



# Linking international trade and import barriers to the retail cost of healthy diets

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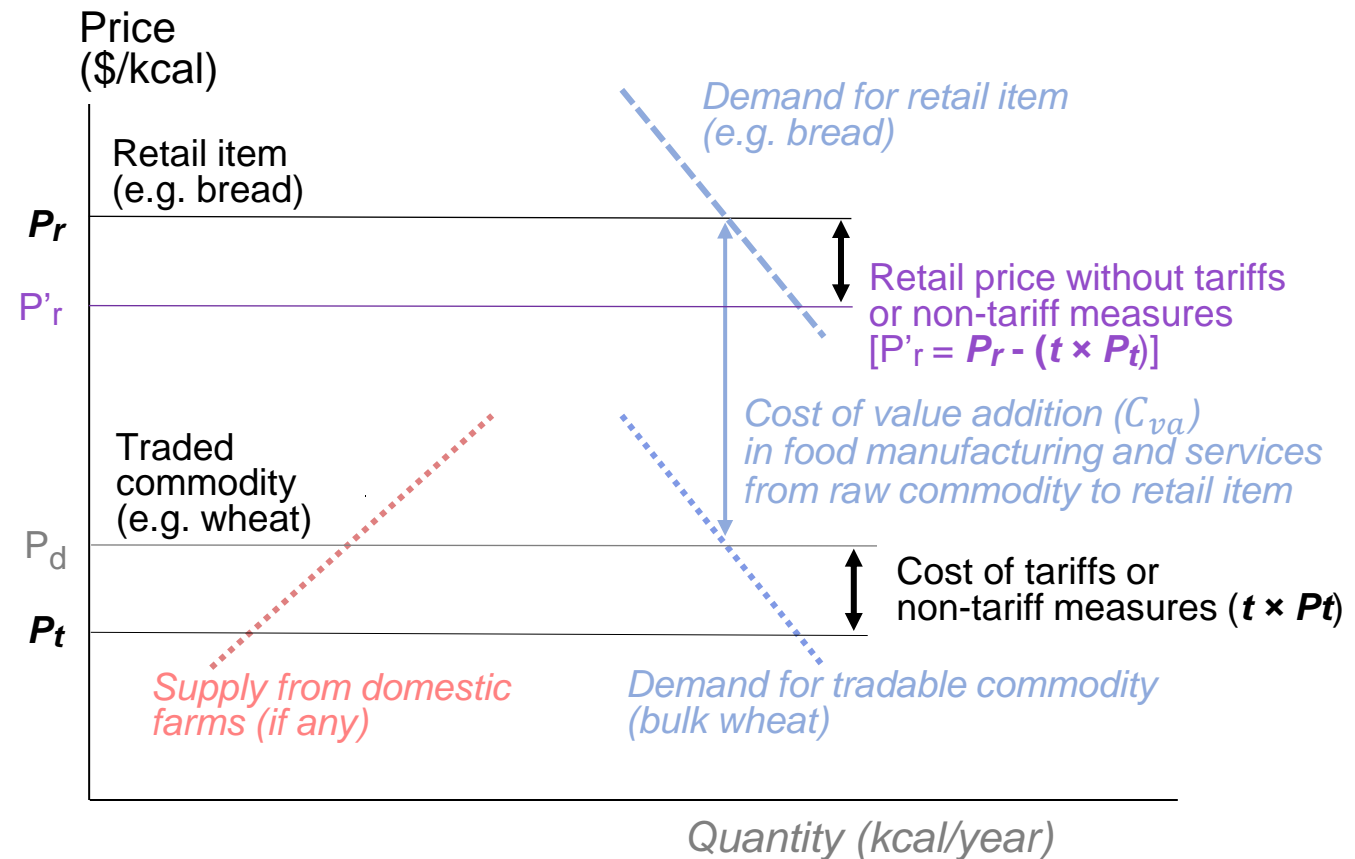


# Motivation and approach

- Measuring physical and economic access to healthy diets globally reveals that even least-cost healthy diets remain unaffordable for many
- To address **the importance of trade restrictions** for access to healthy diets, we match import costs to retail prices, revealing the role of tariff and non-tariff measures (NTMs) for least-cost healthy diets.
- This initial study concerns observed **tariffs and NTMs as a share of retail prices** given current (2017) market conditions
- Future work could use these data in **equilibrium models** of response to policy change, which would depend on supply and demand elasticities

