



The consumer price effects of specific trade policy restrictions in South Africa

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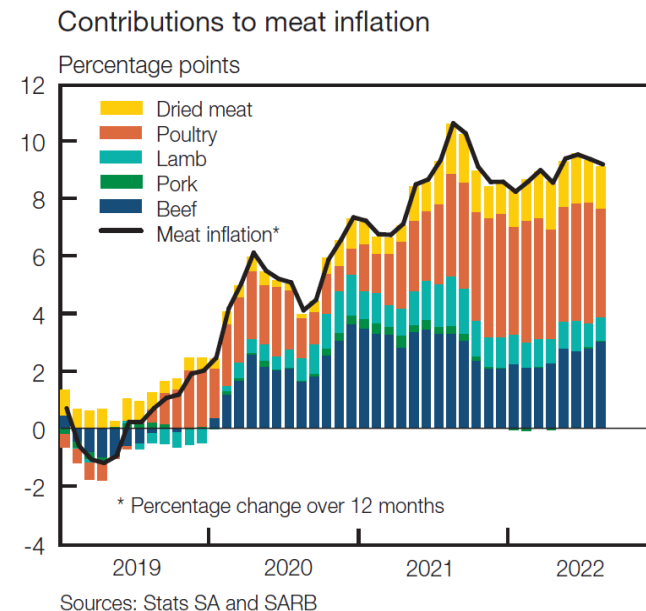
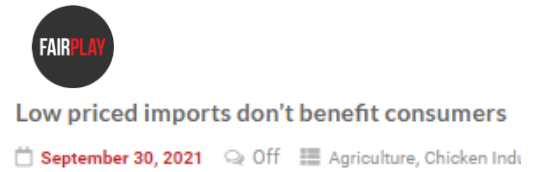
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Context and Motivation

- Rising incidence of tariff and trade measure increases from 2014 driven by rising applications and approvals (World Bank, 2022) PLUS recent rejections
- Contestation regarding price effects of tariff measures, pitting winners against losers
- Rising food prices contributing to inflation
- Limited empirical evidence on tariff pass-through to consumer prices in South Africa



Analysis

- **What do we do?**
 - Estimate impact of increased protection (tariffs, safeguards and anti-dumping duties) on consumer retail price of frozen chicken, frozen chips and pasta products
 - Analyse the distribution of tariff-induced welfare changes via the consumption channel
- **How we do it?**
 - We estimate the transmission channels:
 - Pass-through of tariffs to landed import prices using product level bilateral import data (2010-2020)
 - Tariff pass-through to consumer prices using monthly retail-level product price data from 2010-2021 from 911 outlets
- **What don't we do?**
 - Lots, but particularly who captures the tariff/duty rent (importer, farmer, wholesaler, retailer?)
 - And impact on production and employment

Focus on chicken - South African poultry industry and trade measures



- Industry contributes 16.2% of total gross value of agricultural products (DLRRD, 2020)
- Market highly concentrated: 5 largest vertically integrated producers account for almost 70% of total production (2 make up 50%) (BFAP, 2018).
- Sales oriented almost entirely towards the domestic market.
- Major source of meat consumption - most affordable source of animal protein to the South African consumer (SAPA, 2020)
- Demand predominantly for bone-in (brown meat) chicken cuts (60% share) sold as “individually quick frozen” (IQF) pieces in 2kg and 5kg mixed packs

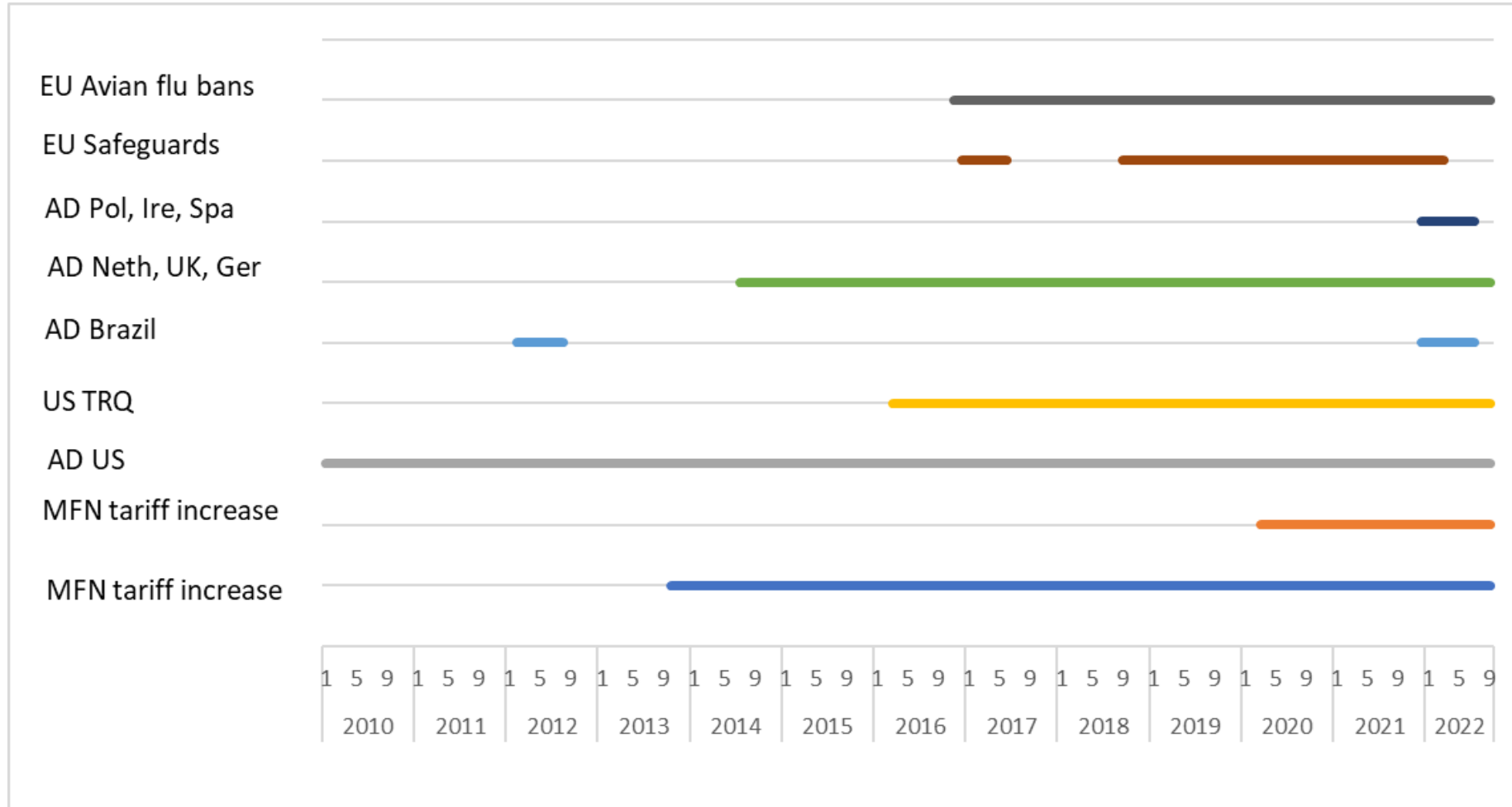
Most Favoured Nation Tariff increases

MFN Tariff changes on poultry imports (%)

