

# **Can VAT Cuts and Anti-Profiteering Measures Dampen the Effects of Food Price Inflation?**

**Youssef Benzarti**  
UCSB & NBER

**Santiago Garriga**  
CEFIP-UNLP

**Dario Tortarolo**  
World Bank DECRG

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# Food inflation and temporary VAT cuts

- ▶ Many countries are ↓ VAT rates on food on a scale not seen before to help the vulnerable cope with the soaring cost of living

0% on basic food	Partial VAT cuts	Considering cutting...
Peru	Romania (9 to 5%)	Belgium
Poland	Bosnia (17 to 5%)	Italy
Bulgaria	Croatia (13 to 5%)	Austria
Lithuania	Latvia (21 to 5%)	Slovakia
North Macedonia	Turkey (8 to 1%)	Estonia
Cyprus	Greece (24 to 13%)	Netherlands
Uruguay	DR Congo (16 to 8%)	Belgium
Spain	Costa Rica (13 to 1%)	Germany
Portugal		Angola
Fiji		
Oman		
Togo		

Source: VATCalc [www.vatcalc.com](http://www.vatcalc.com)

# Grocery tax cuts are on the rise in the US too...

Kansas, Alabama, Virginia, Oklahoma, Illinois, Tennessee, South Dakota

- ▶ A surge in food prices has brought repealing grocery taxes back to debates

Kansas phases out sales tax cut on food (6.5% to 0%)



Note: Governor Kelly announcing the policy in a grocery store.

## This Paper

### *Can VAT Cuts Dampen the Effects of Food Price Inflation?*

We show that:

- ▶ VAT cuts lead to significant decreases in prices
- ▶ But, their repeal causes prices to increase above their pre-VAT cut
- ▶ Resulting in net household welfare losses

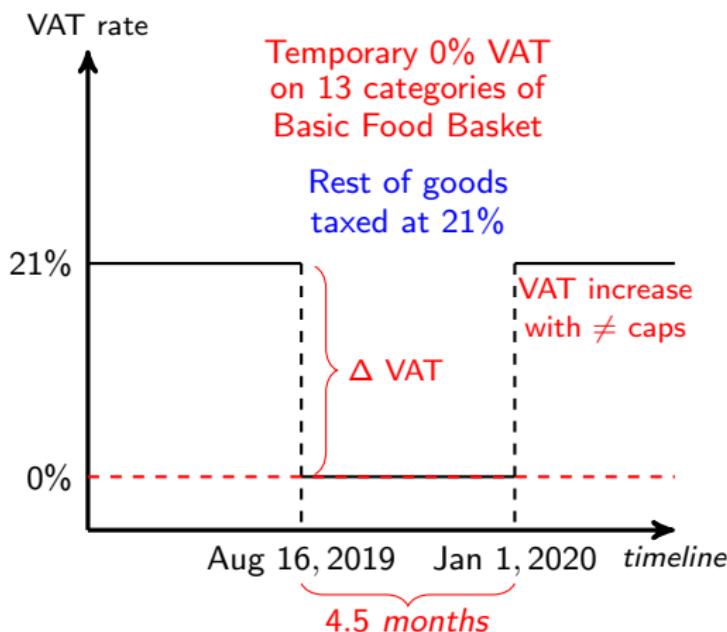
We also find that anti-profiteering measures

- ▶ Are successful at mitigating this asymmetry
- ▶ Result in net household welfare gains
- ▶ But have negative distributional consequences

# Setting: a 4.5-month long VAT holiday on basic food + a variety of gov't "mandates"

► Timeline/Goal

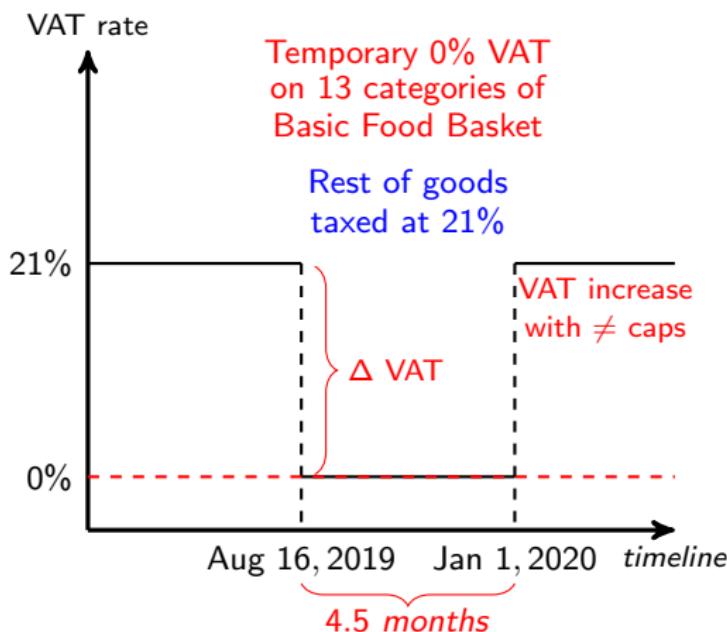
► Enforcement



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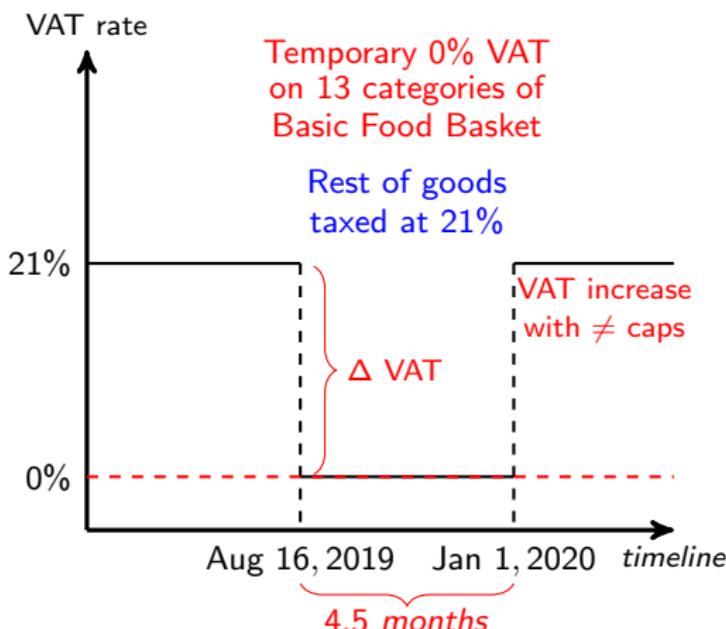


- **VAT cut:** unanticipated, large, salient, and temporary  
→ Govt urged *full* pass-through to P ( $0.21/1.21=17.4\%$ ) [\[link\]](#)

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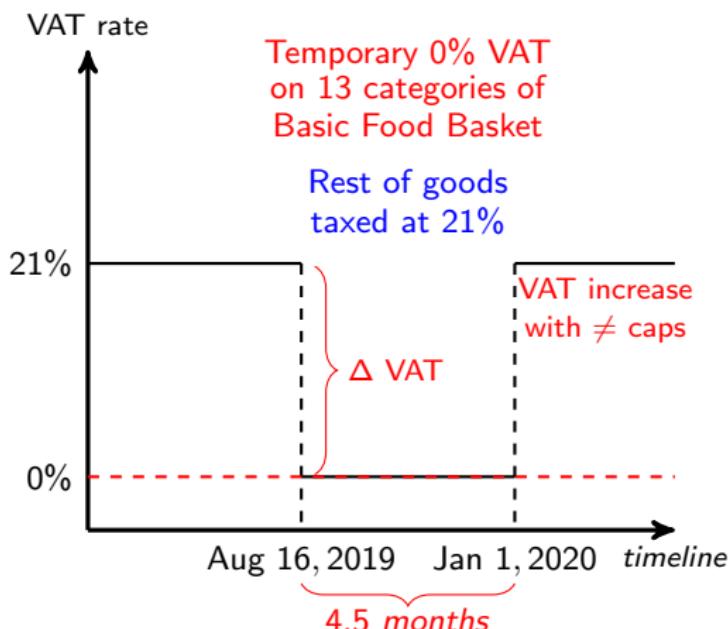
- **VAT increase:** back to 21%

→ Govt imposed caps on how much P could increase (0%, 7%, or no cap)

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- **Price monitoring system:**

→ In chain supermarkets only! [\[link\]](#)

# Scanner Data & Strategy (DiD)

$$Y_{it} = \alpha_i + \gamma_t + \sum_{t \neq 2019m7} \beta_t D_{it} + \epsilon_{it} \quad i : \text{barcodes} \quad t : \text{months-years}$$

## Treatment (0% VAT)

Categories	4.4k barcodes
Cooking oils (sunflower, corn, mix)	
Rice	
Dried pasta	
Tea, Yerba Mate, and Mate Cocido	
Sugar	
Canned vegetables and beans	
Canned fruits	
Corn flour ( <i>polenta</i> )	
Wheat flour	
Fluid milk (whole/skim)	
Yogurt (whole or skim)	
Eggs	
Bread	
Breadcrumbs and/or batter	

## Control (21% VAT)

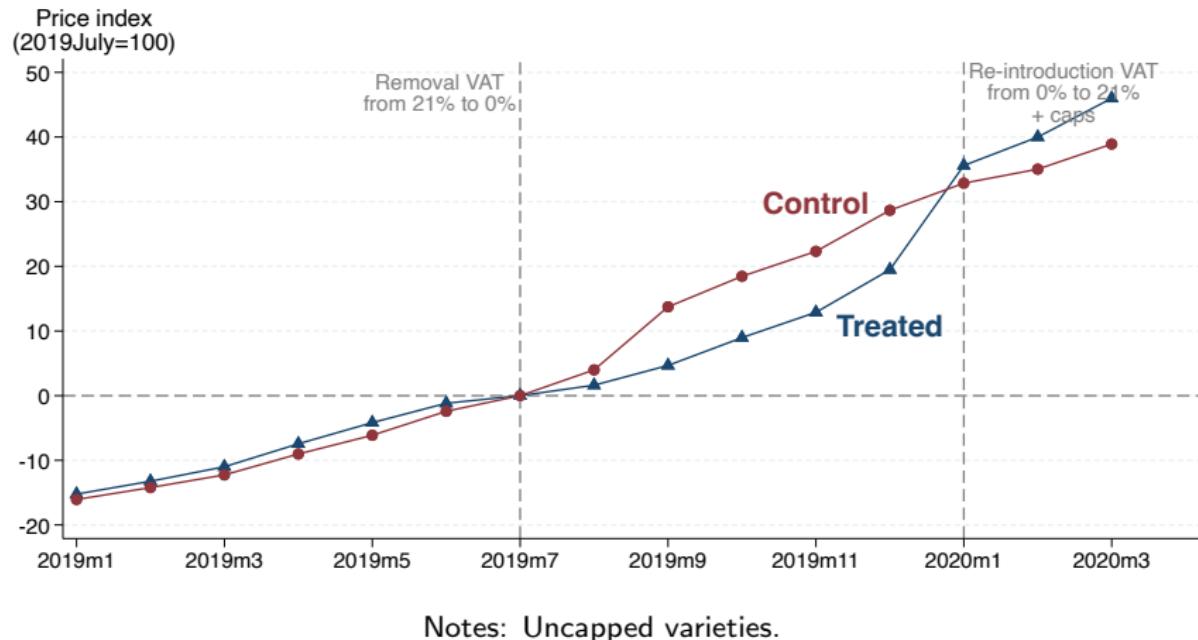
Categories	3.7k barcodes
Other cooking oils (olive, soy, canola)	
Rice-based meals	
Breakfast cereal	
Coffee	
Salt	
Herbs, Spices, & Seasonings	
Dulce de leche (caramel)	
Jam and Jelly	
Other flours	
Crackers, Biscuits, Toasts, Puddings	
Chocolate	
Mayonnaise	
Vinegar	
Dried legumes and beans	

Data provider: Scentia LLC. Barcode-level scanner data from supermarkets with P and Q.

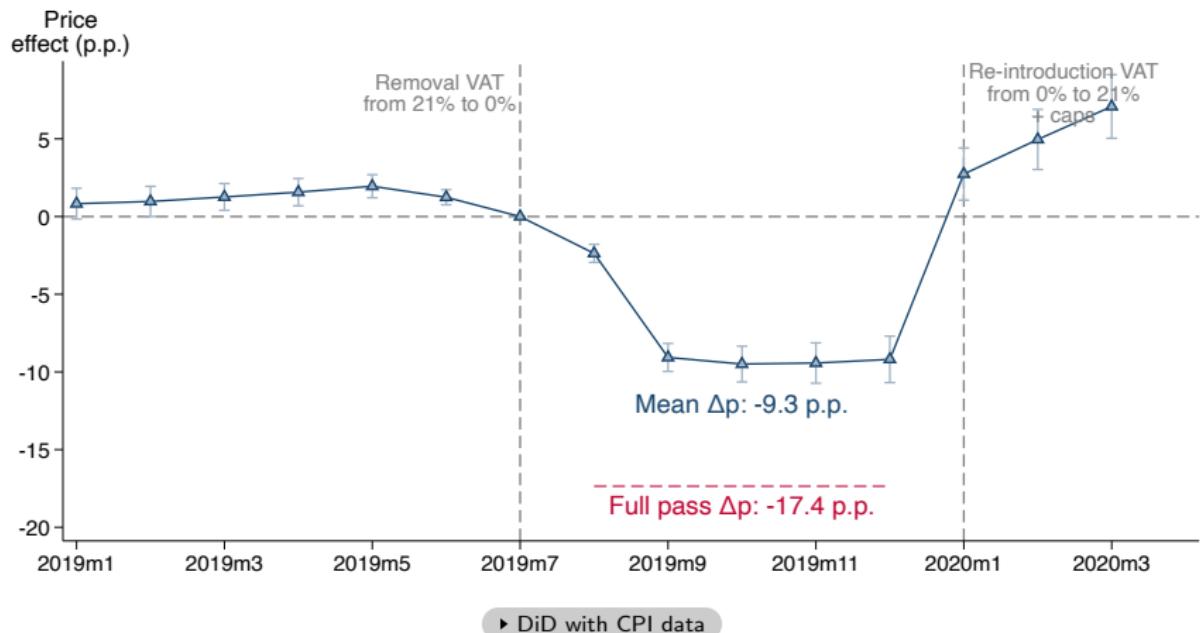
Price responses for uncapped  
varieties, pooling stores

# VAT cut and increase without caps

Chains and Independent supermarkets



# Substantial pass-through of the VAT cut to prices (~53%)



Mitigating subsequent  
price increases using  
**pass-through caps**

## Anti-profiteering measures are common around the world

Governments use them to tackle the introduction of a VAT and/or its aftermath (see Tait (1988)):

- ▶ Price freeze or control (in Belgium, Netherlands and Korea)
  - ▶ Price monitoring (in Germany, Ireland, India, Australia)
  - ▶ Freeze on profit margins (in Netherlands and Ireland)
- There is no empirical evidence on the effectiveness of these measures.

# VAT rate reinstated at 21% but pass-through was capped

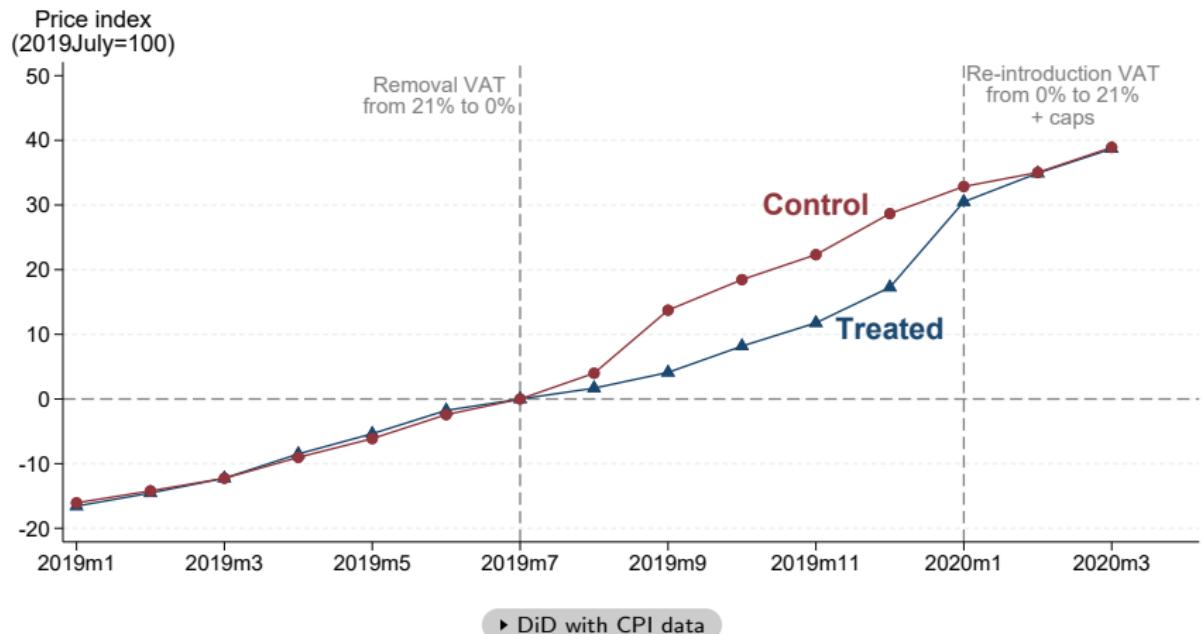
- VAT rate ↑ back to pre-holiday level of 21%
  - But new govt limited the price increase with ≠ caps
    - ★ **No caps:** Prices could ↑ up to 21%
    - ★ **Caps:** Force incidence sharing
  - NOT in independent stores
- ⇒ We show that gov'ts can successfully limit VAT pass-through

▶ Back

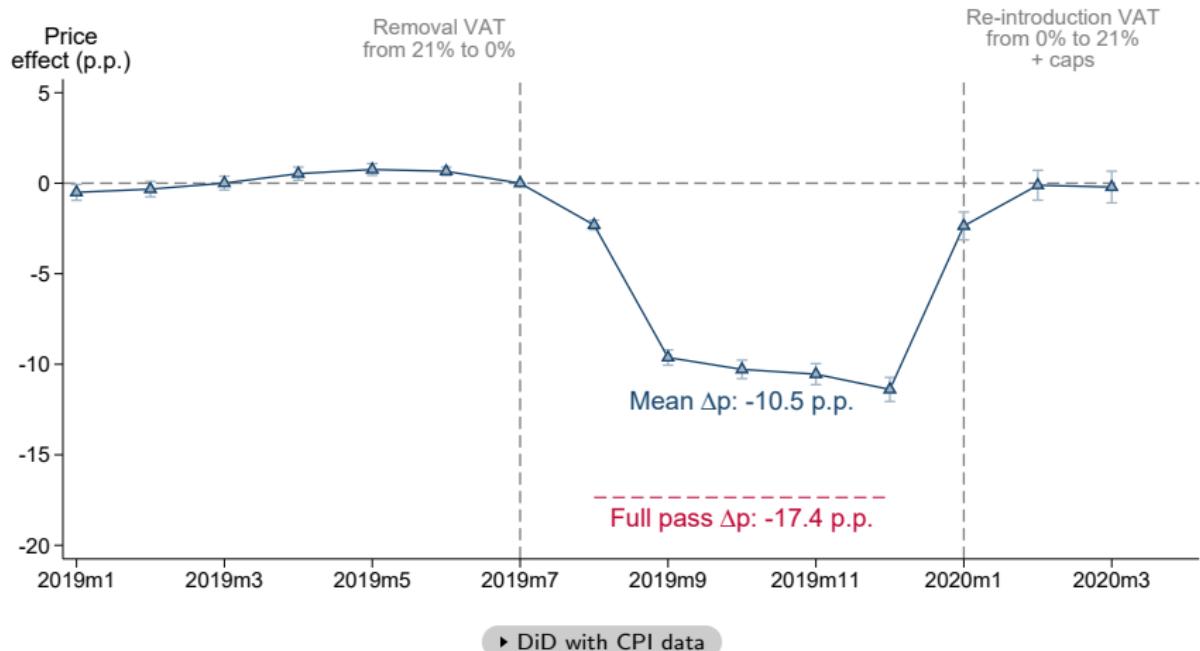
**Treated:** VAT back to 21%

Categories	Δp cap
Oil (sunflower & mix)	9%
Oil (corn)	No cap
Rice (regular: long grain white)	7%
Rice (other: basmati, brown, organic)	No cap
Dried pasta	7%
Tea, Yerba Mate, and Mate Cocido	7%
Sugar	7%
Canned vegetables and beans	7%
Canned fruits	No cap
Corn flour	7%
Wheat flour	7%
Fluid milk (whole/skim)	0%
Yogurt (regular)	7%
Yogurt (other: w/cereal, fruit chunks)	No cap
Eggs	7%
Sliced Bread (white)	7%
Sliced Bread (rest)	No cap
Breadcrumbs and/or batter	10.5%

# Chains and Independent supermarkets pooled with Caps

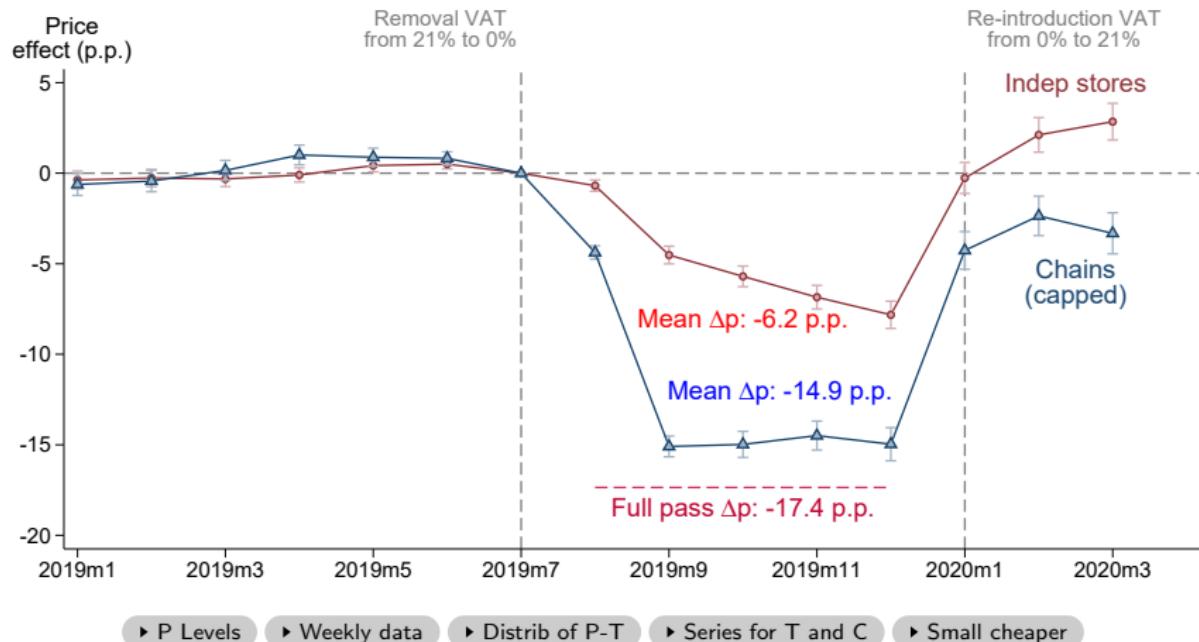


# No More Asymmetry

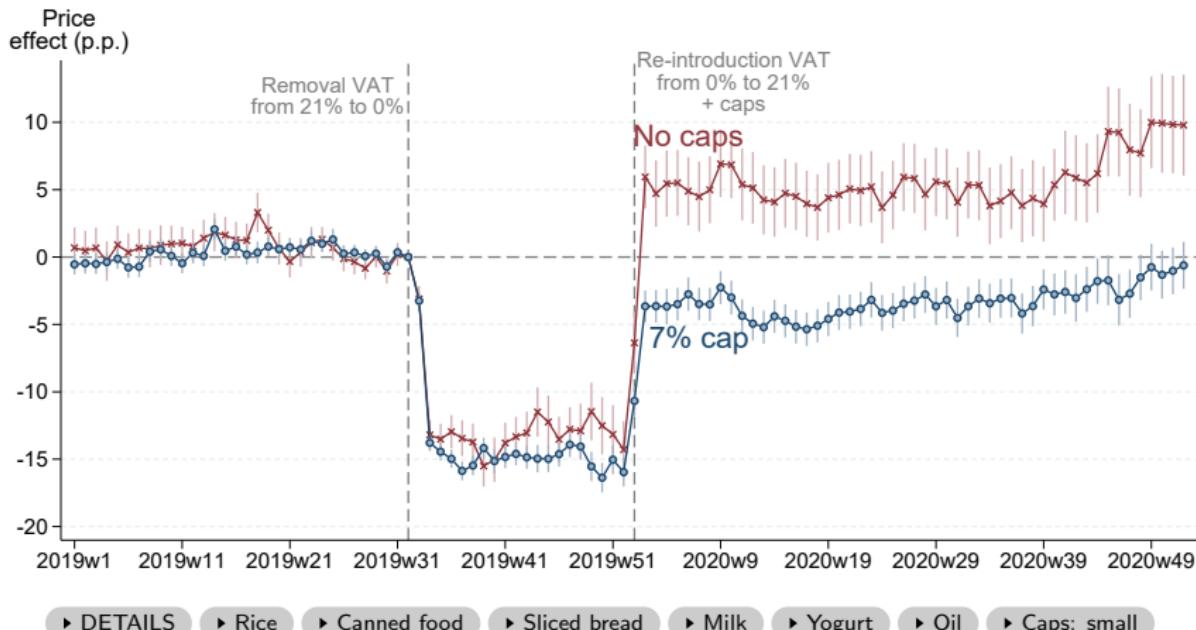


# Chains (with caps) vs Independent stores

Larger pass-through and binding caps in chains

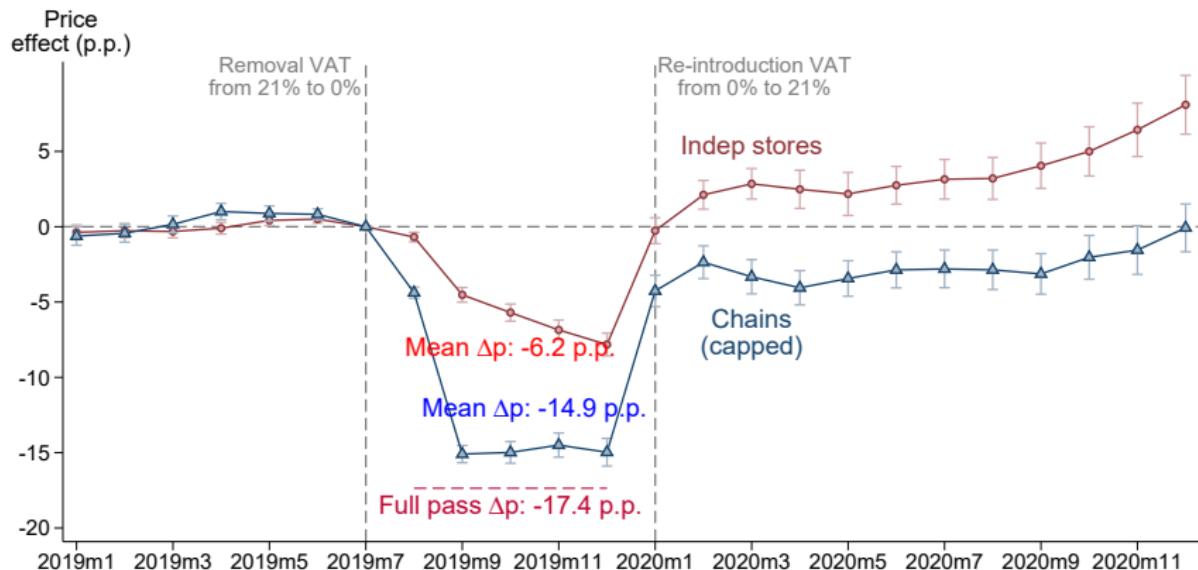


VAT rate reinstated at 21% but pass-through was **capped** in chain supermarkets at ~7% for some goods



