

**Discussion of “Optimal Trade Policy with
Trade Imbalances”
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Big Picture

- Trade agreement = mechanism to enforce cooperation
 - Flexibility vs. commitment (cooperation)
- Optimal design of trade agreement: need to understand incentives to deviate from cooperative behavior
- Classic “optimal tariff” focus on terms of trade manipulation
 - Exploit monopoly power
 - Most relevant? increase price good you sell vs. expenditure switching
 - Normative vs. positive

Contribution

- Standard optimal tariff literature: static economy (steady state)
- This paper: Role of trade deficits
 - Trade deficits only for consumption smoothing
 - no investment in production capacity
 - New policy instrument: capital control (Costinot-Lorenzoni-Werning, CLW)
 - Difference with CLW: both intra- and inter-temporal distortions

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Results:

- Optimal to reduce exports in booms and limiting imports in recession
 - Productivity growth matters, not capital flows
- Without capital controls: both import and export taxes/subsidies are necessary
 - Static model: one instrument is redundant
- One of the three instruments is redundant

My Discussion

- Review model
 - Focus on interactions b/w trade taxes and capital controls
- Suggestions:
 - Investment (production capacity endogenous)
 - Role of market structure: perfect vs. monopolistic competition
- Should trade arrangements regulate capital controls?

Simple Dynamic Ricardian Economy

- $t = 0, 1, \dots$
- Two countries: $i \in \{H, F\}$
- Two sectors: $j \in \{H, F\}$
- Stand-in household in i has preferences over $x_i = \left\{ \left\{ x_{ijt} \right\}_{j=H,F} \right\}_{t=0,1}$

$$\sum_t \beta^t u(c_{it}) = \sum_t \beta^t \frac{c_{it}^{1-\gamma}}{1-\gamma}$$

where

$$c_{it} = g\left(\{x_{ijt}\}_{j=H,F}\right) = \left[\sum_j x_{ijt}^{(\sigma-1)/\sigma} \right]^{\sigma/(\sigma-1)}$$

- Resource constraints

$$\sum_j x_{jit} \leq A_{it}$$

Available Policy Instruments

- Foreign country committed to laissez-faire
- Home country chooses:
 - taxes on import: τ_{Mt}
 - taxes on export: τ_{Xt}
 - taxes on assets: τ_{At}

Proceeds rebated to Home stand-in household

Equilibrium

- Normalize $p_{Ft} = 1$ for all t
- Household at Home solves

$$\max_{\{x_{Ht}, a_{Ht}\}} \sum_t \beta^t u(g(x_{Ht}))$$

subject to

$$p_{Ht} x_{HHt} + (1 + \tau_{Mt}) x_{HFt} + a_{Ht+1} (1 + \tau_{At}) \leq w_{Ht} + (1 + r_t) a_{Ht} + T_t$$

given a_{H0}

- Household in Foreign solves

$$\max_{\{x_{Ft}, a_{Ft}\}} \sum_t \beta^t u(g(x_{Ft}))$$

subject to

$$p_{Ht} (1 + \tau_{Xt}) x_{FHt} + x_{HFt} + a_{Ft+1} \leq w_{Ft} + (1 + r_t) a_{Ft}$$

given a_{F0}

- Firms optimality: $p_{Ht} = w_{Ht}/A_{Ht}$ and $p_{Ft} = w_{Ft}/A_{Ft}$
- Market clearing

Implementable Allocations

Allocations $\{x_{Ht}, x_{Ft}\}$ are implementable if and only if

- Resource feasible: $\sum_j x_{jit} \leq A_{it}$
- Budget feasible

$$\sum_t \beta^t u'(g(x_{Ft})) \left[\frac{\partial g_{Ft}}{\partial x_{FFt}} x_{FFt} + \frac{\partial g_{Ft}}{\partial x_{FHT}} x_{FHT} \right] = \sum_t \beta^t u'(g(x_{Ft})) \frac{\partial g_{Ft}}{\partial x_{FFt}} A_{FFt} \\ + u'(g(x_{F0})) \frac{\partial g_{F0}}{\partial x_{FF0}} a_{F0}$$

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Problem for Home government is

$$\max_{\{x_{Ht}, x_{Ft}\}} \sum_t \beta^t u(g(x_{Ht}))$$

subject to $\{x_{Ht}, x_{Ft}\}$ are implementable

- Abstracts from manipulation of initial assets

One Instrument is Redundant

Household at Home:

$$\frac{\partial g_{Ht}}{\partial x_{HHt}} / \frac{\partial g_{Ht}}{\partial x_{HFt}} = \frac{p_{Ht}}{(1 + \tau_{Mt})}$$

$$u'(g(x_{Ht})) \frac{\partial g_{Ht} / \partial x_{HFt}}{(1 + \tau_{Mt})} = \frac{\beta(1 + r_{t+1})}{1 + \tau_{At}} u'(g(x_{Ht+1})) \frac{\partial g_{Ht+1} / \partial x_{HFt+1}}{(1 + \tau_{Mt+1})}$$

