EUROPEAN CENTRAL BANK

EUROSYSTEM

Discussion of “Tariffs and Retaliation: A Brief Macroeconomic Analysis” by S. Auray, M. Devereux, and A. Eyquem

10th Joint Bank of Canada – European Central Bank Conference. “The Future of Global Trade and Implications for Monetary Policy”

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contributions from Valentin Jouvanceau and Pablo Aguilar are gratefully acknowledged

Summary

What are the macroeconomic and welfare consequences of large US tariff increases; with and without retaliation? Do tariffs improve US trade balance, or are they contractionary?

- Well-executed and pedagogical macroeconomic impact assessment with a comprehensive sensitivity analysis
- In the baseline a unilateral 10pp tariff cuts US GDP ≈1.6% on impact (≈1.3% long run); full retaliation raises the peak loss to about 2.5% and removes initial welfare gains
- Tariffs, while in the short-run can be positive, push up import costs and the CPI, provoking monetary tightening — and imported intermediates and IO links amplify the output decline
- The results hinge on invoicing and trade elasticities: under LCP the short-run effect can be expansionary, while low elasticities worsen long-run costs
- Overall temporary terms-of-trade gains are possible, but retaliation, global value chains and monetary responses usually make trade wars costly

Contribution

- A careful, calibrated two-country NK model that quantifies both impact (business-cycle) and steady-state effects of large tariff hikes and symmetric retaliation
- Systematic exploration of alternative price-invoicing (PCP, LCP, DCP), showing how pass-through/invoicing assumptions can reverse the sign of the impact response
- Explicit role for imported intermediates and monetary policy: with intermediates the negative output/equilibrium effects are amplified; with strict CPI-targeting central banks' tightening increases the short-run contraction
- Welfare policy experiments (welfare-maximizing unilateral tariff and optimal retaliation) and experiments on revenue use (rebate vs buy local goods) with striking quantitative consequences.

Main findings: baseline permanent tariffs

Scenario	Output (GDP)	Inflation / Policy	Trade Balance	Welfare (US)*	Welfare (ROW)*
Unilateral US Tariff (+10pp)	US: • −1.6% on impact • −1.3% in steady state ROW: declines slightly	US: • CPI inflation +0.3pp nom. IR +60 bps	Deteriorates • exports ↓22% • imports ↓17%	≈ **+1%** on impact	≈ **−0.65%**
Retaliation (Global +10pp)	US: • −2.5% on impact • −1.8% in steady state	US: • CPI double • nom. IR +120 bps	Deteriorates more	≈ **−1.7%** on impact	≈ **−0.5%**

*In consumption equivalent terms.

Optimal tariff

- Unilateral US Tariff
  - Optimal tariff ≈ **12%**
  - US welfare **+0.2%**
  - ROW welfare **−0.55%**
  - Beyond 12%: domestic distortions dominate → US welfare declines
  - Mechanism: trade-off between terms-of-trade gain and costs of sticky prices + monetary tightening
- Retaliation by ROW if US sets 12%
  - Optimal tariff **13.2%**
  - ROW welfare **−0.5%**
  - US welfare **−1.9%**
  - Both sides worse off overall (“mutually assured destruction”)

Rich robustness, 1/2

- Trade elasticities:
  - Low elasticity → stronger tariff pass-through, bigger GDP and welfare losses.
  - High elasticity → larger US terms-of-trade gain, but retaliation wipes it out.

- Intermediate goods: Dropping global value chains dampens output losses → main amplifier.

- Labor supply: With fixed labor effort, GDP falls less, but households lose more welfare (no “gain” from working less).

Rich robustness, 2/2

- Price flexibility: Flexible prices smooth the short-run slump, but the long-run GDP decline remains.

- Pricing assumptions:
  - PCP → close to full pass-through, larger trade balance hit.
  - LCP → cushions CPI inflation in the short run, but distortions reappear later.
  - DCP → asymmetric effects; pass-through limited abroad, but US still contracts in the long run.

- Monetary policy: CPI-targeting tightens aggressively; “look-through” or PPI rules soften impact but can’t restore welfare.

- Tariff revenue use: Rebates vs. government spending change distribution, not overall losses.

- Overall: Robust across all variants: tariffs shrink output, fuel inflation, and leave the US worse off under retaliation.

Discussion

- Fiscal channel:
  - Your model: Revenues either rebated lump-sum or used for government spending that provides no utility.
  - Tariff revenues could finance fiscal reforms (e.g. cutting taxes or subsidizing investment), which may boost activity and raise optimal tariffs (Alessandria et al. 2025).
- Financial block: No valuation effects, currency denomination, or convenience yields; these can substantially lower optimal tariffs (Itskhoki–Mukhin 2025).
- Dynamic scope: Ignores intertemporal elasticities, incomplete markets, and transitional tariff dynamics (Dávila et al. 2025).
- Two-region aggregate masks sectoral reallocation costs and firm heterogeneity; with multi-sector supply/chokepoints results can be altered
  - A neutral third country may benefit from a trade war through trade diversion and supply-chain rerouting
  - Exchange rate analysis is limited by having only two regions
  - Intermediate's good amplification effect depends on whether they are downstream or upstream sectors

Tariff impact assessment with ECB-global

- Key features: ECB-Global Multi-country (8 regions) with partner-specific retaliation, USD dominant currency pricing, FX regime heterogeneity (China managed float), oil market, financial spillovers.

- Main transmission:
  - DCP dominates trade diversion in driving global spillovers.
  - FX regimes create asymmetries
  - Oil linkages add further cross-country propagation.

- Baseline simulation (~+10 p.p. average US tariffs on all blocs):
  - US GDP −0.45%, CPI inflation +0.7 p.p., policy rate +130 bp;
  - China GDP −0.75%; EA GDP −0.1%.
  - → Contraction smaller than in your stylized 2-country model, as richer heterogeneity (FX, invoicing, oil, trade diversion) spreads the shock across partners. Still, US impact remains meaningful given its central role in global trade.

Jouvanceau, Darracq Paries, Dieppe, Kockerols (2025) “Trade wars and global spillovers: A quantitative assessment with ECB-global”, ECB working paper no 3117

Tariff impact assessment with ECB-global

Table 4: Tariff levels and increases: pre-Trump 2025 baseline vs. simulated

Imposing region	Target region	Pre-Trump 2025	Increase in tariff (%)	
			As of 26 May 2025	Escalation
United States	Emerging Asia	2.6	7.9	22.8
United States	China	10.0	25.9	106.7
United States	Euro Area	1.4	5.4	28.1
United States	Japan	1.6	10.9	18.1
United States	Oil-exporters	0.5	9.8	10.1
United States	Rest of the World	0.6	8.4	14.0
United States	United Kingdom	0.5	2.6	4.1
China	United States	10.9	6.5	55.1
Euro Area	United States	1.0	-	19.6
Oil-exporters	United States	2.3	2.7	2.7
Rest of the World	United States	1.5	-	0.8

Sources: Conteduca and Mancini (2025), CEPII MAcMap-HS6, Fajgelbaum et al. (2024), WITS, CEPII BACI, and ECB staff calculations.
Notes: The weighted average increase in effective U.S. tariffs, calculated based on 2023 import shares, amounts to 10.7 p.p. under the baseline scenario and 32.4 p.p. under the "severe" scenario, as labelled in the table "As of 26 May 2025" and "Escalation" respectively. Shown tariff rates refer to the average effective tariff rate on goods and services. Tariff rates in the severe scenario reflect a hypothetical case in which initial reciprocal tariffs (2 April) apply, the full escalation with China holds, tariffs on the EU rise to 50 percent,and no temporary product-level exemptions from reciprocal tariffs are granted.