# How can we account for the cost of trade barriers in retail prices?

- For each item we have retail prices, in USD per kcal ( $P_r$ )
- For many items, the food or its primary ingredient is also imported, typically in bulk form, and we compute its import price (unit value) ( $P_t$ )
- For many imports, we have a bilateral tariff or a cost of compliance with non-tariff measures (NTMs) in ad-valorem terms ( $t$ ), which implies a higher domestic price ( $P_d$ )
- We estimate retail prices without import barriers ( $P'_r$ ) as  $P_r$  minus the cost of tariffs or NTMs ( $t \times P_t$ )
- This accounting is at observed levels of retail sales and consumer demand, holding constant the cost of value-added activities



# How do we account for each item's trade barriers in diet costs?

- Baseline cost of a healthy diet (CoHD) in each country is with tariff-laden prices ( $P_r$ )
- Then, compute diet costs (CoHD') using each country's prices net of trade barriers ( $P_r'$ )
- The percent of CoHD attributable to tariffs and NTM compliance is

$$b = \frac{CoHD - CoHD'}{CoHD} \times 100$$

- The role of trade barriers in diet costs depends on
  - whether least-cost items are imported or have an imported primary ingredient
  - whether the imported food faces tariffs or NTM compliance costs
  - magnitude of those costs relative to retail prices

# Data sources: prices

- **Retail prices for 2017:** International Comparison Program (ICP) national average prices for 680 items in 177 countries
- **Import unit values from imported value and quantities in 2017**
  - FAOSTAT Detailed Trade Matrix (bilateral)
  - FAO Fisheries and Aquaculture database (unilateral)
- For **price per calorie**, we match retail items and traded commodities to **nutritional composition**
  - USDA SR28, uFiSH, West African Food Composition Table

# Data sources: trade restrictions

- **Trade restrictions on imports** from UNCTAD Trade Analysis and Information System (TRAINS)
  - Tariffs measures in ad-valorem equivalent (AVE)
    - 128 countries, bilateral, HS6 level, 2015-17
  - Non-tariff measure incidence from UNCTAD
    - 92 countries plus the EU (total of 120 countries), bilateral, HS6 level
- Cadot *et al.* 2018
  - Cost of compliance with NTMs (AVE) by GTAP sector (not bilateral)

*Final dataset has 13,912 pairs of retail and traded product prices in 144 countries*

# How does removing the cost of trade restrictions alter least-cost diets?

**Example: Least-cost healthy diet items and cost per day for Nigeria in 2017**

|                             | Baseline               |             | Without tariffs        |             | Without non-tariff measures |             |
|-----------------------------|------------------------|-------------|------------------------|-------------|-----------------------------|-------------|
| Food group                  | Food item              | Cost        | Food item              | Cost        | Food item                   | Cost        |
| <i>Starchy staples</i>      | Maize grains           | 0.34        | Maize grains           | 0.34        | Maize grains                | 0.33        |
|                             | Rice, 25% broken       | 0.41        | Rice, 25% broken       | 0.41        | Rice, 25% broken            | 0.41        |
| <i>Vegetables</i>           | Fresh carrots          | 0.23        | Fresh carrots          | 0.21        | Fresh carrots               | 0.21        |
|                             | Fresh onions           | 0.24        | Fresh onions           | 0.24        | Fresh onions                | 0.22        |
|                             | Fresh cucumber         | 0.47        | Fresh cucumber         | 0.47        | Fresh cucumber              | 0.47        |
| <i>Fruits</i>               | Banana, finger length  | 0.24        | Banana, finger length  | 0.24        | Banana, finger length       | 0.24        |
|                             | Mango, large (grafted) | 0.28        | Mango, large (grafted) | 0.28        | Mango, large (grafted)      | 0.28        |
| <i>Animal-source foods</i>  | Milk, fresh, unskimmed | 0.42        | Milk, fresh, unskimmed | 0.37        | Milk, fresh, unskimmed      | 0.35        |
|                             | Beef, minced           | 0.57        | Beef, with bones       | 0.53        | Beef, minced                | 0.57        |
| <i>Legumes, nuts, seeds</i> | Spotted beans          | 0.23        | Spotted beans          | 0.23        | Spotted beans               | 0.23        |
| <i>Fats and oils</i>        | Palm oil, unrefined    | 0.13        | Palm oil, unrefined    | 0.13        | Peanut oil                  | 0.12        |
|                             |                        | <b>3.56</b> |                        | <b>3.45</b> |                             | <b>3.44</b> |

# Insights from matching retail food items to traded primary ingredients

- Most retail items (55%) have an imported primary ingredient
- About 40% of these food items faced tariffs
- Tariffs averaged around 7% in 2017
- Tariffs are highest for vegetables, and highest in low-and-middle income countries