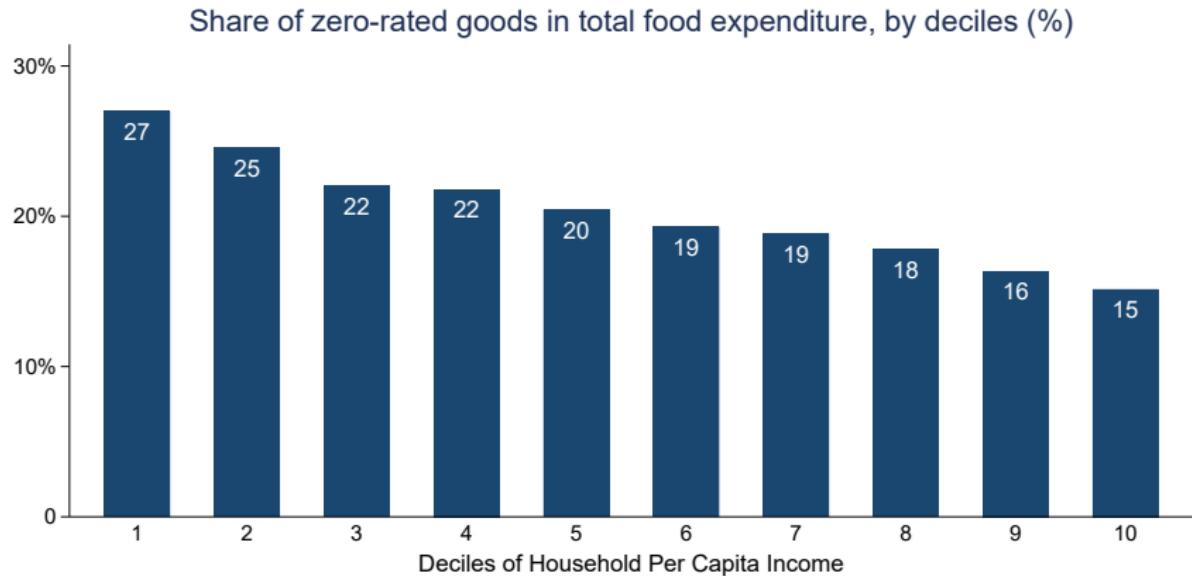
- ▶ Goods w/flexible prices exhibit an increase ~2x that of capped goods
- ▶ The gap is remarkably persistent → hysteresis

Ultimately led to a permanent price gap in necessities btw independent and chain supermarkets



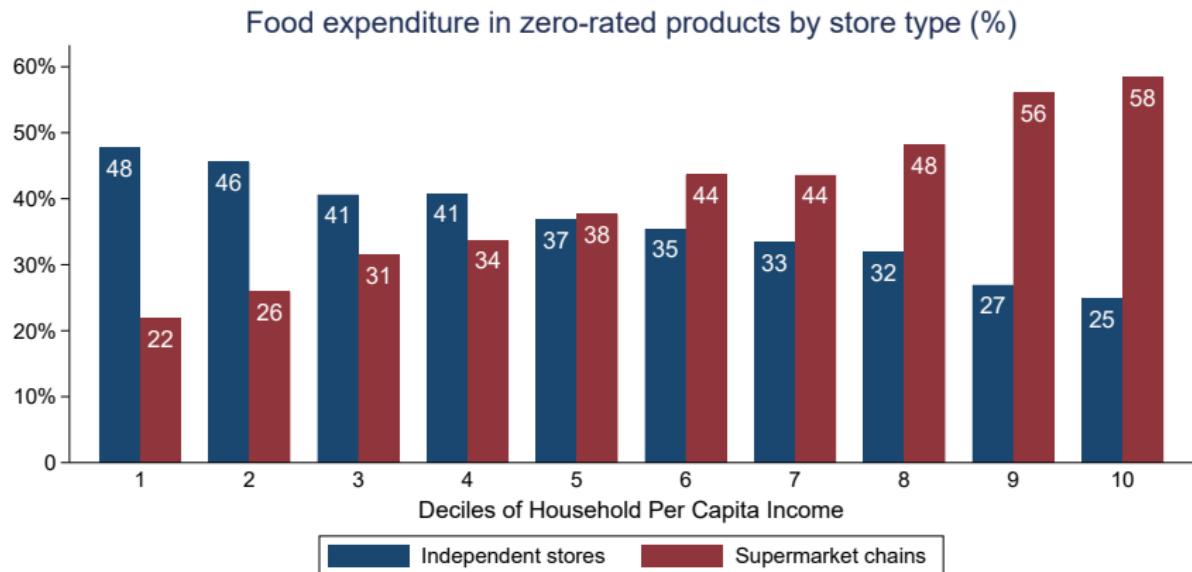
(Unintended) distributional  
consequences

Policy goal was to ensure that *low-income* households could still afford basic food in a context of inflation



- Targeted goods (T) more heavily consumed by the lowest deciles

But low-income people tend to shop at indep supermarkets where price pass-through was limited (!)



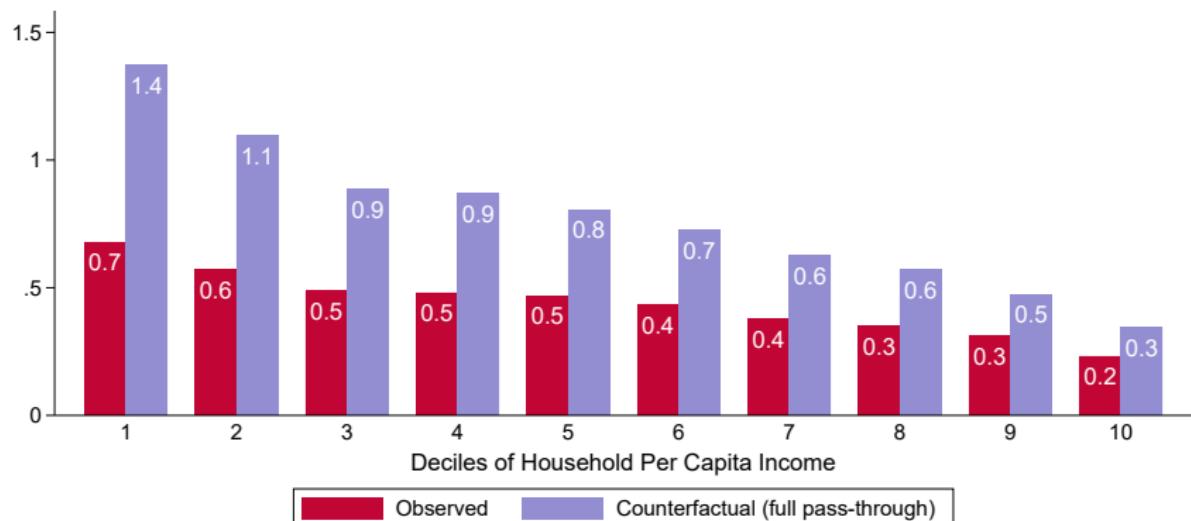
- Important policy implication when designing VAT cuts

# Welfare estimates

- Nested CES household welfare model provides simple expression based on observable expenditure shares and *tax-inclusive* price changes:

$$d \ln V_h = - \sum_{gsb} \underbrace{\alpha_{gh} \alpha_{gsh|g} \alpha_{gsb|s_b}}_{\alpha_{gsbh}} d \ln p_{gsbh}$$

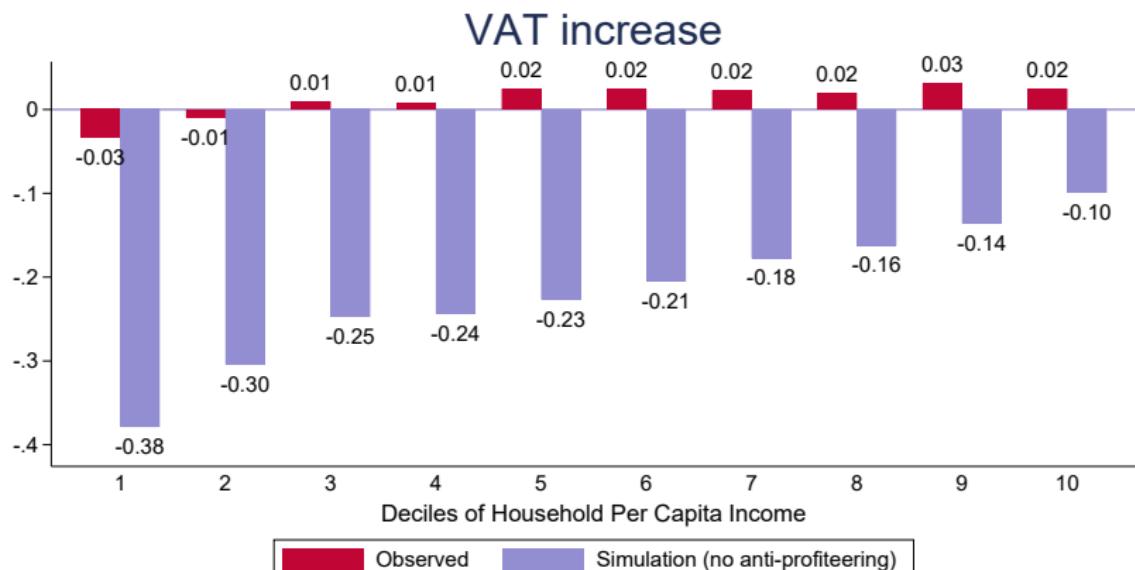
VAT cut



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## Welfare implications

1. **VAT cut** leads to progressive welfare effects, but substantially lower than full pass-through counterfactual (leaks)
2. **VAT increase**: absent the caps, welfare would be permanently lower because of asymmetric pass through and hysteresis

⇒ Caps improve welfare substantially, relative to VAT increase without caps. On net, richer households are better off because they tend to shop more at chain supermarkets where the caps are binding

Note: these estimates are 1-month policy impact, they do not account for longer term effects of the policy (need to introduce dynamics in welfare model)

## Why are chain and independent supermarkets responding differently to the VAT cut?

- ▶ Enforcement (price monitoring in chains)

- ▶ Evasion (independent stores)

[Bachas et al, 2020; Kopczuk et al, 2016]

- ▶ Pricing strategies (rigidities and menu costs)

[DellaVigna & Gentzkow, 2019; Harju et al, 2018]

- ▶ Competition

[Genakos & Pagliero, 2022]

## Robustness and additional results

- ▶ Very similar results with official CPI data ➔
- ▶ Substitution across products in T and C ➔
- ▶ VAT changes + nominal price freezes ➔
- ▶ Pass-through rates by region ➔
- ▶ Store-switching behavior ➔
- ▶ Purchase responses (Q) ➔

# THANK YOU!

Dario Tortarolo  
[dtortarolo@worldbank.org](mailto:dtortarolo@worldbank.org)

## Concluding remarks

While VAT cuts + gov't 'mandates' can be effective tools to

- ↳ lower prices in grocery stores,
- ↳ ensure continued access to basic food during high inflation,
- ↳ mitigate subsequent price increases

They can lead to

- ↖ asymmetric responses across chain and indep supermarkets,
- ↖ hysteresis effects in the medium-run,
- ↖ unintended distributional/incidence effects

⇒ In all, the Arg experience helps us advance knowledge on: (i) how tax incidence might operate in supermarkets, (ii) policy design.

# Additional results

# Contribution [REMOVE SLIDE?]

## 1. VAT as a tool to affect economic variables:

- ★ Blundell (2009); Crossley et al (2009); Bachmann et al (2021); Slemrod (2011); Benzarti & Tazhitdinova (2011); Pomeranz (2015); Naritomi (2019); D'Acunto et al (2022)

→ While VAT can be effective at lowering prices, the distributional effects can be unintended, in part because we don't yet fully understand tax incidence

## 2. Economic incidence of consumption taxes and empirical anomalies:

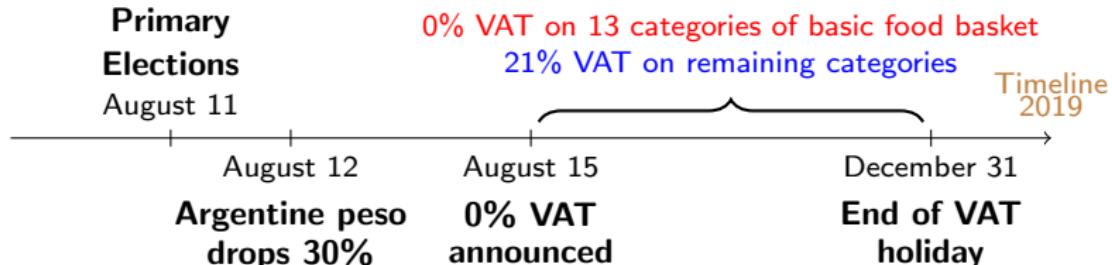
- ★ Fullerton & Metcalf (2002); Benzarti et al (2020); Benzarti & Carloni (2019); Kosonen (2015); Kopczuk et al (2016); Benedek et al (2019); Carbonnier (2007); Fuest et al (2021); Buettner & Madzharova (2020); Harju et al (2018); Gaarder (2018); Bachas et al (2020); Genakos & Pagliero (2022)

→ Govts can influence how much of a statutory tax change is passed on to consumers prices beyond relative magnitudes of S and D elasticities

→ Pass-through can vary widely by type of supermarket consumers shop at

# Elections, currency devaluation, and VAT cut/hike

▶ Back



**Context:** high inflation (~ 55%), elections, peso devaluation

- 1) President Macri defeated in primary presidential elections by a 15.5 p.p. margin—much wider than expected
- 2) Day after: Argentina's currency collapsed ( $45 \rightarrow 62$  pesos-dollar)
- 3) Govt implements a temporary VAT holiday on basic food set to expire on Dec 31, 2019 [Goal: to contain the impact of devaluation on prices]
- 4) New president Fernandez didn't extend the VAT holiday  
Regulated repeal: limit price increase to 7% (0% for milk, no cap for some)

# At the core of the debate...

▶ Back



Alberto Fernández



@alferdez

Representante gubernamental de Argentina

...

No parece razonable reducir el IVA indiscriminadamente como se ha hecho. Ello no redundará en una merma de los precios. Seguramente se convertirá en una ganancia adicional para las empresas. Hubiera sido mejor devolver el IVA a los sectores más postergados.

[Translate Tweet](#)

9:02 PM · Aug 16, 2019

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7,051 Retweets 943 Quote Tweets 23.4K Likes

*"It's unreasonable to reduce the VAT indiscriminately as has been done. This will not result in a decrease in prices. It will surely be pocketed by companies. It would have been better to rebate the VAT to the most neglected sectors."*

# Normative debate: VAT cuts or targeted tax rebates



- Commonly argued that policy should target the most needy

★ E.g., VAT rebates through debit cards

## • Tarjeta Alimentar

★ Debit card to purchase basic food

★ For AUH recipients with children up to 14yo

★ 2.5m cardholders (95% are women) covering about 4m children

- A tool with potential for targeted VAT rebates [Press]

★ But subject to pitfalls when poorly designed (e.g., see Cruces et al, 2020)

# Enforcement tools at hand

► Back

► Mechanisms

## Media article (August 16, 2019)

≡ infobae

**INFOBAE**

### Cuál será el efecto de la reducción del IVA en los alimentos básicos: habrá controles y sanciones del Gobierno

El director nacional de Defensa del Consumidor, Fernando Blanco Muñoz, precisó qué tipo de herramientas se emplearán para que los precios no sigan en alza

16 de Agosto de 2019

Article translates to: “*What will be the effect of the VAT cut on basic food: there will controls and sanctions from the govt*”

VAT cut enforced by the Consumer Protection Agency:

**'Precios Claros'** webpage

The screenshot shows a search interface with a placeholder 'Nombre de producto o marca'. Below it, a sidebar lists categories like 'Mostrar como', 'Cambiar ubicación', and 'Ver productos de'. A main grid displays several food products with their prices and a '+ button' to add them to a list. The products shown include:

Imagen	Nombre del producto	Precio
	Biscochitos con Galleta Salada Don Salta 250 Gr	\$34.99 a \$40.00
	Galletitas Vainilla con Rejilla de Frambuesa Soria 110 Gr	\$36.49 a \$60.00
	Biscochitos Agujeros 5 de Oro 250 Gr	\$28.99 a \$40.00
	Galletitas Chocolate con Rejilla de Vainilla Manía 185 Gr	\$38.99 a \$66.00
	Galletitas Temptaciones Mousse	\$38.49 a \$70.00
	Galletitas Chocolate con Rejilla de Limón Metta 120 Gr	\$30.60 a \$90.00

1) *Precios Claros*: Online price monitoring system since Feb'16 → **in chains only!**

2) *Ley de Lealtad Comercial*: Fair Retail Law passed in Apr'19

# Enforcement tools at hand

► Mechanisms

The Head of the Consumer Protection Agency stated: [[link](#)]

- *“Daily, between 6 and 8am, all supermarket chains in the country submit their prices through the App ‘Precios Claros’. This provides us with updated info that can be compared with historical data.”*
- *“We will control stores to ensure that the tax cut is passed on to lower prices and not higher profits.”*
- *“The Consumer Protection Agency will act through the regime of fines supported by the Fair Retail Trade Law.”*



## Repeal, pass-through caps, and *online* monitoring

- ▶ **Chain supermarkets:** govt said they would track prices daily: [\[link\]](#)

*"Supermarkets report their prices online to the Ministry of Commerce. The database is updated as soon as they upload the price lists, and we can see it. The sector already showed goodwill by working with us until December 31 and committed to absorb two-thirds of the impact. But obviously we'll be monitoring them"*

- ▶ **Small stores:** FASA association not part of the agreement [\[link\]](#)

Translation: “*The government assures that it will control ‘online’ that the new food price agreement is fulfilled*” [Jan 1st, 2020]

## El Gobierno asegura que controlará "online" que se cumpla el nuevo acuerdo por los precios de los alimentos

Será a través de la Secretaría de Comercio, según confiaron a Clarín fuentes oficiales.



El ministro de Producción, Matías Kulfas, estuvo a cargo del acuerdo por el NPA de los alimentos.



Eduardo Paladini



# Collusion? Unlikely

► Back



• Cambiar ubicación

Calle 24 618, La Plata, Provincia

Ver productos de Alimentos congelados

Almacén

Bebidas con alcohol

Bebidas sin alcohol

Bebés

Electrodomésticos y equipamiento para el hogar

Frescos

Limpieza

Mascotas

Materiales para la construcción

Perfumería y cuidado personal

Refinar por

Típo de comercio (?)

Todos

Comercios (46)

Todos

Puntos de venta (30)

Todos



NesCafe Gold Blend 100 Gr

76103031154111



• Cambiar ubicación

Calle 24 618, La Plata, Provincia

Ver productos de Alimentos congelados

Almacén

Bebidas con alcohol

Bebidas sin alcohol

Bebés

Electrodomésticos y equipamiento para el hogar

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Todos

Comercios (46)

Todos

Puntos de venta (30)

Todos

Supermercados DIA

# Collusion? Unlikely

Back

Cambiar ubicación

Calle 24 698, La Plata, Provincia

Ver productos de  
Alimentos congelados

Almacén

Bebidas con alcohol

Bebidas sin alcohol

Bebés

Electrodomésticos y  
equipamiento para el  
hogar

Frescos

Limpieza

Mascotas

Materiales para la  
construcción

Perfumería y cuidado  
personal

Refinar por

Típos de comercio (7)

Todos

Ganancias (46)

Todos

Puntos de venta (31)

Todos



Coca Cola sin Azucar 1.5 Lt  
7790895067556

Comercio

Distancia

Precio de lista

Promo A

Promo B



Supermercados DIA  
Calle 48 N°944 Nonoé  
BUENOS AIRES

101 kilómetros

\$225,50



Supermercados DIA  
Av 44 2059  
BUENOS AIRES

130 kilómetros

\$225,50



Supermercados DIA  
Av 532 101  
BUENOS AIRES

211 kilómetros

\$225,50



Market  
Calle 12 1000  
La Plata

207 kilómetros

\$297,50



Supermercados DIA  
Av. 7 423 Nonoé  
BUENOS AIRES

239 kilómetros

\$279,36



Market  
Calle 7 767  
La Plata

239 kilómetros

\$297,50



SUPERMERCADOS EL  
NORTE  
Calle 30 2056  
LA PLATA

239 kilómetros

\$322,50



Supermercados DIA  
Av 44 567  
BUENOS AIRES

244 kilómetros

\$225,50



Supermercados DIA  
Calle 12 1514  
BUENOS AIRES

248 kilómetros

\$225,50



Comprimido Olímpico Li-  
Vitamina C 1000 mg y  
Vitamina E 400 UI  
Avda. 12 7224  
La Plata

289 kilómetros

\$362,00



Fideos Tallarines Matarazzo 500  
Gr  
7790070318657

Comercio

Distancia

Precio de lista

Promo A

Promo B



DIA  
Calle 30 Y Calle 47 777  
LA PLATA

130 kilómetros

\$211,00



Supermercados DIA  
Calle 48 N°944 Nonoé  
BUENOS AIRES

131 kilómetros

\$204,35



COTO CICSA  
Calle 43 702  
La Plata

135 kilómetros

\$20,52

\$180,64



Supermercados DIA  
Av 44 2099  
BUENOS AIRES

130 kilómetros

\$204,35



Supermercados DIA  
Av 52 101  
BUENOS AIRES

241 kilómetros

\$204,35



Market  
Calle 12 1000  
La Plata

237 kilómetros

\$203,00



Supermercados DIA  
Av 7 423 Norte  
BUENOS AIRES

231 kilómetros

\$204,35



Market  
Calle 7 767  
La Plata

237 kilómetros

\$203,00



SUPERMERCADOS EL  
NORTE  
Calle 30 2056  
LA PLATA

239 kilómetros

\$195,00



Supermercados DIA  
Av 44 567  
BUENOS AIRES

244 kilómetros

\$204,35



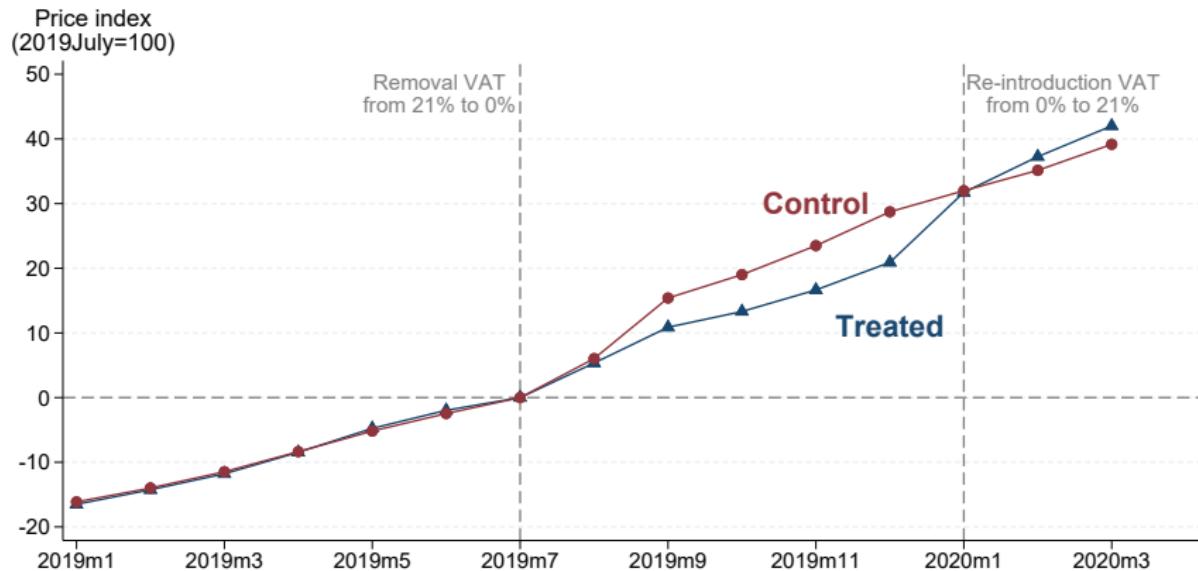
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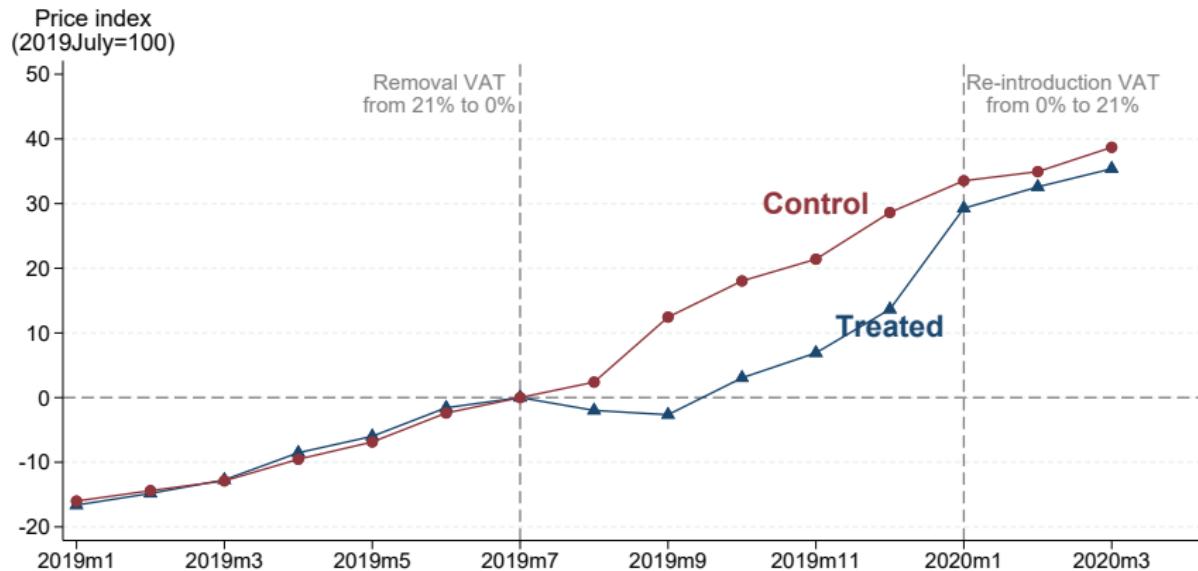
# Price levels in small independent stores

