

Consumption Taxes, Real Exchange Rates, and Trade Balances

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Conclusions

- Data broadly support full pass-through of consumption taxes into real exchange rate.
 - Estimates are not precise.
 - Exchange rates are far more volatile than tax rates.
 - CPIs have measurement issues and differences across countries.
 - Tax changes sometimes occur in mid-year.
- Data broadly support little or no effect of consumption taxes on trade balances.



Border-adjusted Consumption Tax

- Taxes on consumer goods and services are common around the world.
- Germany (2014) is typical:
 - Total government revenue: €1069 billion
 - Income taxes (corp. & personal): €333
 - Social security (payroll tax): €408
 - Property taxes: €28
 - Goods and services taxes: €296
 - VAT (general) €203
 - Specific (excise, etc.) €82



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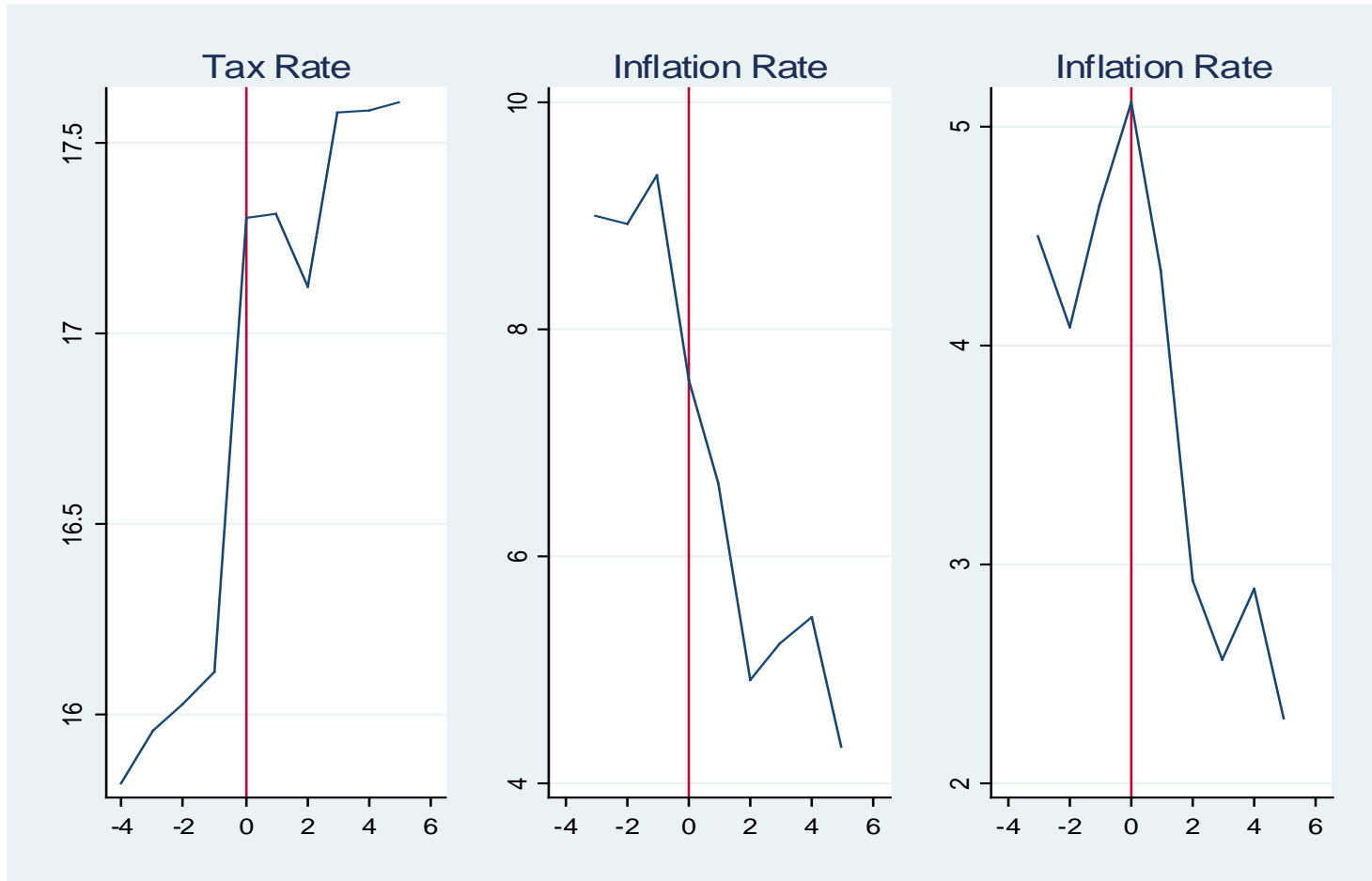


Event Study of VAT Introductions

- What happens when a VAT is introduced?
- To some extent, other goods taxes are reduced.
- But overall goods taxation tends to rise.
- Often part of other reforms, which have additional effects.