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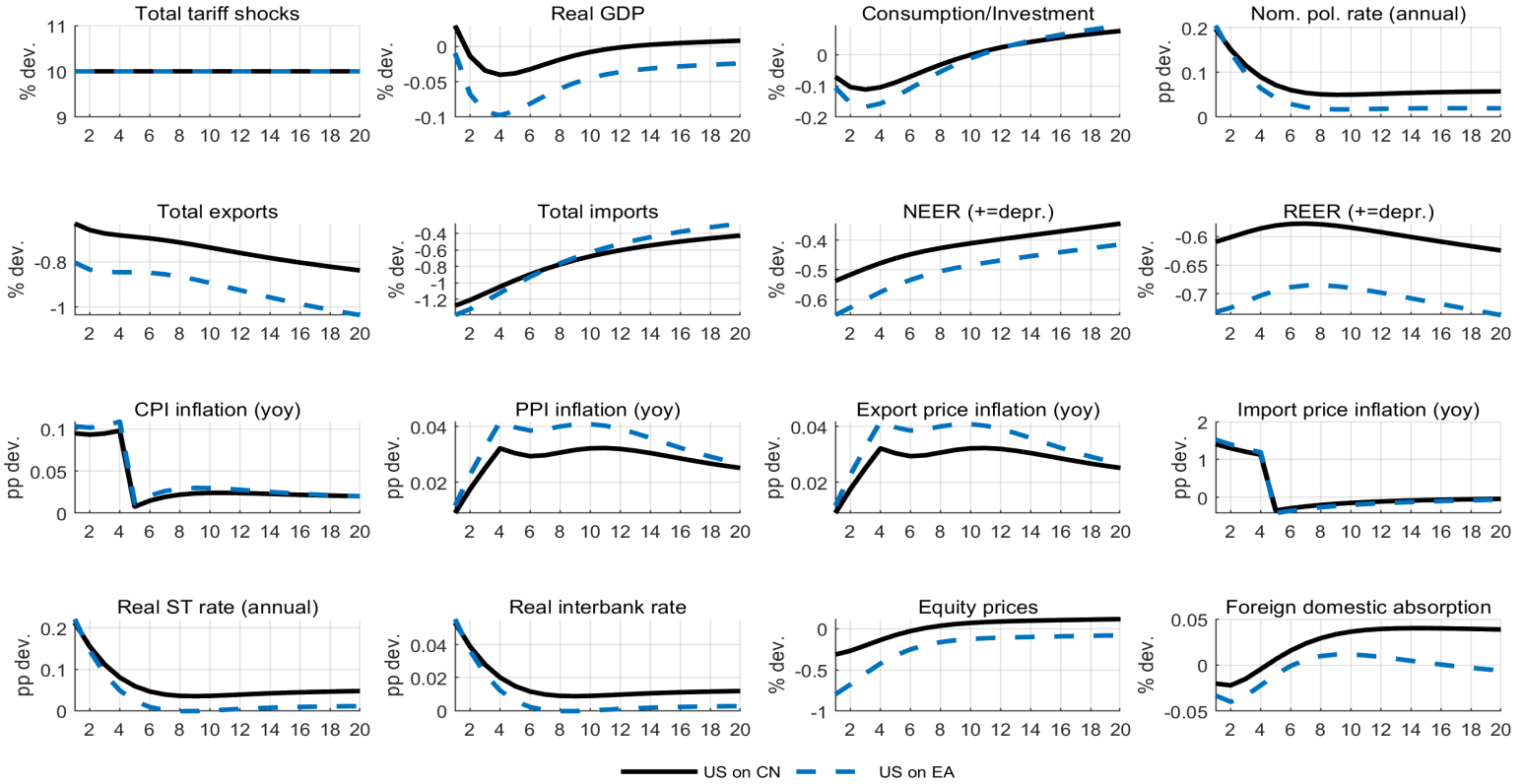
Heterogeneous impact of an US persistent unilateral 10% tariff

Impact on the United States



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Importance of the trade mechanisms: Trade diversion and USD DCP; 10% US on CN

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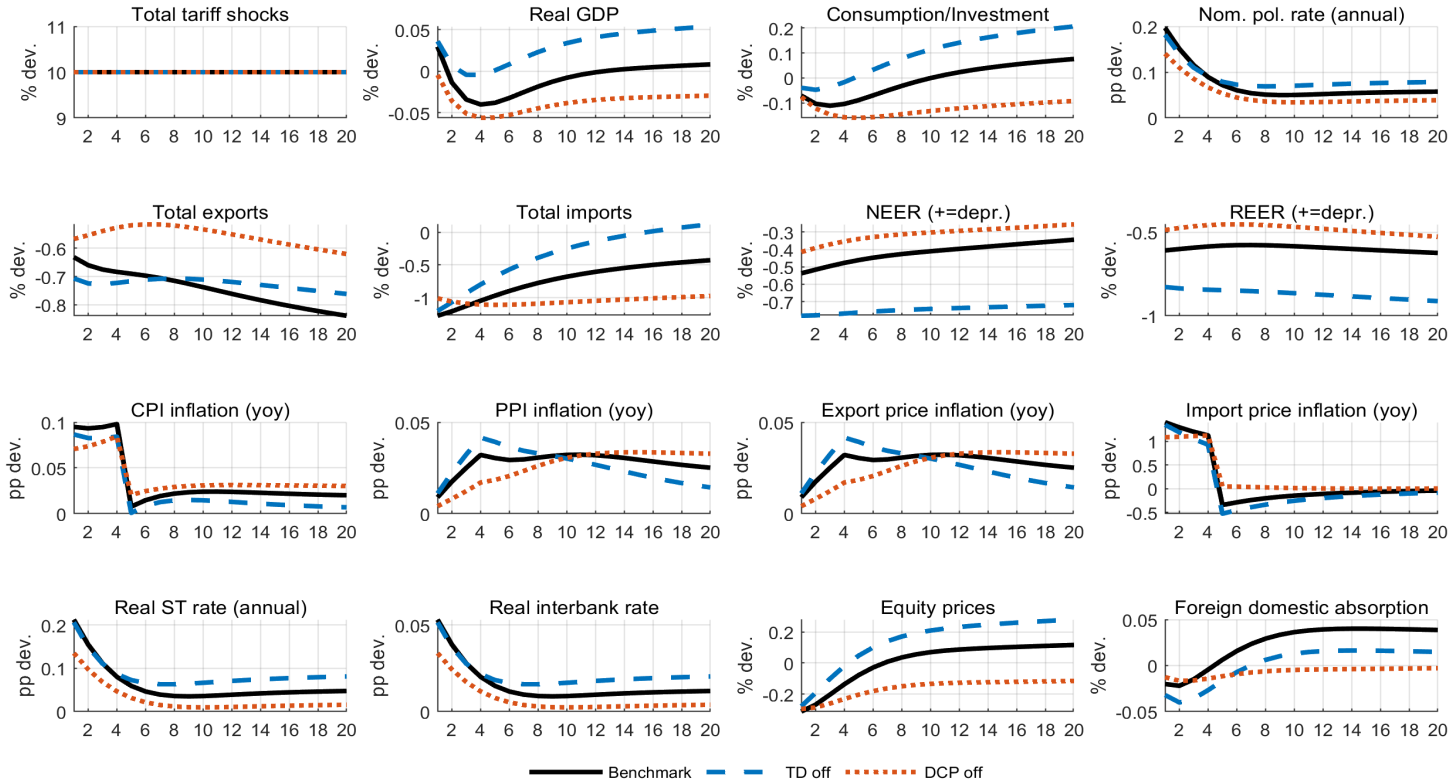