▶ Back



# Price levels in supermarket chains (prices are monitored)

Back



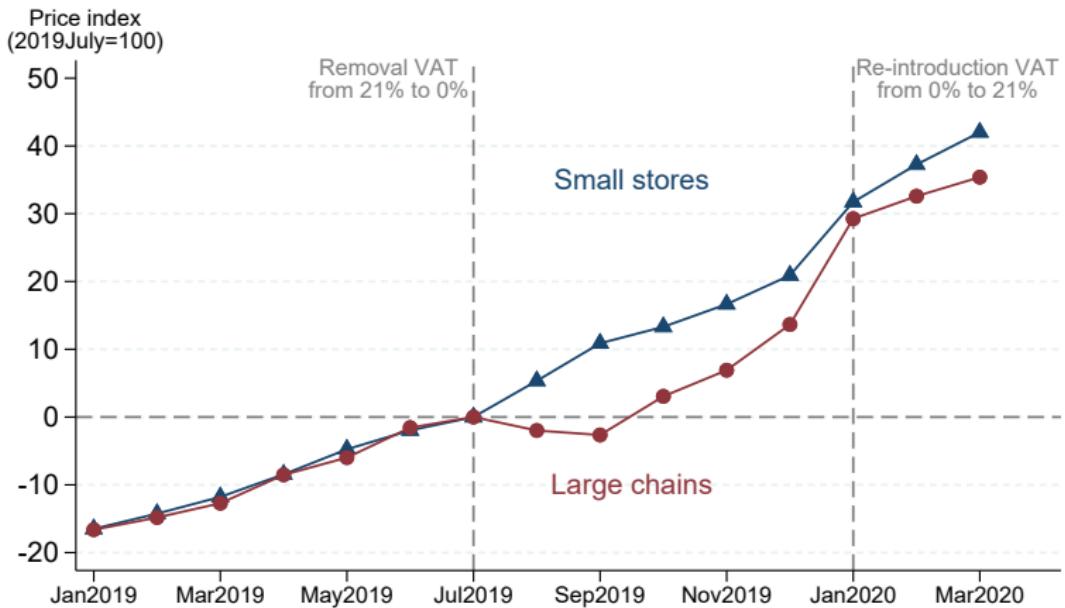
# Control goods: Large chains vs Small stores

[Back](#)



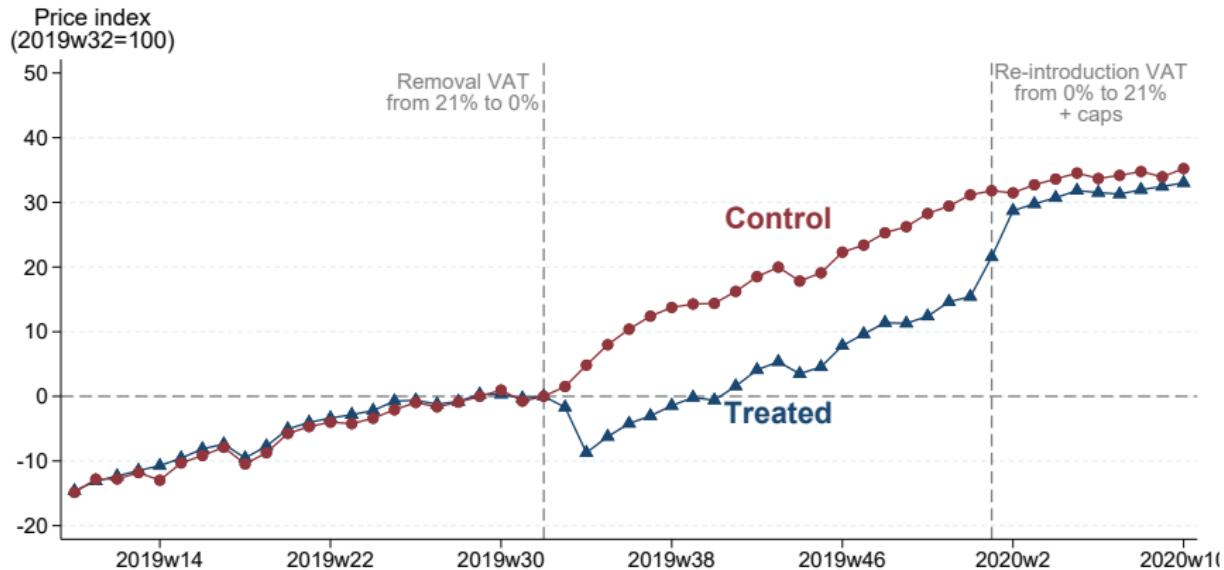
# Treated goods: Large chains vs Small stores

▶ Back



# Price levels in supermarket chains (weekly data)

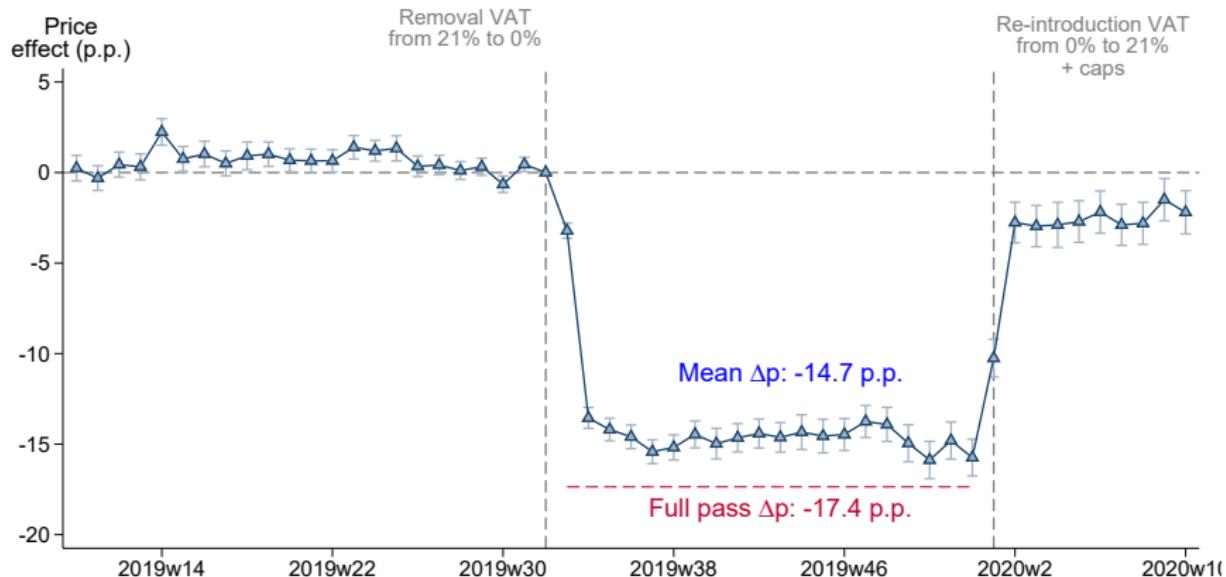
▶ Back



Note: Obs=2,541,535 (4645 EANs: 2,032 treated + 2,613 control)

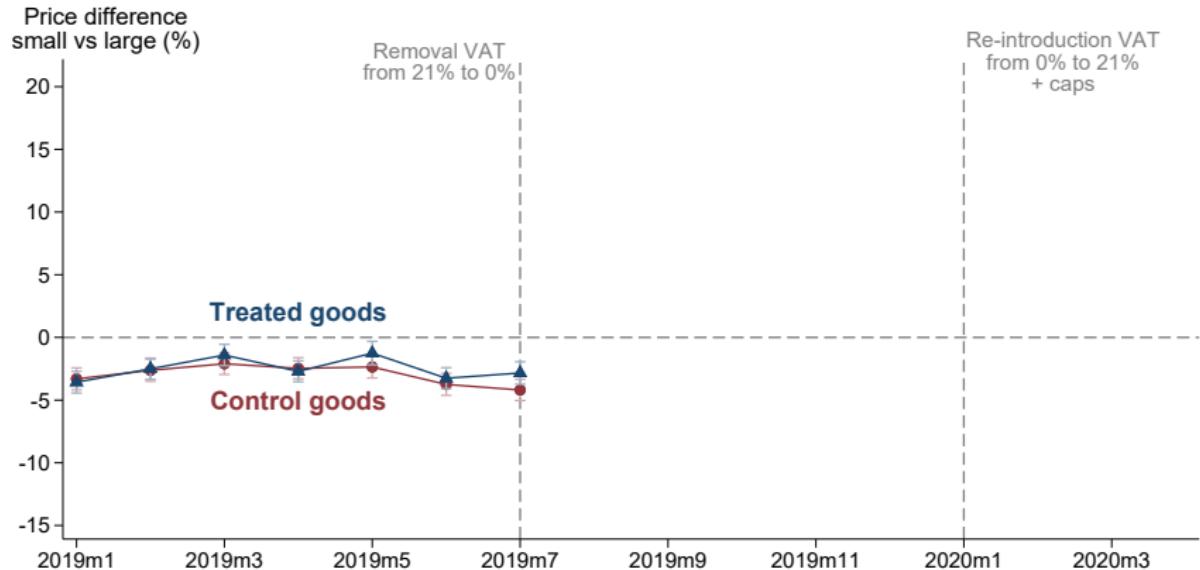
# Average price pass-through of ~85% in large chains

▶ Back



**Note:** Obs=2,541,535 (4645 EANs: 2,032 treated + 2,613 control)

# Indep stores cheaper (pre-reform) than chain supermarkets

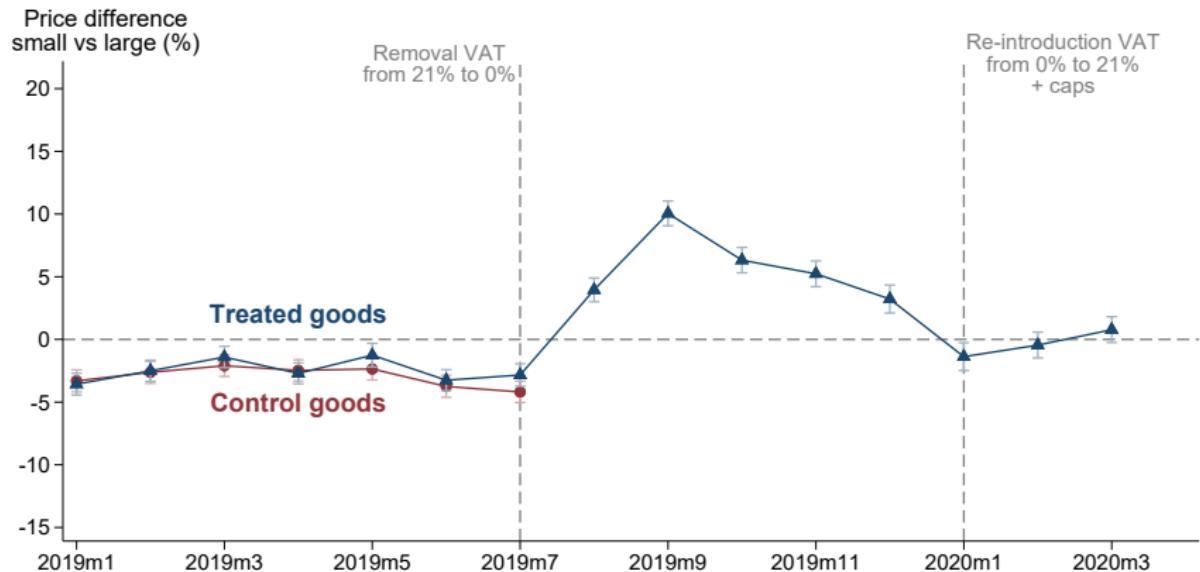


$$\log P_{irst} = \alpha_{irt} + \sum_{t=2019m7}^{2020m3} \beta_t \text{IndepStore}_{irt} + \epsilon_{irst}$$

► Back

*i : barcodes, r : 5 regions, t : month-year, s : store type*

# Indep stores cheaper (pre-reform) than chain supermarkets

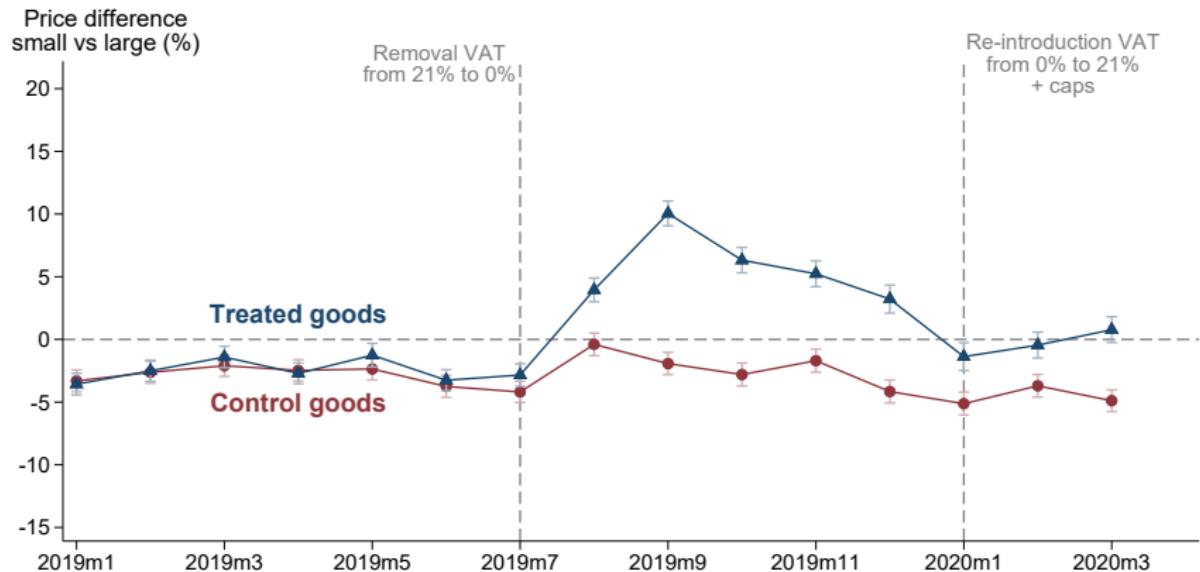


$$\log P_{irst} = \alpha_{irt} + \sum_{t=2019m7}^{2020m3} \beta_t \text{IndepStore}_{irt} + \epsilon_{irst}$$

► Back

*i : barcodes, r : 5 regions, t : month-year, s : store type*

# Indep stores cheaper (pre-reform) than chain supermarkets



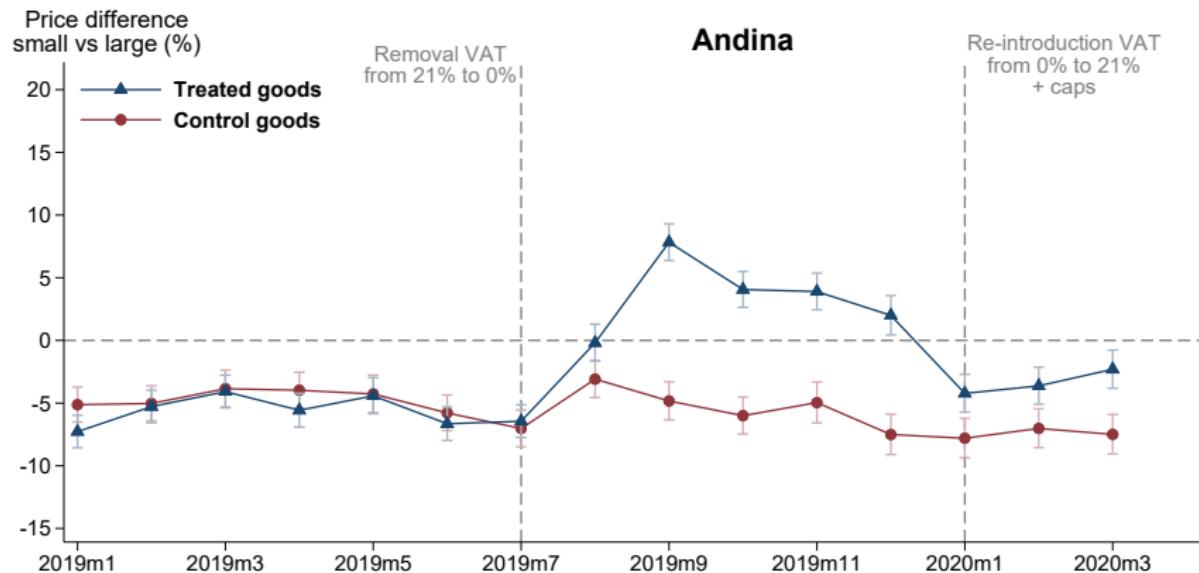
$$\log P_{irst} = \alpha_{irt} + \sum_{t=2019m7}^{2020m3} \beta_t \text{IndepStore}_{irt} + \epsilon_{irst}$$

► Back

*i : barcodes, r : 5 regions, t : month-year, s : store type*

# But largely heterogeneous across the 5 regions

▶ Back

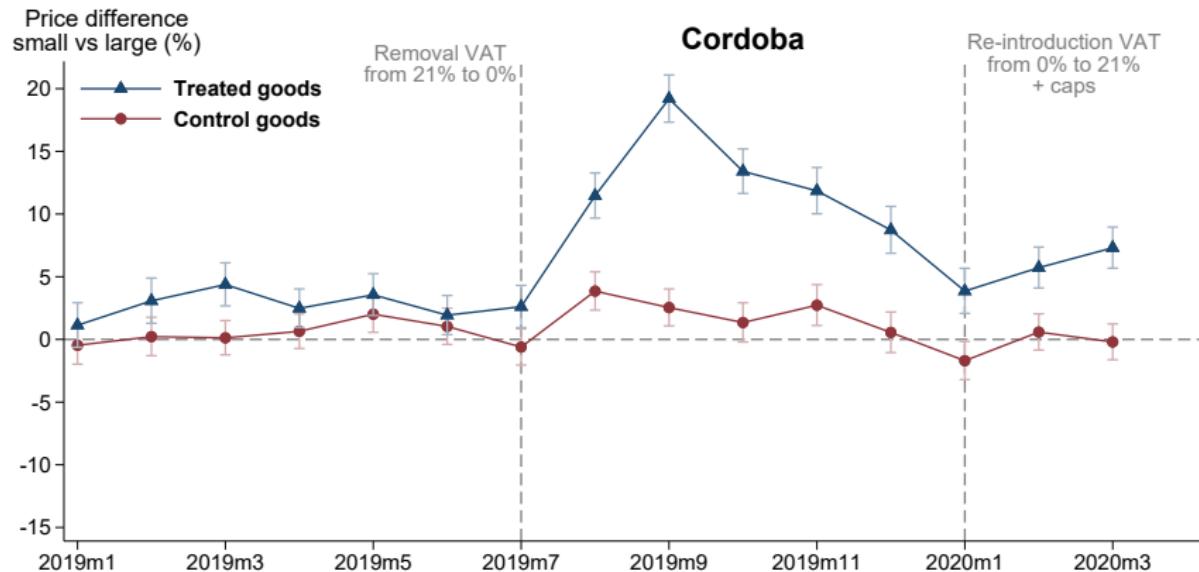


$$\log P_{irst} = \alpha_{irt} + \sum_{t=2019m7}^{2020m3} \beta_t \text{SmallStore}_{irt} + \epsilon_{irst}$$

*i* : barcodes, *r* : 5 regions, *t* : month-year, *s* : store type

# But largely heterogeneous across the 5 regions

▶ Back

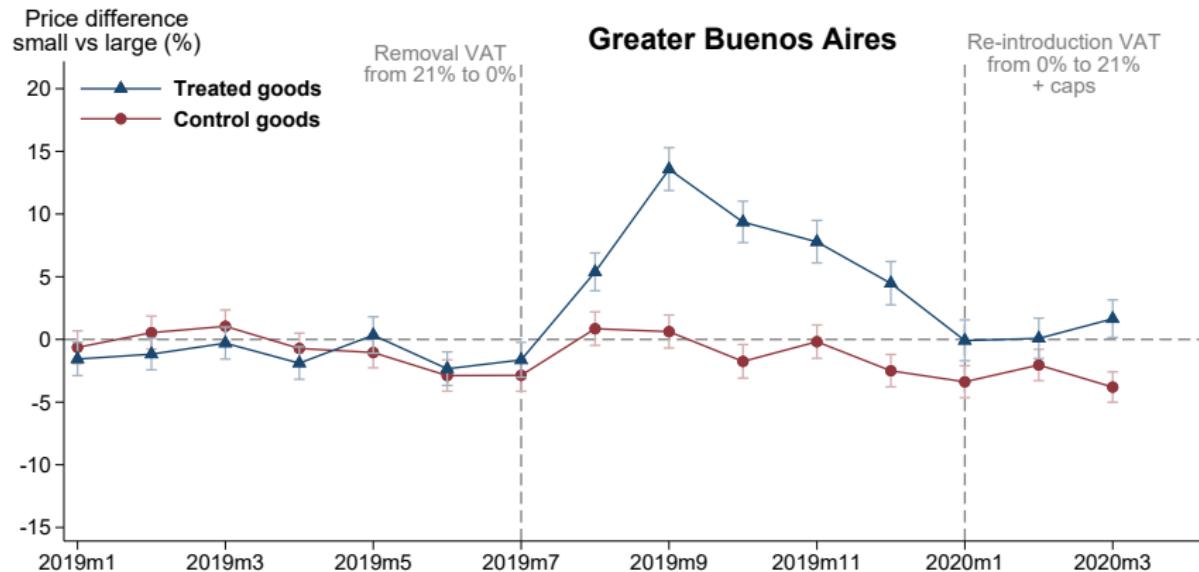


$$\log P_{irst} = \alpha_{irt} + \sum_{t=2019m7}^{2020m3} \beta_t \text{SmallStore}_{irt} + \epsilon_{irst}$$

*i* : barcodes, *r* : 5 regions, *t* : month-year, *s* : store type

# But largely heterogeneous across the 5 regions

▶ Back

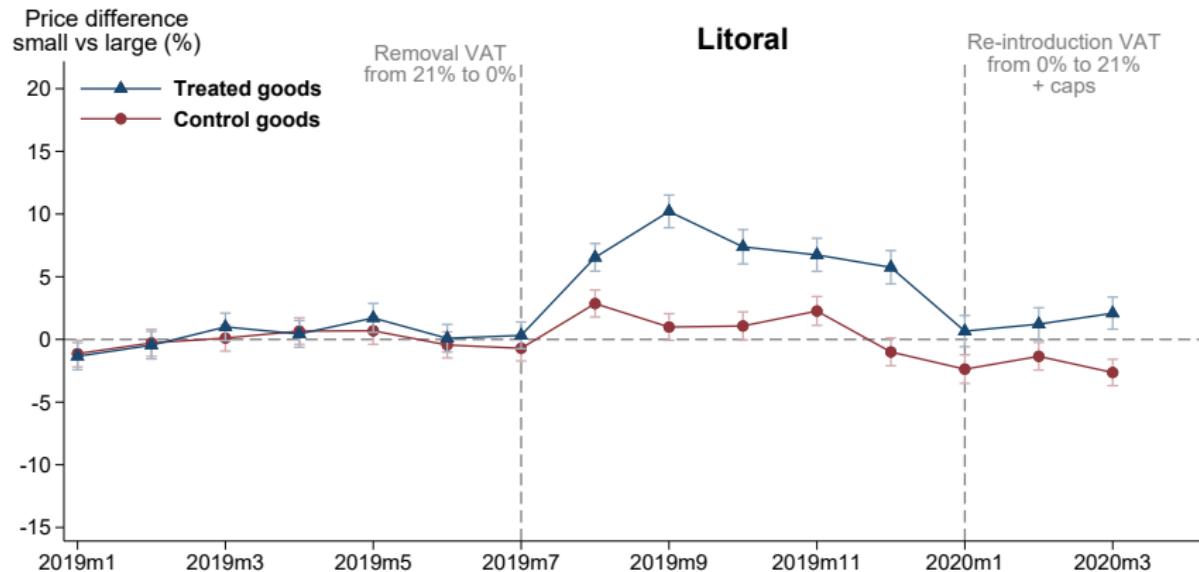


$$\log P_{irst} = \alpha_{irt} + \sum_{t=2019m7}^{2020m3} \beta_t \text{SmallStore}_{irt} + \epsilon_{irst}$$

*i* : barcodes, *r* : 5 regions, *t* : month-year, *s* : store type

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▶ Back

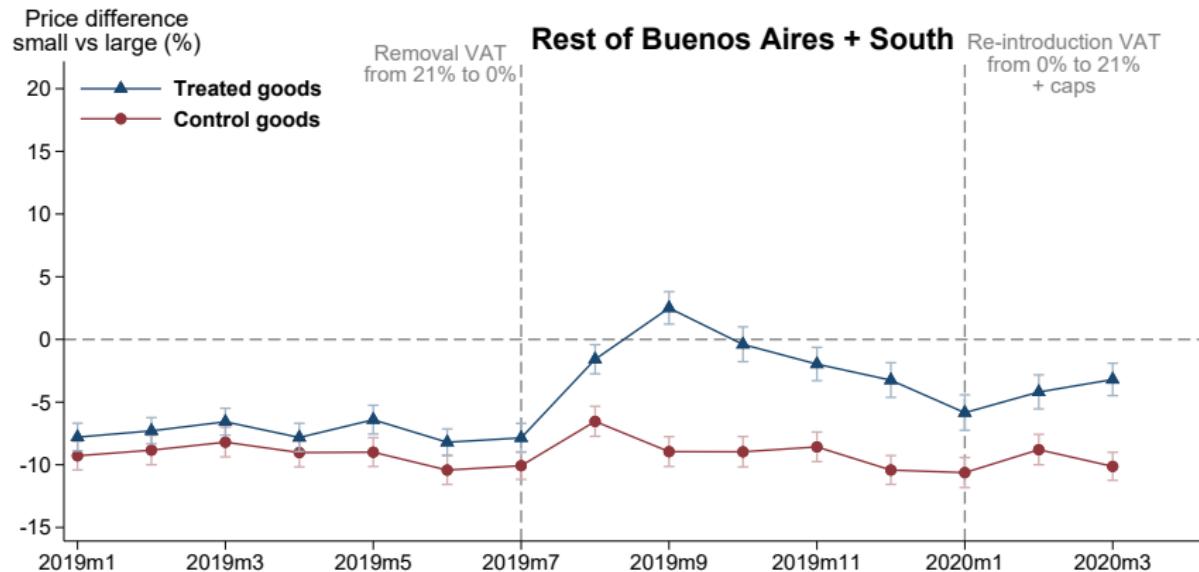


$$\log P_{irst} = \alpha_{irt} + \sum_{t=2019m7}^{2020m3} \beta_t \text{SmallStore}_{irt} + \epsilon_{irst}$$