| HS | Description | 30-Sep-13 | | 13-Mar-20 |
|----------|----------------------|---------------|-------|-----------|
| | | Before | After | After |
| 02071220 | Frozen carcasses | 27 | 31 | |
| 02071290 | Frozen whole bird | 27 | 82 | |
| 02071410 | Frozen boneless cuts | 5 | 12 | 42 |
| 02071420 | Frozen offal | 27 | 30 | |
| 02071490 | Frozen bone-in cuts | 220c/kg (18%) | 37 | 62 |

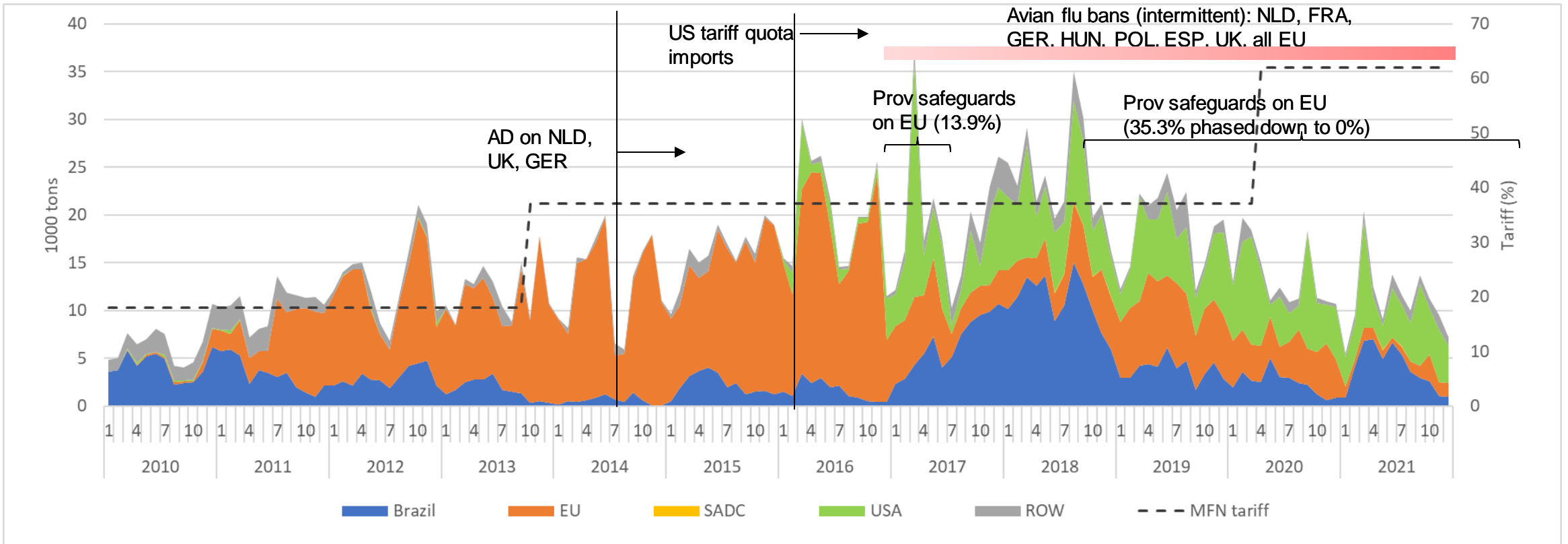
No change in tariffs on mechanically deboned meat (0%) and fresh chicken
 Tariffs on EU imports zero from 2012 (and from SADC)

Tariffs not the only trade barrier on poultry imports



US TRQ denotes Tariff rate quota system where US exports exempt from anti-dumping duty for set quota

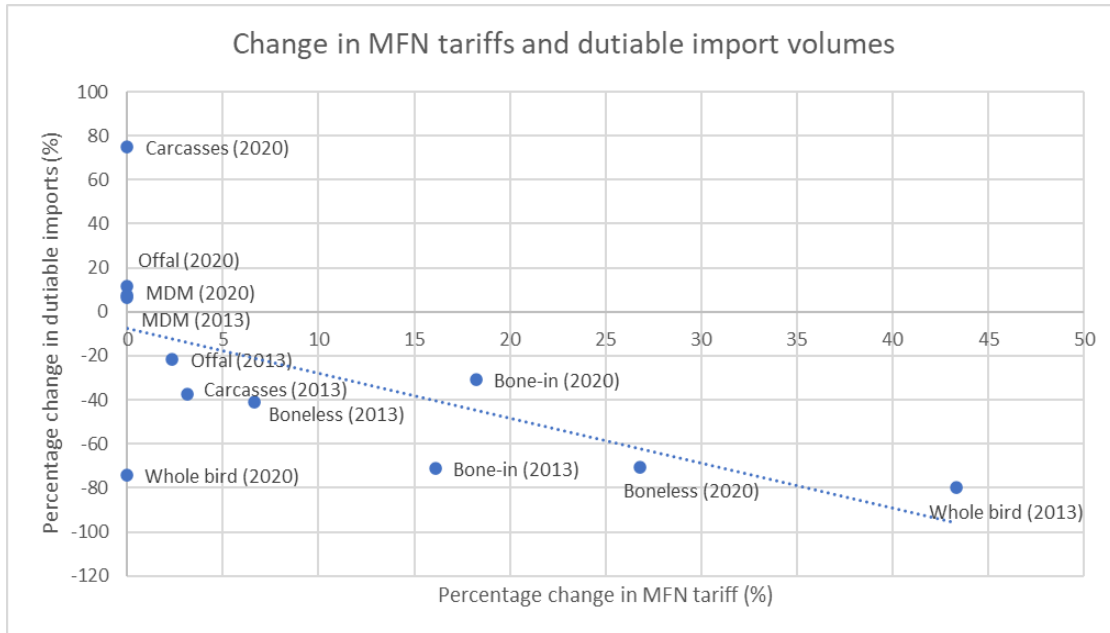
Observation 1: Trade measures have a substantial impact on import volumes from targeted countries



