Protectionism, Evasion, and Household Welfare: Evidence from Nigeria's Import Bans

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Banca d'Italia, European Central Bank and World Bank Conference
Trade, value chains and financial linkages in the global economy

Motivation

- **Developing countries are more prone to protectionism** than developed countries

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- ▶ **They also face greater challenges enforcing trade policy** (Atkin and Khandelwal, 2020; Irwin 2019; Olken and Pande 2012)

- ▶ **How does enforcement shape the welfare impact of trade policy?**

This Paper

Examines welfare impacts of Nigerian import bans and how these are shaped by evasion

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3. **Who gains and who loses from import bans and evasion?**

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3. **Who gains and who loses from import bans and evasion?**
   - ▶ Simple model calibrated using the 2018/2019 Nigerian Living Standards Survey

Why Nigeria?

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    ▶ Sectoral composition is idiosyncratic $\rightarrow$ hard to predict
    ▶ Bans do not generate revenue $\rightarrow$ simplifies welfare analysis

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- **High quality price and household survey data**

Preview of Main Findings

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- **Ban imposition increases prices by 9.9% on average, but inflation is attenuated by evasion**
  - Higher increases for goods with lowest evadability

- **Bans disproportionately hurt the rich**
  - Poorer households derive a larger share of their income from banned goods
  - Enhanced enforcement would disproportionately hurt the rich:
  - $\implies$ **evasion is welfare-enhancing but regressive**

Outline Rest of the Talk

Data and Context

Data

- **Import Bans and Taxes (tariffs, levies, VAT)** (HS6 level) *(Law firm)*

- **Trade Flows** *(COMTRADE)*

- **CPI Micro Data** *(Nigerian Bureau of Statistics)*

- **2018-2019 Nigeria Living Standards Survey**
  - 22,110 households, nationally representative

Evolution of Import Bans in Nigeria, 2001-2020
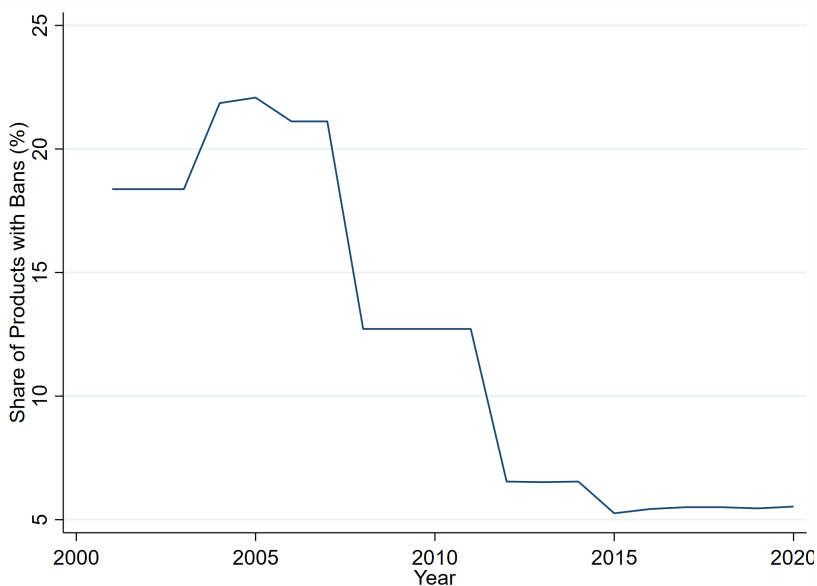
Measuring Evasion

- G_{pist}: Evasion gap (Fisman and Wei, 2004)