*i* : barcodes, *r* : 5 regions, *t* : month-year, *s* : store type

# But largely heterogeneous across the 5 regions

▶ Back

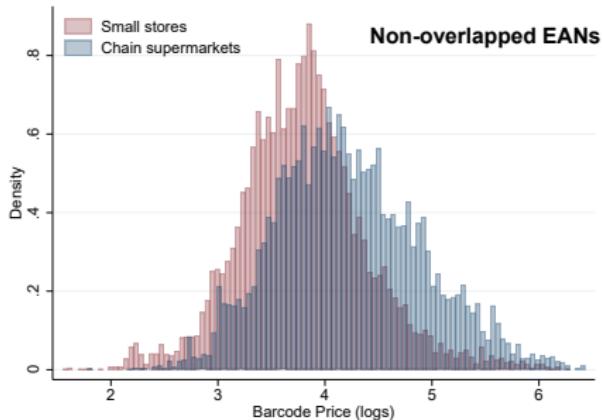
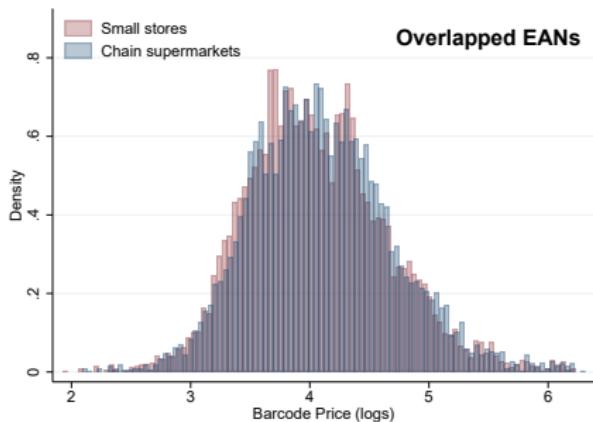


$$\log P_{irst} = \alpha_{irt} + \sum_{t=2019m7}^{2020m3} \beta_t \text{SmallStore}_{irt} + \epsilon_{irst}$$

*i* : barcodes, *r* : 5 regions, *t* : month-year, *s* : store type

# Price density for overlapped and non-overlapped barcodes

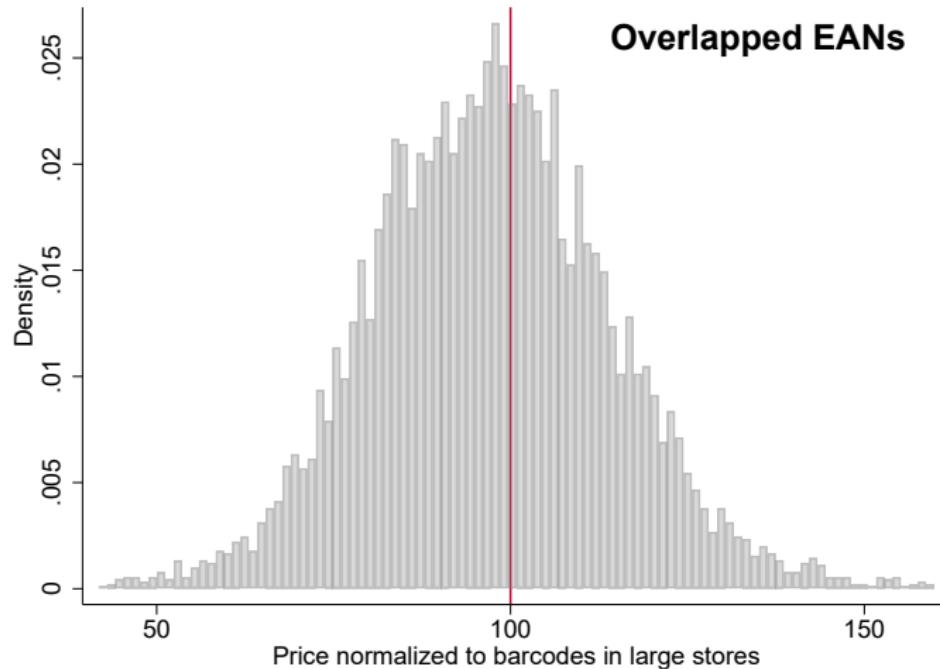
▶ Back



# Price density for overlapped barcodes

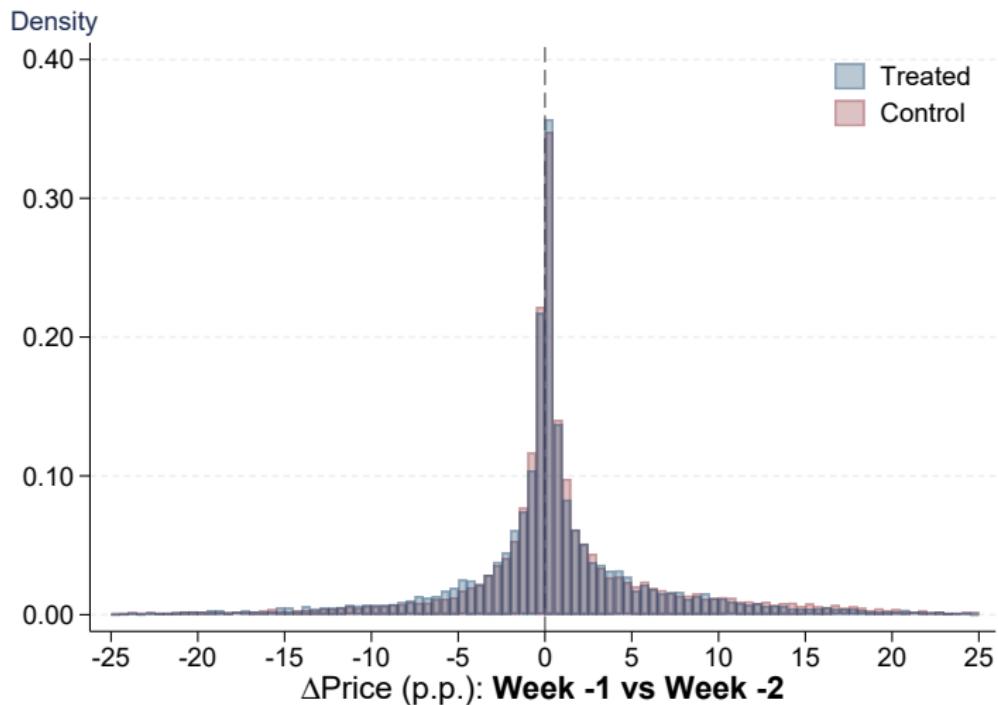
▶ Back

Var:  $P_{ir,t0}^{\text{Small}} / P_{ir,t0}^{\text{Large}} * 100$



# Distrib of price changes two weeks **before** VAT removal

Large chains (prices are monitored) [▶ Back](#)



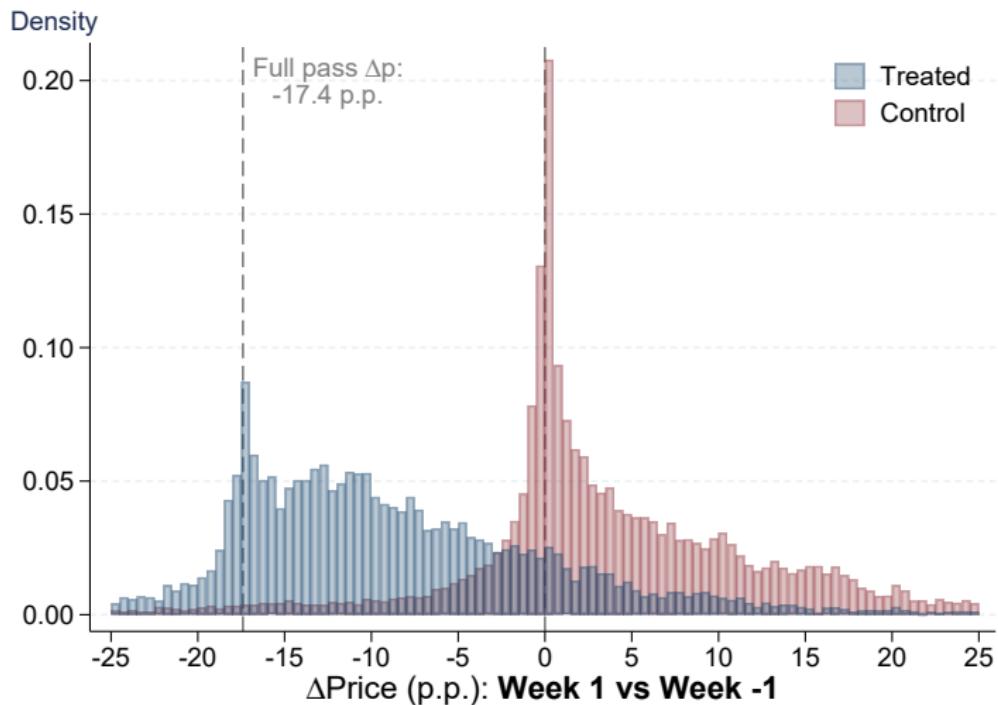
# Distrib of price changes right after VAT removal

Large chains (prices are monitored)

▶ Zoom in

▶ Substitutes

▶ Back



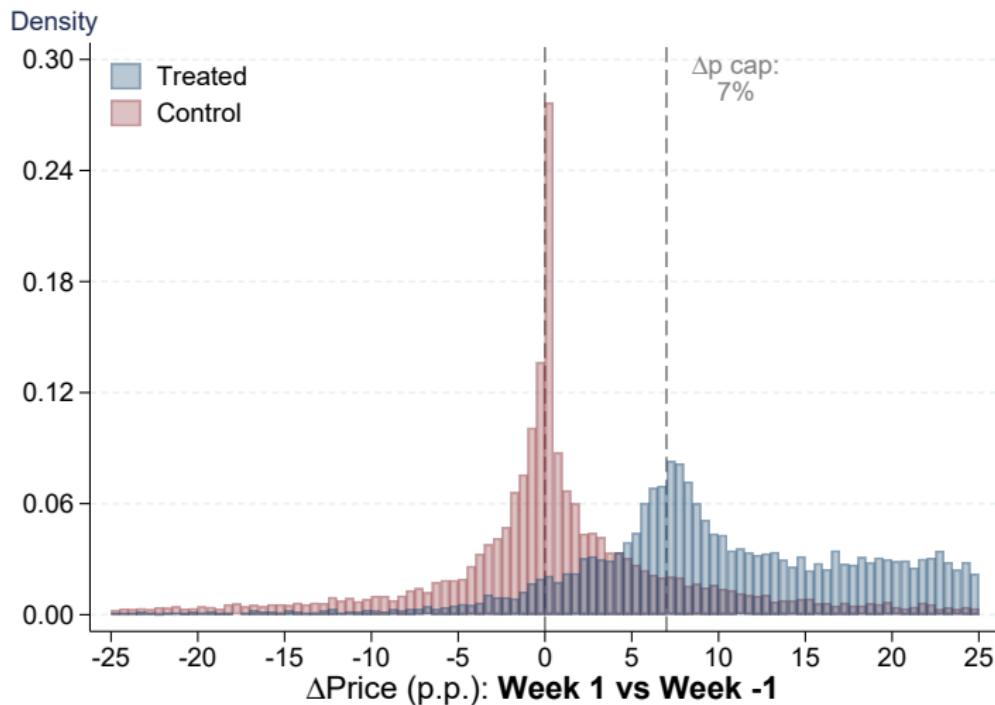
# Distrib of price changes right after VAT reinstated

Large chains (prices are monitored)

► Zoom in

► Cap section

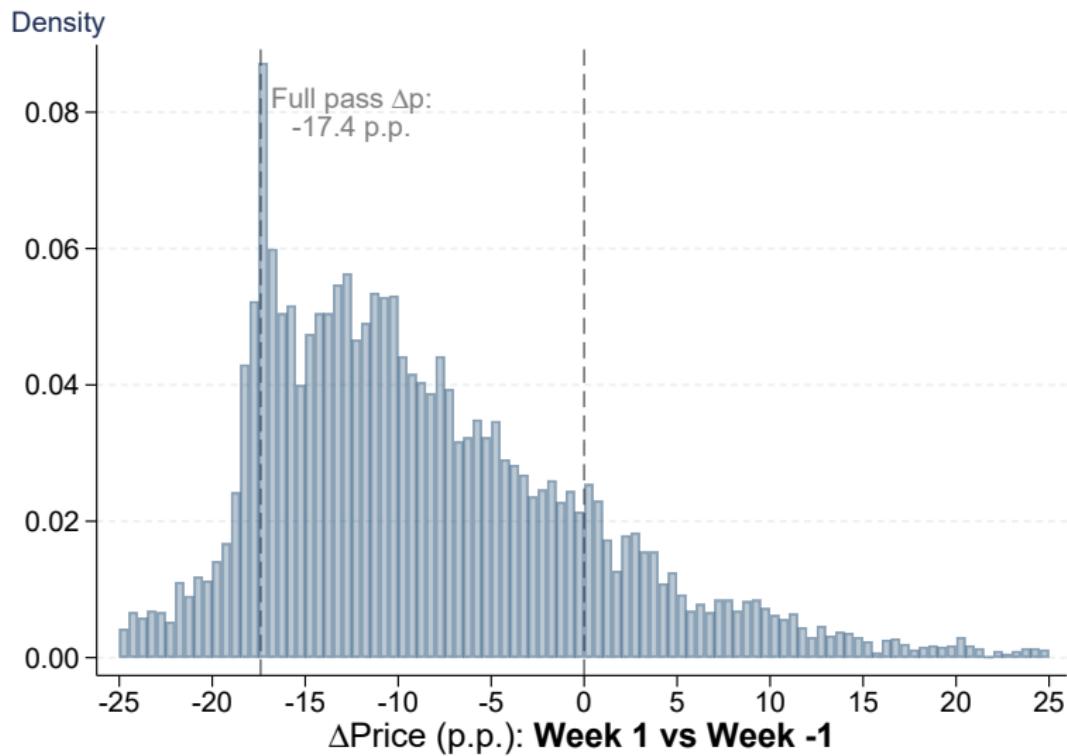
► Back



# Distrib of price changes right after VAT removal

▶ Back

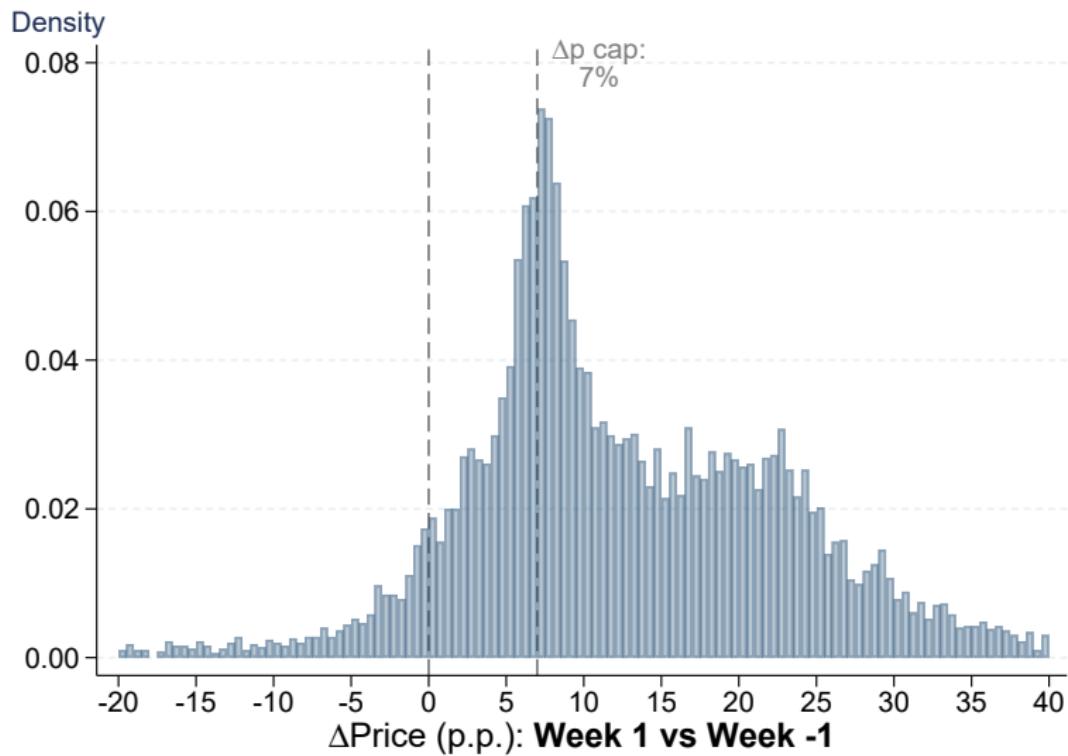
Large chains (treated goods)



# Distrib of price changes: VAT reinstated

[Back](#)

Large chains

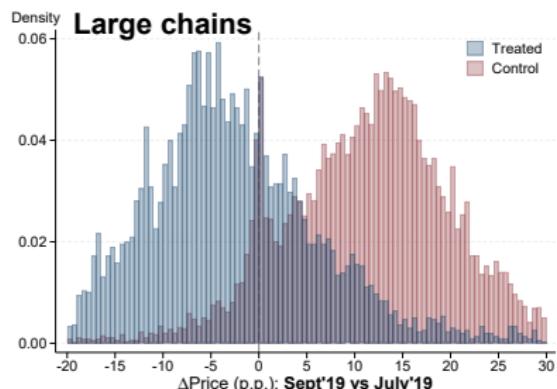
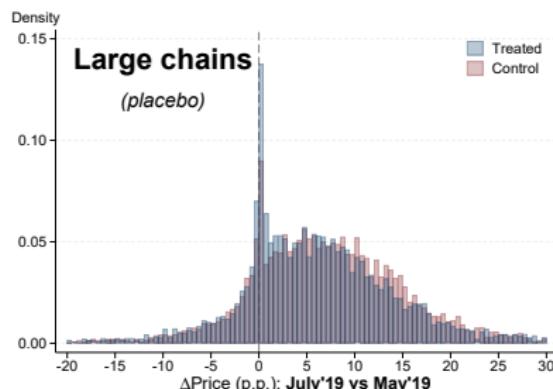
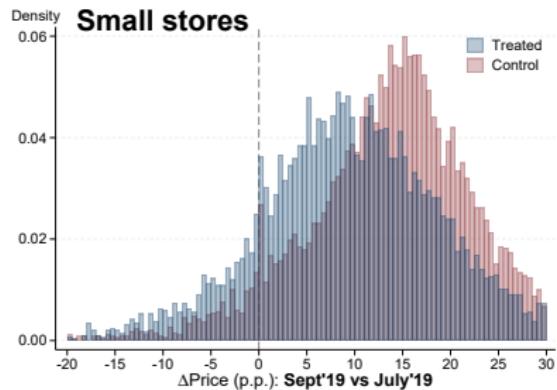
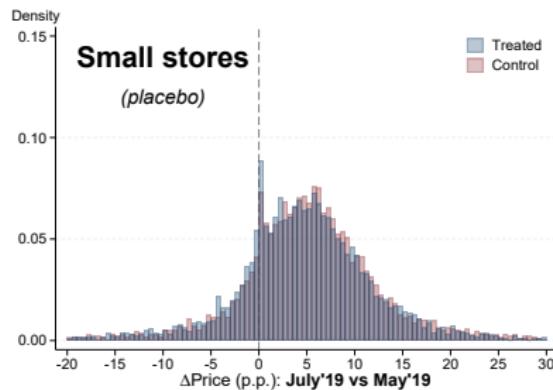


# Distrib of price changes after VAT removal

Small stores vs Large chains

► Overlap T & C

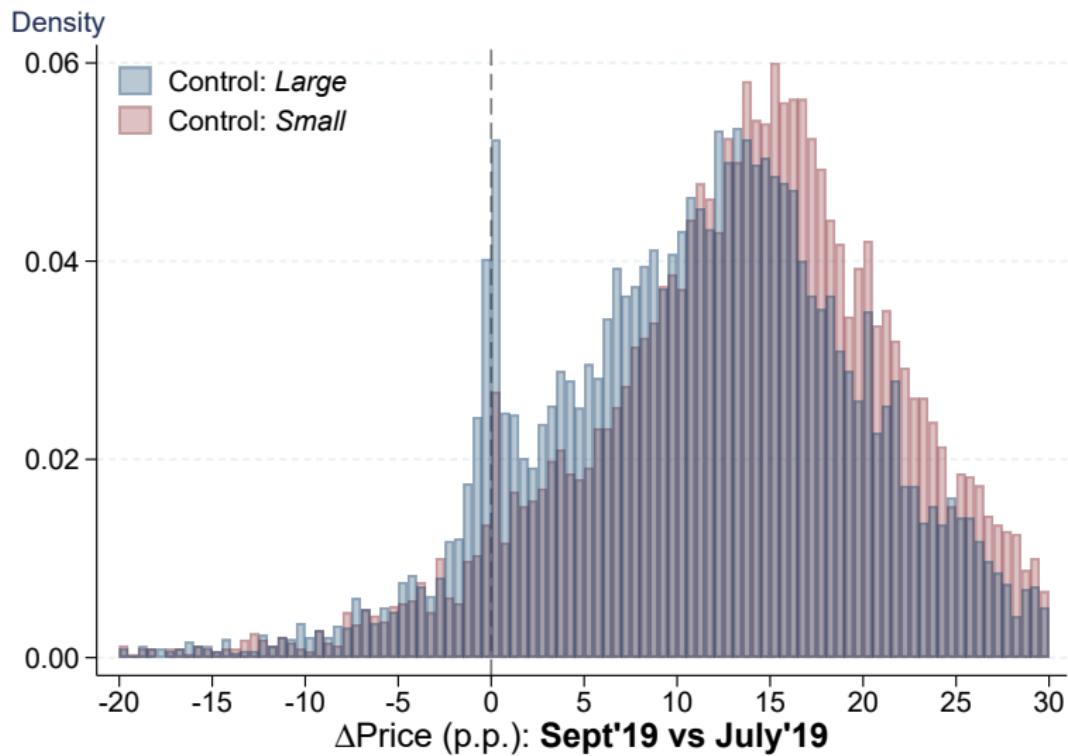
► Back



# Distrib of price changes: VAT removal

▶ Back

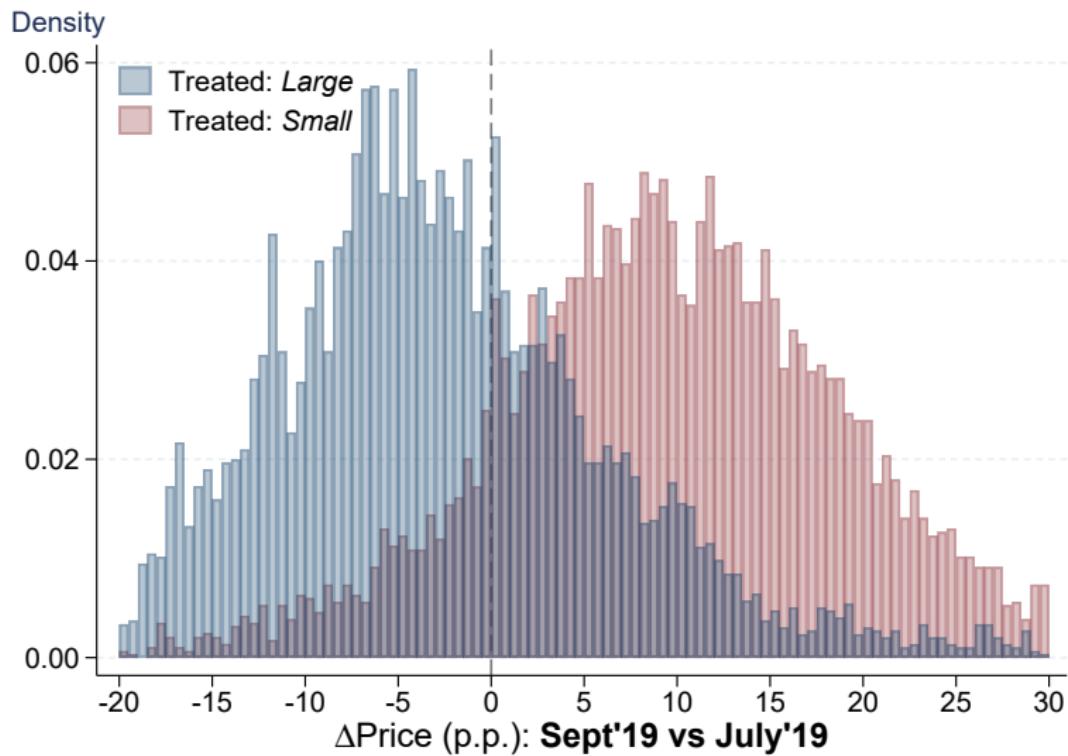
Small stores vs Large chains



# Distrib of price changes: VAT removal

▶ Back

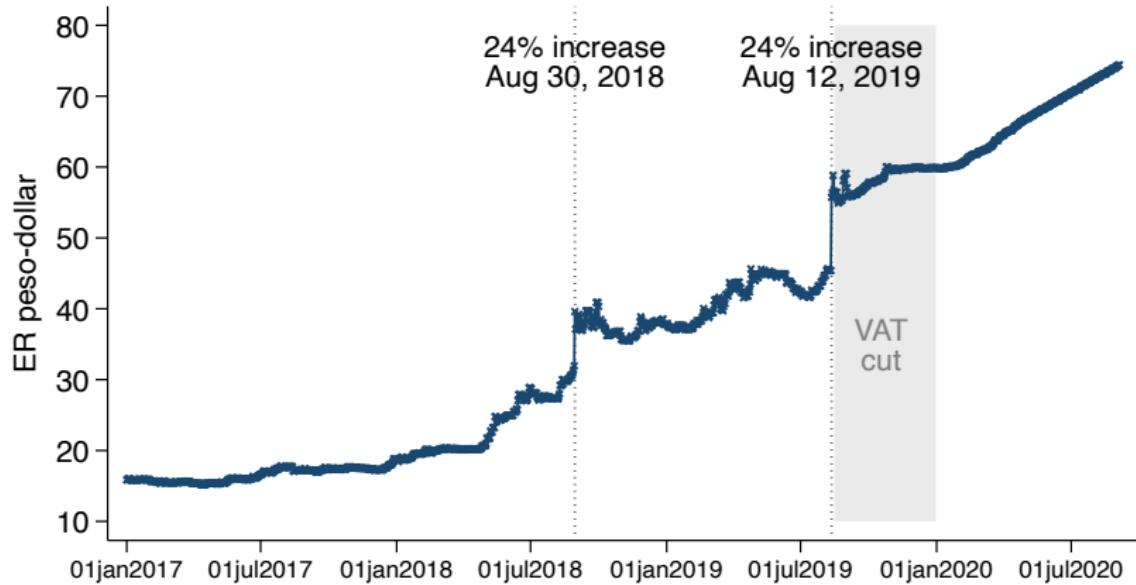
Small stores vs Large chains



# Pass-through of the 2018 peso depreciation

▶ Back

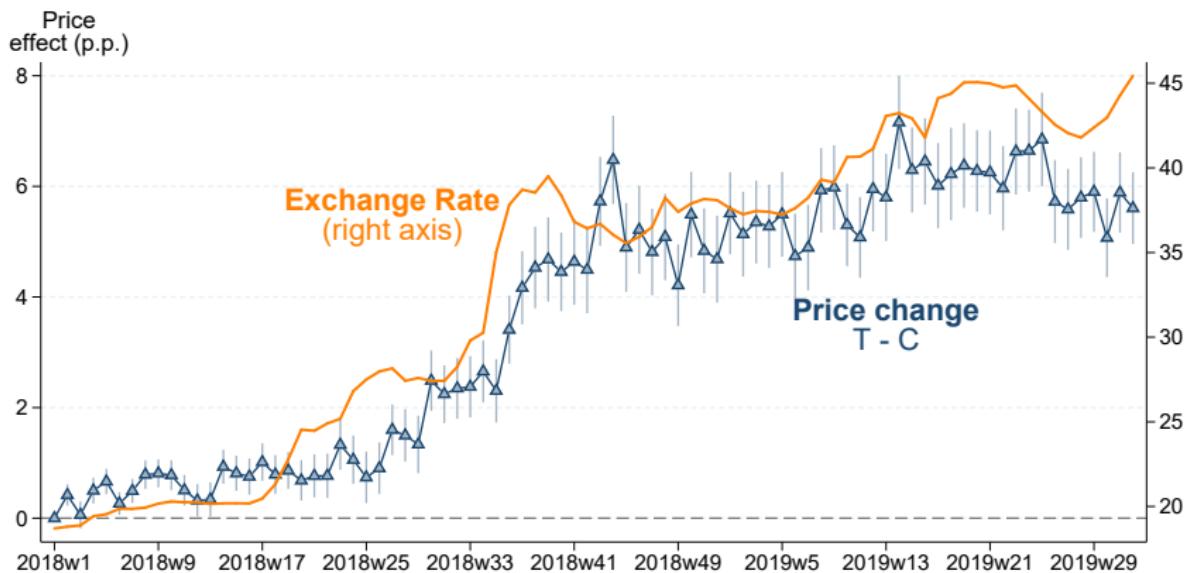
## Exchange Rate (pesos per dollar)



Source: BCRA, Tipo de Cambio de Referencia - Comunicación "A" 3500 (Mayorista).