- Source data: South African Revenue Services

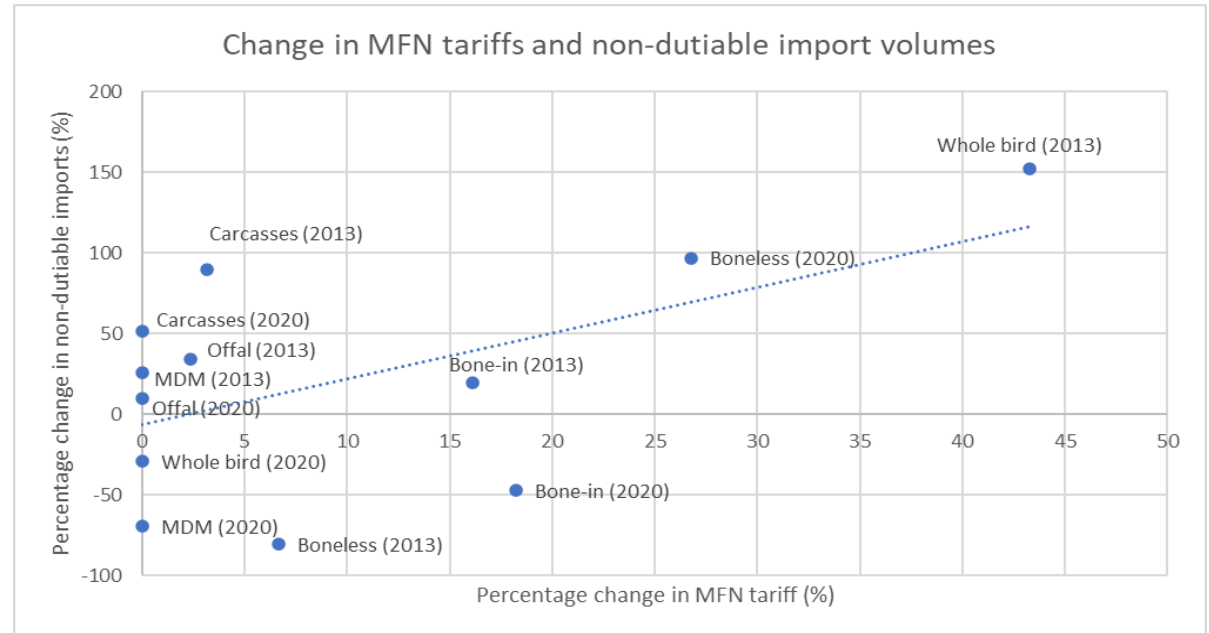
But also result in (incomplete) substitution towards non-dutiable sources

Change in 12 months value of imports from MFN countries post September 2013 and post 13 March 2020 MFN tariff increase



Relatively large reductions in dutiable imports occurring in products experiencing higher increases in tariffs.

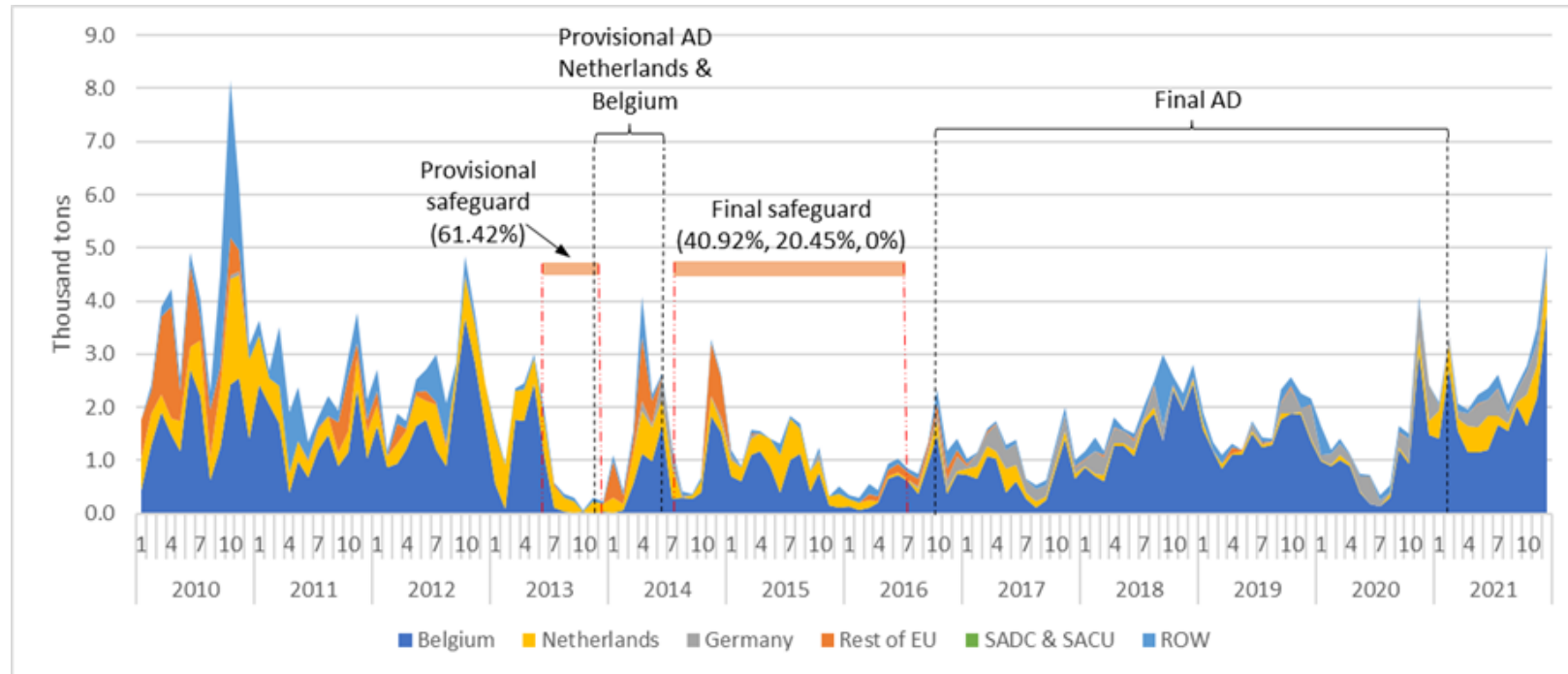
Change in 12 months value of imports from preference partners post September 2013 and post 12 March 2020 MFN tariff increase



Shift from dutiable towards non-dutiable (mainly European Union) imports in response to the MFN tariff increases.