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Assessment of the impact of the trade war as of May 26

~+10 p.p. average US tariffs on all blocs (Black) / ~+30 p.p. average US tariffs on all blocs (Blue)

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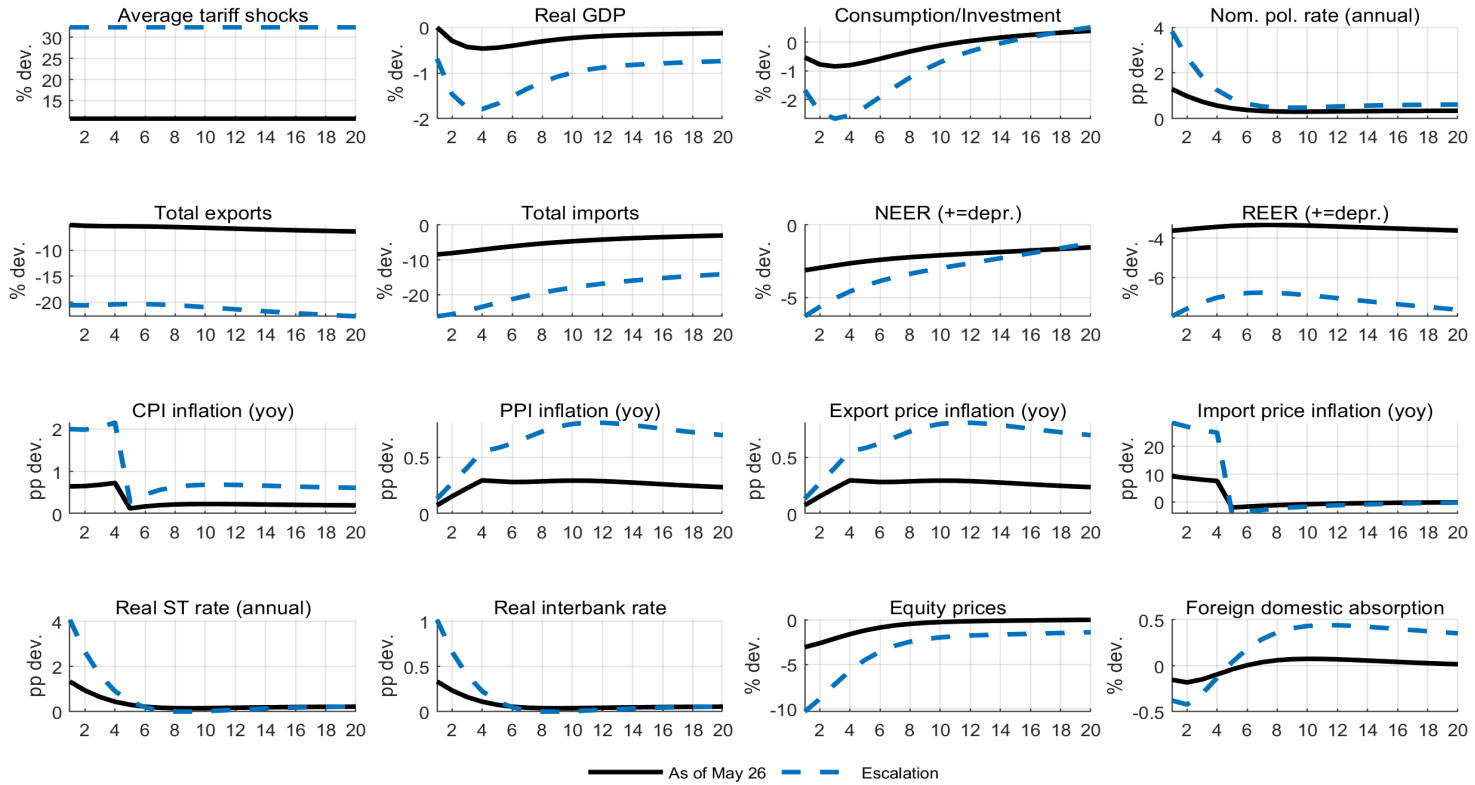

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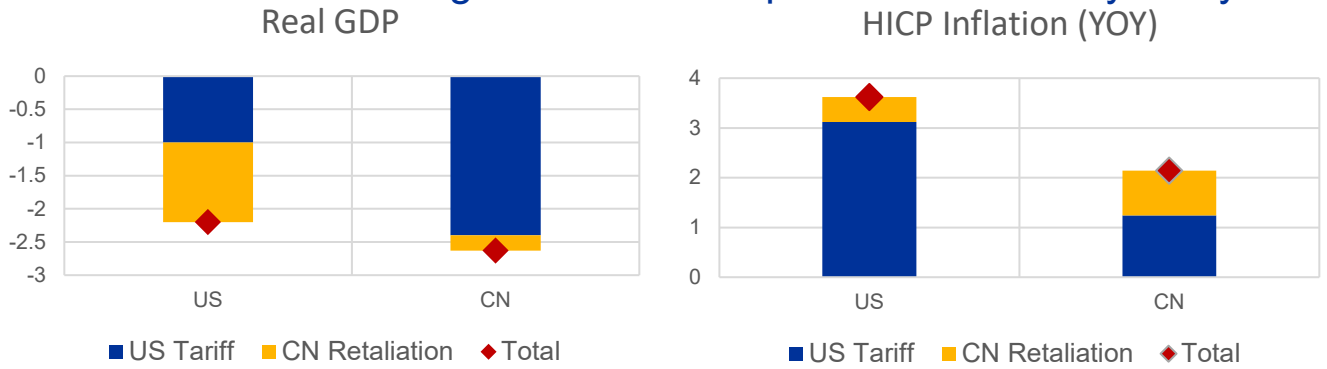
Tariff impact assessment with a global production networks macroeconomic model