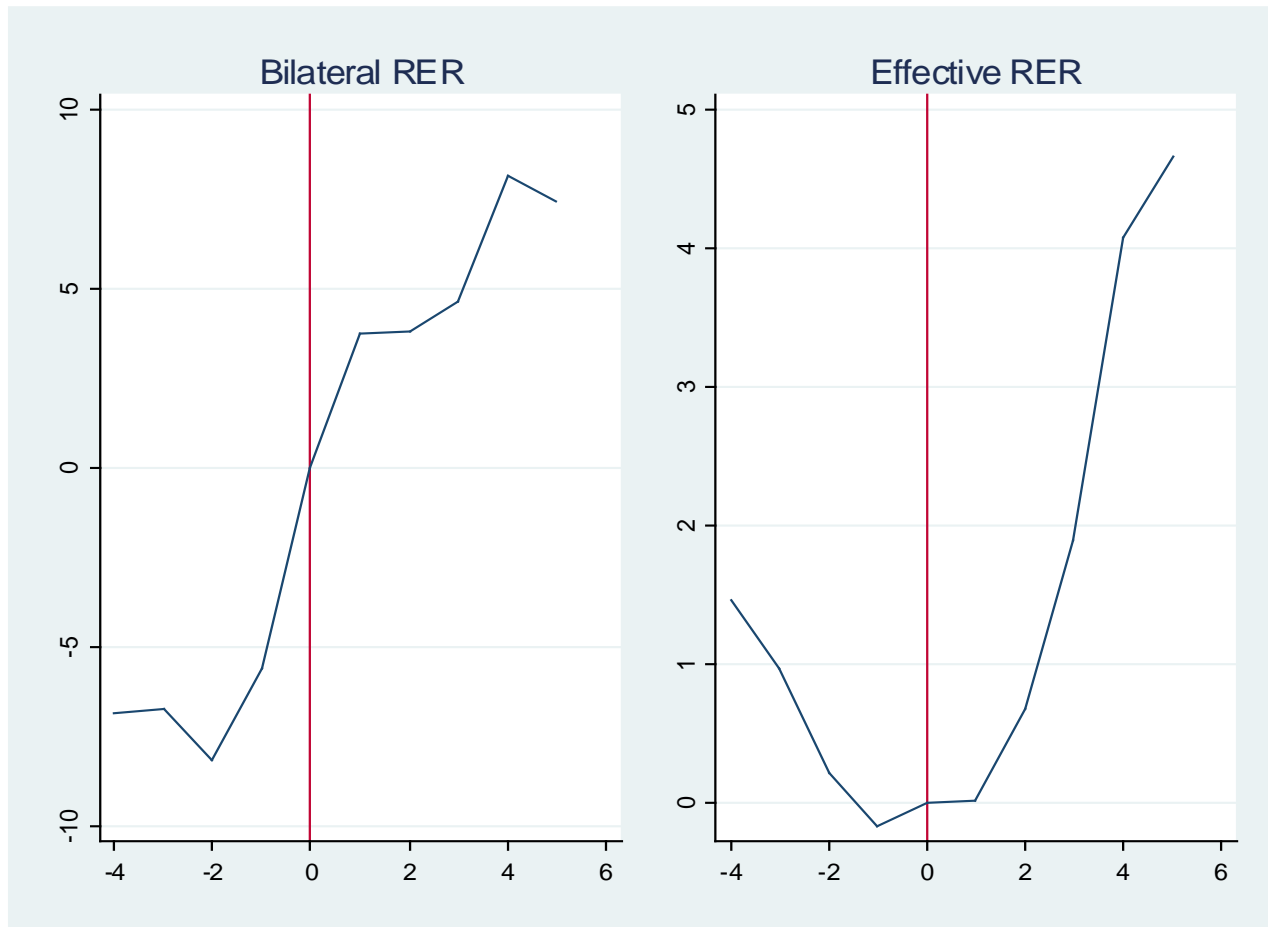


10 VAT Introductions



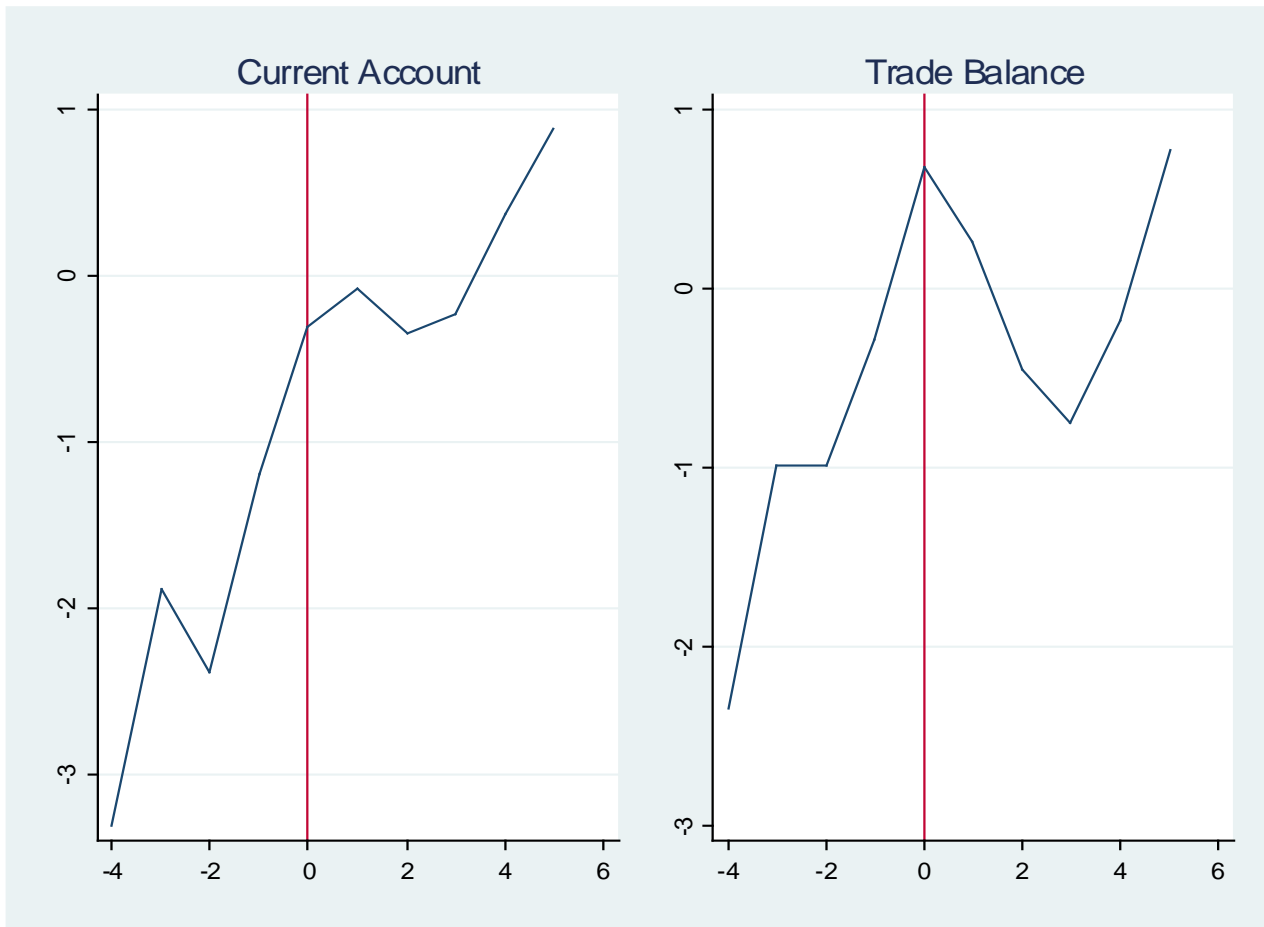


10 VAT Introductions





10 VAT Introductions





Regression Analysis

Long-run:

$$\begin{aligned} \text{RER}_{it} &= \alpha (\text{GSREV/CONS})_{it} + A (\text{Controls})_{it} \\ &+ \text{country effects} + \text{year effects} \end{aligned}$$

$$\begin{aligned} (\text{BAL/GDP})_{it} &= \beta (\text{GSREV/CONS})_{it} + B (\text{Controls})_{it} \\ &+ \text{country effects} + \text{year effects} \end{aligned}$$

