Discussion of "Trade and currency weapons"
by Agnès Bénassy-Quéré, Matthieu Bussière and Pauline Wibaux
/ Mathias Hoffmann, Deutsche Bundesbank

The discussion represents the author’s opinion and does not necessarily reflect the views of Deutsche Bundesbank.
Motivation (of the paper)

**Trade and currency weapons: A policy perspective**

Guido Mantega, former finance minister of Brazil, argued in Sep. ’10:

"We are in the midst of an international currency war, a general weakening of currency. This threatens us because it takes away our competitiveness"

Agustín Carstens, General Manager of BIS, argued in Aug. ’18:

"After decades of setting rules to liberalise trade, we are seeing moves to rip up that rulebook [...] This is reflected in the shift in US trade policy and the current tariff tit-for-tat."

- The verdict on protectionism as a macro tool is negative (e.g. Dornbusch, 1987; Krugman, 1982)

- **Elasticities on tariff and exchange rate are assumed to be equal**
Motivation (of the paper)

Implication of the "equality" assumptions

Impact of tariff and exchange rate (ex. rate) movements on ex-/imports

- These movements may counterbalance each other
  (Tariff of 1% would compensate for currency underval. of 1%)

- Tariffs and ex. rates will affect ex-/import performance the same

Empirically, trade elasticity (elast.) to tariff and ex. rate are not equal

- Evidence by Berthou and Fontagné, 2016; Fontagné et al., 2017; Head and Ries, 2001; Romalis, 2007 and Caliendo and Parro, 2015

→ The international elasticity puzzle (Ruhl, 2008)
Contribution of the paper

What are the costs and benefits of adjusting either the interest rate or a tariff to obtain internal and external balance?

The authors provide an empirical and a theoretical framework which helps to structure our own thoughts

- Estimate elast. of trade to import tariffs and the real ex. rate (product level data for 110 countries over 1989-2013)
- Build a model to assess the macro effects of monetary vs. trade policies → The government aims at internal and external balance
Main findings of the paper

Empirically, the authors explore not only the the time and product dimension but also cross-country variation

- Show that trade effects of the two instruments are not equivalent
  - 1% importer’s ex. rate depreciation reduces imports by 0.5%
  - A 1pp increase of importer’s tariff reduces imports by 1.4%
  - Tariff hikes are more short-lived than tariff cuts
  - Ex. rate variations are not short-lived

Theoretically, the authors analyse two forms of non-cooperative policies to assess their stabilizing properties for the economy

- Allow for different trade elast. to tariff and ex. rate
  - Monetary policy is more stabilizing than trade policy in normal times when the ZLB is not binding
  - Policy results are reversed at the ZLB
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Discussion of the empirical methodology and results

The authors utilize a **multi-country estimation** to inform the currency versus trade policy debate

- Estimation of a gravity model of the following form:

  \[ \ln X_{ijkt} = \alpha_1 \ln RER_{ijkt} + \alpha_2 \ln (1 + \tau)_{ijkt} + \alpha_3 Z_{it} + \lambda_{ik} + \mu_{jkt} + \nu_{ij} - \epsilon_{ijkt} \]

- The inclusion of an export product fixed effect (FE) \( \lambda_{ik} \) and a control vector \( Z_{it} \) mitigate potential collinearity effects of the RER

- Destination sector FE \( \mu_{jkt} \) and firm specific destination FE \( \nu_{ij} \) capture possible feedback effects between tariffs and the ex. rate
Discussion of the empirical methodology and results

Can the FE specification capture possible anticipation effects?

- Anticipated tariff imposition would appreciate the ex. rate in advance
  - Results are derived in models with forward looking agents
    (e.g. Eichengreen, 1981; Krugman, 1982)

- Narrative evidence by Freund (2017):

  *Anticipation of the Trump administration abandoning NAFTA were accompanied by an immediate depreciation of the Mexican peso/dollar*

  - Ex. rate off-sets impact of anticipated restrictive trade policy

Does the empirical model control for this possible endogeneity issue?
Discussion of the empirical methodology and results

Fontagné et al. (2017): It is important to precisely measure firms’ reactions to tariff and exchange rates changes

- If firms absorb in their export price part of these changes, estimates of elasticities that do not account for export prices are biased

- Tariff estimates are a mix of the true elasticity to the increase in tariff and the elasticity of exports to the endog. fall in export price
  → Including the export price in the trade volume estimation is key

Does the $RER_{ijkt}$ specification allow to control for the possible bias?
Discussion of the empirical methodology and results

- Is it possible to construct a relative (i.e. importer/exporter) tariff measure in the specific product sector?
  - To capture tariff tit-for-tat responses ("tariff war effects"): A rise in the tariff on the importer side might go along with a similar tariff increase in the exporter’s country...

- All sectoral/product variations are "pooled"
  - Imbs and Mejean (2015) point towards an heterogeneity bias
  - Do the included fixed effects soak up this possible bias?
  - Is it worth to conduct a sectoral/product level estimation?