We see similar story for Frozen chips (and Pasta)

Imports of Frozen chips

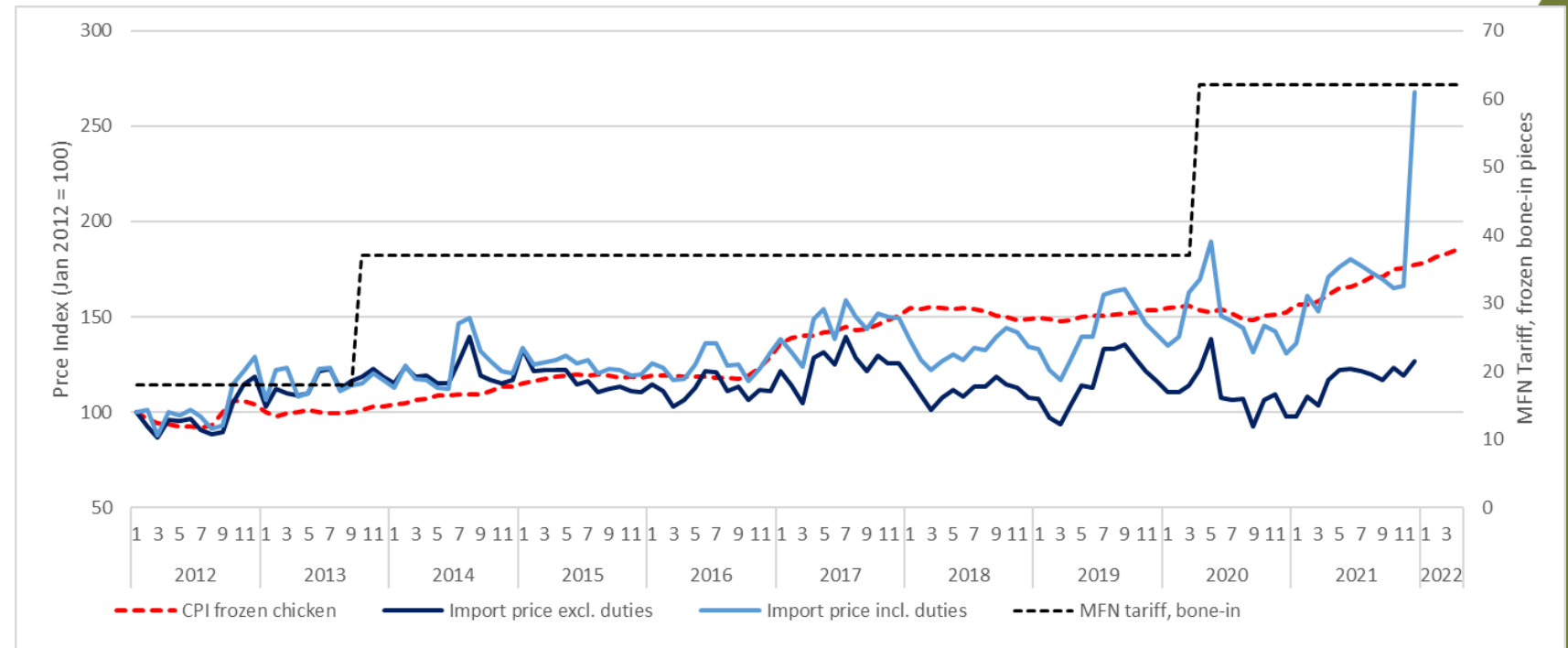


- **Frozen chips:**
 - Anti-dumping and safeguards reduce import volumes, despite offsetting increases in imports from preference partners
- **Pasta:**
 - Tariff and Anti-dumping duties have similar outcomes to that of Frozen chips

Observation 2: Tariff duties raise border prices of imports

- Effect of duties on border prices stronger as restrictions on EU imports become more binding
- Econometric estimates show that on aggregate tariffs are not absorbed by foreign exporters
- From 2012 to 2021 (excl. Dec), trade measures raised free-on-board import price by 40%

Import price and consumer price indices: Frozen chicken pieces



Note: Import prices measured in free-on-board prices

Observation 3: Duties also raise consumer prices

Tariff-pass through:

- Averages around 0.48 for frozen chicken
- Stronger for temporary trade measures (0.598)
- No difference across rural and urban areas

Other trade barriers

- Avian flu ban**, prices rise by 2-3% for each country affected
- US TRQ**: Effective in reducing prices

Price impact:

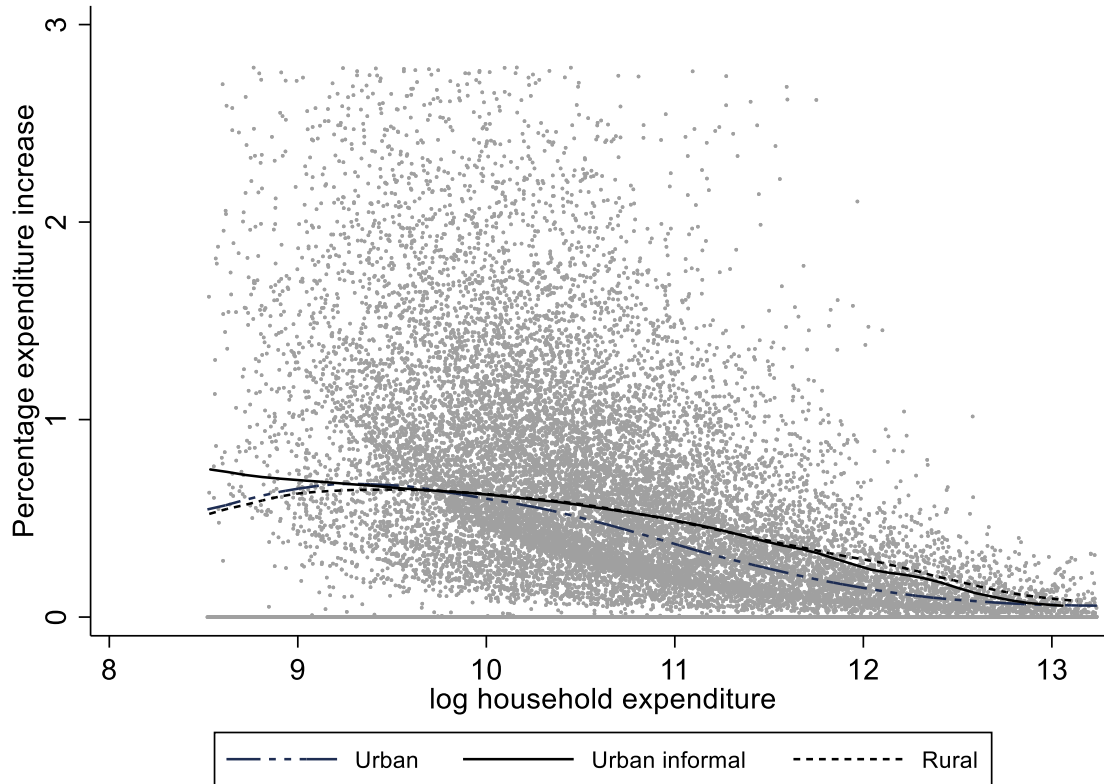
- Estimates suggest combination of duties raised frozen chicken prices by 16% and fresh chicken by 9.8%