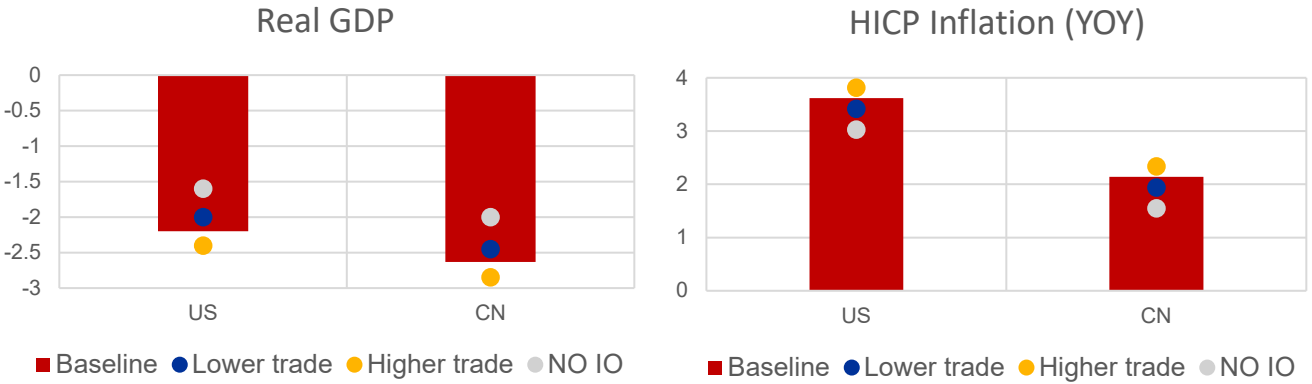
- We propose a multi-country and multi-sector New Keynesian general equilibrium model to assess the impact of regional and sector-specific disruptions on global and euro area dynamics
- Global economy with 4 regions: EA, CN, US and RoW
  - International financial markets incomplete; Heterogeneous monetary arrangements
- Within each region
  - 44 sectors: multi-sector productive structure with national and international networks, calibrated to ICIO data
  - Nominal rigidities on prices (heterogeneous across sectors) and wages, calibrated to PRISMA and COICOP data
- Evaluate the impact of trade tariffs between US and China 50% with retaliation) over a 3 years horizon
  - US and China GDP drop by 2.0% and 2.5%, with stronger inflationary effects in the US (+3.5%)
  - US bilateral trade improves by +2pp, despite lower trade with EA and RoW
  - Higher trade elasticity boosts EA GDP by +0.3pp over the 3-years horizon
  - Global Production Networks account for 0.5pp of the GDP losses and another 0.5 pp of inflation

Aguilar, Darracq Paries, Dieppe, Dominguez, Gallegos, Quintana (2025 forthcoming) “US-China decoupling and the euro area: assessment from a Global Production Networks Macroeconomic Model”

Tariff impact assessment with a global production networks macroeconomic model

US-CN 50% tariff on goods: macro impact and sensitivity analysis

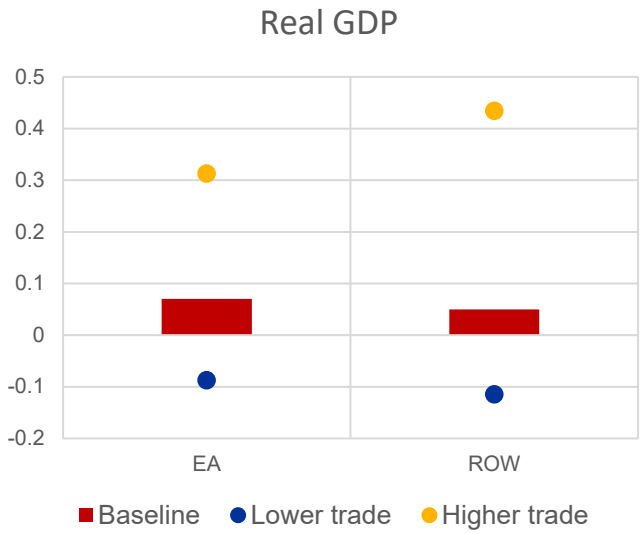


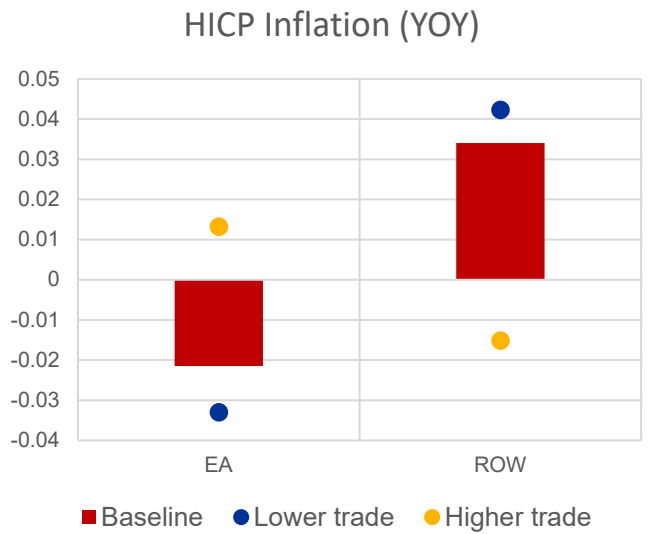


Source: 3-years cumulative deviation from baseline response to a 50% increase in tariffs between US and China. The upper panel decomposes the impact by country tariff. The bottom panel shows alternative sensitivity analysis. Based on ADDDGQ (2025) "US-China decoupling and the euro area: assessment from a Global Production Networks Macroeconomic Model" / Tariff exercises

Tariff impact assessment with a global production networks macroeconomic model

US-CN 50% tariff on goods: spillovers to third countries

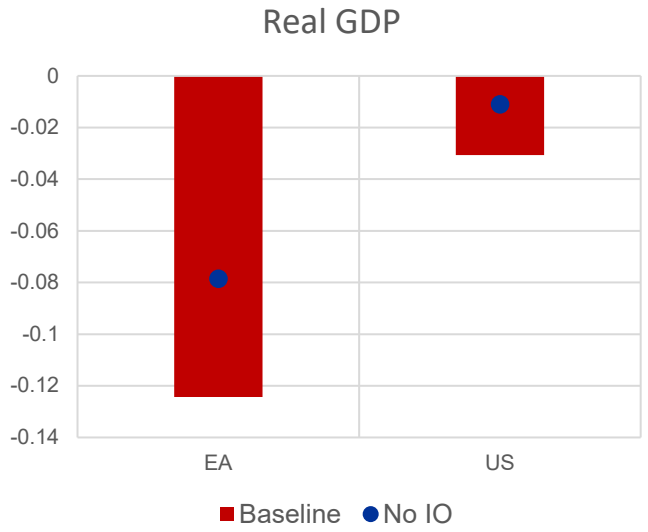


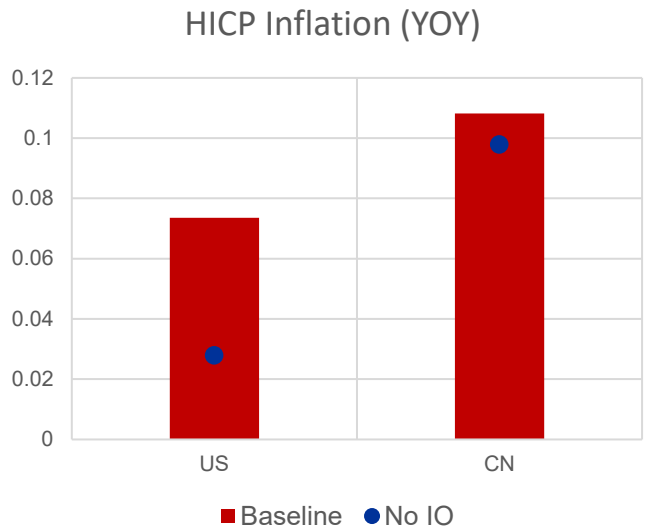


Source: 3-years cumulative deviation from baseline response to a 50% increase in tariffs between US and China. EA and RoW results under alternative sensitivity analysis. Based on ADDDGQ (2025) “US-China decoupling and the euro area: assessment from a Global Production Networks Macroeconomic Model” / Tariff exercises