# What share of retail diet costs is attributable to trade barriers?

Barriers to imports  
from all origins in all  
countries

Barriers to  
imports from  
all origins in  
African countries

## Cost of tariffs (%)

*By food group*

|                     |      |      |
|---------------------|------|------|
| Starchy staples     | 0.06 | 0.08 |
| Vegetables          | 0.23 | 0.22 |
| Fruits              | 0.09 | 0.17 |
| Animal-source foods | 0.14 | 0.13 |
| Legumes, nut, seeds | 0.05 | 0.03 |
| Oils and fats       | 0.02 | 0.02 |

Total over all items in a healthy diet

**0.59**

**0.66**

*Number of countries*

144

40

< 1% of healthy diet cost  
per day is attributable to  
tariffs

## Cost of non-tariff measures (%)

Total over all items in a healthy diet

**2.14**

**1.54**

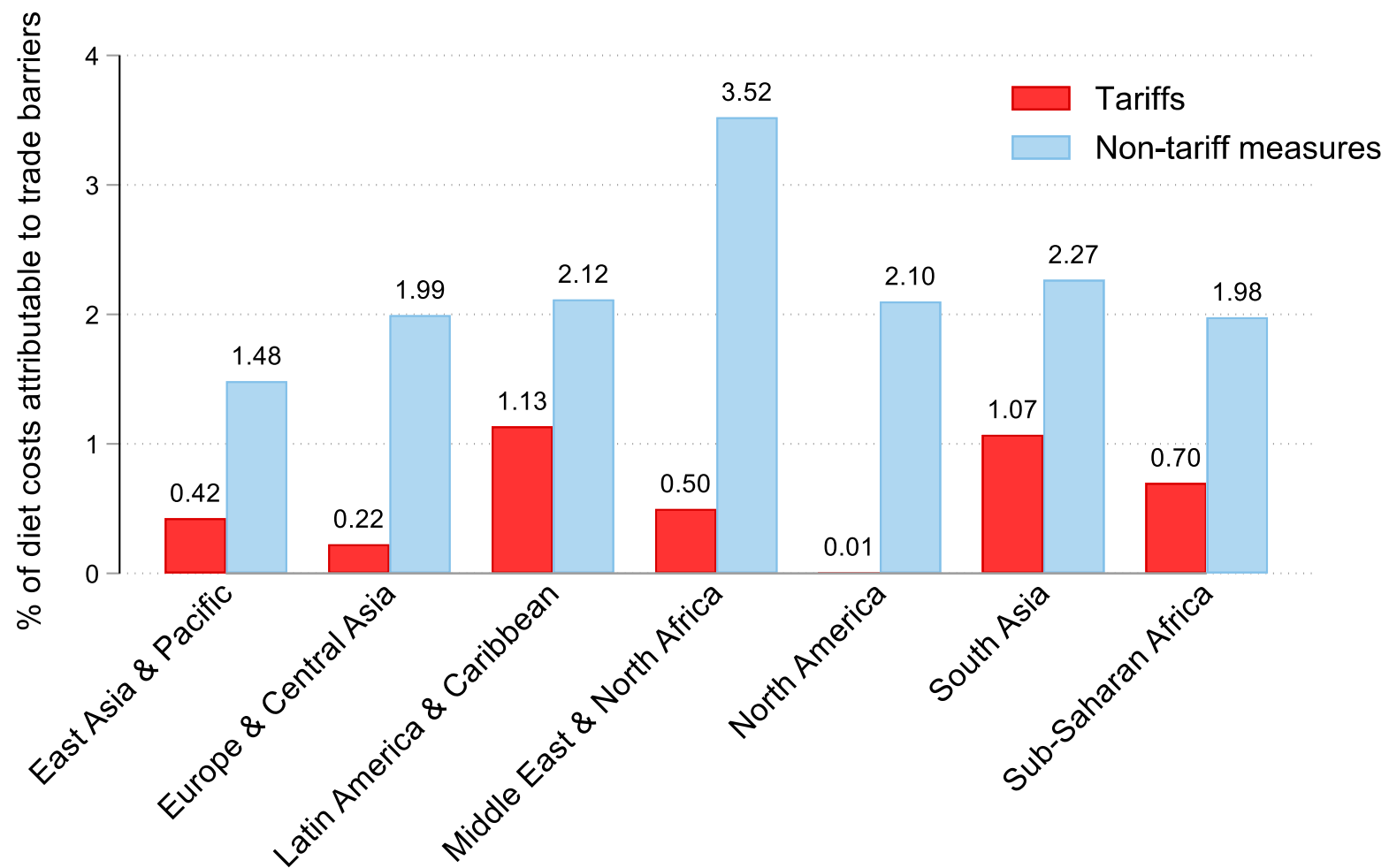
*Number of countries*

105

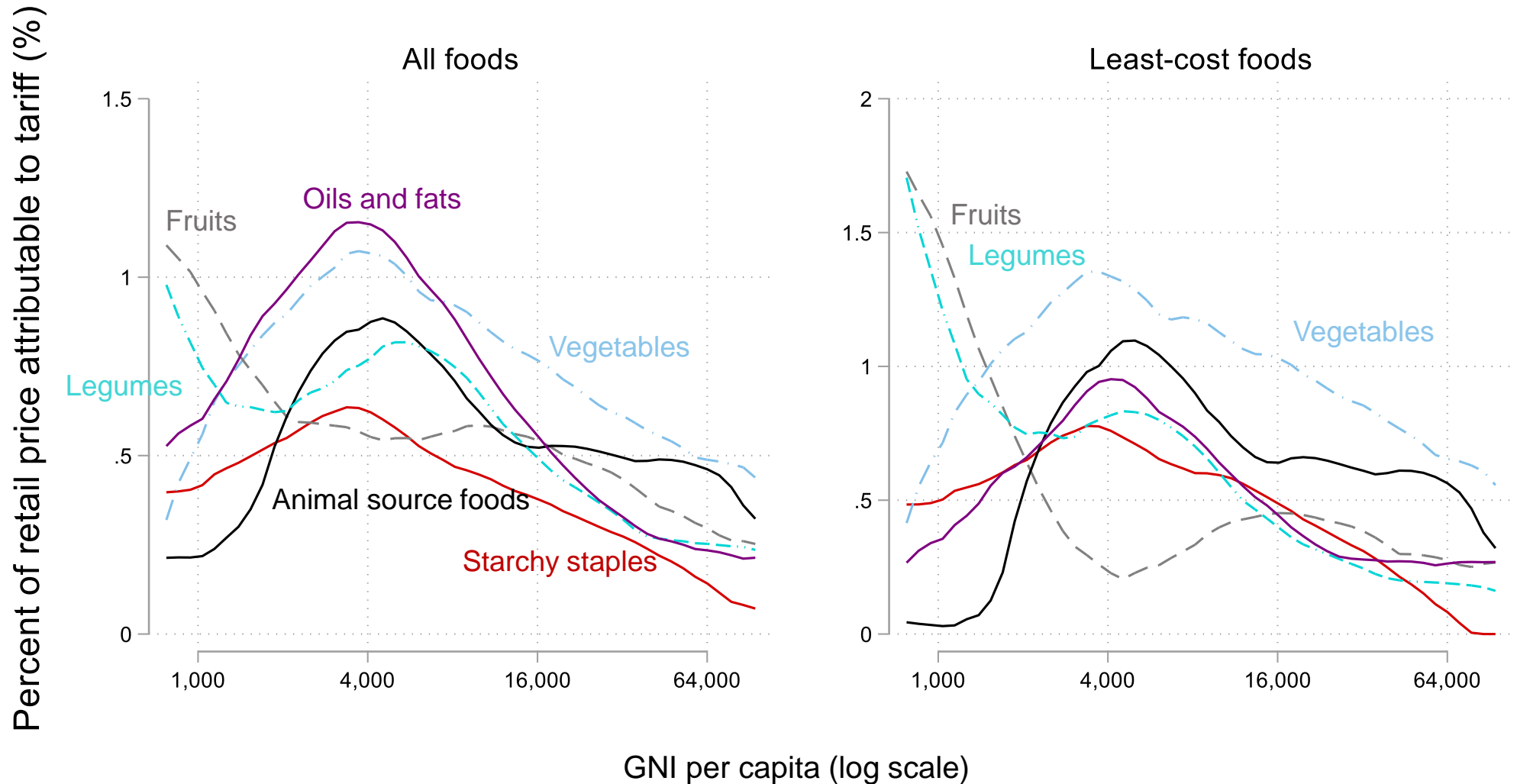
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NTMs are poorly  
understood, but 2% of  
cost per day might be  
attributable to them

# Import tariffs account for a (slightly) higher share of diet costs in Africa, South Asia and LAC



# Tariffs account for a larger share of retail prices in LMICs



# Conclusions

- Using least-cost healthy diets to measure food access, and matching retail items to traded products, provides new insights for affordability of healthy diets
- The cost of tariff and NTM compliance is a small fraction of retail diet costs, generally under 2%
- Further expanded access to imports from diverse sources is key to stabilizing wholesale markets, but retail prices depend mostly on domestic value added after the farm or port of entry
  - Most of what consumers pay for food is the cost of local labor, facilities and other resources involved in transforming, distributing and retailing, rather than the bulk commodity itself
  - Access to internationally traded raw materials and bulk commodities remains important for livelihoods throughout the food system