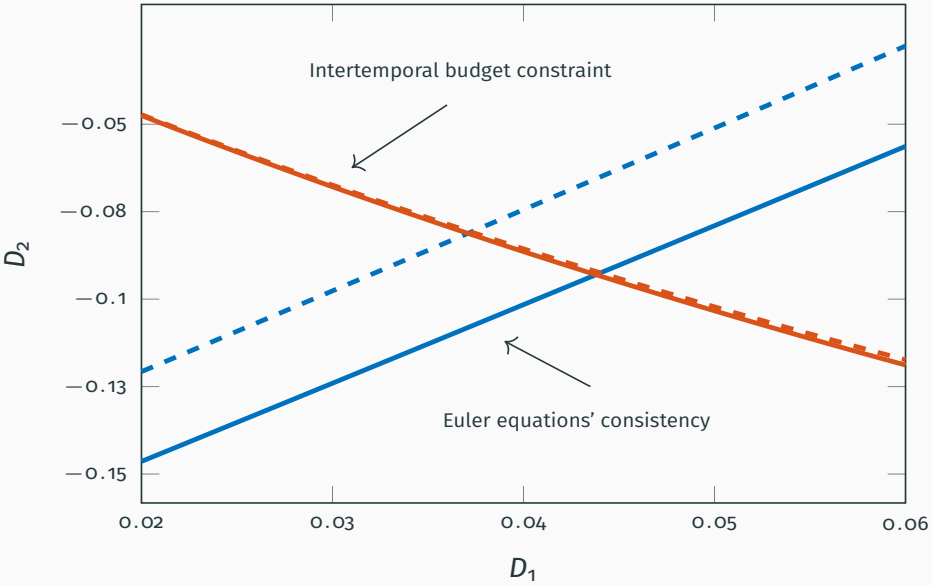
- Combining Home and Foreign:

$$\frac{u'(C_1)}{\beta u'(C_2)} = \left(\frac{P_1/P_1^*}{P_2/P_2^*}\right)\frac{u'(C_1^*)}{\beta^* u'(C_2^*)}$$

- $r_1 \neq r_1^*$ differ because countries consume different baskets [Dornbusch, 1976]

- **Next:** What is effect of permanent tariff $\tau > 0$ on trade deficit at $t = 1$?

Effects of a tariff



Effects of a tariff (continued)

- Home tariff shifts relative real rates up & this tends to lower trade deficit at $t = 1$
- Why? Recall our Amplification result!
- Home tariff distorts relative prices *more* in period 1 (deficit) than period 2 (surplus)

$$\frac{u'(C_1)}{u'(C_2)} = \left(\frac{P_1/P_1^* \uparrow\uparrow}{P_2/P_2^* \uparrow}\right) \frac{u'(C_1^*)}{u'(C_2^*)}$$

- Wedge $\uparrow \Rightarrow$ less intertemporal smoothing $\Rightarrow$ smaller deficit
- *Remark:* With fixed ToT (small open economy), the effect of a tariff is zero!

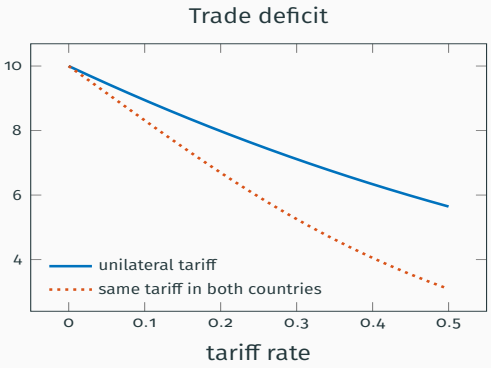
Effects of a tariff (continued)