Household in Foreign:

$$\frac{\partial g_{Ft}}{\partial x_{FHt}} / \frac{\partial g_{Ft}}{\partial x_{FFt}} = (1 + \tau_{Xt}) p_{Ht}$$

$$u'(g(x_{Ft})) \frac{\partial g_{Ft}}{\partial x_{FFt}} = \beta(1 + r_{t+1}) u'(g(x_{Ft+1})) \frac{\partial g_{Ft+1}}{\partial x_{FFt+1}}$$

One Instrument is Redundant

Intratemporal wedge:

$$\left(\frac{\partial g_{Ht}}{\partial x_{HFt}} / \frac{\partial g_{Ht}}{\partial x_{HHt}} \right) / \left(\frac{\partial g_{Ft}}{\partial x_{FFt}} / \frac{\partial g_{Ft}}{\partial x_{FHt}} \right) = (1 + \tau_{Mt}) (1 + \tau_{Xt})$$

Intertemporal wedge:

$$\begin{aligned} & \left(\frac{u'(g(x_{Ht})) \partial g_{Ht} / \partial x_{HFt}}{u'(g(x_{Ht+1})) \partial g_{Ht+1} / \partial x_{HFt+1}} \right) / \left(\frac{u'(g(x_{Ht})) \partial g_{Ht} / \partial x_{HFt}}{u'(g(x_{Ht+1})) \partial g_{Ht+1} / \partial x_{HFt+1}} \right) \\ &= \frac{(1 + \tau_{Mt})}{(1 + \tau_{Mt+1})} \frac{1}{(1 + \tau_{At})} \end{aligned}$$

Main Results

- The optimal intratemporal wedge is increasing in the relative productivity, A_{Ht}/A_{Ft}
- Reduce outflows (savings) in booms, in order to reduce the country's demand for imports during recessions
 - Higher import tariff during recessions or a higher export tax in booms
- Optimal wedges depends on relative productivity
 - Pattern of borrowing and lending is irrelevant per se
 - Same conclusion as CLW
 - CLW has restriction of no intra-temporal wedge

Market Structure

- This paper: Ricardian model
 - Perfect competition: price = marginal cost
 - Use trade taxes to make competitive firms behave like monopolist

- Other popular trade model: Monopolistic competition
 - Price = markup over marginal cost
 - Static model: No(?) need to have trade taxes
 - Continuum of sectors
 - Home country has one monopolist producing one variety in each sector
 - Question: Introducing dynamics, want to manipulate intertemporal wedge?

Capital Accumulation

- This paper:
 - Factors are in fixed supply
 - Productivity exogenous
- But production structure/capacity not exogenous
 - investment in capital and productivity
- Interesting to study if want to manipulate accumulation of capital
- In particular if capital/productivity is sector specific

Should Trade Arrangements Regulate Capital Controls?

- Paper: *Element of flexibility mechanism in trade agreements*
 - Commitment (cooperation) vs. flexibility trade-off
 - Buffer against shocks that increase temptation to leave trade agreement

- Why capital controls out and not trade (import/export) taxes?
 - Capital controls useful for macro-prudential policy
 - Kehoe-Levine, Farhi-Werning
 - Can replicate capital controls with trade taxes
 - But capital controls can be targeted to different types of assets

- Suggestion: Quantify losses/externality of leaving one free instrument

Does Flexibility Increase Cooperation?

- Suppose temptation to deviate is private info
 - Other gov'ts/private agents cannot tell if impose capital controls for
 - Manipulate prices (or competitive devaluations)
 - Macro-prudential motive
- Does optimal arrangement calls for
 - Full flexibility on capital controls and no/limited flexibility on trade taxes
 - Limited flexibility on all instruments
- Beyond scope of this paper but super interesting
 - Amador-Bagwell meet Athey-Atkeson-Kehoe with multiple gov'ts (Halac-Yared) and instruments
- Allow flexibility so harder to learn about true motive
 - Uncertainty about motives provide right incentives to private agents: Firms do not stop investing in traded sector

Conclusion

- Very interesting paper
- Understand incentives to deviate from cooperative behavior for terms of trade manipulation in dynamic setting
- Building block for analysis of optimal trade agreements