Regression results on impact of trade measures on frozen chicken

| | (1) | (2) | (3) | (4) | (5) | (6) |
|-----------------------------------------|---------------------|----------|--------------|----------|---------------|---------------|
| | Frozen chicken only | | Pork control | | Fresh control | Maize control |
| ln(1+MFN tariff)(it) | 0.116* | | | | | |
| | (0.056) | | | | | |
| ln(1+anti dumping duty)(it) | 0.023* | | | | | |
| | (0.012) | | | | | |
| ln(1+EU safeguard)(it) | -0.147** | | | | | |
| | (0.032) | | | | | |
| Count Avian flu ban(it) | 0.013** | 0.016** | 0.011** | 0.016** | 0.014** | 0.030** |
| | (0.001) | (0.001) | (0.001) | (0.003) | (0.001) | (0.002) |
| Dummy US Quota(it) | -0.080** | -0.080** | -0.107** | -0.115** | -0.106** | -0.361** |
| | (0.019) | (0.018) | (0.031) | (0.030) | (0.030) | (0.031) |
| ln(P international)(it) | -0.126** | -0.151** | 0.064+ | 0.094* | | 0.058** |
| | (0.019) | (0.021) | (0.037) | (0.041) | | (0.012) |
| trend | 0.004** | 0.004** | | | | |
| | (0.000) | (0.000) | | | | |
| ln(1+applied duty)(it) | | -0.071 | 0.477** | | 0.148* | 0.521** |
| | | (0.055) | (0.069) | | (0.061) | (0.063) |
| ln(1+applied customs tariff)(it) | | | | 0.320** | | |
| | | | | (0.102) | | |
| ln(1+applied temporary duty)(it) | | | | 0.598** | | |
| | | | | (0.109) | | |
| Constant | 1.715** | 1.851** | 3.687** | 3.563** | 3.803** | 3.157** |
| | (0.271) | (0.232) | (0.161) | (0.178) | (0.007) | (0.071) |
| Observations | 73,878 | 73,878 | 91,527 | 91,527 | 145,377 | 104,400 |
| Adj R-squared | 0.704 | 0.704 | 0.686 | 0.686 | 0.613 | 0.838 |
| <i>Fixed effects</i> | | | | | | |
| Region by time | | | Y | Y | Y | Y |
| Outlet | Y | Y | | | | |
| Outlet by time | | | Y | Y | Y | Y |
| Month | Y | Y | | | | |
| Commodity by unit | Y | Y | Y | Y | Y | Y |

Observation 4: Poorer households consumption expenditure affected most

Welfare impact of tariff increases on chicken by household expenditure level



Results:

- Poor households spend higher shares of expenditure on chicken (not pasta or frozen chips)
- Chicken tariff increases regressive.
- Adverse welfare effect 0.65% of total expenditure for households in lowest expenditure decile compared to 0.07% for households in the top decile.
- **Other**
 - Large households, which are more likely to be headed by females, and Africans, are most affected

Effect on the cost of household consumption (Marchand, 2012; Ncita, 2009) based on Deaton: $CE_{hr} = -\theta_c^{hr} dp_{cr}$
where θ is the share of chicken in total household expenditure, and dp is the percentage change in consumer prices from tariff increases
Based on estimates using pork prices as control. Data from 2010/11 Income Expenditure Survey obtained from Statistics South Africa.

Conclusions

1. Exporters on aggregate do not lower prices in response to higher import duties
2. Trade duties have a substantial impact on retail prices: Estimated tariff pass-through of 0.477 for frozen chicken.
3. The impact of tariffs regressive and disproportionately affect poor households.
4. The aggregate price influenced by the sequencing, targeting and ultimate combination of trade measures, particularly on how they restrict imports from preferential trade partners

Other slides

Empirical method – Import prices

$$\text{Base: } \ln(PM_{ijt}) = \alpha_{ij} + \beta_1 \ln(1 + tar_{ijt}) + \mu_{it} + \mu_{jt} + \varepsilon_{ijt} \quad (1)$$

PM is import price in SA Rands (calculated as import value divided by import quantity) for the product (i) from origin country j at time t , and tar is the applied tariff.

Sample of products: Chicken facing tariff changes, plus control chicken products with no tariff change (HS 02071210: Mechanically deboned meat, and HS 02071100: Fresh)

Who captures the preference rent?

$$\ln(PM_{ijt}) = \alpha_{ij} + \beta_2 \ln(1 + tarMFN_{it}) \times PTA_j + \mu_{it} + \mu_{jt} + \varepsilon_{ijt} \quad (2)$$

Where $tarMFN$ is the MFN tariff rate.

Data: Monthly bilateral import data reported by South Africa, 2010-2021

Regression results on the impact of trade measures on import prices of chicken products

Results:

Applied tariffs passed fully on to the landed price of imported chicken products.

- Except US tariff Rate Quota led to lower import prices, but consistent with lower quality or priced imports following removal of specific ad valorem duty.