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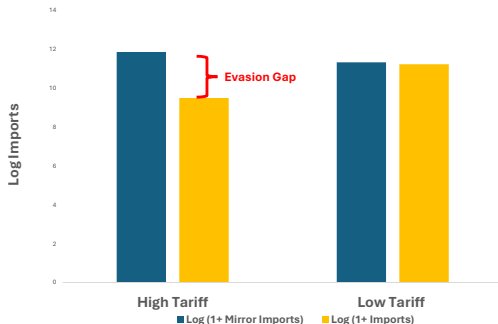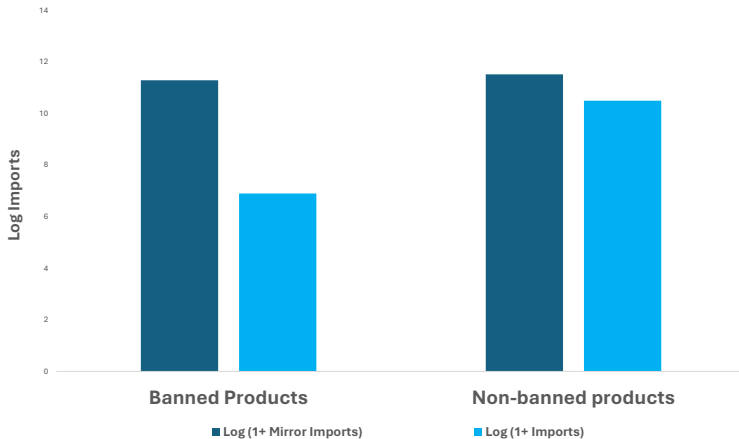
Evasion Gaps Increase with Tariffs
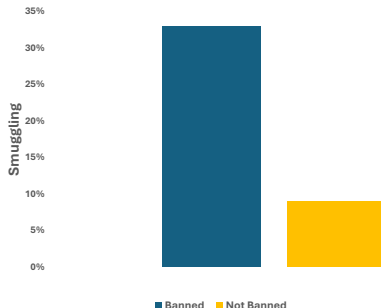
Total revenue loss: 33%
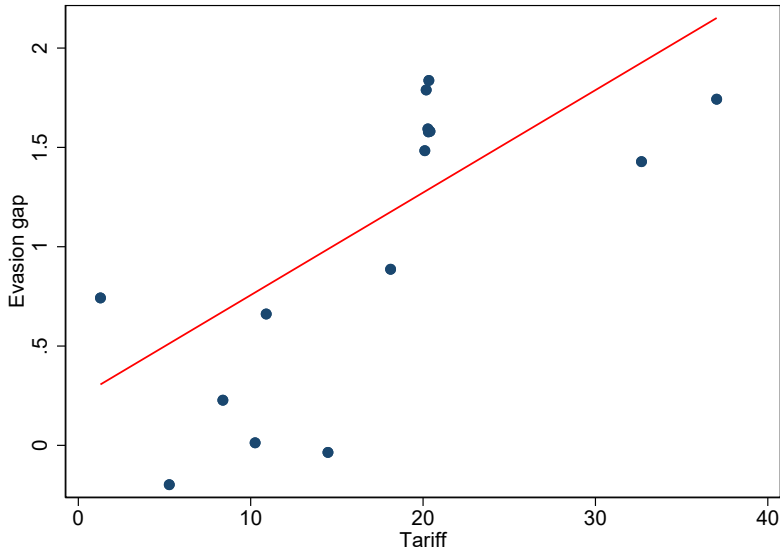
Were Bans Effectively Enforced?

Were Import Bans Effectively Enforced?

Evasion gaps are higher for banned products

Lost Exports and Import Bans

Banned products are more likely to be smuggled

▶ Lost exports: Mirror imports > 0 and formal imports$=0$

Identification challenges

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  - ▶ TWFE estimates can be biased due to
    1. "forbidden comparisons"
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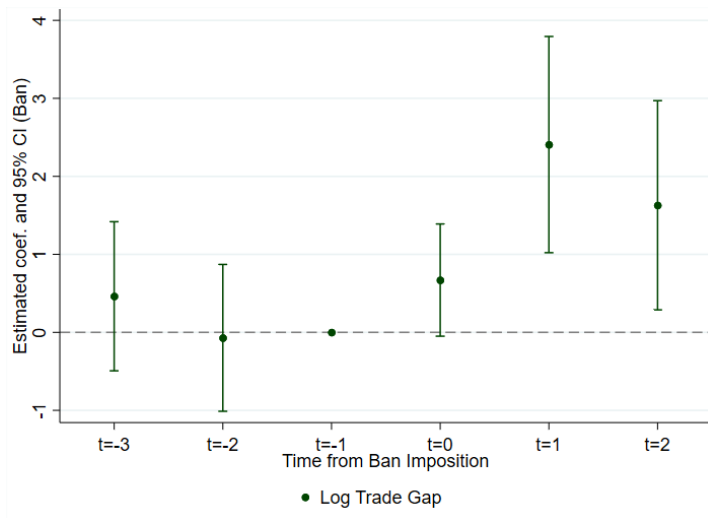- ▶ Separately estimate impact of ban imposition and ban removals