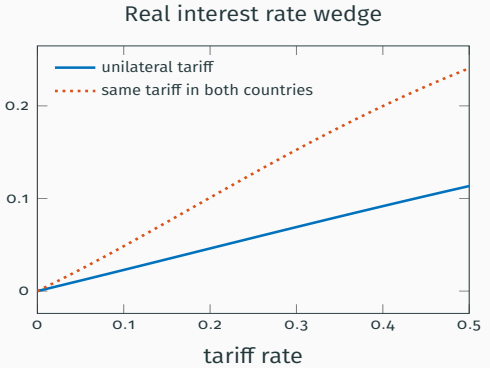
- Suppose Foreign retaliates with tariff $\tau^* > 0$
- Foreign tariff *also* shifts relative real rates up & this tends to lower trade deficit
- Levels go in opposite direction, but wedge still rises:

$$\frac{u'(C_1)}{u'(C_2)} = \left(\frac{P_1/P_1^* \downarrow}{P_2/P_2^* \downarrow\downarrow} \right) \frac{u'(C_1^*)}{u'(C_2^*)}$$

- Why? τ^* distorts prices more in period 2 when Foreign spending share is bigger

Two-period model: Summary





A model of world liquidity supply

A model of world liquidity supply

- Infinite horizon, same Armington trade structure, different reason for trading assets
- Two assets: **illiquid** bond A with return i, **liquid** bond B with return $i_b < i$
- Preferences: [Sidrauski, 1967]

$$\int_0^\infty e^{-\rho t}\left[u(C_t) + v\left(\frac{B_t}{P_t}\right)\right] dt$$

- Only Home government supplies liquid bonds. Bond market equilibrium:

$$B_t + B_t^* = \bar{B}_t$$

- Liquidity premium: $\lambda = i - i_b > 0$

Demand for liquid bonds

- Euler equation:

$$\gamma \frac{\dot{C}_t}{C_t} = i_t - \pi_t - \rho$$

- Demand for liquid bonds:

$$B_t = \psi \left(i_t - i_b\right)^{-1/\gamma} P_t C_t$$

- Standard money-demand interpretation

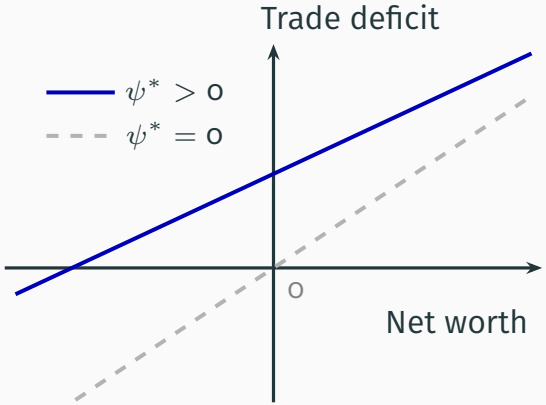
- Foreign demand analogous, with parameter ψ^*

Permanent trade deficits

- All endowments grow at rate g
- Stationary equilibrium:

$$P_H d = (i - g)\ \underbrace{(a - b^*)}_{\text{net worth, } n} + \underbrace{(i - i_b)\, b^*}_{\text{seigniorage}}$$

- Simple model of privilege [Gourinchas–Rey]



Proposition: $\exists$ a stationary equilibrium with permanent trade & current account deficits

Effects of tariff: Perfect separation

- Introduce a permanent tariff, economy jumps to new steady state
- **Proposition:** If all assets denominated in F goods the effect on d is zero!
- **Why?** Recall: tariffs reduced deficit by tilting P_1/P_1^* vs. P_2/P_2^*
- Here trade is *stationary* $\Rightarrow$ tariff raises P_H/P_F equally in every period
- ToT improve for Home but export and imports fall by same amount

$$\downarrow P_F c_F - \downarrow P_H(y_H - c_H) = (i - g)(a - b^*) + (i - i_b)b^*$$

Valuation effects

- More realistic configuration: B denominated in H, A denominated in F
- Terms of trade improve $\Rightarrow$ Home currency strengthens ($P_F \downarrow$)
- In new stationary equilibrium lower Home net financial wealth