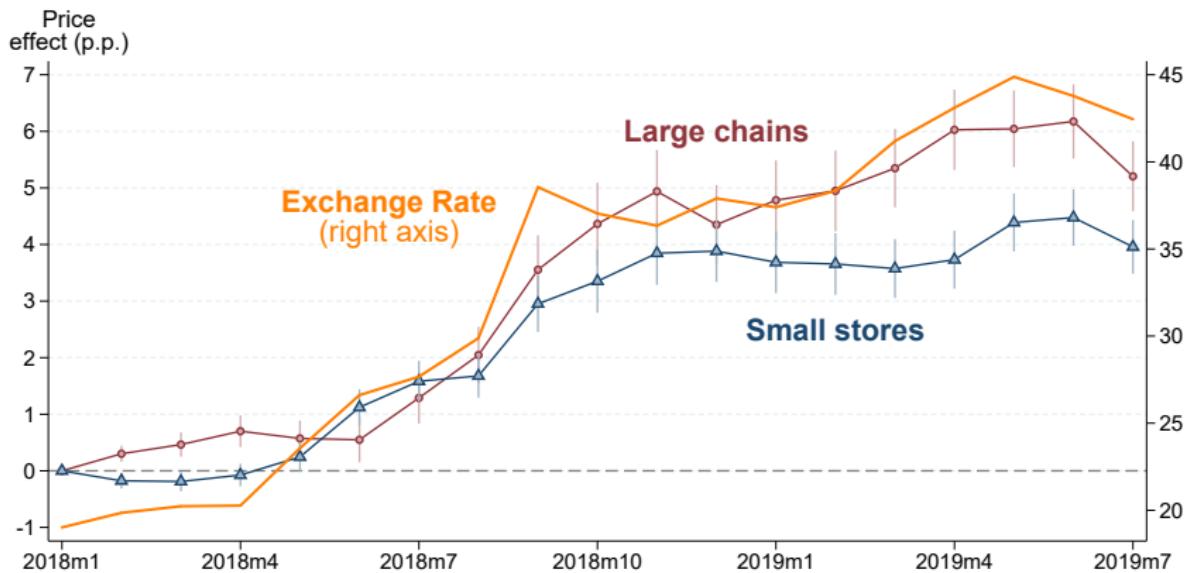
# Are goods in **T** and **C** similarly affected by the 2018 peso depreciation?

▶ Back

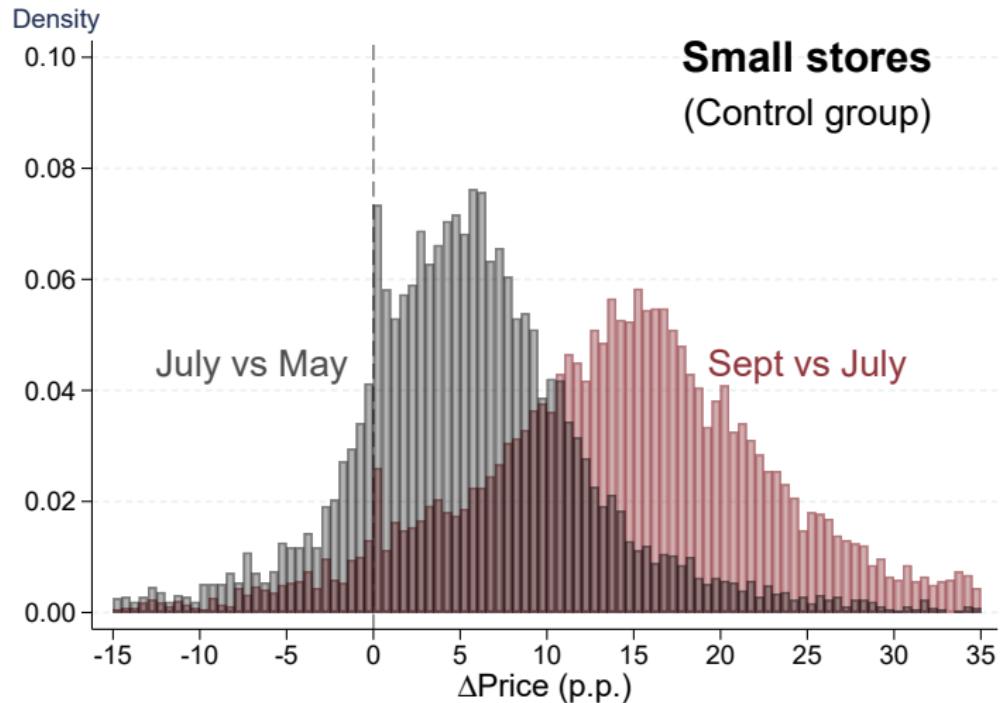


# Do large and small stores respond *differently* to a large economic shock with no govt mandate?

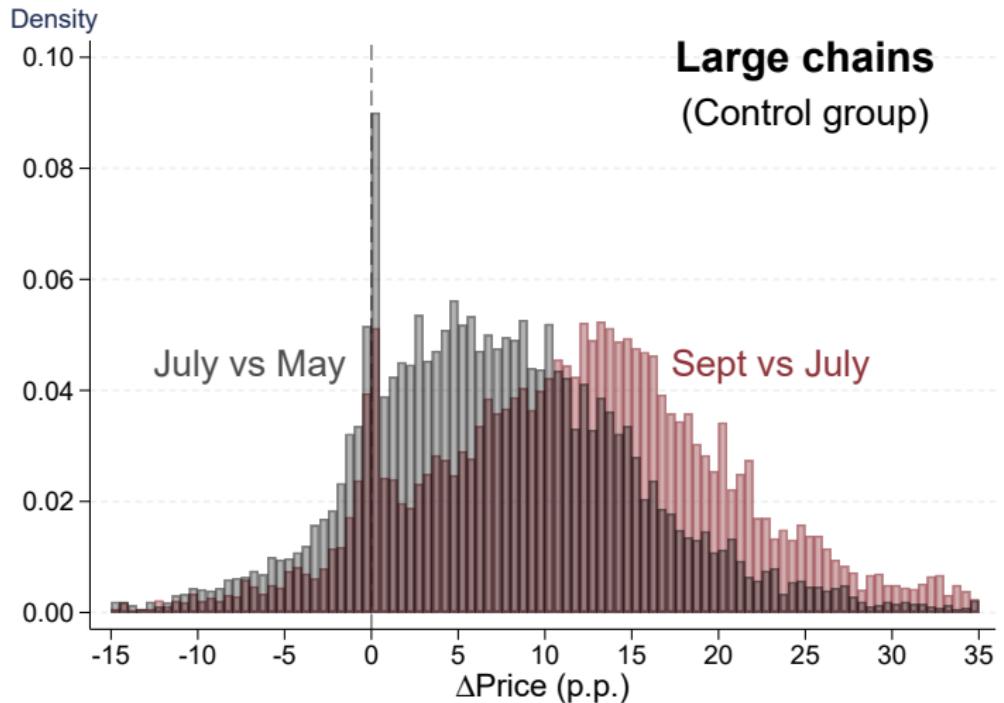
▶ Back



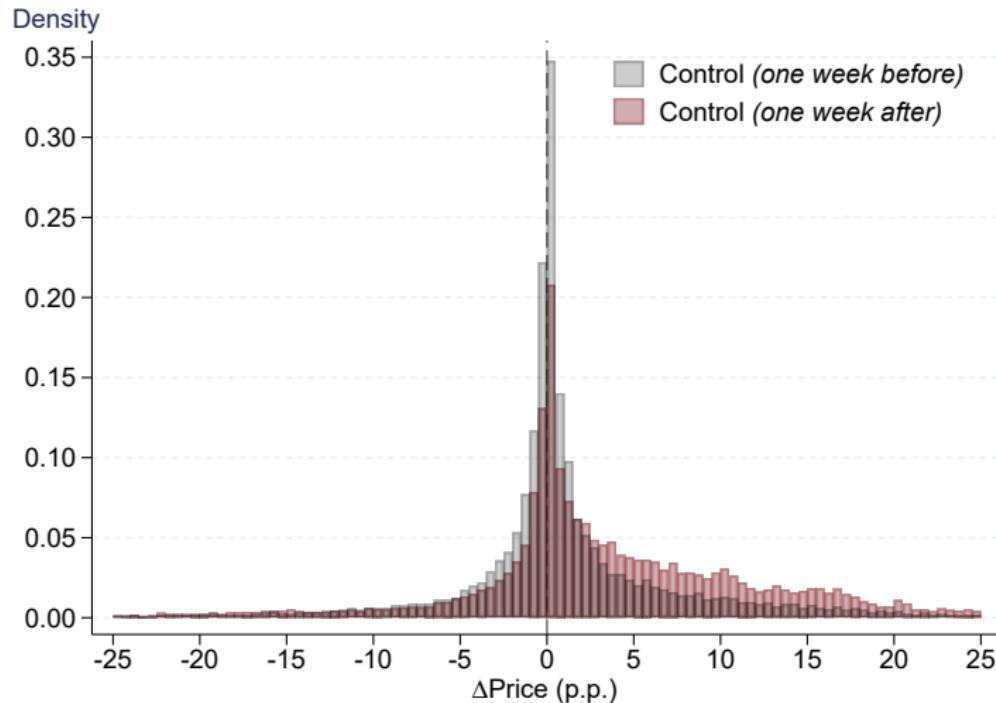
Pass-through of a 24% currency devaluation (no mandate)  
is similar in small and large supermarkets



Pass-through of a 24% currency devaluation (no mandate)  
is similar in small and large supermarkets



## Pass-through of currency devaluation: short run (Large chains)

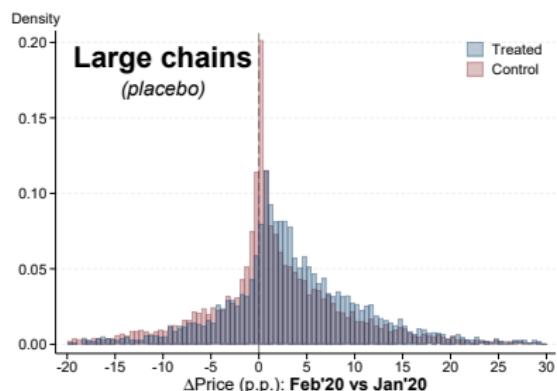
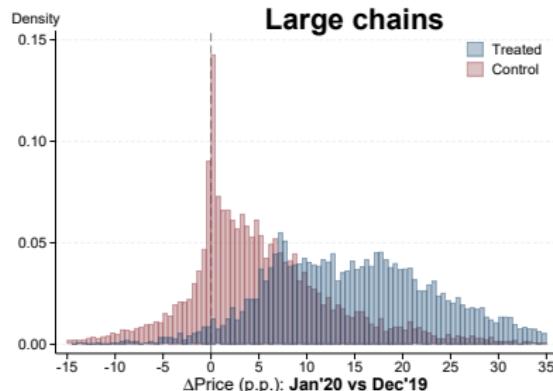
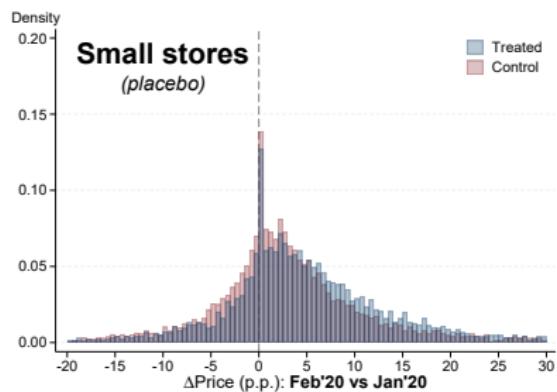
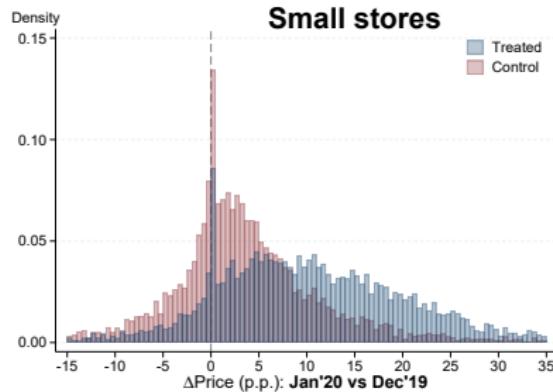


# Distrib of price changes after VAT re-introduction

Small stores vs Large chains

► Overlap T & C

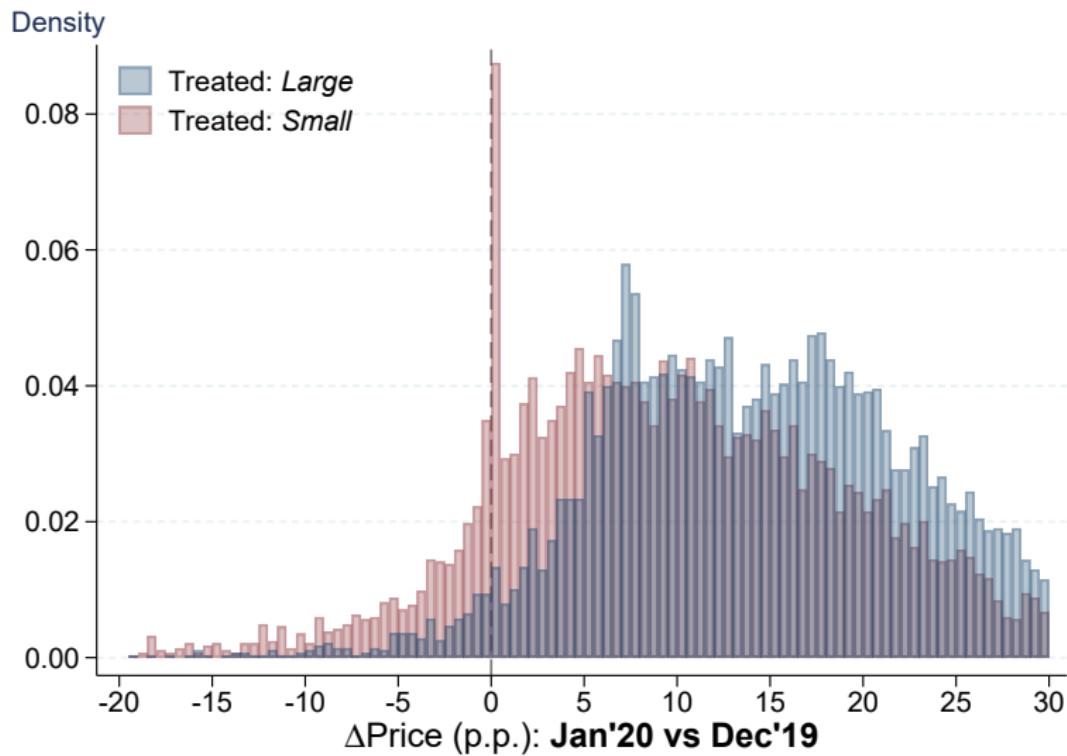
► Back



# Distrib of price changes after VAT re-intro

▶ Back

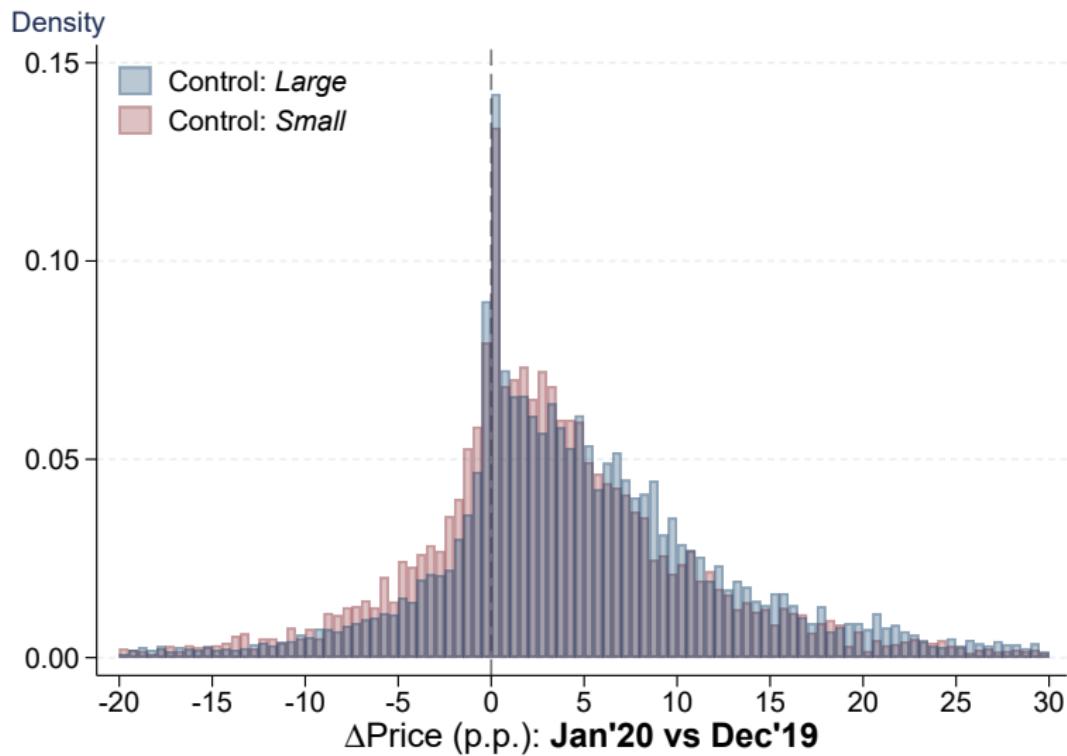
Small stores vs Large chains



# Distrib of price changes after VAT re-intro

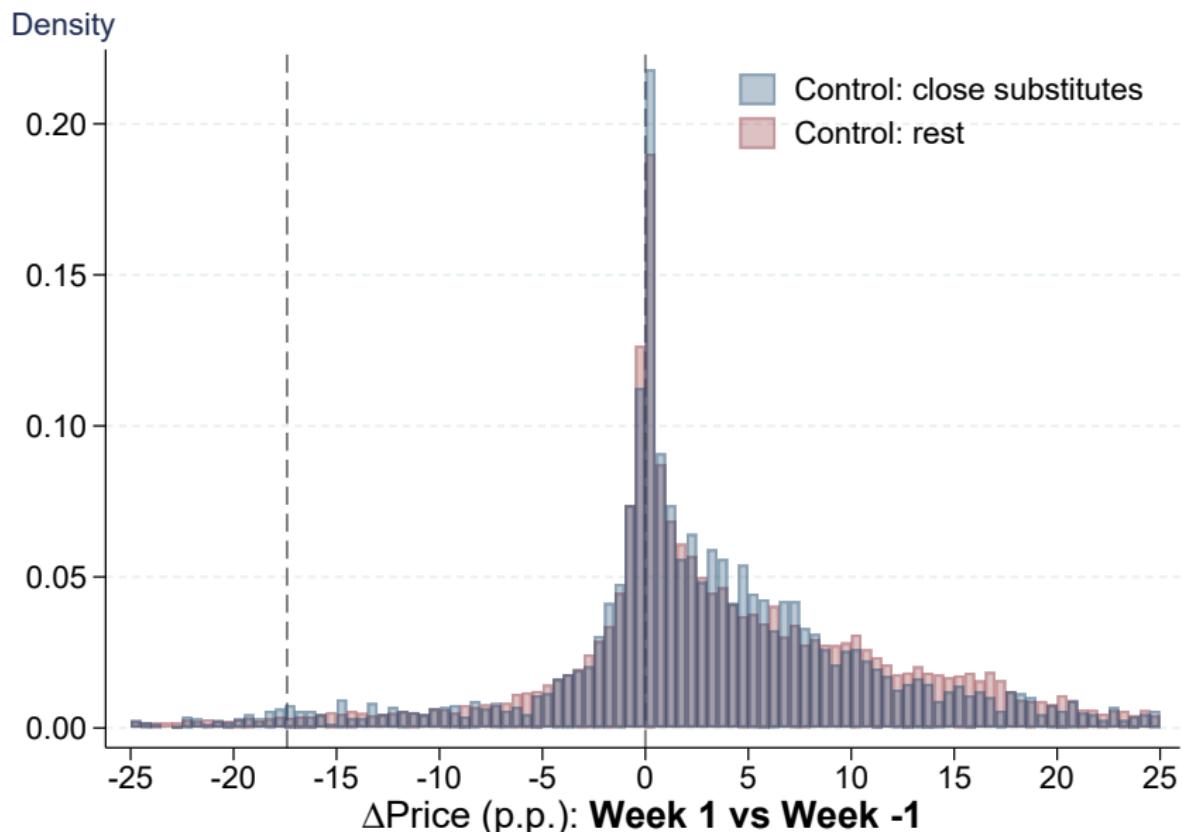
[Back](#)

Small stores vs Large chains



Close substitutes in C (e.g., coffee) do not seem to adjust prices after the VAT cut