Column (2): *Preference rent does not translate into higher prices for preferential exporters.*

| VARIABLES | (1) | (2) |
|-------------------------------------------------------|---------------------|---------------------|
| $\ln(1 + \text{tariff})(ijt)$ | -0.128 (0.395) | -0.313 (0.286) |
| $\ln(1 + \text{tariff})(ijt) \times \text{PTA}$ | | 0.666 (0.605) |
| Dummy AD(ijt) | -0.188 (0.117) | -0.124+ (0.065) |
| Dummy AD(ijt) x PTA | | -0.004 (0.091) |
| Dummy US Quota(it) | -0.288** (0.086) | -0.290** (0.042) |
| Dummy US Quota(it) x PTA | | 0.018 (0.138) |
| $\ln(1 + \text{EU safeguard})(ijt)$ | -0.580 (0.362) | -1.824 (1.289) |
| $\ln(1 + \text{EU safeguard})(ijt) \times \text{PTA}$ | | 1.101 (1.005) |
| Dummy Avian flu (jt) | | 0.131 (0.105) |
| Dummy Avian flu (jt) x PTA | | 0.004 |
| Constant | 2.235** (0.041) | 2.249** (0.076) |
| Observations | 4,303 | 4,989 |
| F | 5.670 | 18.93 |
| Adj R-squared | 0.724 | 0.667 |
| Fixed effects | | |
| Time | | Y |
| Origin by HS | Y | Y |
| Origin by time | Y | |
| Product by time | Y | |

Notes: Sample covers all imported chicken products over the period Jan 2010 to Dec 2021. $\text{tariff}(ijt)$ is the applied tariff including preferential tariff rates in columns (1) and MFN tariff in column (2). Dummy Avian flu (jt) is a dummy variable equal 1 (zero otherwise) if an Avian influenza ban on imports from the country is imposed.

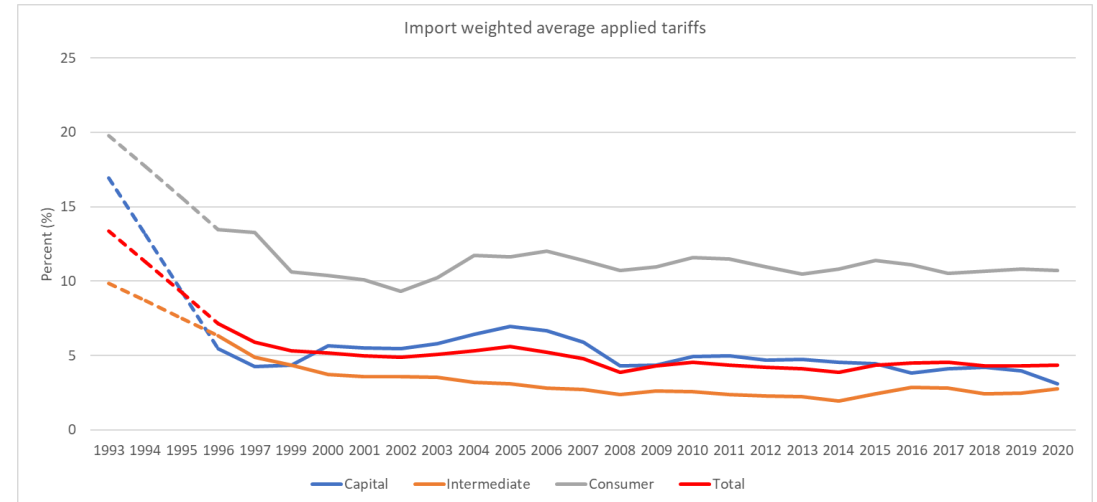
Trade policy – recent trends

– Phases of trade policy

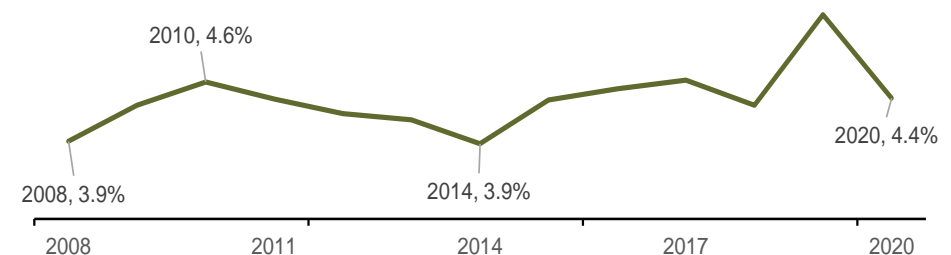
1. Multilateral trade reform under WTO/GATT from 1995,
2. Preferential trade reform (EU, SADC from 2000; EFTA, MERCOSUR from 2007/after) :
 - Weighted tariffs fall from around 19% (incl. surcharges) in 1994 to 4.6% in 2010

3. Trade Policy and Strategy Framework from 2010:

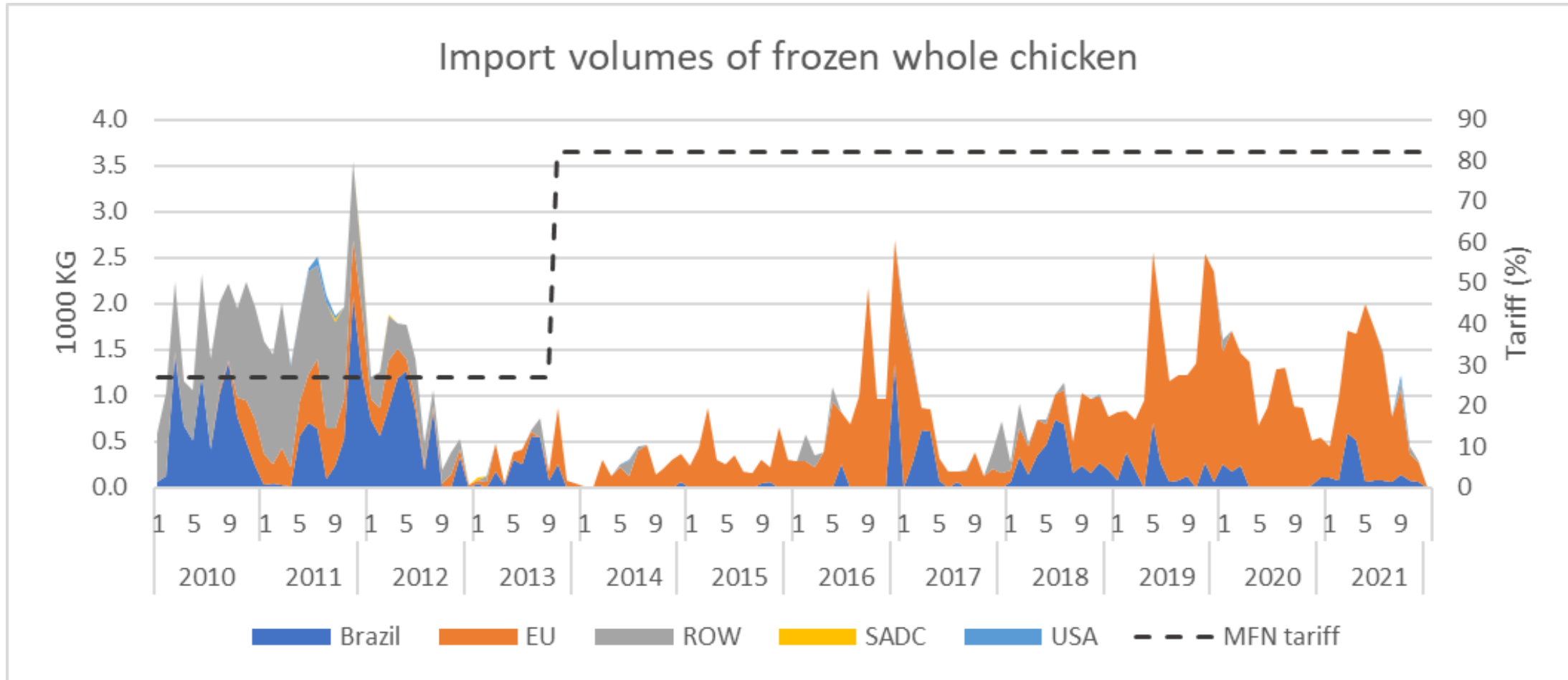
- Tariff determinations “*conducted on a case-by-case basis, taking into account the specific circumstances of the sector involved*” (DTI 2010, 3).
- Rationalisation of tariff book 2010
- Rising aggregate protection from 2014 in response to tariff increases on intermediate goods (e.g. steel) and consumer goods (e.g. poultry, sinks)