Tariff impact assessment with a global production networks macroeconomic model

US 10% tariff on EA goods (no retaliation): role of IO





Source: 3-years cumulative deviation from baseline under network structures. Based on ADDDGQ (2025) "US-China decoupling and the euro area: assessment from a Global Production Networks Macroeconomic Model" / Tariff exercises

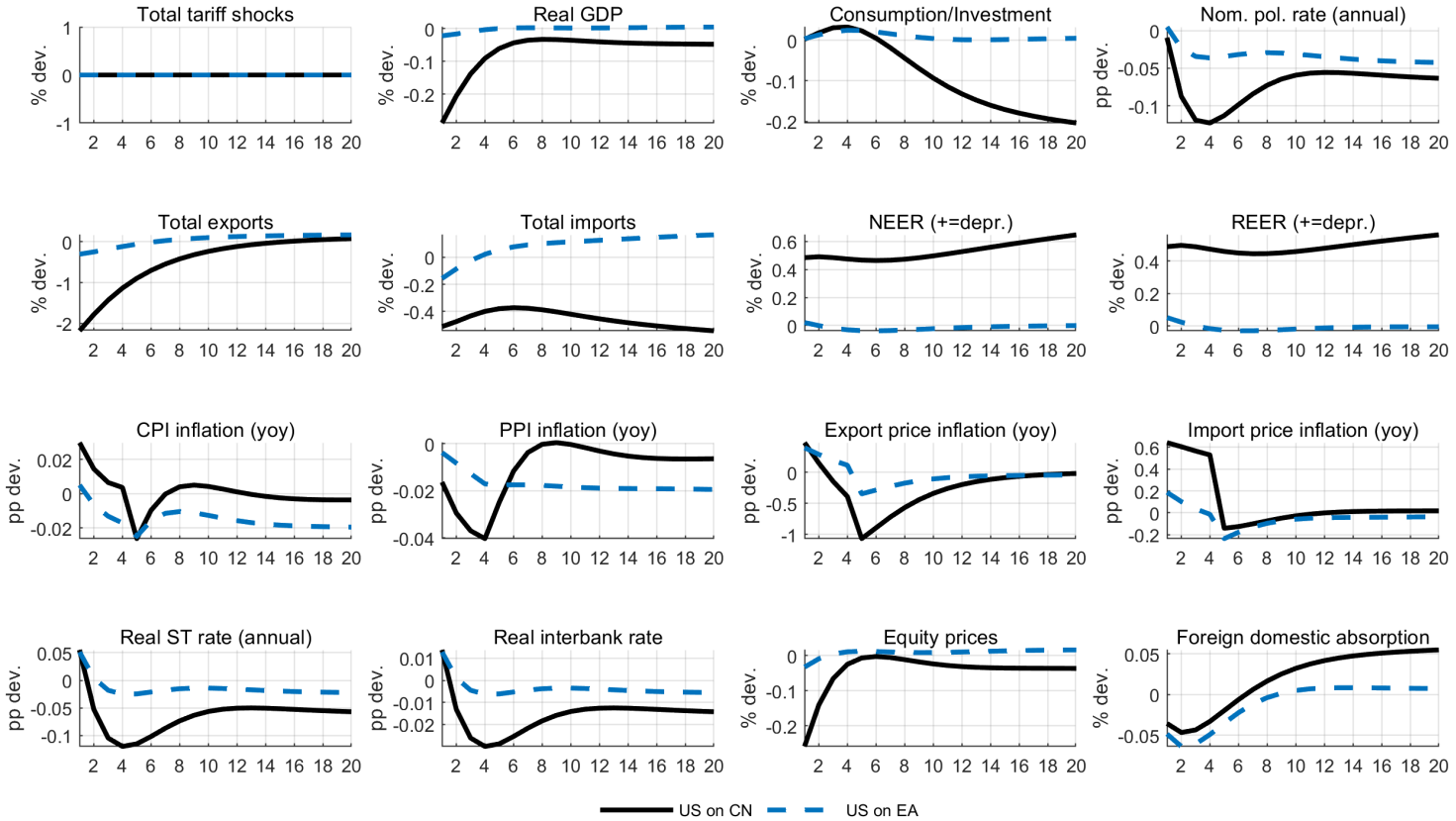
Thank you

DSGE structure

- Two-country New Keynesian DSGE (US vs. Rest of World).
- Features (benchmark):
  - Sticky prices (Rotemberg costs).
  - Capital accumulation & investment adjustment frictions.
  - Trade in final + intermediate goods.
  - Monetary policy: Taylor rules reacting to CPI inflation.
  - Tariffs: lump-sum rebated to households.
  - Asymmetry in size & openness (US more open, ROW larger).
  - Captures both demand effects and supply chain linkages of tariffs.

