The Macroeconomics of Border Taxes

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NBER Annual Conference on Macroeconomics
April 12, 2018

Border Adjustment Taxes

Border Adjustment: tax imports and exempt exports

- Corporate Border Adjustment Tax (C-BAT)...Ryan-Brady proposal

> *"While we have debated the pro-growth benefits of border adjustability, we appreciate that there are many unknowns associated with it..."*
>
> Joint statement on tax reform, July 2017

- Value Added Tax (VAT)

Border Adjustment and Protectionism

- Border adjustment often perceived as protectionist
- Ironically, border adjustment *undoes* protectionism
- Consequence of Lerner symmetry (1936)
- VAT without export rebate = export tax = import tariff (inelastic labor)
- C-BAT= corporate tax $\implies$ C-BAT introduction is neutral

Conditions for Lerner Symmetry

1. Flexible prices
2. Trade balance

- Skepticism about underlying price changes in GE
- Conditions violated in practice

- More general conditions for neutrality (no real effects)?
- Effects when neutrality violated?

Conditions for Neutrality in Open-Economy NK Model

- Conditions for neutrality of C-BAT:
  1. Symmetric pass-through for taxes and exchange rates
  2. All international assets in foreign currency
  3. Monetary policy targets inflation + output gap, *not* exchange rates
  4. Applies uniformly to all imports and exports.
  5. One-time unanticipated
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Conditions for C-BAT neutrality

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Producer Currency Pricing (PCP)

	USA$^{\$}$	Border$^{\$}$	World*
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Exports			

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$\downarrow \mathcal{E}$ means \$ appreciation. Starred prices are expressed in foreign currency

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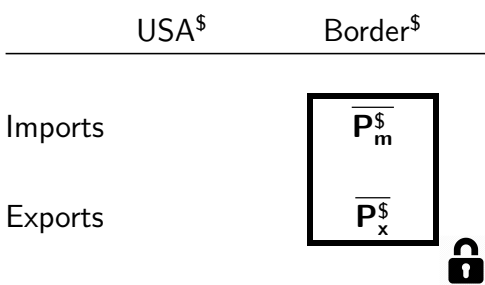
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Complete appreciation: $\mathcal{E} = (1-\tau)\mathcal{E}_0 \implies$ consumer prices unchanged

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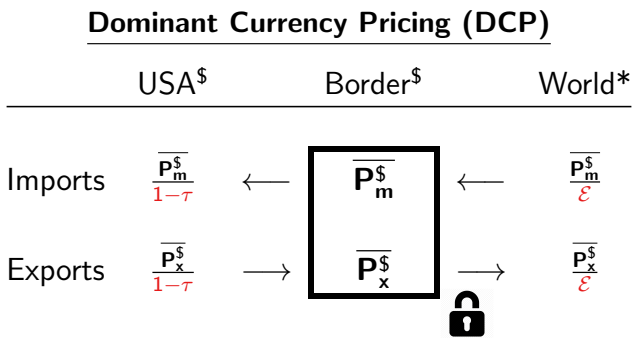
Dominant Currency Pricing (DCP)



- 97% of US exports and 93% of US imports priced in dollars

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Conditions for C-BAT neutrality

2. All international assets and liabilities in foreign-currency bonds

$$B^*_{t+1} - (1 + i^*_t)B^*_t = \frac{(1-\tau)}{\mathcal{E}_t} P_{x,t} X_t - P^*_{m,t} M_t$$

B^*: Foreign denominated debt. $\mathcal{E}$: Dollars per foreign currency. X: exports. M: imports