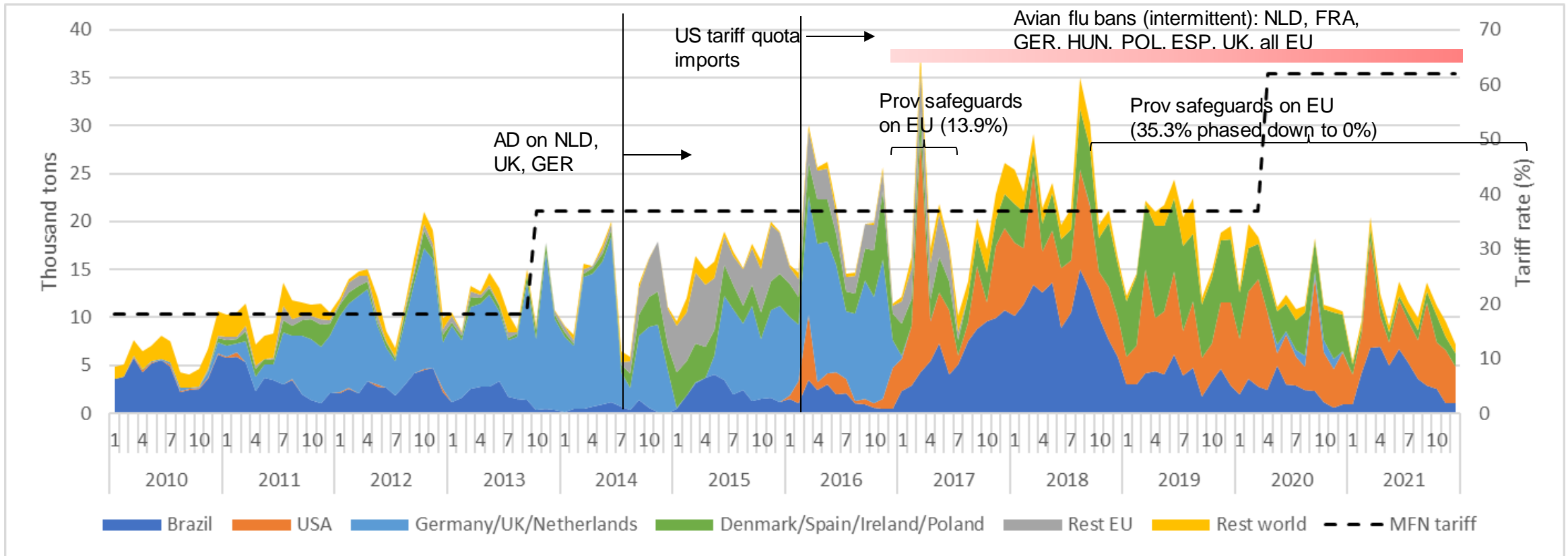
2008 - 2020: Tariff rate, applied, weighted mean, all products (%)



South African imports of frozen whole chicken



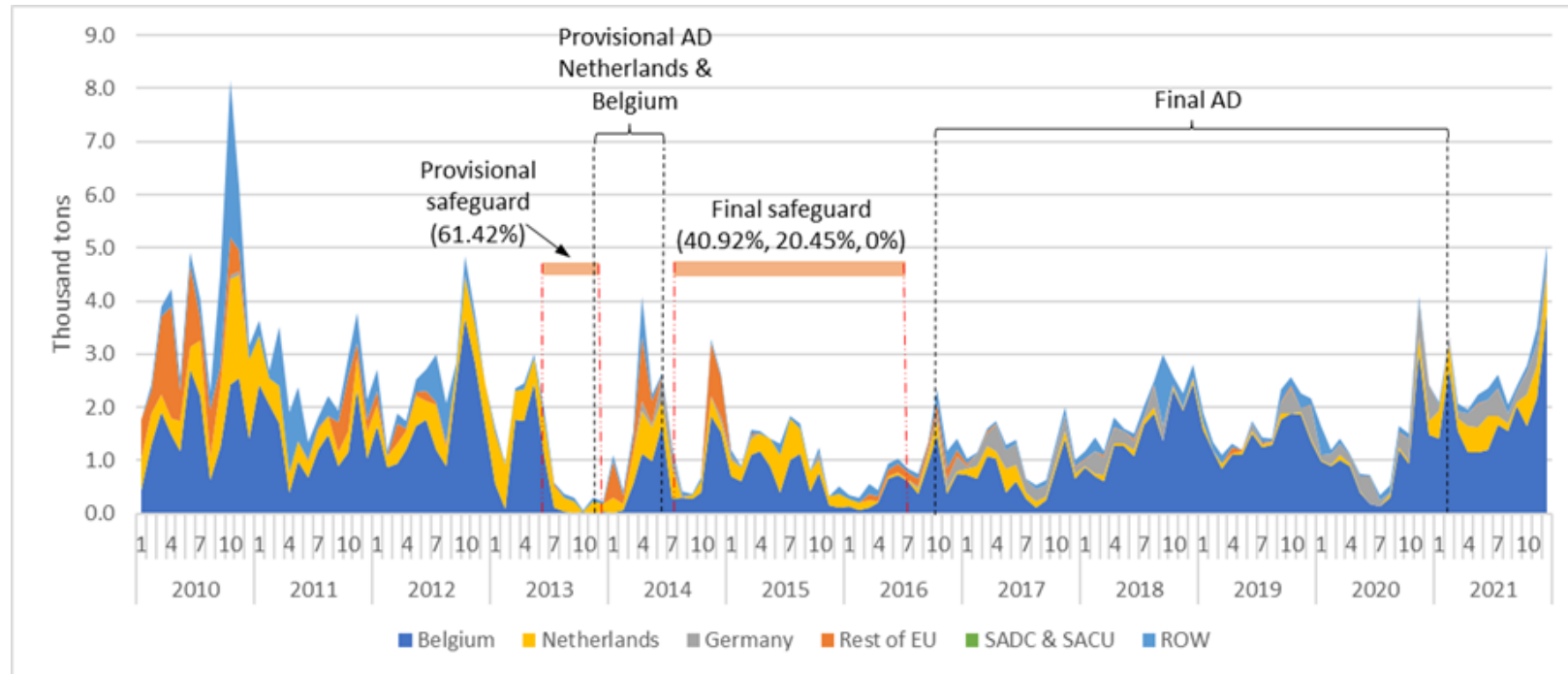
Trade measures have a substantial impact on import volumes