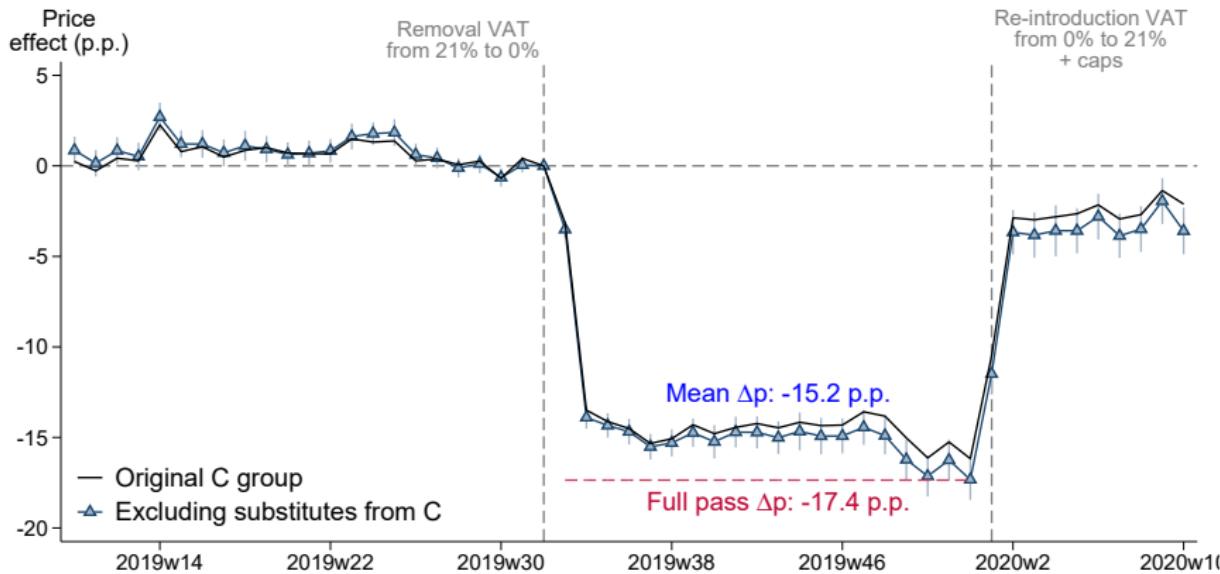
▶ Back



# Does substitution across T and C bias our price effects? The results barely change when:

▶ Back

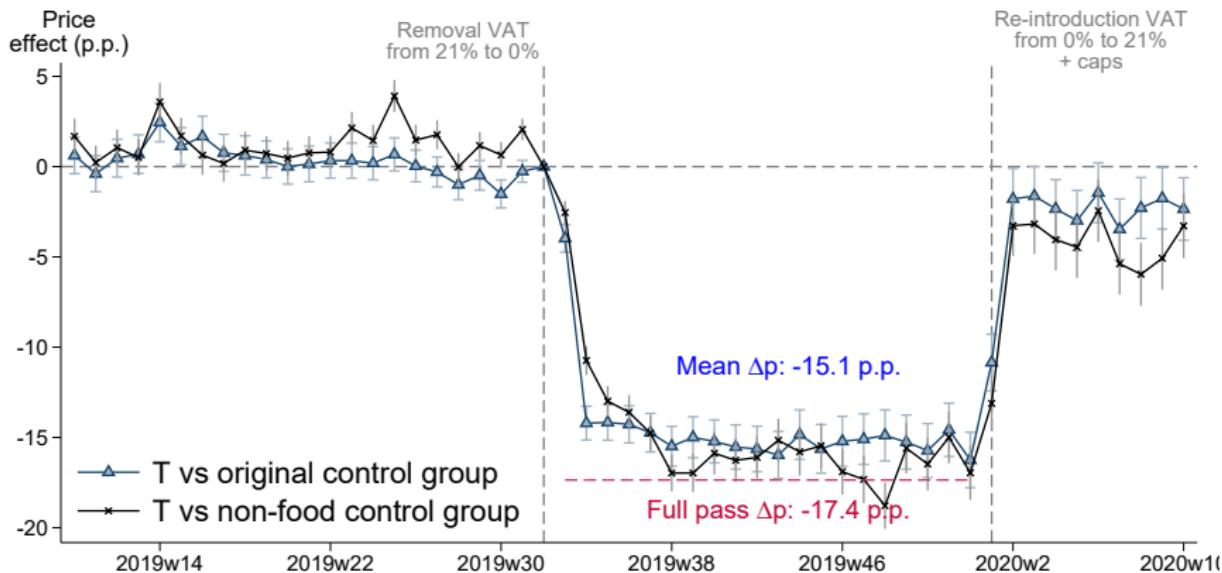
- Including and excluding close substitutes in the control group
- Using food and non-food products in the control group



# Does substitution across T and C bias our price effects? The results barely change when:

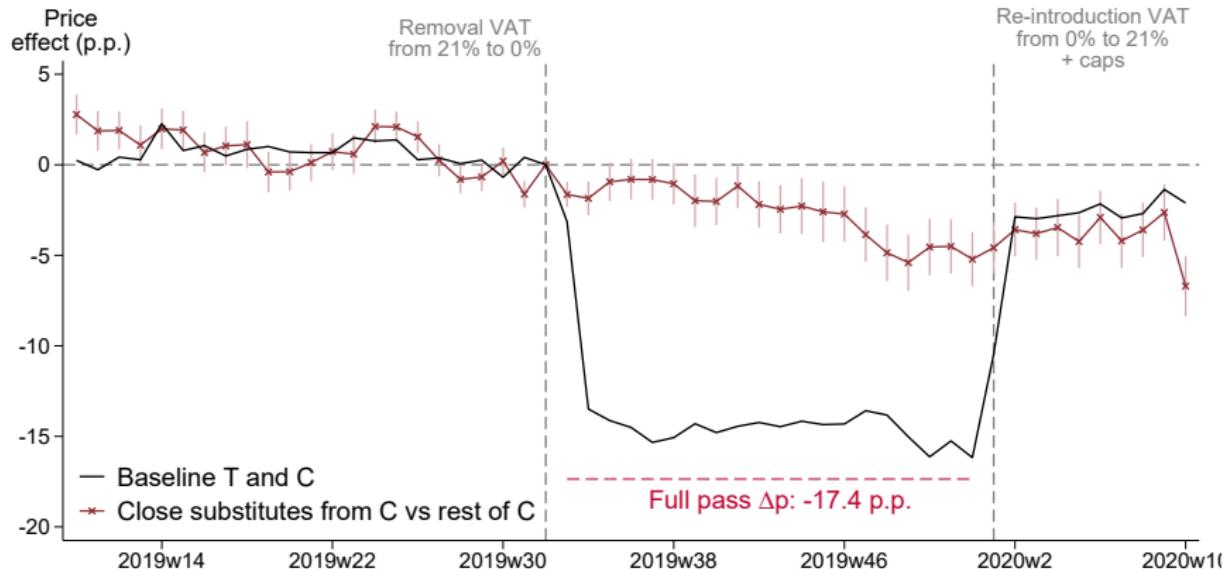
▶ Back

- Including and excluding close substitutes in the control group
- Using food and non-food products in the control group



# DiD of close substitutes in C vs rest of C

▶ Back



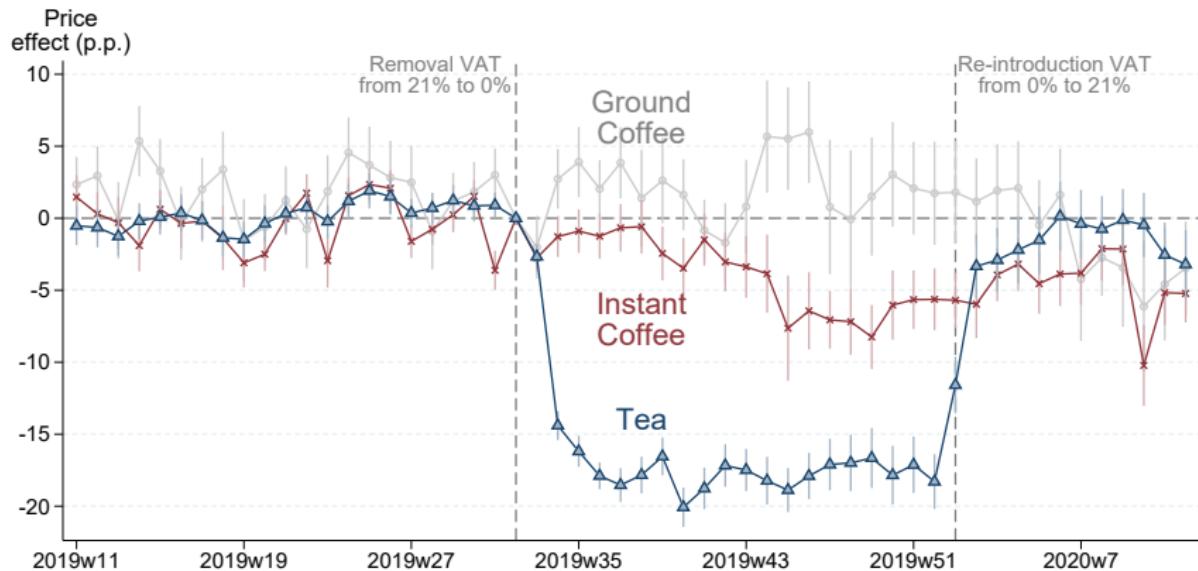
# T vs Close substitutes in C (case studies)

▶ Back



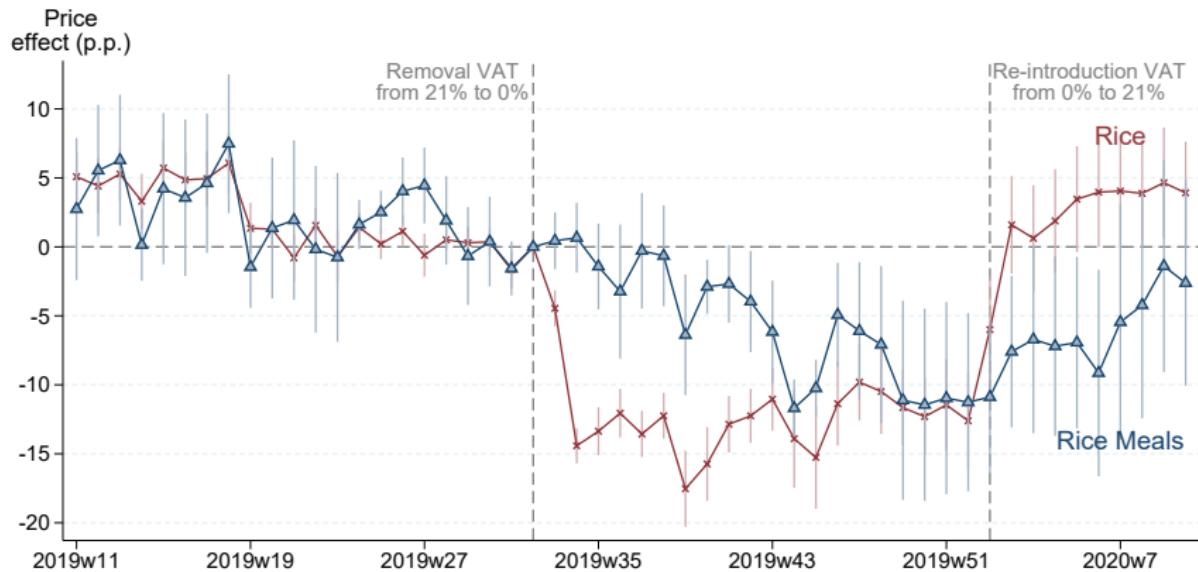
# T vs Close substitutes in C (case studies)

▶ Back



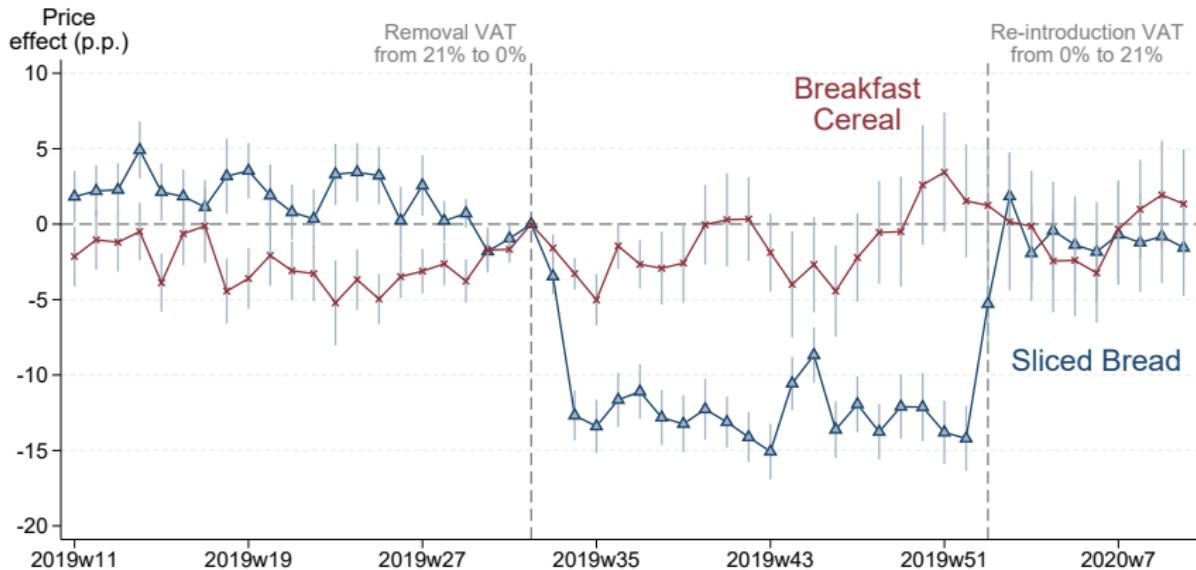
# T vs Close substitutes in C (case studies)

▶ Back



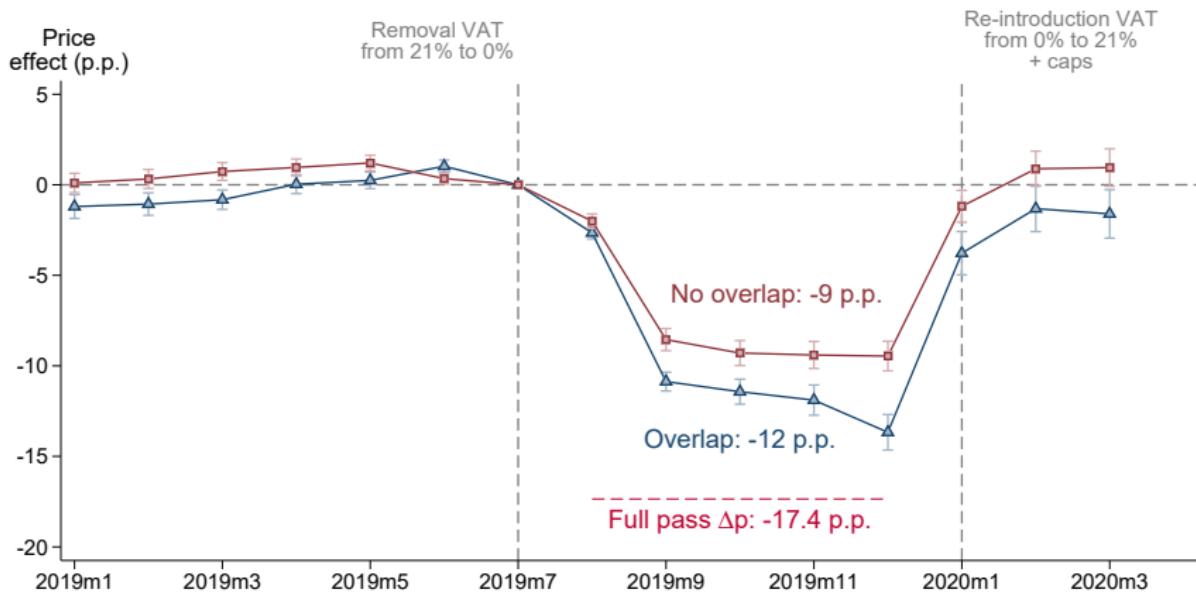
# T vs Close substitutes in C (case studies)

▶ Back



# Barcodes sold in either indep or chain stores (no overlap) vs sold in both types of stores (overlap)

▶ Back



- ▶ Pass-through is greater for varieties sold in both types of stores

# VAT rate reinstated at 21% but pass-through was capped

- VAT rate ↑ back to pre-holiday level of 21%
  - But new govt limited the price increase with ≠ caps
    - ★ **No caps:** Prices could ↑ up to 21%
    - ★ **Caps:** Force incidence sharing
  - NOT in independent stores
- ⇒ We show that gov'ts can successfully limit VAT pass-through

▶ Back

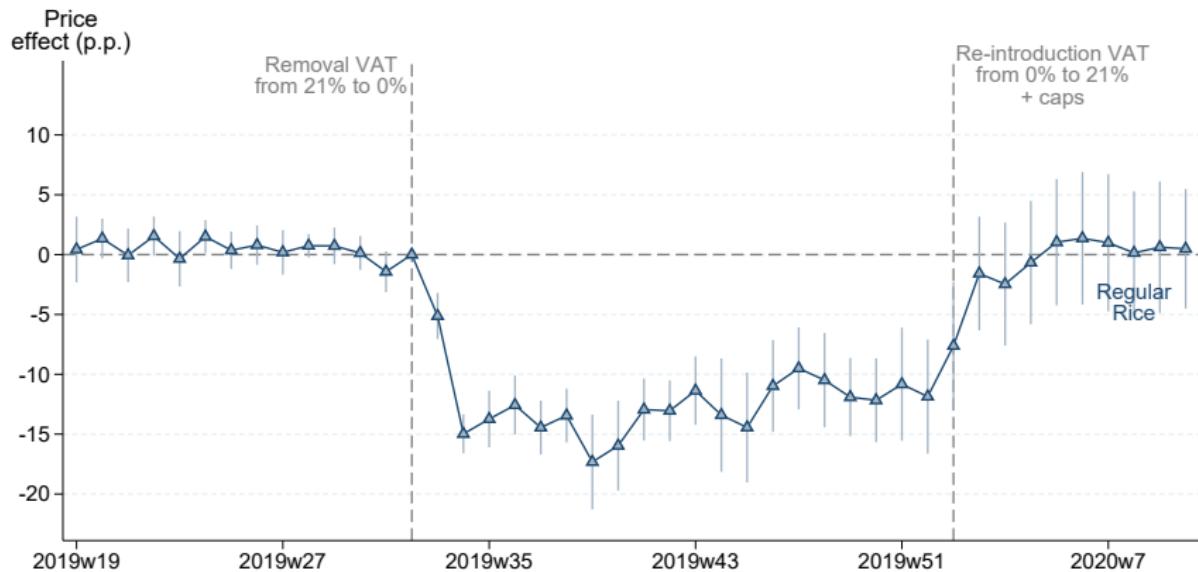
**Treated:** VAT back to 21%

Categories	Δp cap
Oil (sunflower & mix)	9%
Oil (corn)	No cap
Rice (regular: long grain white)	7%
Rice (other: basmati, brown, organic)	No cap
Dried pasta	7%
Tea, Yerba Mate, and Mate Cocido	7%
Sugar	7%
Canned vegetables and beans	7%
Canned fruits	No cap
Corn flour	7%
Wheat flour	7%
Fluid milk (whole/skim)	0%
Yogurt (regular)	7%
Yogurt (other: w/cereal, fruit chunks)	No cap
Eggs	7%
Sliced Bread (white)	7%
Sliced Bread (rest)	No cap
Breadcrumbs and/or batter	10.5%

# Capped VAT increase: Rice

Back

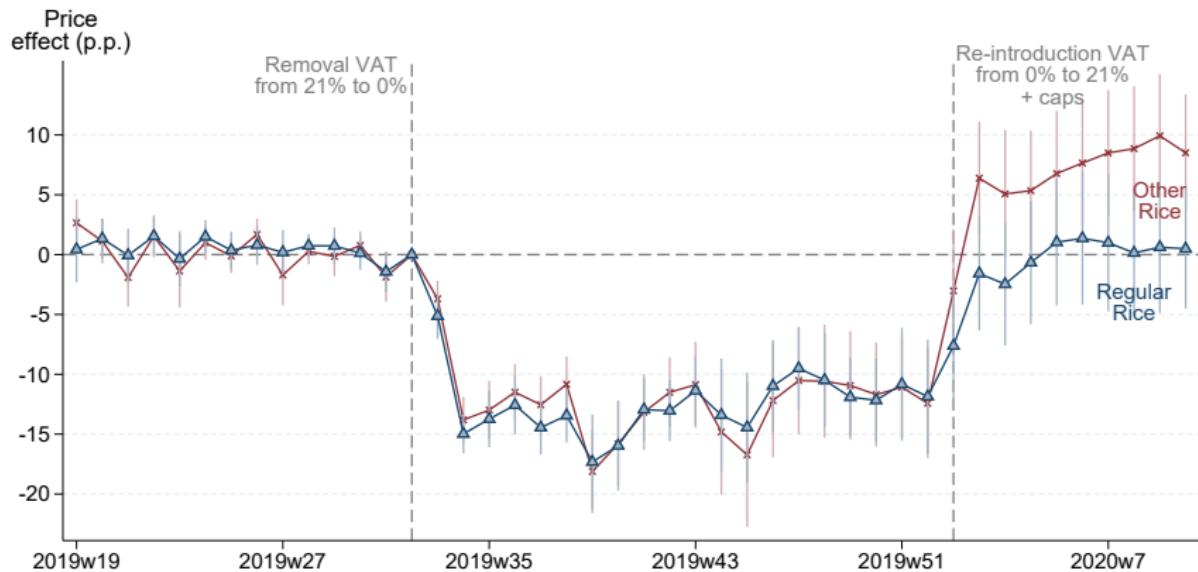
## Regular Rice (7% cap) vs Other Rice (no cap)



# Capped VAT increase: Rice

Back

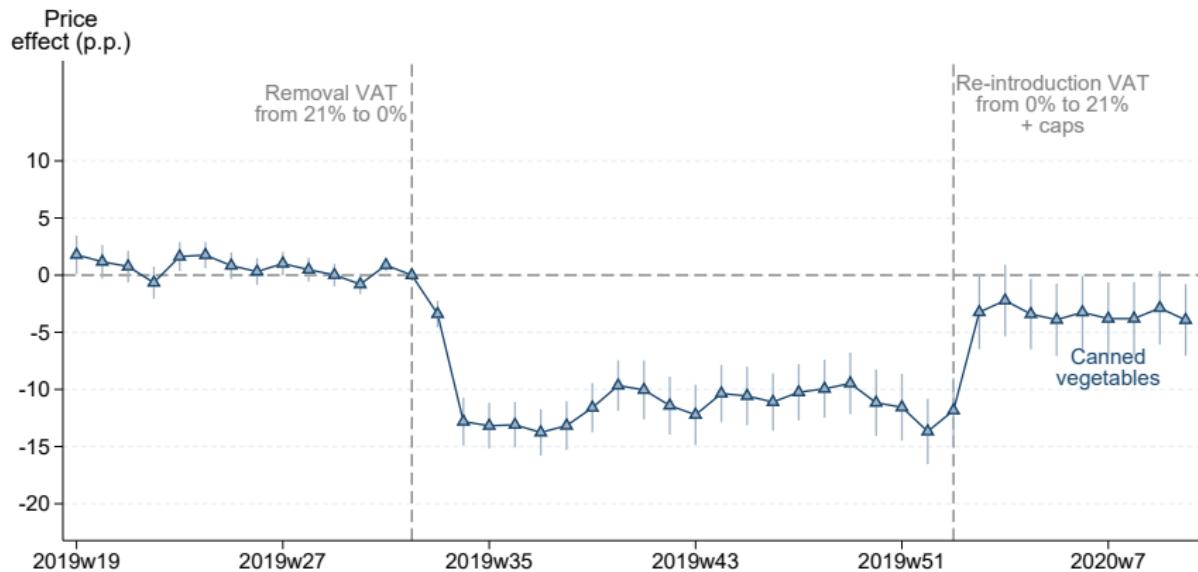
## Regular Rice (7% cap) vs Other Rice (no cap)



# Capped VAT increase: Canned food

▶ Back

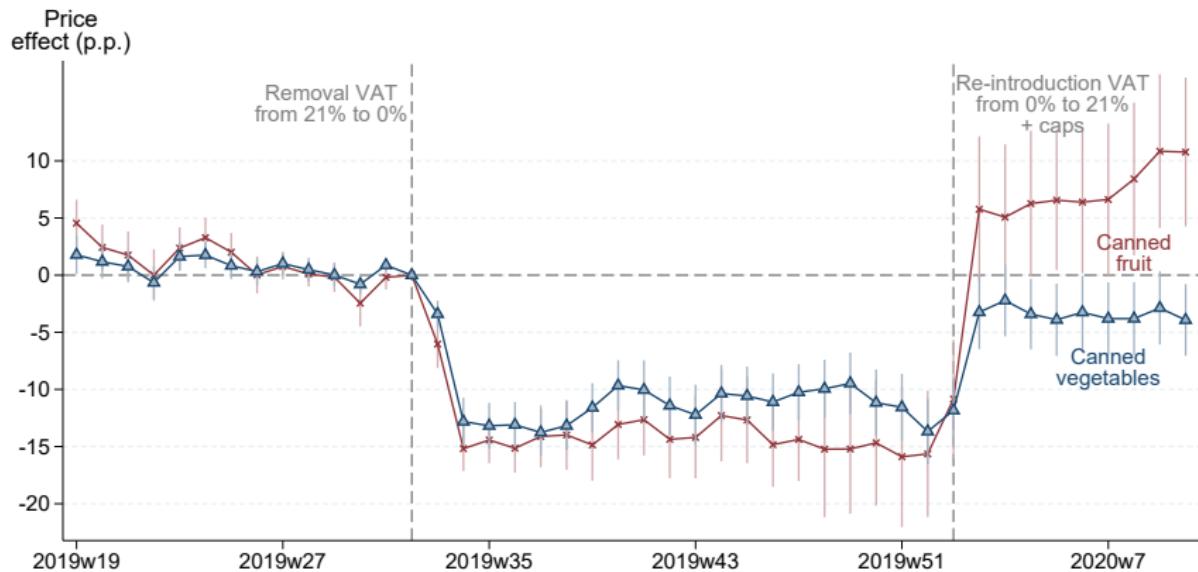
## Canned vegetables (7% cap) vs Canned fruit (no cap)



# Capped VAT increase: Canned food

▶ Back

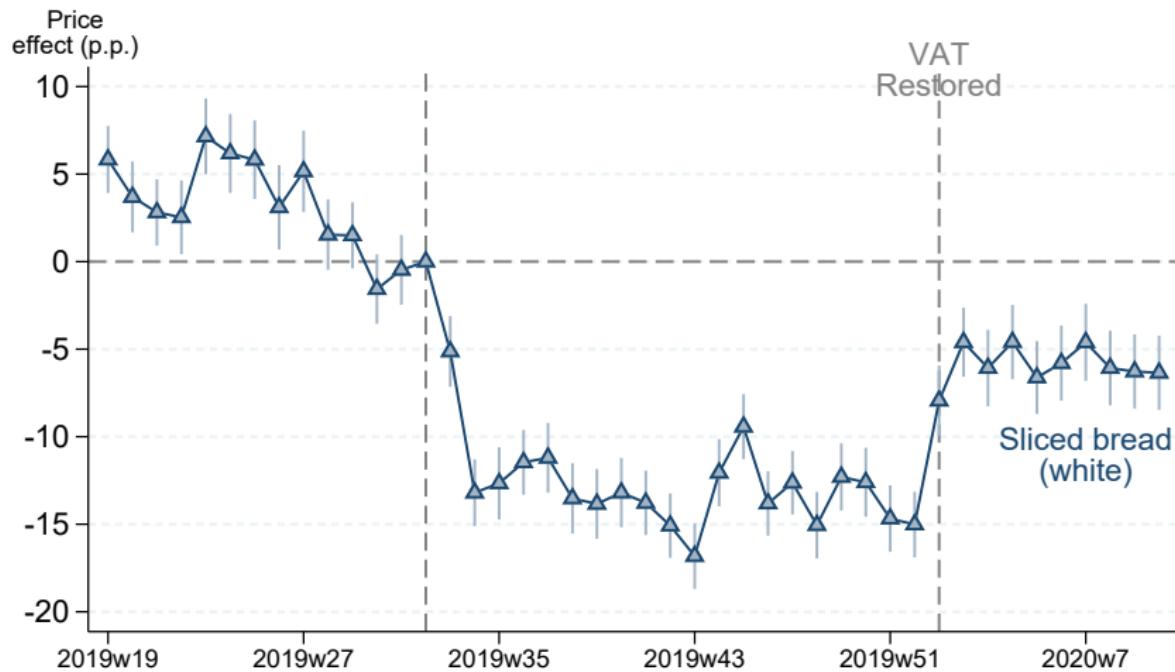
## Canned vegetables (7% cap) vs Canned fruit (no cap)