Impact of ban impositions on trade

Imports fall more precipitously than mirror imports
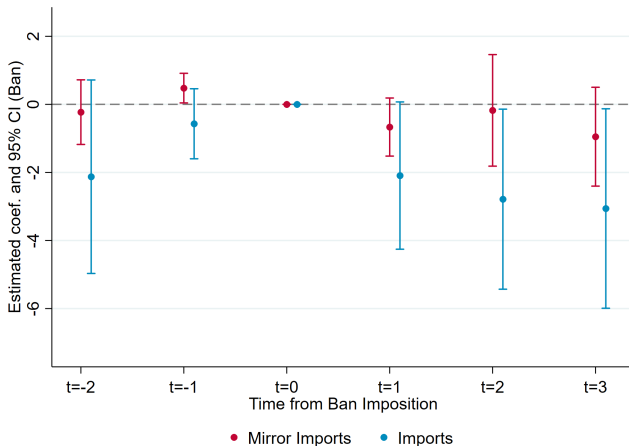
Notes: Figure shows the results of a staggered PPML estimator (Moreau-Kasltler, 2025) of mirror imports and imports on ban imposition controlling for $(1 - Ban) \times$ Taxes.

Import bans trigger evasion

Notes: Figure shows the results of a local projection difference-in-difference estimation (Dube et al. 2025) of the log trade gap on ban imposition controlling for $(1 - Ban) \times$ Taxes.

Impact of ban removal on evasion

Did Bans Trigger Price Increases?

How did bans impact prices?
Econometric Strategy

- ▶ Use same strategy as for trade
  - ▶ use local-projections difference-in-difference estimator (Dube et al., 2025)

- ▶ First examine impacts on average prices, then assess heterogeneity by susceptibility to evasion

Impact of ban imposition on prices

Prices increase by 9.9% when bans are imposed
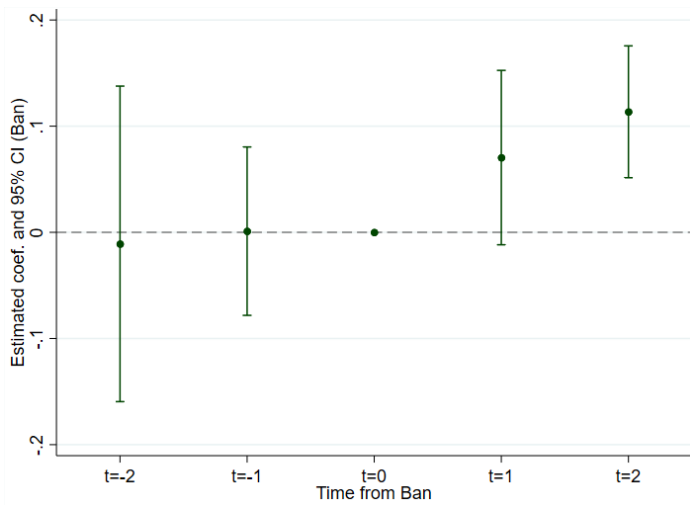
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Impact of ban removal on prices

Measuring Evadability

Evadability ("Ease of Evasion")

- Use mirror statistics for other countries:
  - ECOWAS countries not bordering Nigeria nor source of informal flows

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▶ Ev_p measures the "ease of evasion" or "evadability":
  ▶ Intuition: how responsive is underreporting to an increase in tariffs?
  ▶ Arguably exogenous to evasion in Nigeria

Ease of evasion estimates
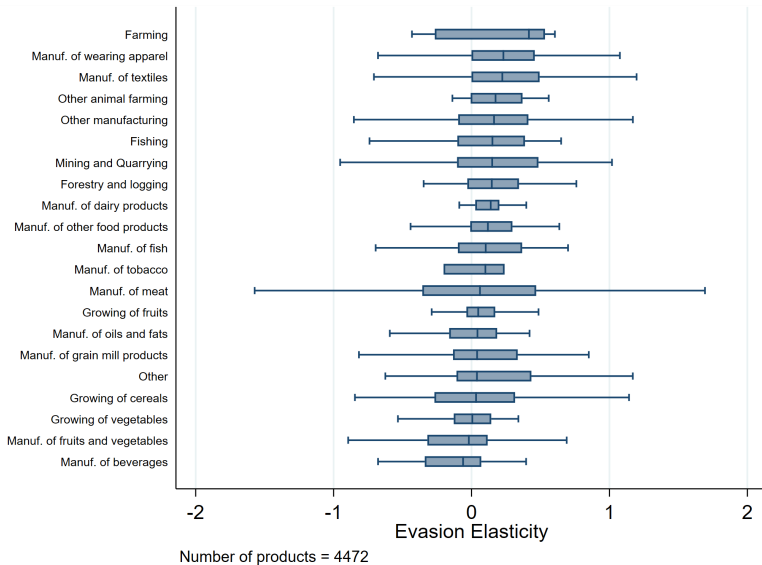
Number of products = 4472