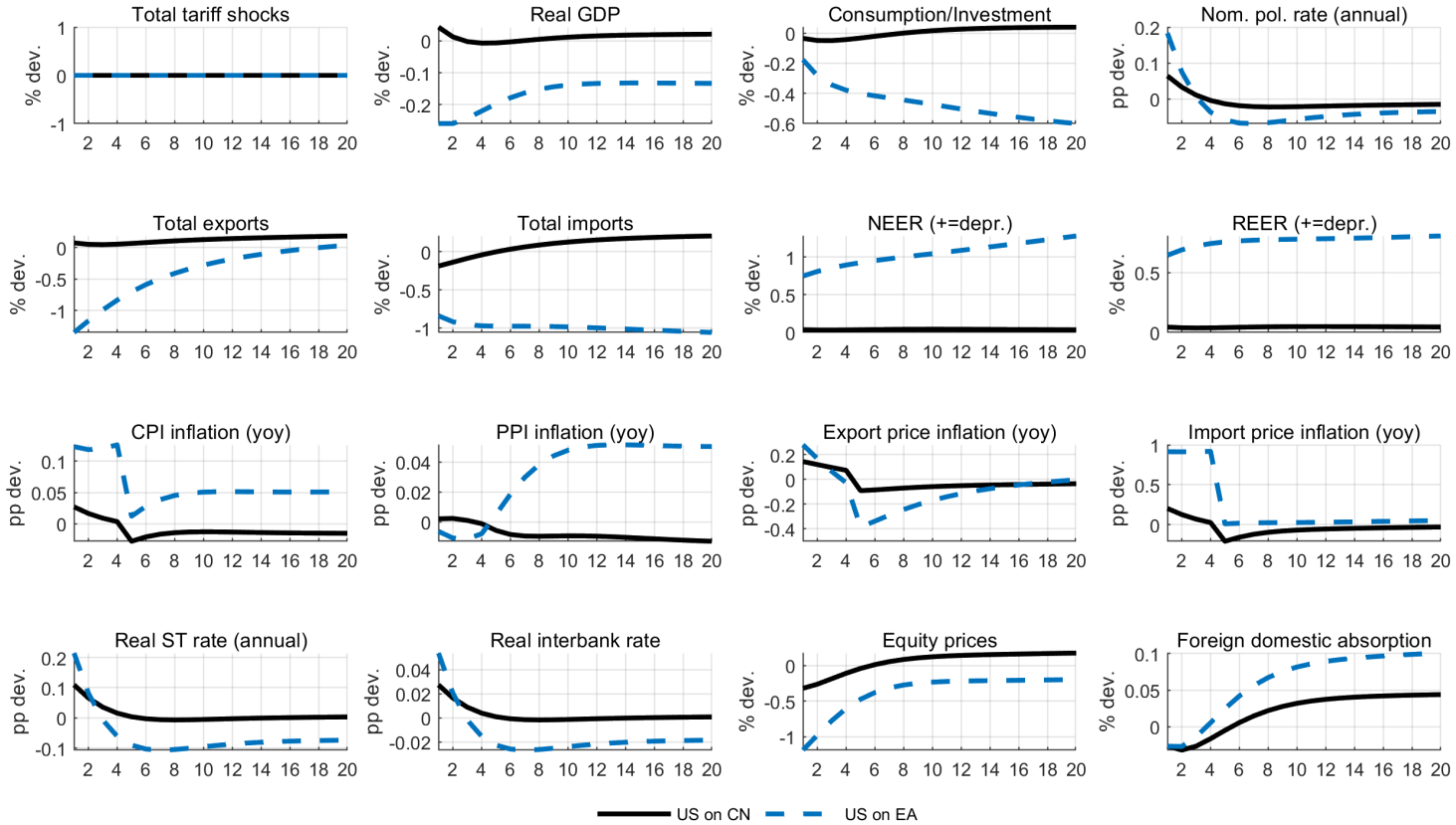
Heterogeneous impact of an US persistent unilateral 10% tariff

Impact on China



Heterogeneous impact of an US persistent unilateral 10% tariff

Impact on the Euro area



Importance of the trade mechanisms: Trade diversion and USD DCP; 10% US on CN

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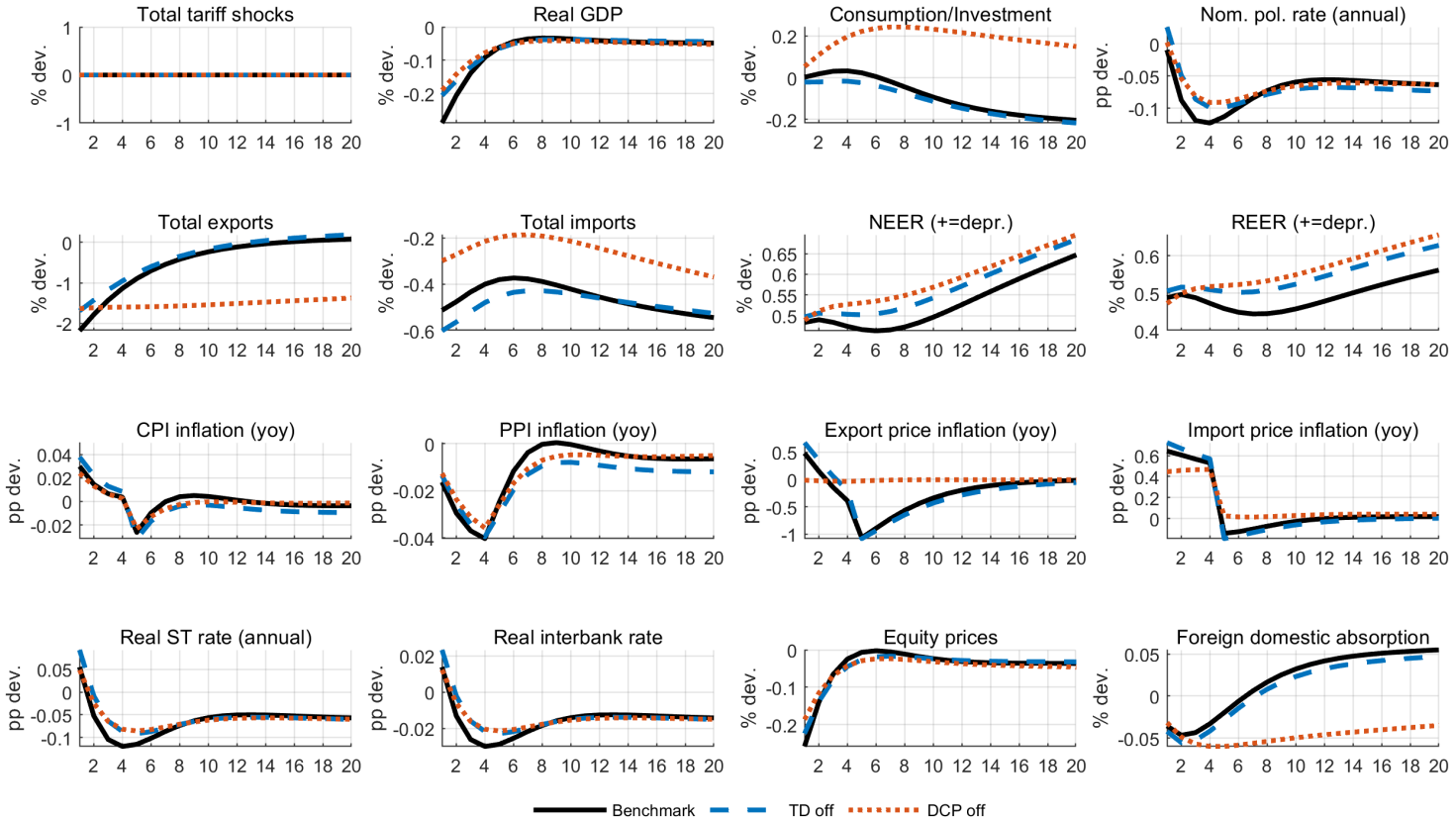
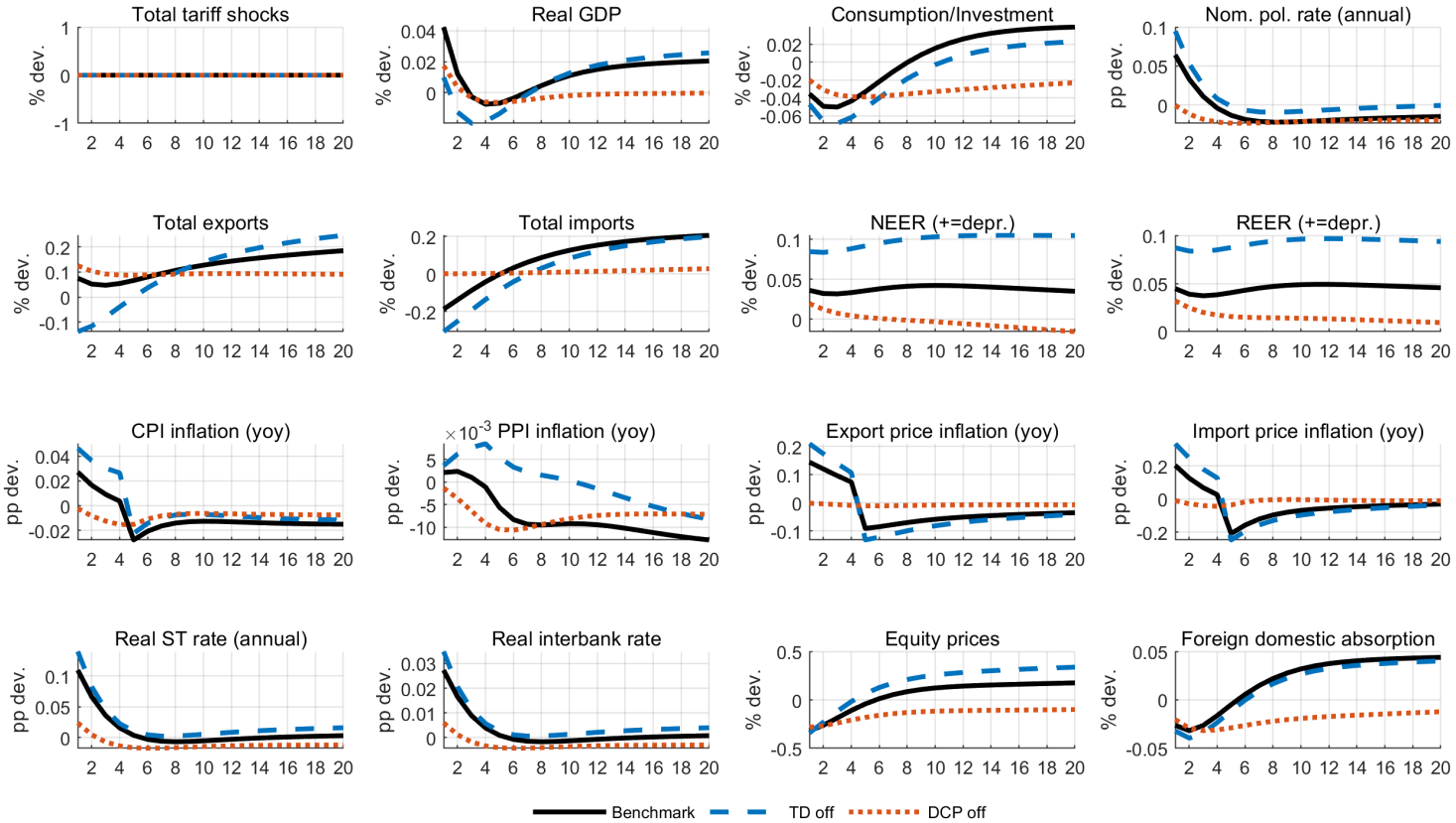