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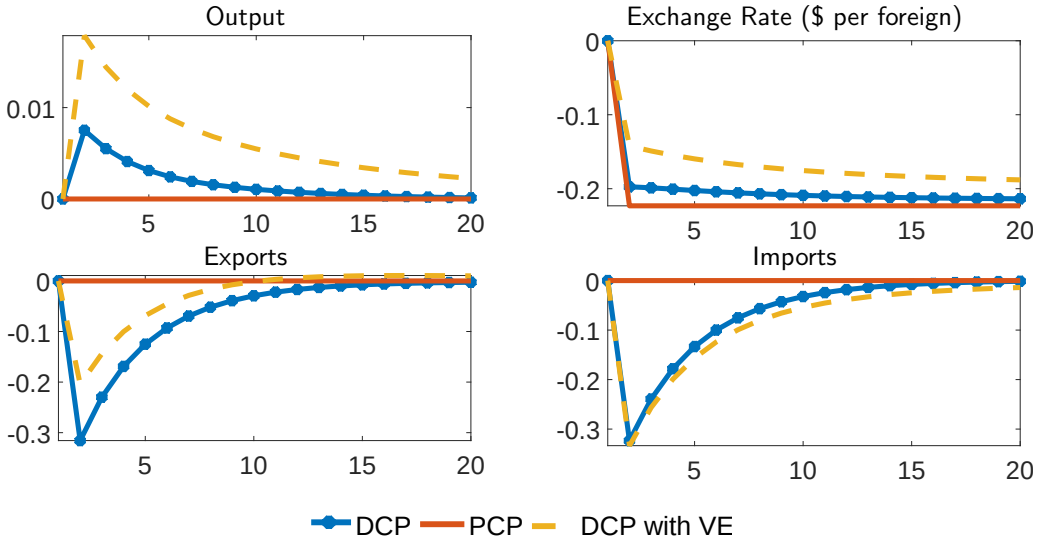
$$\frac{B_{t+1}}{\mathcal{E}_t} - \frac{(1+i_t)B_t}{\mathcal{E}_t} + B^*_{t+1} - (1+i^*_t)B^*_t = \frac{(1-\tau)}{\mathcal{E}_t} P_{x,t} X_t - P^*_{m,t} M_t$$

- 82% of US liabilities are in dollars
- 32% of US assets are in dollars

Wealth Loss: $\frac{B_0}{GDP} \frac{\Delta \mathcal{E}}{\mathcal{E}}\% = -1.09 \cdot \frac{\Delta \mathcal{E}}{\mathcal{E}}\%$

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Quantitative Effects of C-BAT



Wealth and Revenues

Valuation Effect

- 16% of GDP wealth transfer from US to world ($1.09 \cdot 0.15$)

Fiscal Revenues

- Proportional to trade balance path
- Short-run: $+0.4$ p.p. of GDP
- Net Present Value: -15p.p. of GDP

Conditions for VAT neutrality

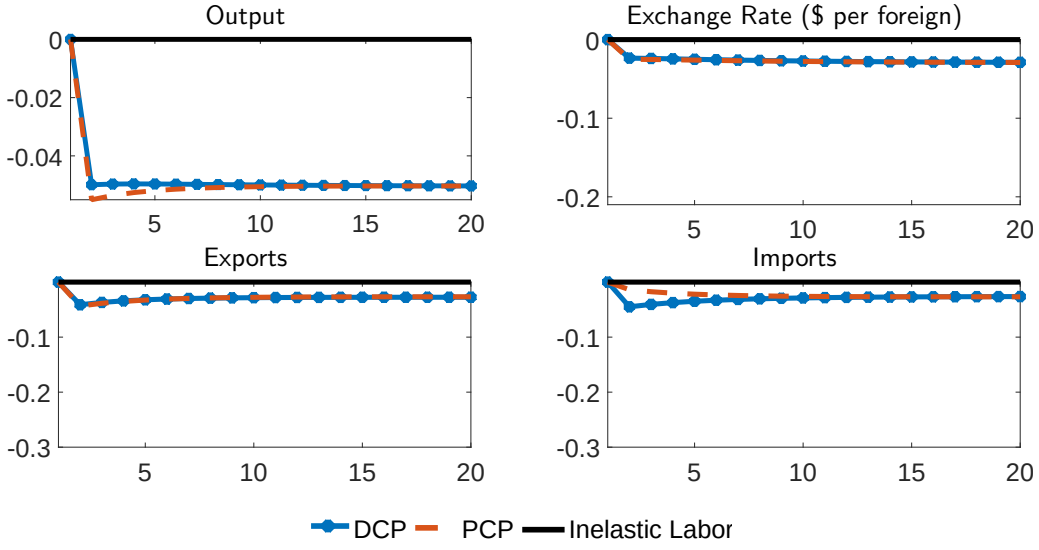
1. Complete pass-through of VAT into prices in the short-run

   Import vs. Domestic Price: $\frac{P_{m,0}/(1-\tau)}{P_0/(1-\tau)}$

   Export vs. Foreign Price: $\frac{P_{x,0}}{\mathcal{E}_0 P_0^*}$

2. **Inelastic labor supply or fully rigid wages**
   — Otherwise distortion of labor-leisure condition

Quantitative Effects of VAT



Conclusions

- **Neutrality** conditions for C-BAT and VAT **unrealistic**

First-quarter impact of 20% tax

	C-BAT	VAT
Trade Volume	-30%	-4%
Output	+2%	-5%
$ Appreciation	15%	2%

- **C-BAT**
  - **Valuation effect** to world: 16% GDP
  - **Fiscal revenues**: short term +0.4p.p. GDP; in NPV -15p.p. GDP