Alternative Proxies for Ease of Evasion

- **Value relative to transport costs:**
  - Using COMTRADE, we calculate value to transport ratio

$$r = \frac{\text{FOB}}{\text{CIF} - \text{FOB}}$$

  sample restricted to trade with the US
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    Transport Costs

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▶ **Similarity (ease of misclassification):**
  ▶ Using a pre-trained SBERT model, we compute cosine similarity between product descriptions.
  ▶ Similarity: average similarity among the top quartile of most similar, non-banned products
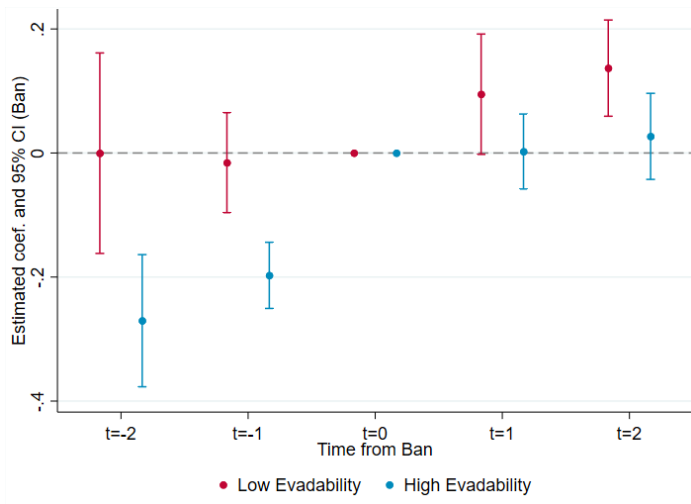 ▶ Greater similarity $\implies$ greater ease of evasion Similarity

Validation of evadability measures

Did Price Impact Vary with Susceptibility to Evasion?

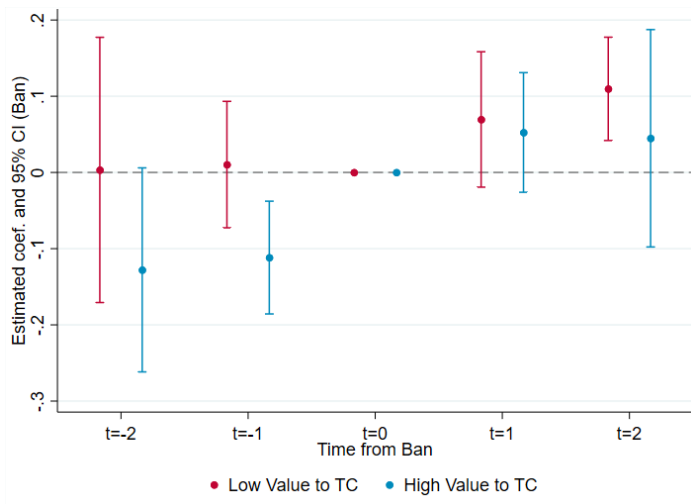# Heterogeneous impact of bans on prices

Higher evadability → lower increase in prices

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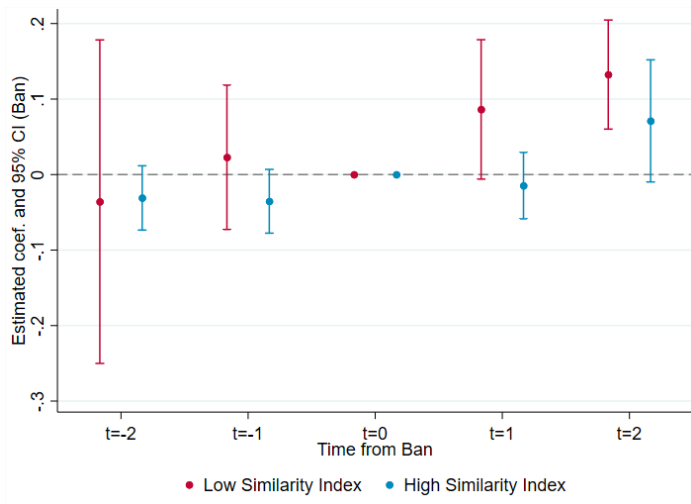
Heterogeneous impact of bans on prices

Lower transport costs (=high value to TC) → lower increase in prices

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Heterogeneous impact of bans on prices