Dynamics:

$$\begin{aligned} \Delta \text{RER}_{it} &= \gamma (\text{Error Correction})_{it-1} \\ &+ \Gamma (\Delta \text{RER}, \Delta (\text{GSREV/CONS}), \Delta \text{Controls})_{it} \end{aligned}$$

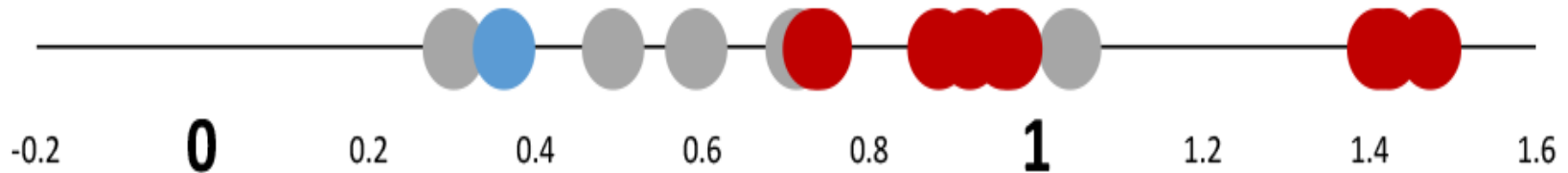
$$\begin{aligned} \Delta (\text{BAL/GDP})_{it} &= \lambda (\text{Error Correction})_{it-1} \\ &+ \Lambda (\Delta (\text{BAL/GDP}), \Delta (\text{GSREV/CONS}), \Delta \text{Controls})_{it} \end{aligned}$$



Long-run Real Exchange Rate

- 16 Regressions, focus on long-run effect of consumption tax rate on real exchange rate (CPI-based)
- 8 with OECD data, 8 with World Bank data
- 8 on bilateral RER, 8 on multilateral RER
- 8 with controls (Govt Revenue, Fiscal Balance, Relative Per Capita GDP, Trend Growth Rate, FX Intervention, Net International Investment Position, Net Energy Exports, Output Gap, Inflation Rate), 8 without
- 8 with year effects, 8 without
- About 35 advanced economies, 1980-2015

Consumption Tax Rate Effect on Real Exchange Rate



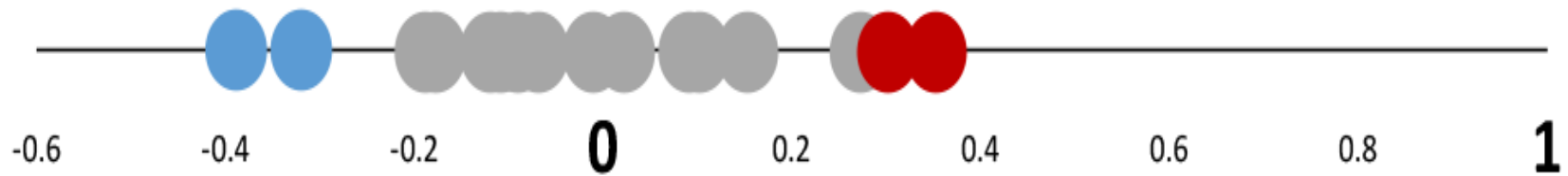
9 red dots are significantly greater than 0.
1 blue dot is significantly less than 1.