# Capped VAT increase: Sliced bread

▶ Back

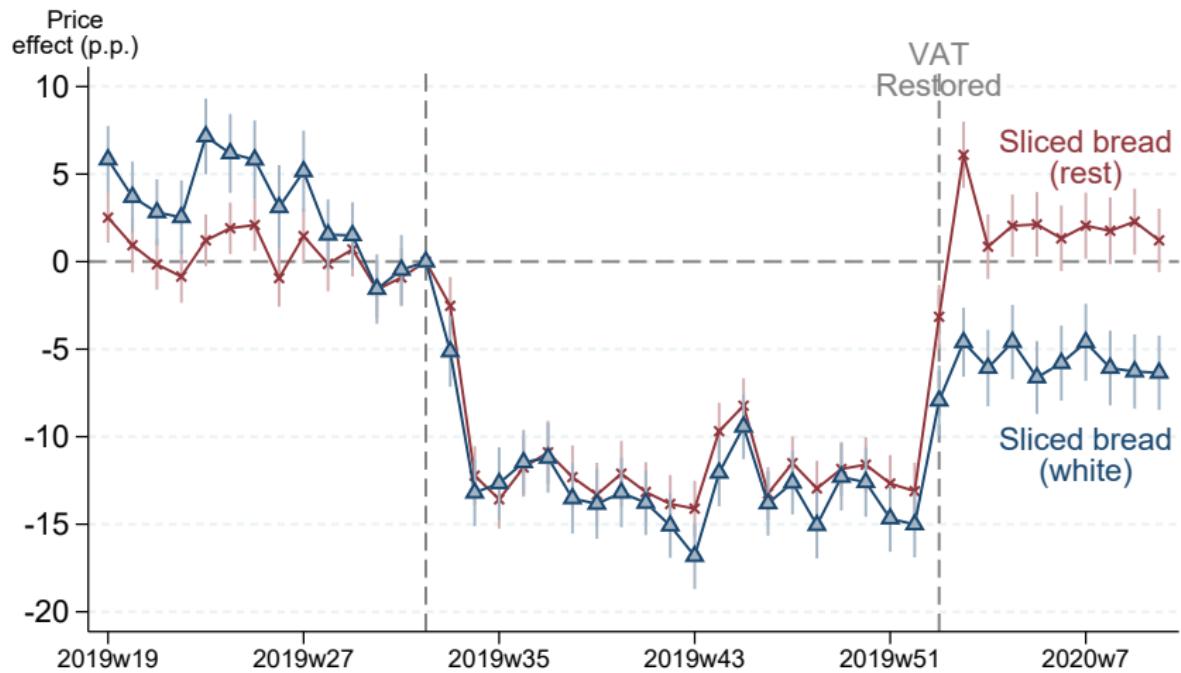
**Slide bread (white) (7% cap) vs Sliced bread (rest) (no cap)**



# Capped VAT increase: Sliced bread

▶ Back

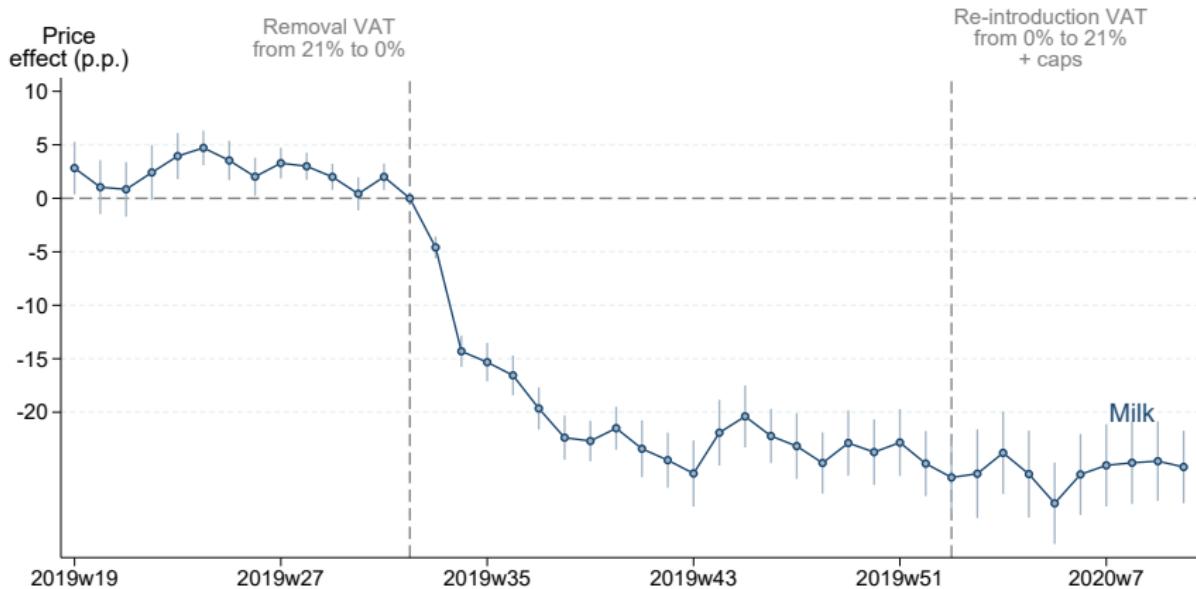
## Slide bread (white) (7% cap) vs Sliced bread (rest) (no cap)



# Capped VAT increase: Milk

▶ Back

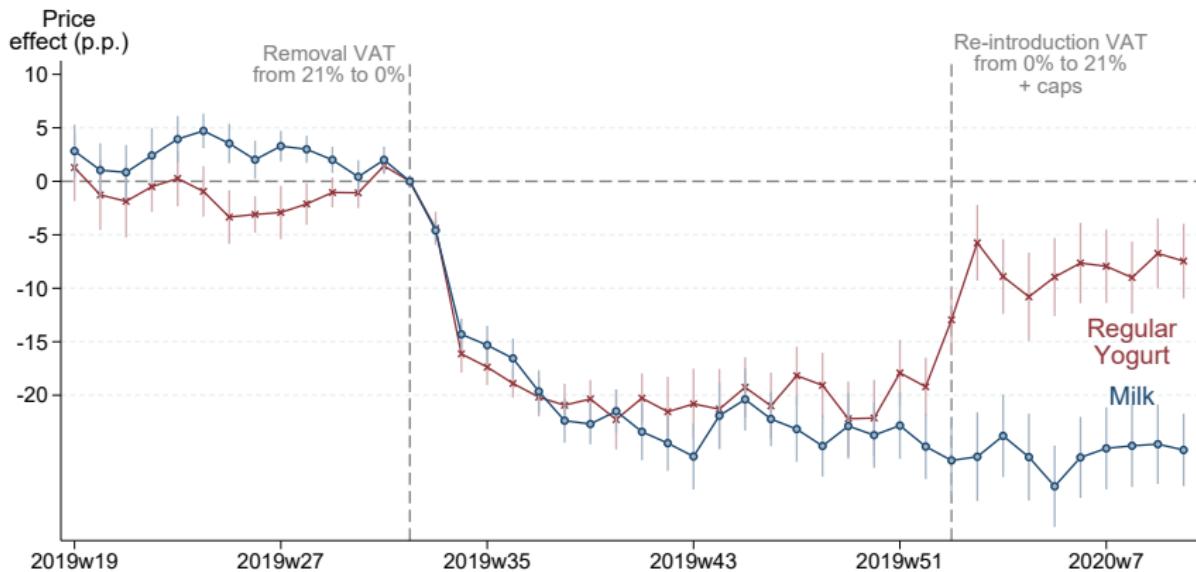
## Milk (0% cap): Full incidence on the supply



# Capped VAT increase: Milk

▶ Back

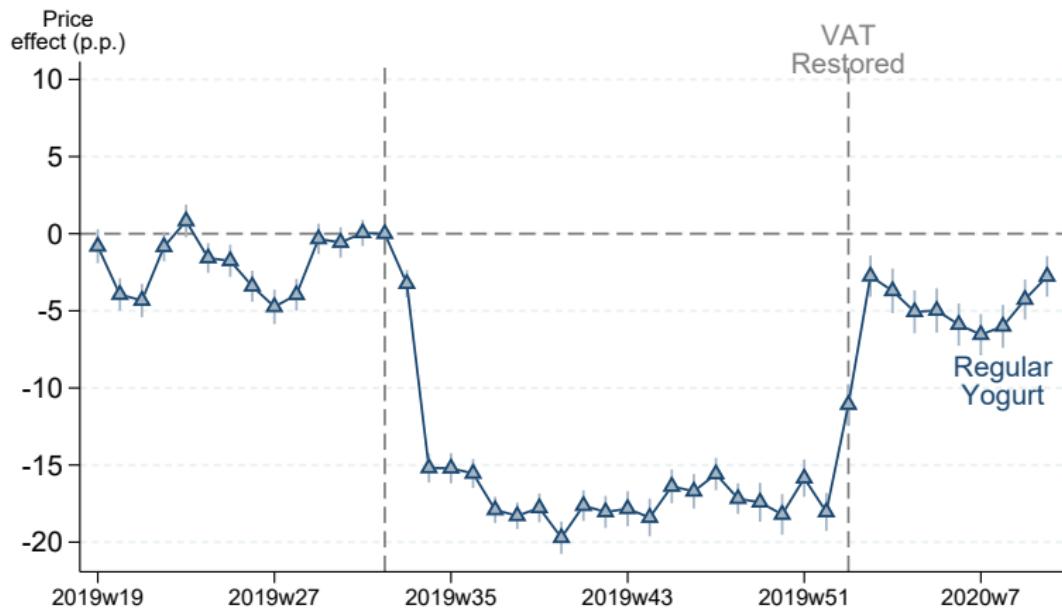
## Milk (0% cap): Full incidence on the supply



# Capped VAT increase

▶ Back

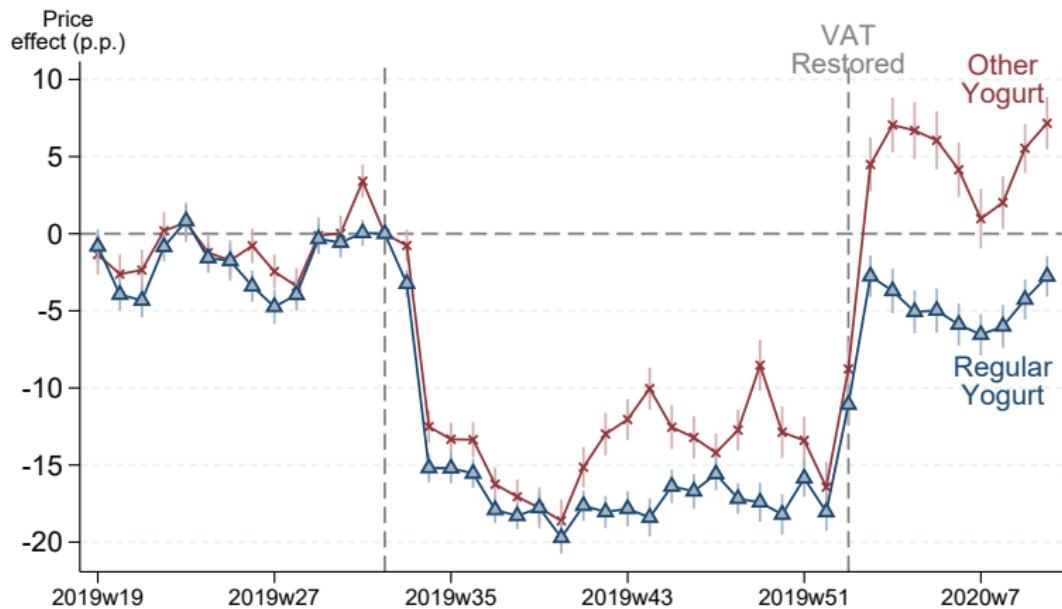
## Regular Yogurt (7% cap) vs Other Yogurt (no cap)



# Capped VAT increase

▶ Back

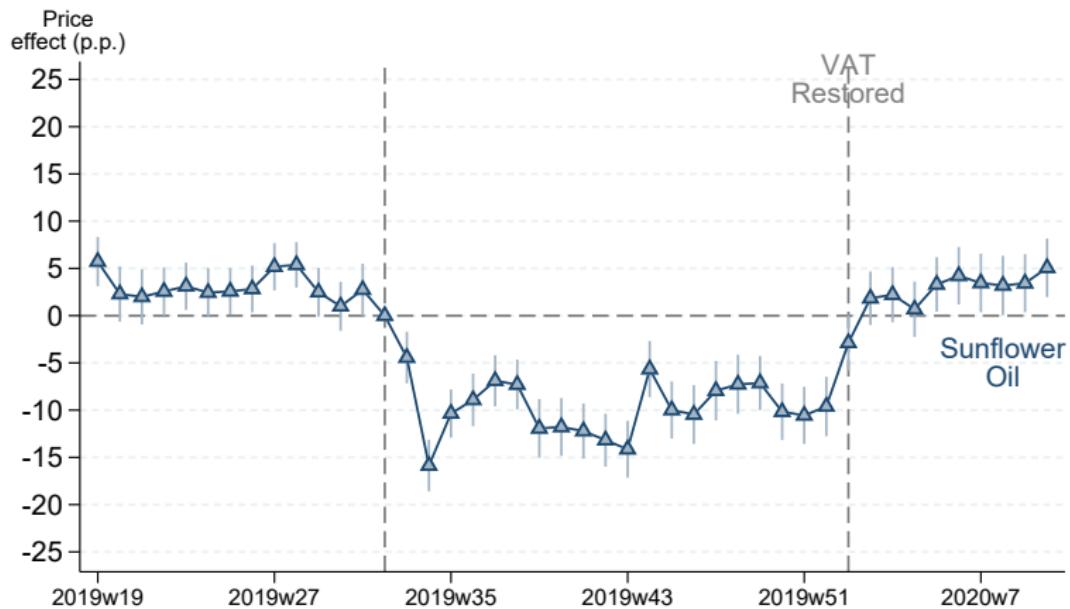
## Regular Yogurt (7% cap) vs Other Yogurt (no cap)



# Capped VAT increase

▶ Back

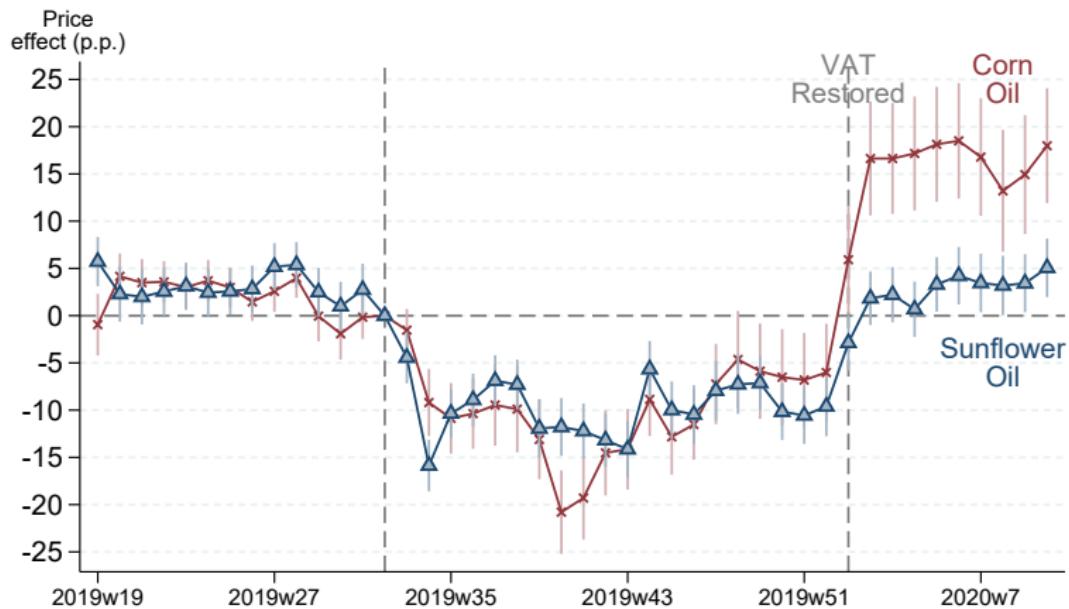
## Sunflower Oil (9% cap) vs Corn Oil (no cap)



# Capped VAT increase

▶ Back

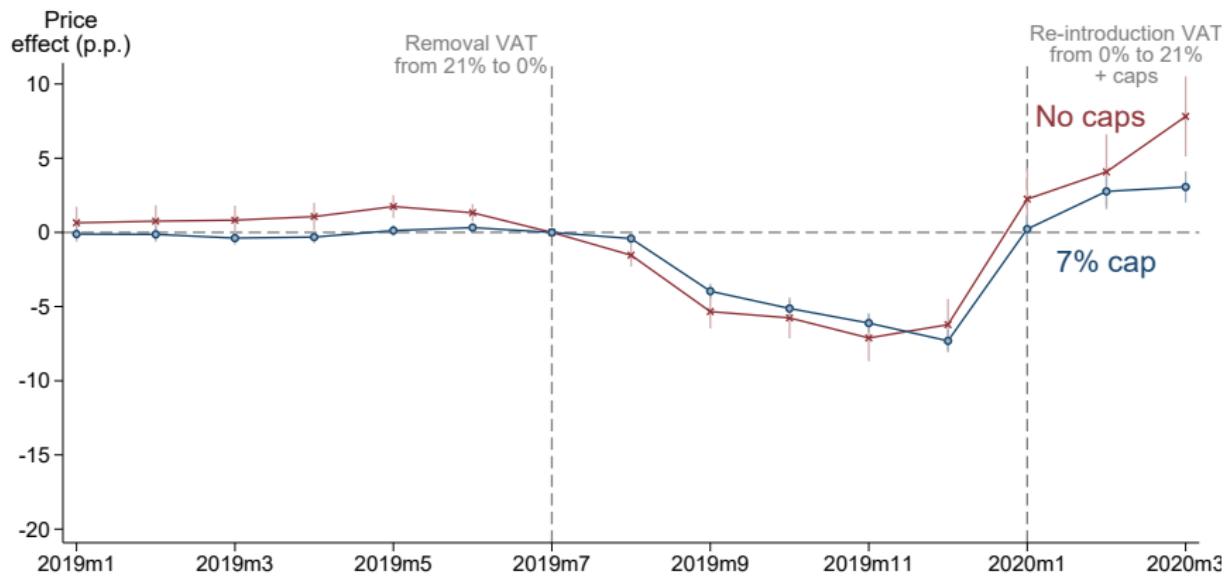
## Sunflower Oil (9% cap) vs Corn Oil (no cap)



# Small stores (not subject to caps): No differential effects btw capped and uncapped goods

[Back](#)

## 7% cap vs No cap



# Pass-through under nominal price controls

We show that price freezes are more effective at keeping controlling prices than capping the percent increase in prices

**Productos Esenciales:** 64 barcodes of the Basic Food Basket with price frozen for 6 months (Apr 29–Oct 31, 2019) ▶ Tag ▶ More

- ▶ **Logic:** Price caps limit the incidence of VAT cuts:  
Stores keep regulated price  $\Rightarrow$  pocket entire VAT reduction

We flag these 64 barcodes in our data and run the DiD

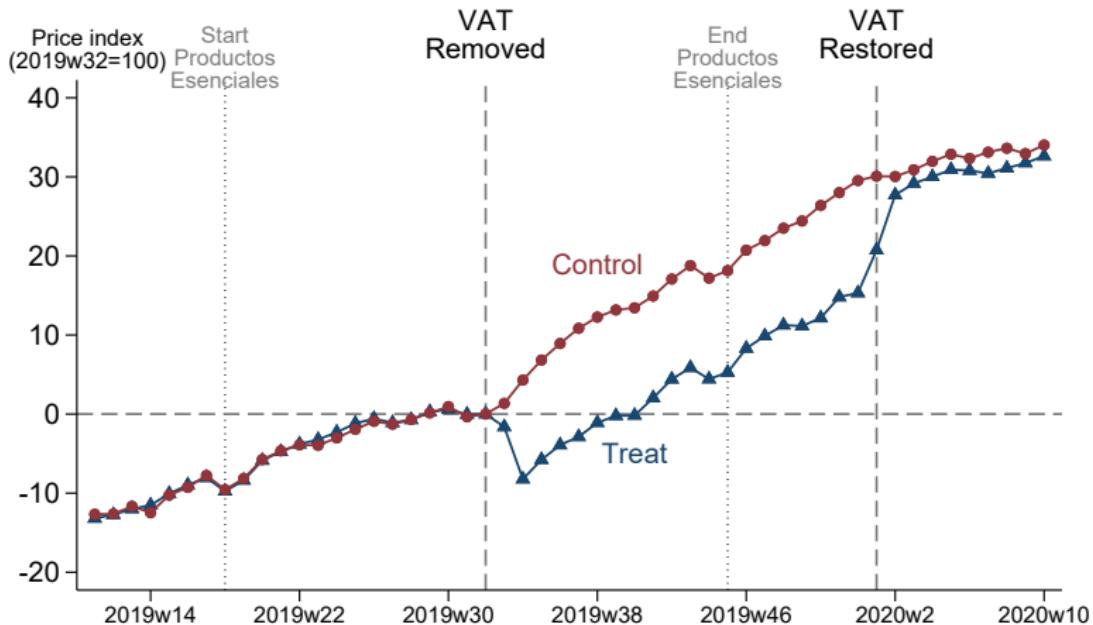
- Treated: 38 EANs (N=34,795)
- Control: 10 EANs (N=11,863); 16 missing (no data)

- (1) Compare Essential barcodes in T vs Rest of goods in T and C
- (2) Compare Essential barcodes in T vs C

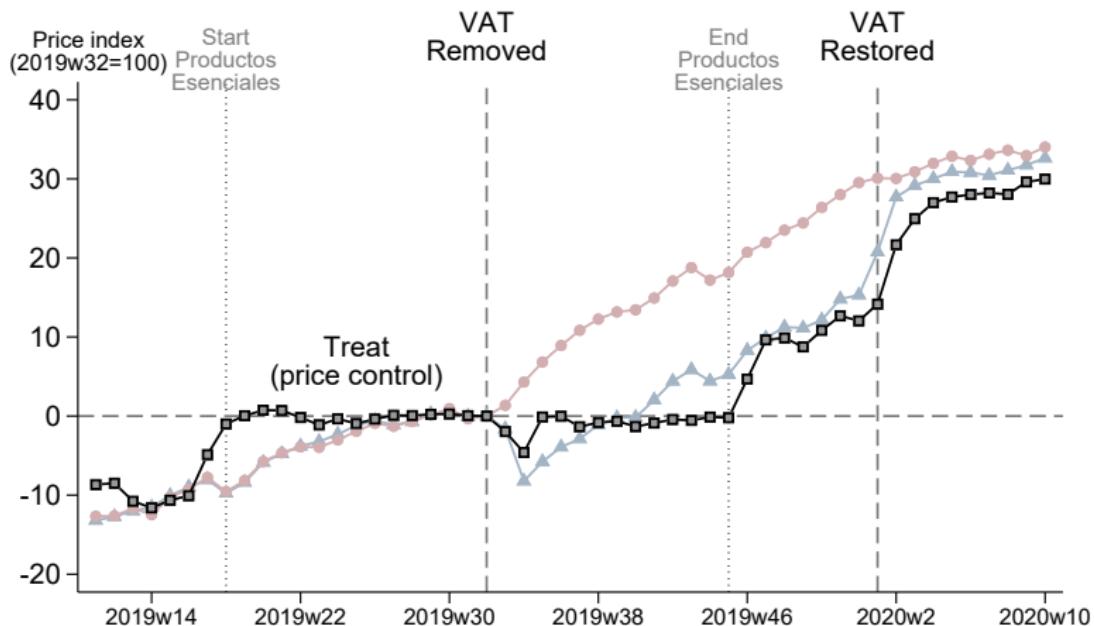
# Price Controls: mandatory tags, banners, and App