Importance of the trade mechanisms: Trade diversion and USD DCP; 10% US on CN

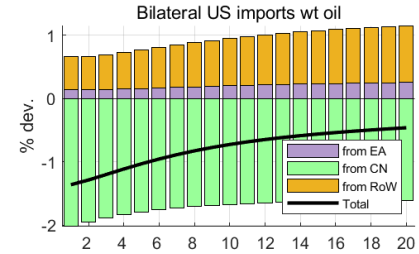
Impact on the Euro area

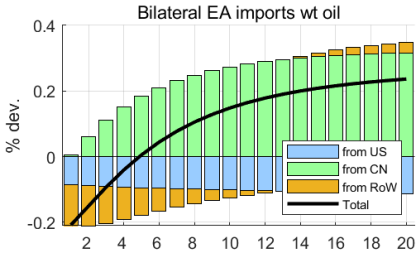


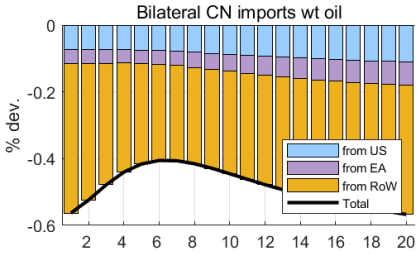
Importance of the trade mechanisms: Trade diversion and USD DCP; 10% US on CN

Bilateral real imports without oil

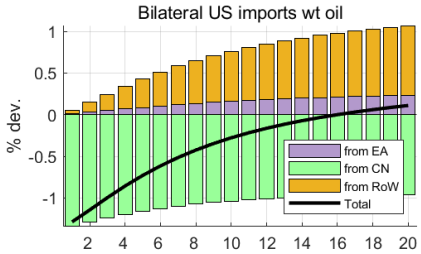
(a) Benchmark

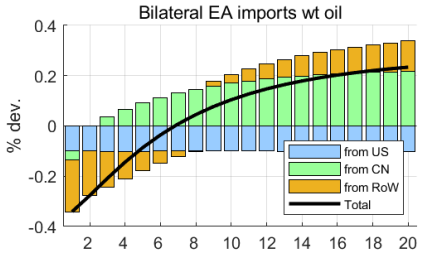


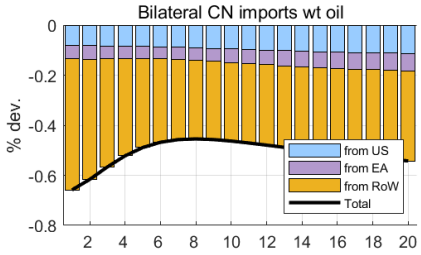




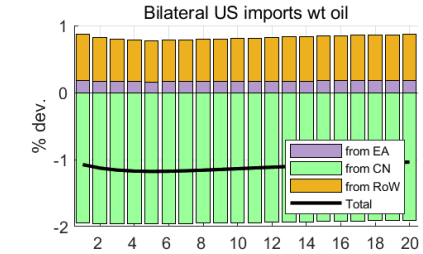
(b) TD off

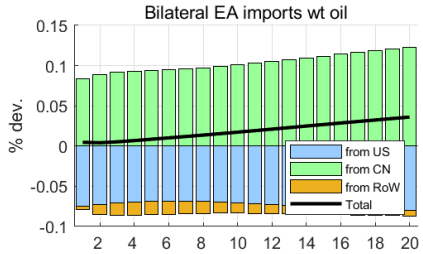


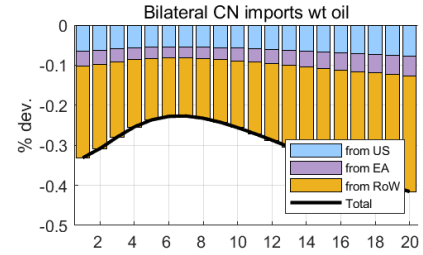




(c) USD DCP off



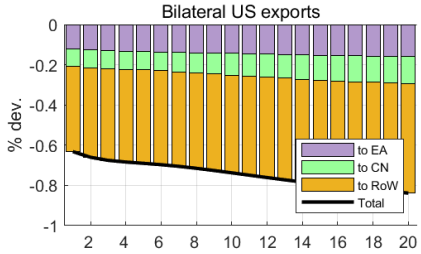


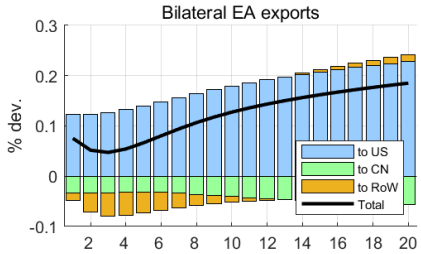


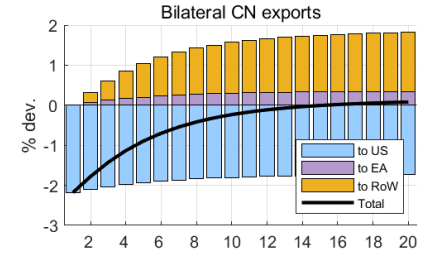
Importance of the trade mechanisms: Trade diversion and USD DCP; 10% US on CN