- Source data: South African Revenue Services

Frozen chips

Imports of Frozen chips



- **Frozen chips:**
 - Anti-dumping and safeguards reduce import volumes, despite offsetting increases in imports from preference partners, with no effect on foreign price
 - Duties passed fully on to domestic purchasers of imported goods
- **Pasta:**
 - Tariff and Anti-dumping duties have similar outcomes to that of Frozen chips

Trends in consumer prices

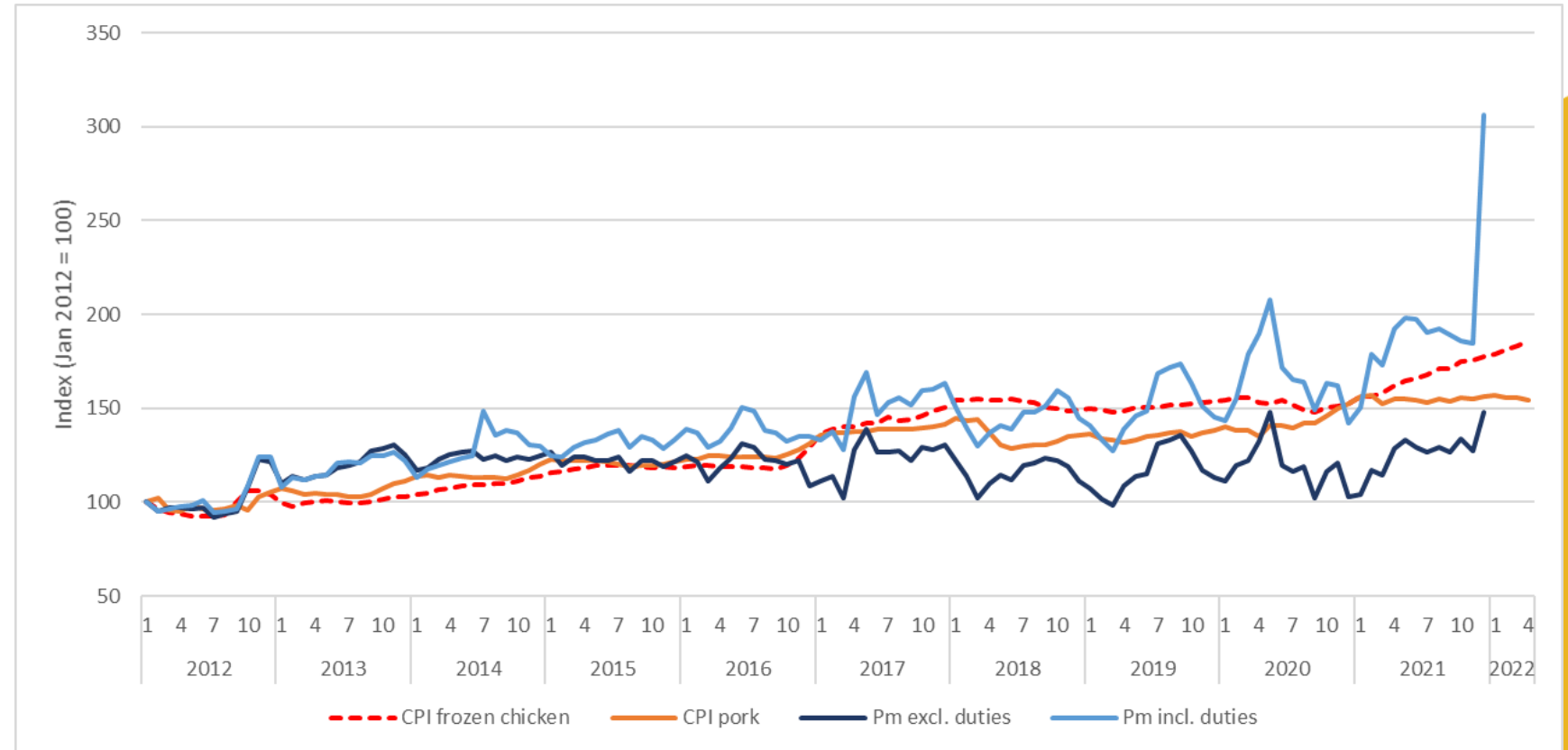
Several features are evident in the data:

Divergence of CPI and import price inclusive of duties from free-on-board import price

Consumer prices of frozen chicken pieces and pork follow closely, but diverge from early 2017.

- Exception during African Swine Fever outbreak in China 2019-2020

Price indices of frozen chicken and selected other products



Notes: The fob import price inclusive of tariffs is the import weighted average unit value of frozen bone-in portions inclusive of customs duties, anti-dumping duties and safeguard duties. The frozen chicken CPI after 2016 is constructed by combining CPI for IQF and non-IQF portions using SSA CPI weights.