Greater similarity to other products → lower increase in prices

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Distributional Impacts

Distributional impacts

- Stylized model of households as consumers and producers
  (Deaton, 1989; Artuc Porto and Rijkers, 2017)
  - Households make consumption and income decisions
  - No savings (income = expenditures)
  - Simple framework for studying welfare effects of bans

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- ▶ Simulations of enforcement changes:
  - ▶ Enforcement conceptualized as changes in evadability

Welfare impacts of Bans

▶ First-order welfare effect of a change in the price of i

$$\underbrace{\frac{dV_i^h}{y^h}}_{\text{Welfare effect}} = \left(\underbrace{\phi_i^h}_{\text{Income share of } i} - \underbrace{s_i^h}_{\text{Budget share of } i} \right) \underbrace{d \ln p_i}_{\text{Price change of } i}$$

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- Limitations
  - Only captures the direct short-run welfare impacts
  - No impacts on wages and family enterprise income
  - No adjustment of consumption and production choices

Aggregated Effect

- Aggregate welfare changes across traded goods i using:

$$\widehat{V}^h = \sum_i \left(\phi_i^h - s_i^h \right) d \ln p_i,$$

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▶ Welfare impacts of import bans and evasion evaluated as:
  1. Baseline: estimated price changes
  2. Counterfactual: reduced ease of evasion (Ev)
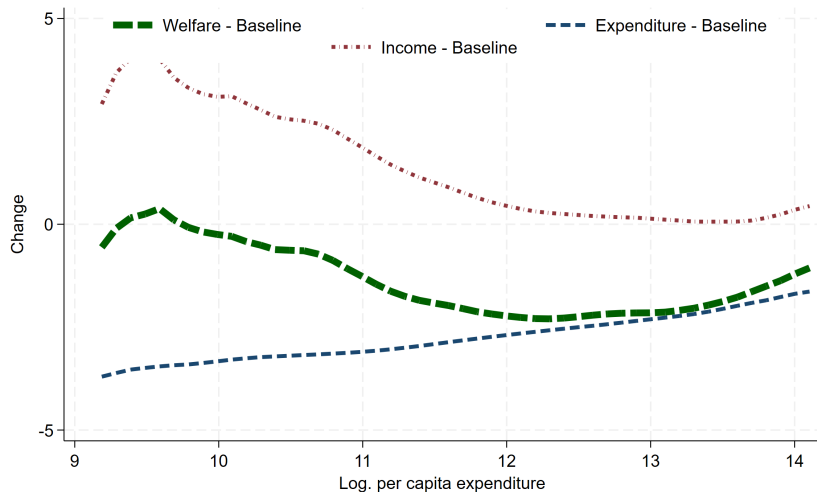   ▶ Assume each product falls in the "low evadability" category

Income and expenditure shares

Poor household spend more on banned products, but also generate more income from them
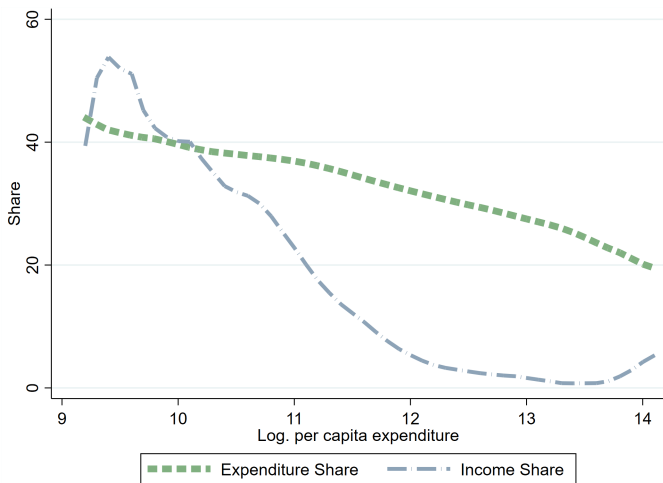
Welfare effects of import bans