Long-run Trade Balance

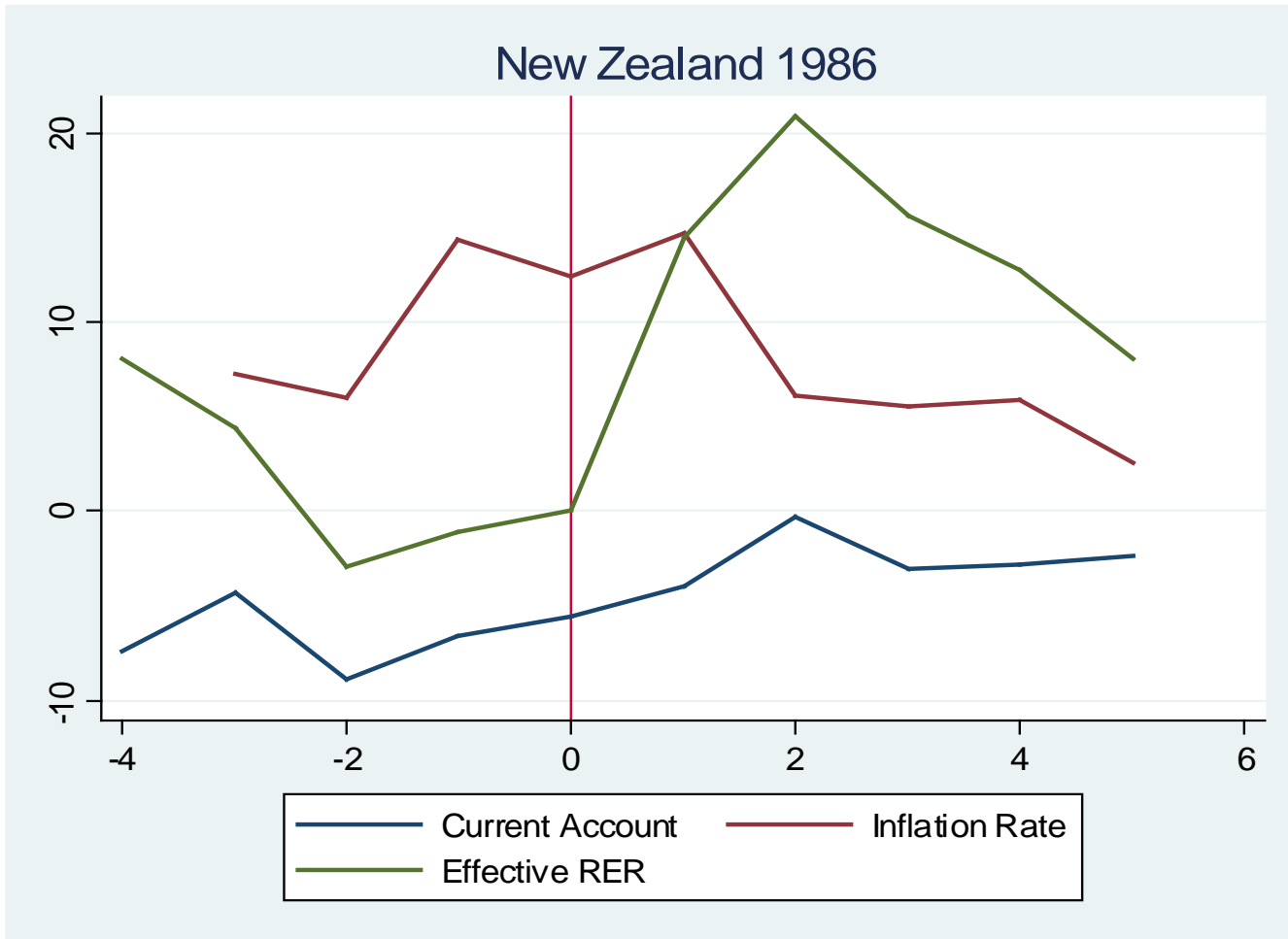
- 16 Regressions, focus on long-run effect of consumption tax rate on trade balance
- 8 with OECD data, 8 with World Bank data
- 8 on current account, 8 on goods & services trade
- 8 with controls (Govt Revenue, Fiscal Balance, Relative Per Capita GDP, Trend Growth Rate, FX Intervention, Net International Investment Position, Net Energy Exports, Output Gap, Inflation Rate), 8 without
- 8 with year effects, 8 without
- About 35 advanced economies, 1980-2015

Consumption Tax Rate Effect on Trade Balance



2 red dots are significantly greater than 0.
2 blue dots are significantly less than 0.

Case Study





Data Sources

Organization for Economic Cooperation and Development (OECD) *Annual National Accounts* and *Revenue Statistics* databases.

World Bank *World Development Indicators* database.

International Monetary Fund (IMF) *Balance of Payments* and *World Economic Outlook* databases.