Bilateral real exports

(a) Benchmark







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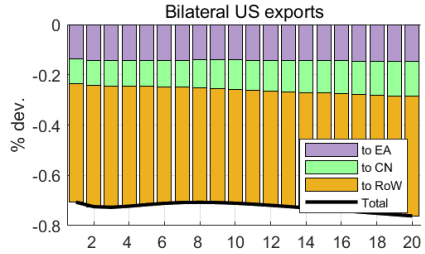

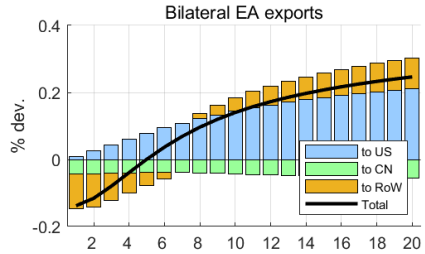

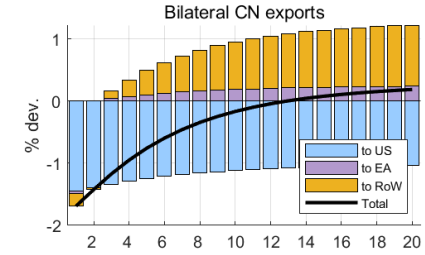

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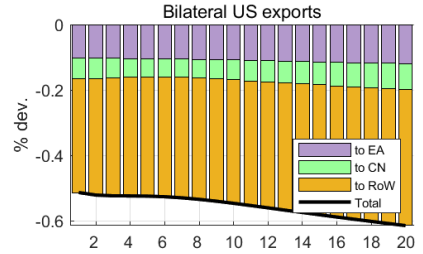
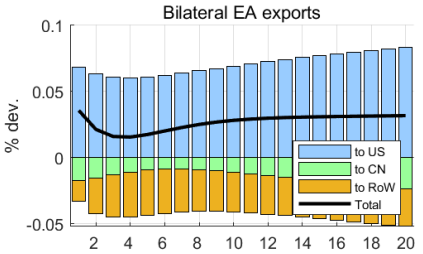
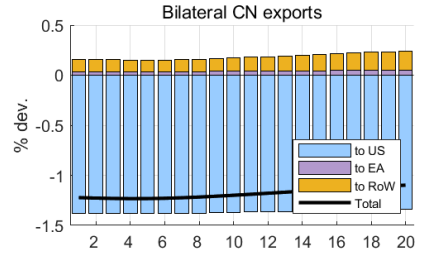
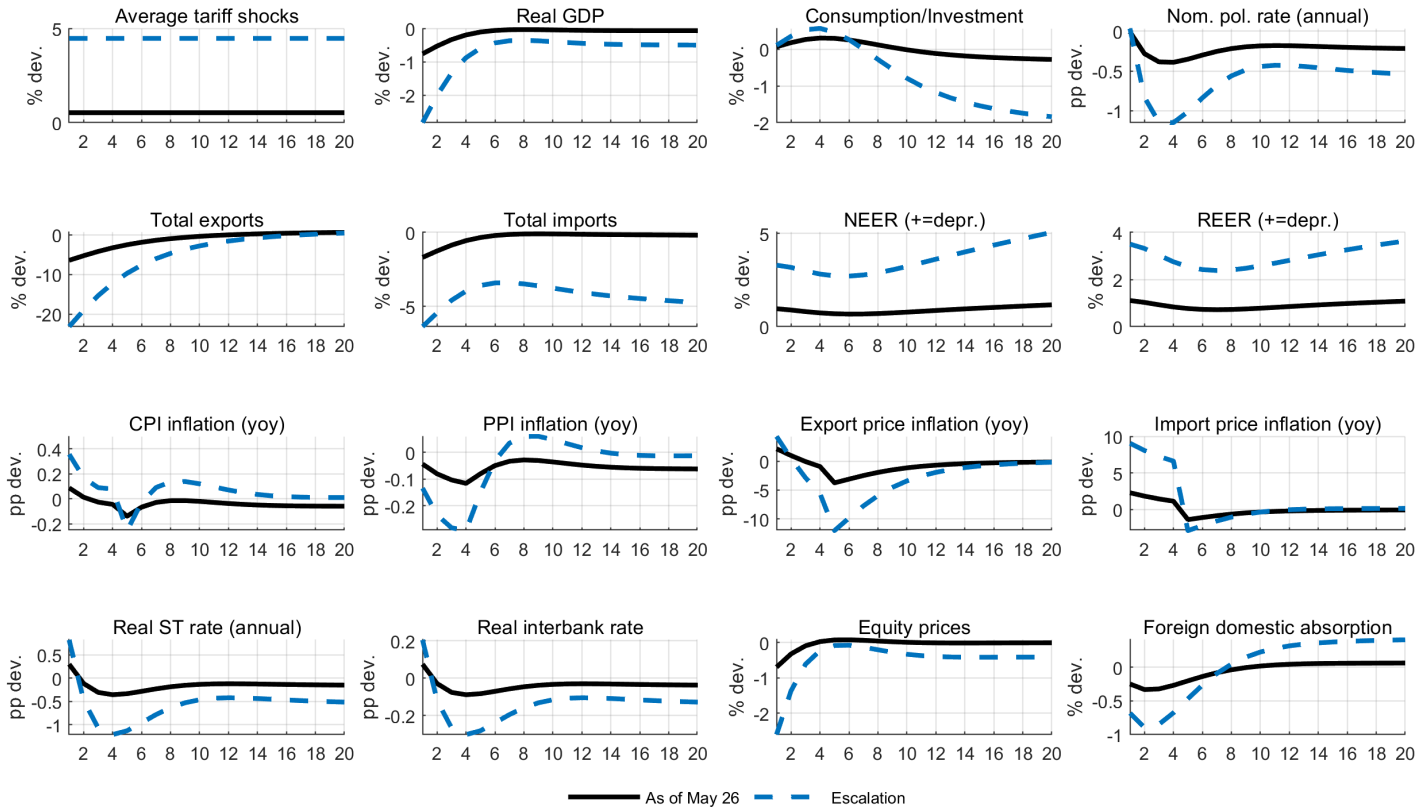






Assessment of the impact of the trade war as of May 26

~+10 p.p. average US tariffs on all blocs (Black) / ~+30 p.p. average US tariffs on all blocs (Blue)
Impact on China



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Impact on the Euro area