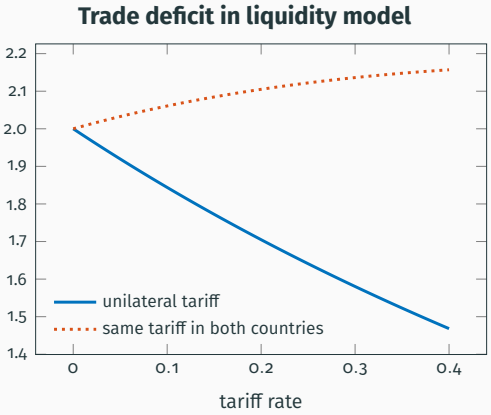
$$\downarrow n = P_F \downarrow \tilde{a} - b^*$$

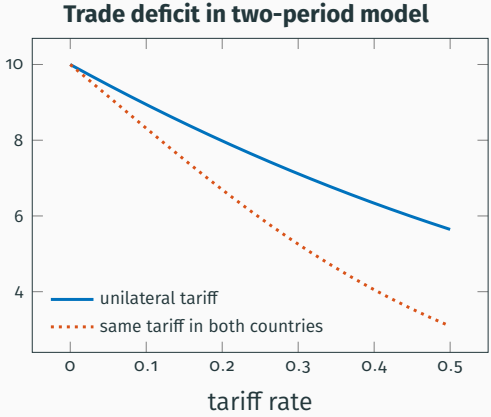
- Lower value of foreign consumption $P^* c^*$ reduces demand for b^*
- Lower a, lower b^*, less "privilege"
- **Proposition:** With A denominated in F and B denominated in H: tariff reduces d

Trade war

- All effects above where due to valuation effects operating through P_H/P_F
- With **trade war** everything goes in reverse
- Why? If Foreign retaliates ToT move in the opposite direction
- **Proposition:** A permanent increase in τ^* **increases** the trade deficit

Two period vs liquidity model





Welfare implications

Welfare effects of tariffs

- Standard logic: large country benefits via terms of trade improvement
- **Proposition:** Starting from $\tau = 0$, a small tariff raises Home welfare when all assets are denominated in *F* goods. If instead Home liabilities are denominated in *H* goods, same tariff increase delivers a smaller welfare gain due to valuation effects
- All assets denominated in *F*: ToT improve, no valuation effects $\Rightarrow$ unambiguous gain
- Home liabilities denominated in *H*: capital loss offsets ToT improvement
- Same mechanism that shrinks deficit undermines welfare benefit

Fragility of privilege

- Suppose side effect: foreigners lose appetite for Home liquidity
- Model as fall in ψ^*
- **Proposition:** Fall in ψ^* reduces trade deficit *and* reduces welfare
- "Transfer problem" effect: lower seigniorage $\Rightarrow$ fewer resources
- Again, when deficit shrinks it is bad news for Home welfare

Taxing Liquidity?

- Suppose tariffs don't reduce deficit (perfect separation) and demand is stable
- Home government experiments with **new policy**
- Add tax τ_b on foreign holdings of liquid bonds (Miran's "user fee")
- **Question:** can this reduce deficit while improving welfare?

Miran's Dilemma

- **Proposition:** Suppose Home is a net debtor. A small tax τ_b is either:
  - Welfare improving for Home and *increases* the trade deficit
  - Welfare reducing for Home and *decreases* the trade deficit

- **Why?** Think of Laffer curve for seigniorage
  - On "right" side of Laffer curve: more seigniorage, higher welfare, but deficit increases!
  - On "wrong" side: lower seigniorage, Home is poorer but deficit shrinks

- *Cannot have both deficit reduction and welfare improvement*

Conclusion

1. Whether and how tariffs move current account depends on **why deficit exists**
    - Transitory: **real interest rate channel**
    - Permanent: **valuation effects**
2. Trade war amplifies reduction of transitory deficits, but offsets it for permanent ones
3. **Miran's Dilemma:** deficit reduction often comes at the expense of domestic welfare

Appendix: Alternative bond-supply assumptions

- Baseline: Home adjusts $\bar{B}$ to keep λ constant
- Alternative: fixed $\bar{B} \Rightarrow \lambda$ adjusts
- Effect depends on Laffer curve slope ($\gamma \lessgtr 1$)

Appendix: Fixed-debt illustrations