Evasion is welfare enhancing but regressive

Import bans reduce welfare, but they are progressive

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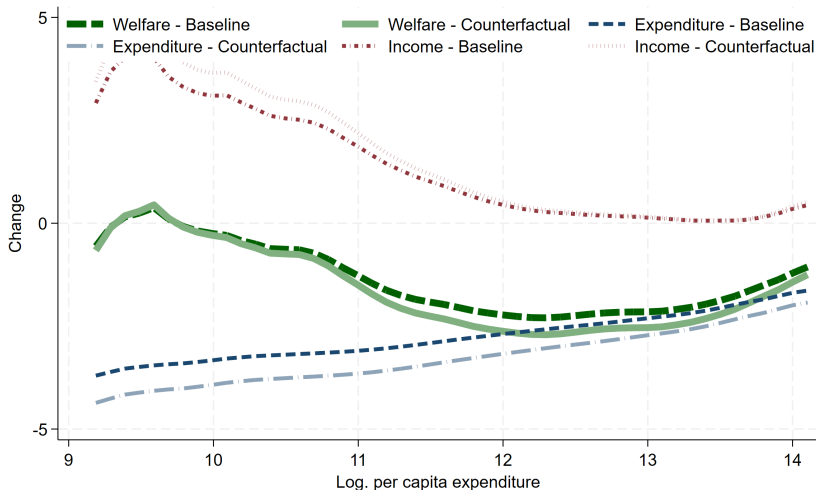
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▶ **Bans fuel inflation, the impact of which is softened by evasion**
   ▶ Average impact of ban imposition 9.9%
   ▶ Price response attenuated for goods which are easy to evade

▶ **Bans repress real income, especially of rich households**
   $\implies$ evasion is welfare enhancing, and pro-rich

Examples of Banned Products

Meat & Poultry
Live/Dead Birds, Frozen Poultry, Pork, Beef, Bird Eggs (excl. hatching)

Food & Beverages
Refined Oils/Fats, Sugar, Cocoa, Spaghetti/Noodles, Juice, Waters, Beer, Stout

Household Items
Bagged Cement, Soaps/Detergents, Mosquito Coils, Paper, Cartons, Toilet Paper, Exercise Books, Footwear, Bags, Carpets/Textiles

Pharma & Medications
Tablets/Syrups (Paracetamol, Aspirin, etc.), Multivitamins, Haematinics, Ointments, IV Fluids, Waste Pharmaceuticals
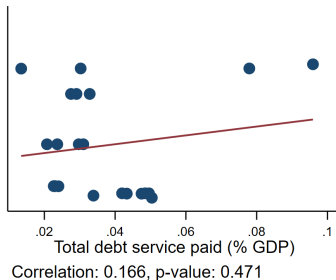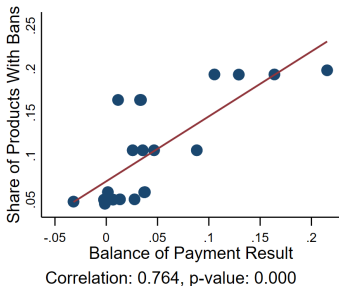
Used Equipment & Vehicles
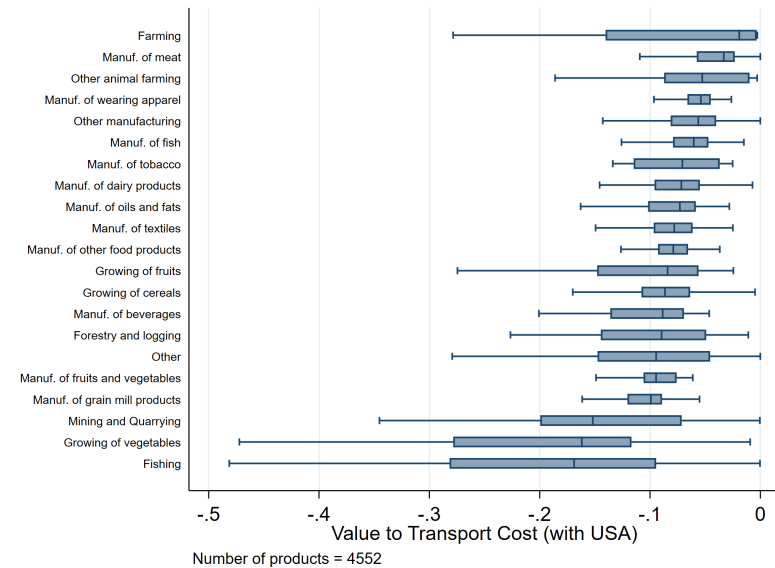Compressors, AC, Fridges/Freezers, Motor Vehicles > 12 yrs, Rethreaded/Used Tyres

Other Items
Telephone Recharge Cards, Ballpoint Pens Parts, Hollow Glass Bottles > 150ml