- It would be interesting to see whether tariffs vary more in the time or cross-country/product dimension
  - Is it the time, cross-country or product variation in the data that causes stronger elast. effects on behalf of tariffs?
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Discussion of the theoretical model results

**Estimation results provide the basis to assess non-cooperative policies**

- Model is based on Blanchard’s (2017) Mundell-Flemming set-up
- The country cares about the internal (output, $y$) and external (net exports, $b$) balance and minimizes a loss function

\[ \min_{r, \tau} L = \frac{1}{2}(y^2 + \theta b^2) \]

- The government has two policy instruments: the interest rate $r$ and the import tariff $\tau$ to mitigate the effects of demand shocks
- If two policy instruments (trade and monetary policy) are available: Both objectives are reached simultaneously
- Only one instrument: Trade-off between internal and external balance
Discussion of the theoretical model results

**Do the differing trade elast. affect the instrument choice?**

- Recall the results by Dornbusch (1987) and Krugman (1982): The macroeconomic effects of trade restrictions are negative.

- In the standard NK two-country model there is a divine coincidence in response to demand shocks:
  - Monetary policy can deliver internal and external balance simultaneously (e.g. Clarida et al., 2002; Corsetti et al., 2010)
  - Consequently, there is no need for trade policy

- However, in the above mentioned models the trade elast. are equal
Discussion of the theoretical model results

Do the differing trade elast. change the conclusion that monetary policy is preferable in response to demand shocks?

- Implied loss to a negative domestic demand shock
  Varying "elast. to tariffs, $\zeta$" (if $\zeta=1$, the two trade elast. are equal):

When only one instrument is available and domestic demand shocks hit, monetary policy is preferable regardless of $\zeta$
Discussion of the theoretical model results

Do the differing trade elast. change the conclusion that monetary policy is preferable in response to demand shocks?

- Implied loss to a negative external demand shock
  Varying "elast. to tariffs, $\zeta$" (if $\zeta=1$, the two trade elast. are equal):

When only one instrument is available and external demand shocks hit, monetary policy is preferable when $\zeta \geq 1$
Discussion of the theoretical model results

Do the differing trade elast. change the conclusion that monetary policy is preferable in response to other shocks?

– No, as long as we are considering demand shocks…

– What about other type of shocks?

– When having a (domestic) supply shock, the relative ranking remains unchanged for $\zeta \geq 1$: monetary policy is the preferable choice
Discussion of the theoretical model results

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Do the differing trade elast. change the conclusion that monetary policy is preferable in response to other shocks?

– Yes, when we consider "inefficient" shocks
– When having a UIP-shock, the relative ranking changes for $\zeta \geq 1.5$: trade policy is the preferable choice
– The underlying shock structure matters
Discussion of the theoretical model results

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![Graph showing loss function to a UIP shock (\(v=0\) u=0 uip=0.01)](image)
Discussion of the theoretical model results

The role of inflation expectations at the zero lower bound (ZLB)

- The authors argue that
  "At the ZLB, though it can be optimal to react to a trade (or monetary) aggression" through trade retaliation"

- I like this line of argument but I am not sure whether it can be properly answered within the model
  - Within the model prices do not move and inflation expectations are constant (...not modeled)
  - However, at the ZLB inflation expectations are key to the macroeconomic outcome

- To see this more clearly consider a 2-country NK model
Discussion of the theoretical model results

The role of inflation expectations at the ZLB

2-country NK perspective where firms set prices a la Calvo (1983):

- The RER depends on the real UIP condition:
  \[ r_t^R = E_t \left[ \pi_{t+1}^R + \Delta q_{t+1} \right] \]

- Interest rates are set by central banks (CBs): Domestic Taylor rule
  \[ r_t = \max\{-\ln(1/\beta), \phi \pi_t\} \]

- There are home and foreign demand shocks, which keep their current value with probability \( \mu \) and move back to zero with probability \( 1 - \mu \)
Discussion of the theoretical model results

**The role of inflation expectations at the ZLB**
Assume a negative domestic demand shock hits, which causes $E[\pi_s^R] < 0$

**No ZLB:** CBs can use their policy rates to respond to the demand shock
    - The RER depreciates, $q_s > 0$, since CBs lower relative real rates:
    $q_s = -\frac{(\phi - \mu)}{\mu(1 - \mu)} E[\pi_s^R] > 0$

**ZLB:** CBs cannot use their policy rates to respond to the demand shock
    - The RER appreciates, $q_s < 0$, since relative real rates rise:
    $q_s = \frac{1}{(1 - \mu)} E[\pi_s^R] < 0$

**Inflation expectations matter and the RER responses changes at ZLB**
→ This should be considered when trade policy is assessed at ZLB
Conclusion

- Paper assesses an important policy question
- Results of the paper are clear and intuitive
- Paper’s result contribute to the literature by
  - ... adding to international elasticity puzzle
  - ... clarifying the trade-off between trade and monetary policy

- Summary of the discussion
  - The paper’s results would be further enhanced by
    - ...clarifying potential endogeneity issues
    - ...assessing the consequences of different economic disturbances
    - ...analysing the importance of the ZLB in more detail