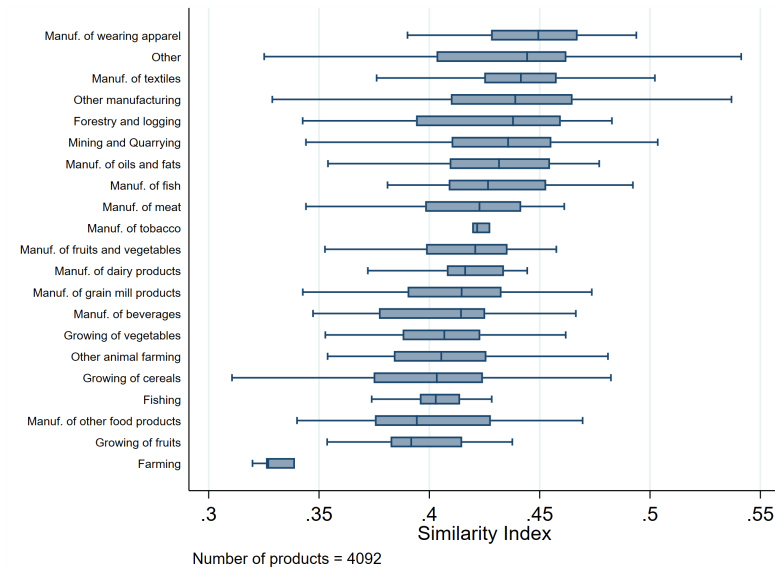# Prevalence of Bans and Macroeconomic Conditions

Correlation: 0.764, p-value: 0.000

Correlation: 0.166, p-value: 0.471

Correlation: 0.483, p-value: 0.027

Correlation: -0.288, p-value: 0.205

Transport Costs

Number of products = 4552
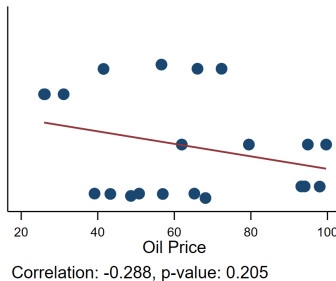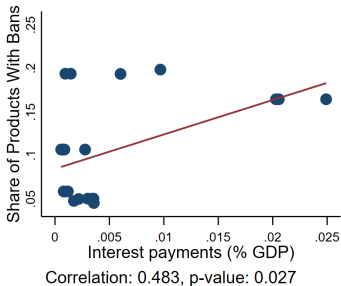
Similarity scores

Number of products = 4092

Validation of Evasion Measures

Explaining evasion gaps in other countries

|	(1)	(2)	(3)	(4)	(5)	(6)
			Log(Trade Gap + 1)			
Log(Tariffs +1)		0.065***		0.067***		0.067***
		(0.011)		(0.011)		(0.011)
Evadability	0.016**	0.015**				
	(0.008)	(0.008)				
Value/Transport			0.143	0.399*		
			(0.208)	(0.211)		
Similarity					0.592**	0.813***
					(0.248)	(0.258)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Source FE	Yes	Yes	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1,274,080	963,507	1,256,133	945,746	1,134,676	854,904
R^2	0.066	0.069	0.066	0.069	0.066	0.068

Impact of Ban Removal on Trade
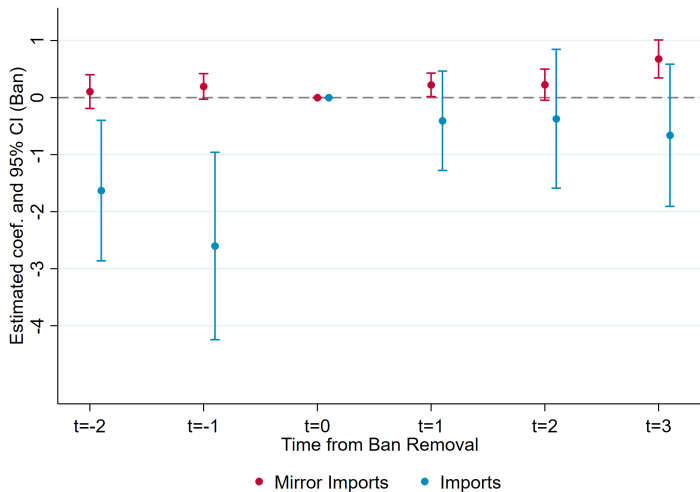
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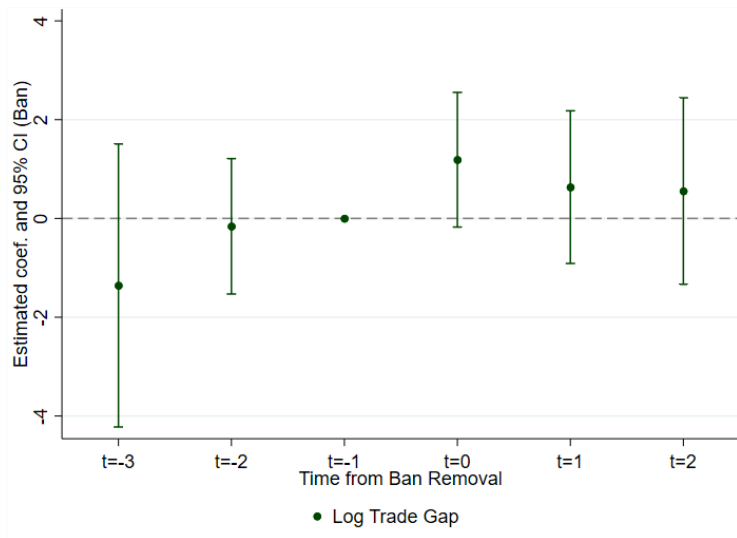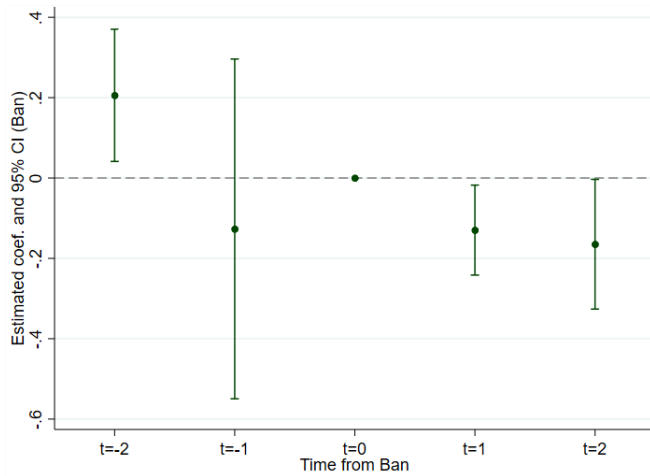
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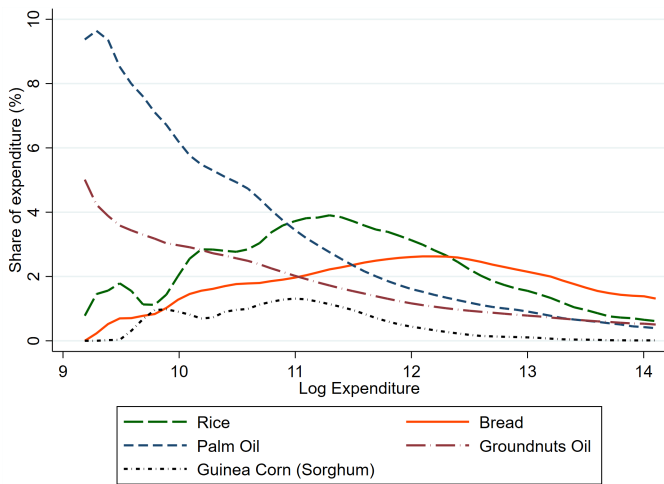
Impact of ban removal on prices

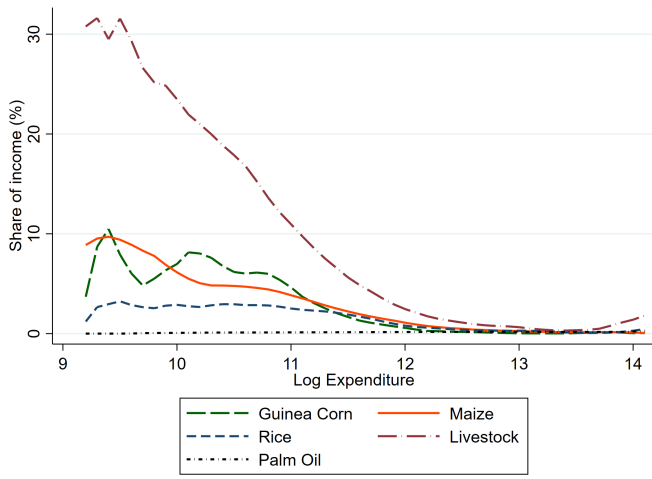Prices drop when bans are removed - but there are pre-trends

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Go Back

Expenditure shares specific banned products

Income shares specific banned products

Go back