# [1] Productos Esenciales (in T) vs Rest (T and C)

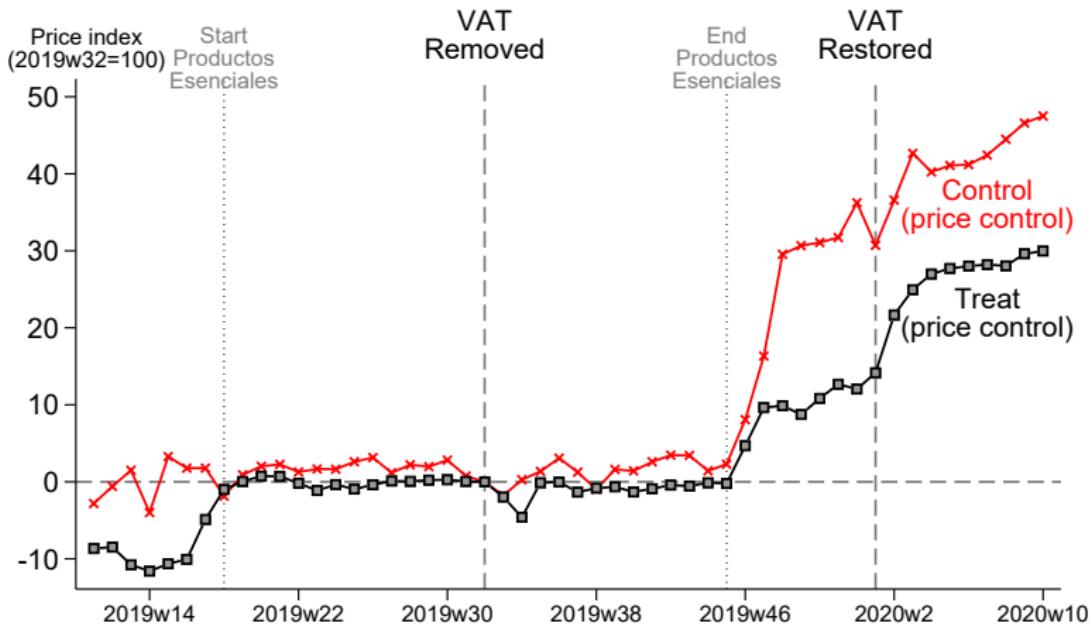


# [1] Productos Esenciales (in T) vs Rest (T and C)



## [2] Productos Esenciales: in T and C

► DiD



## Monitoring App:

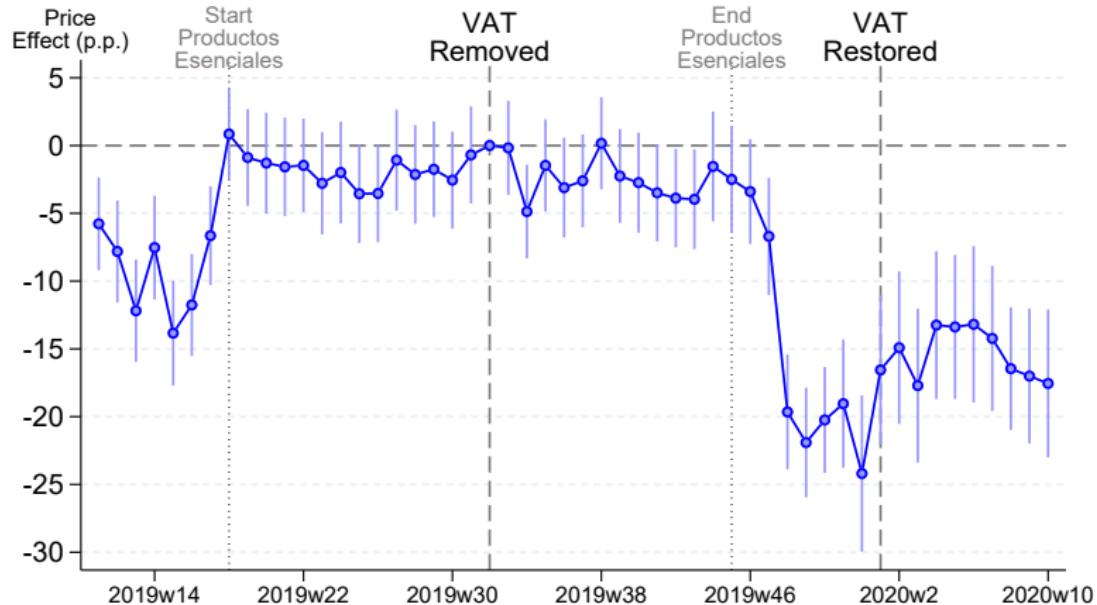
- ▶ **Precios Claros:** an Electronic Price Advertising System (SEPA) launched in 2016. Goal: ↑ price visibility
  - Large grocery stores must report daily price data ([Art 4: except SMEs](#))
  - Consumers can search prices/location from web-page or app
  - Administered/enforced by the Consumer Protection Office

## Price Controls:

- ▶ **Precios Cuidados:** A list of mass consumption goods with controlled prices ( $\approx$ 500 barcodes, e.g., Coke 1.5L). Since 2014
  - Updated every 4 months; Mandatory tags; Audits; High penalties
- ▶ **Productos Esenciales:** Govt froze the price of 64 barcodes in the Basic Food Basket for 6 months (Apr 29–Oct 31, 2019)
  - ▶ High compliance: Daily audits in 2,500 points of sale in the country to detect non-compliance and missing products

## [2] Productos Esenciales: Dynamic DiD

▶ Back

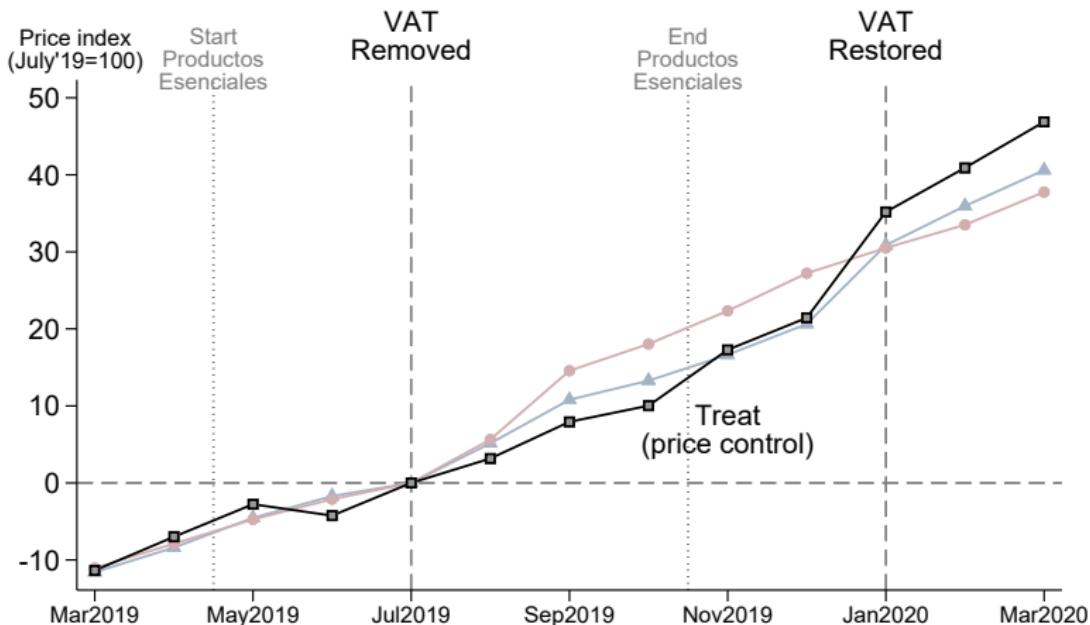


# [1] Productos Esenciales (in T) vs Rest (T and C)

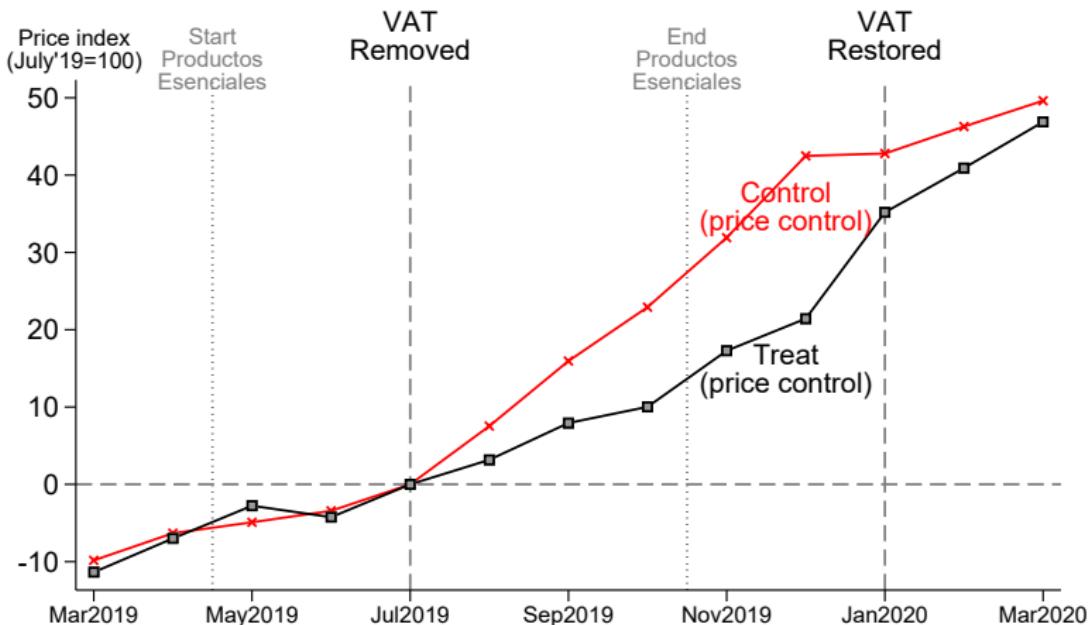


# [1] Productos Esenciales (in T) vs Rest (T and C)

Back

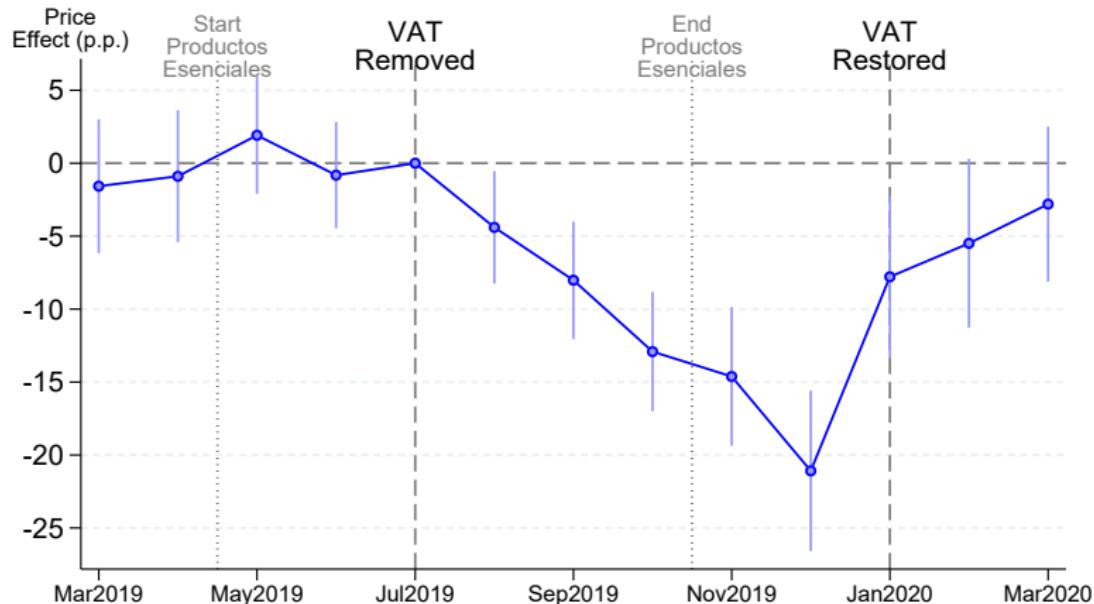


## [2] Productos Esenciales: in T and C



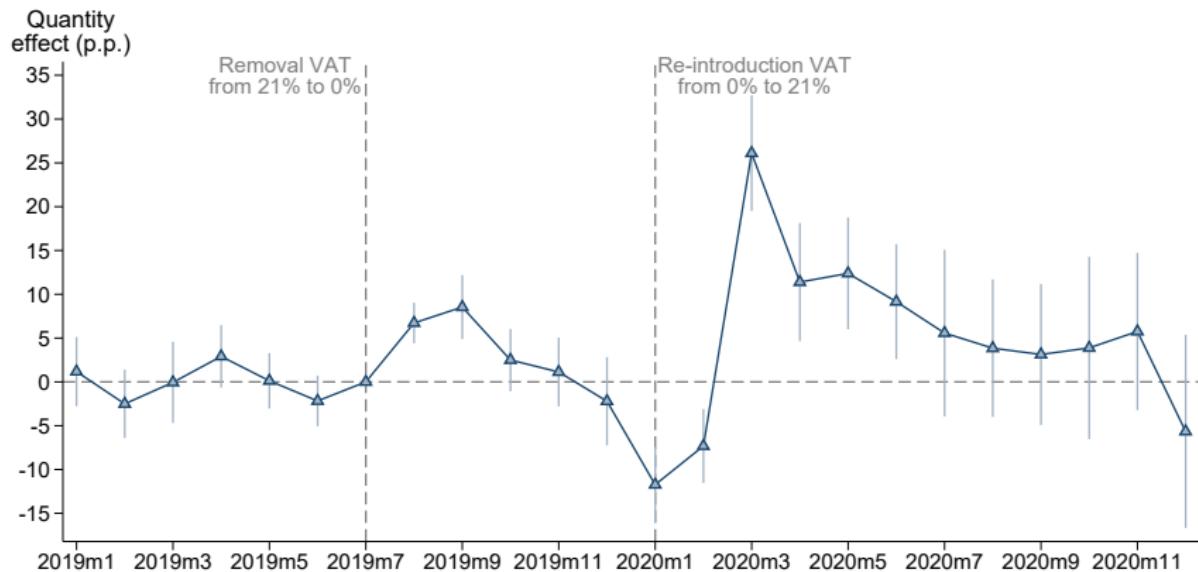
## [2] Productos Esenciales: Dynamic DiD

▶ Back



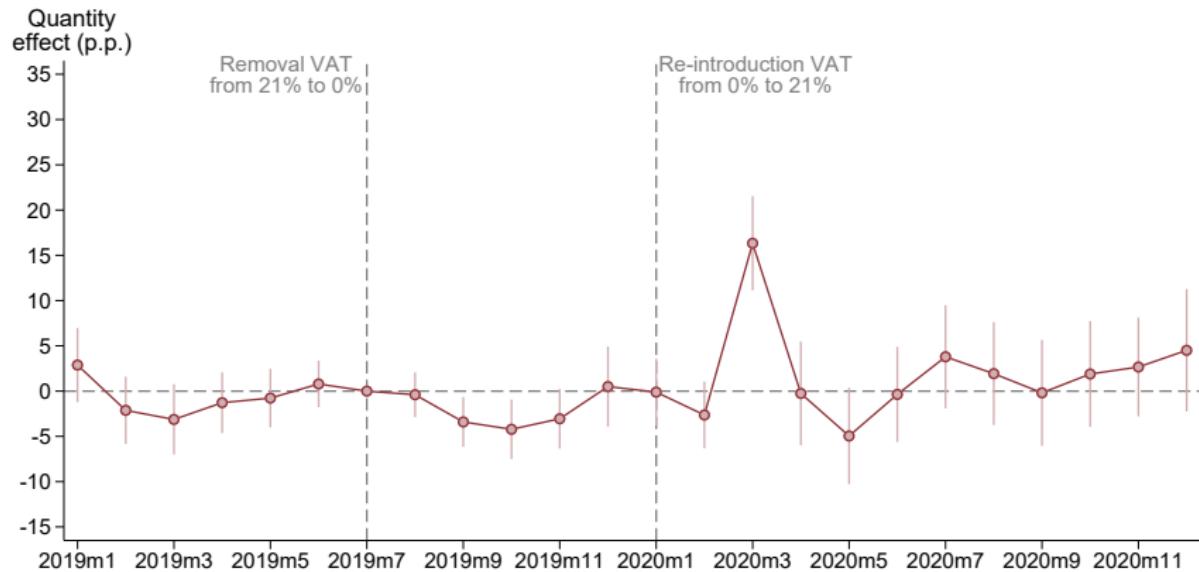
# Quantity effects in the longer run

▶ Back



# Quantity effects in the longer run

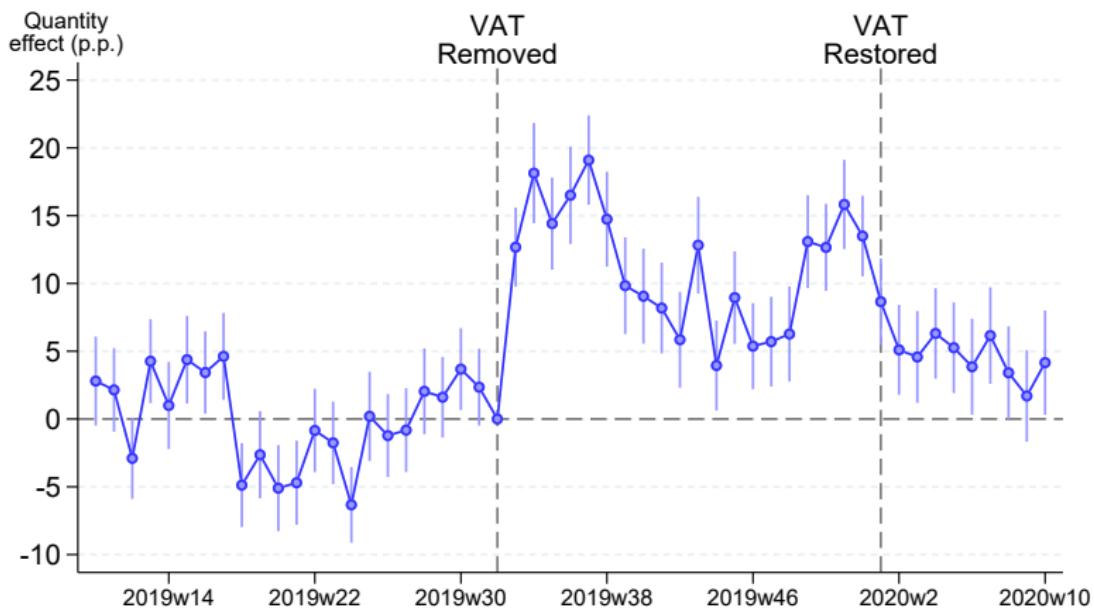
▶ Back



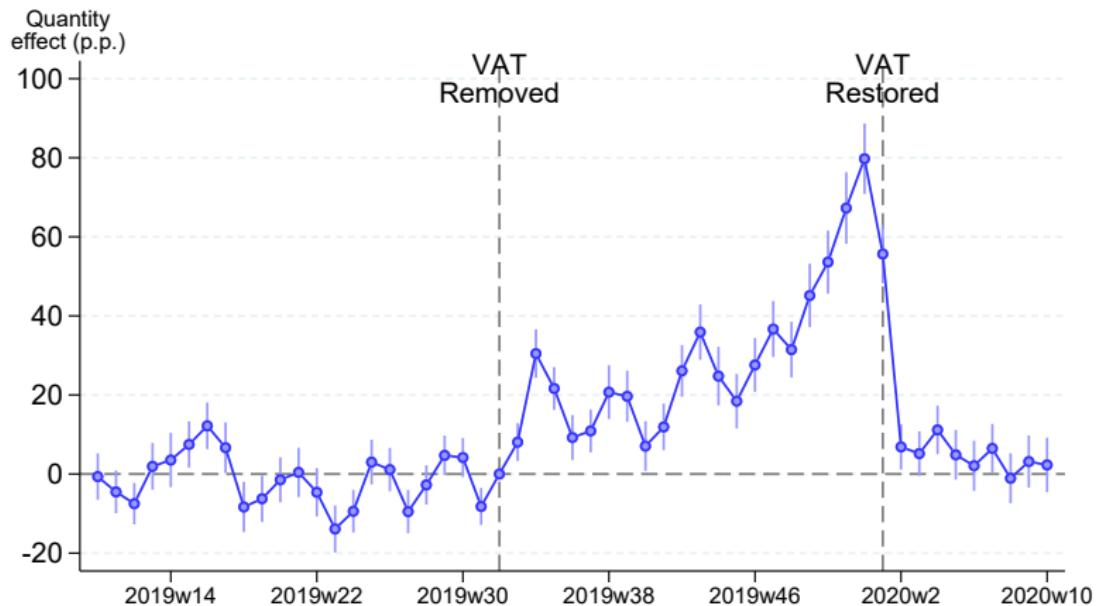
# Quantity effect (Dynamic DiD): Large chains

[Back](#)

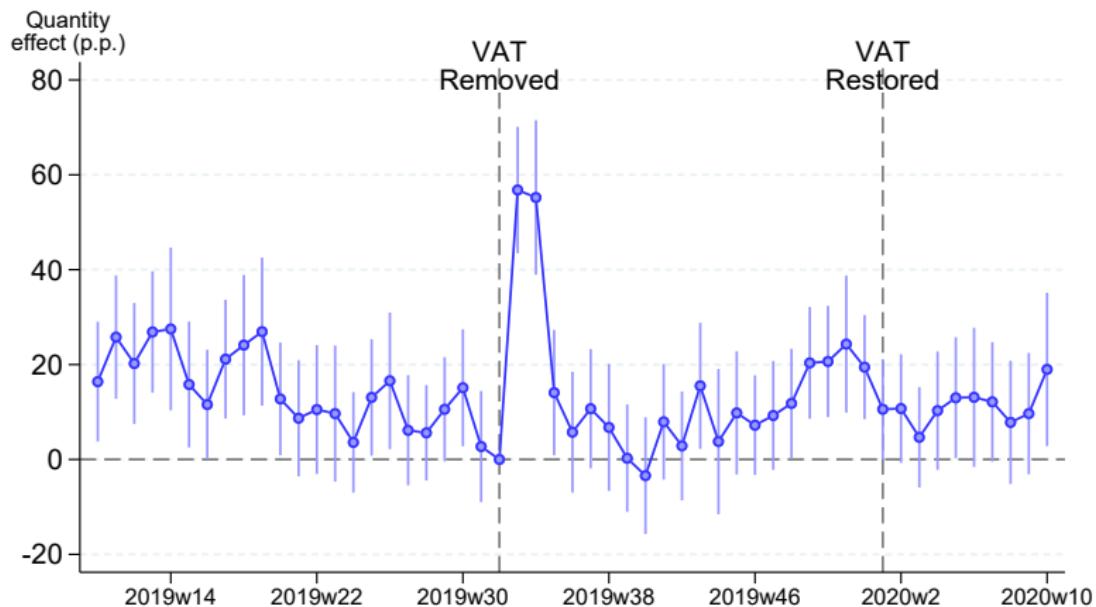
## Yerba Mate vs Control



## Canned fruit/veg vs Control



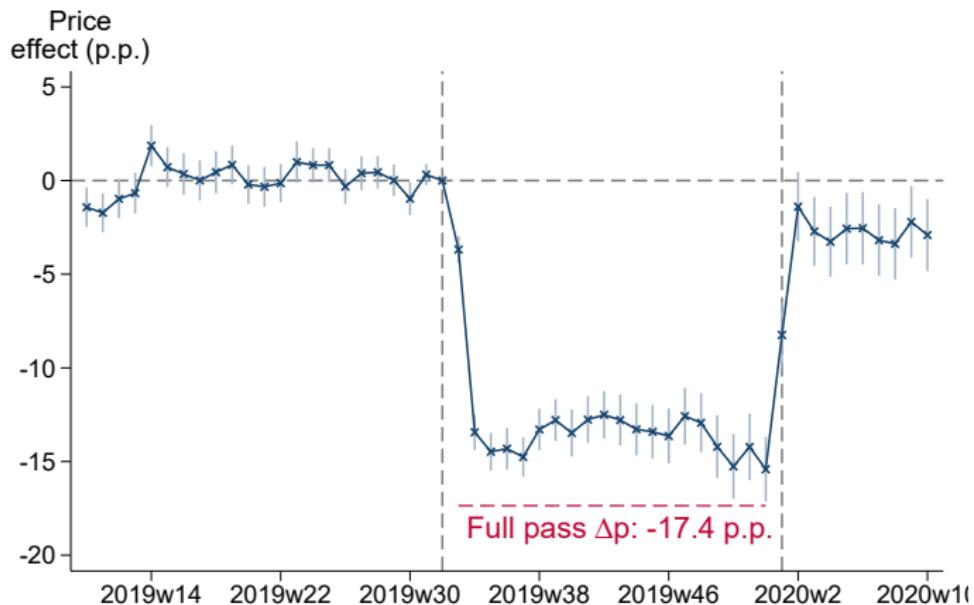
## Cooking oil vs Control



# Heterogeneities by region

▶ Back

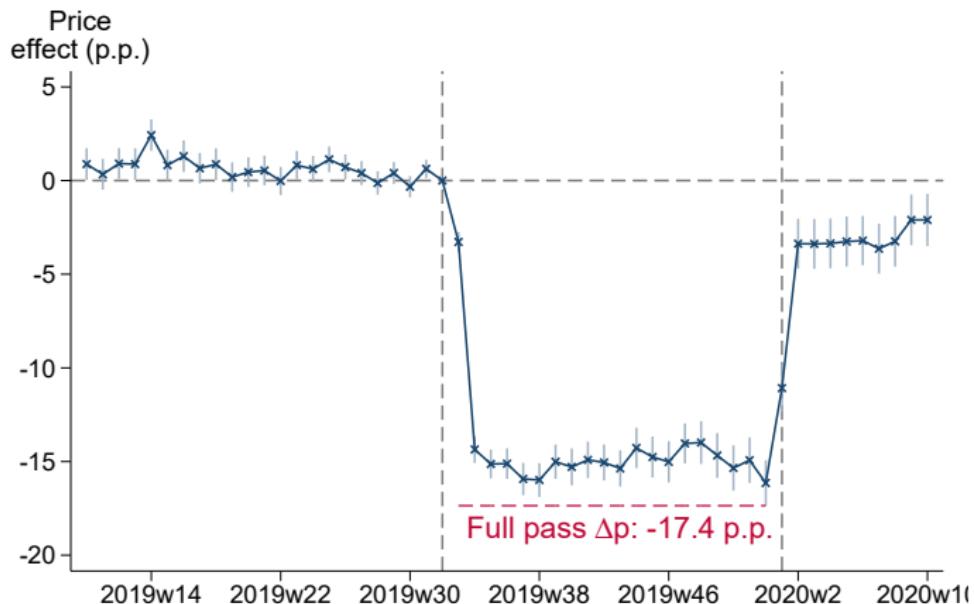
## AUSTRAL



# Heterogeneities by region

▶ Back

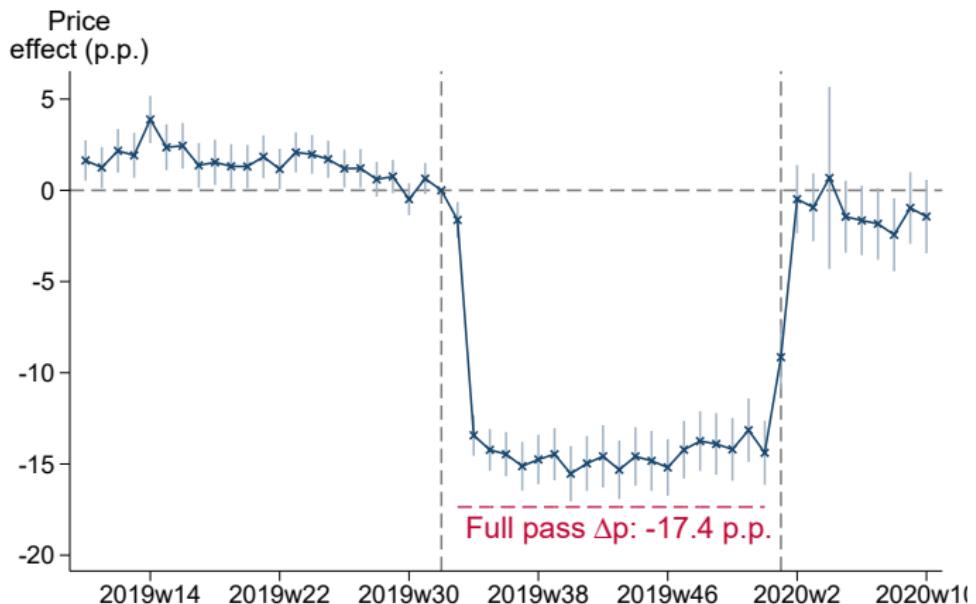
## BS. AS. RESTO



# Heterogeneities by region

▶ Back

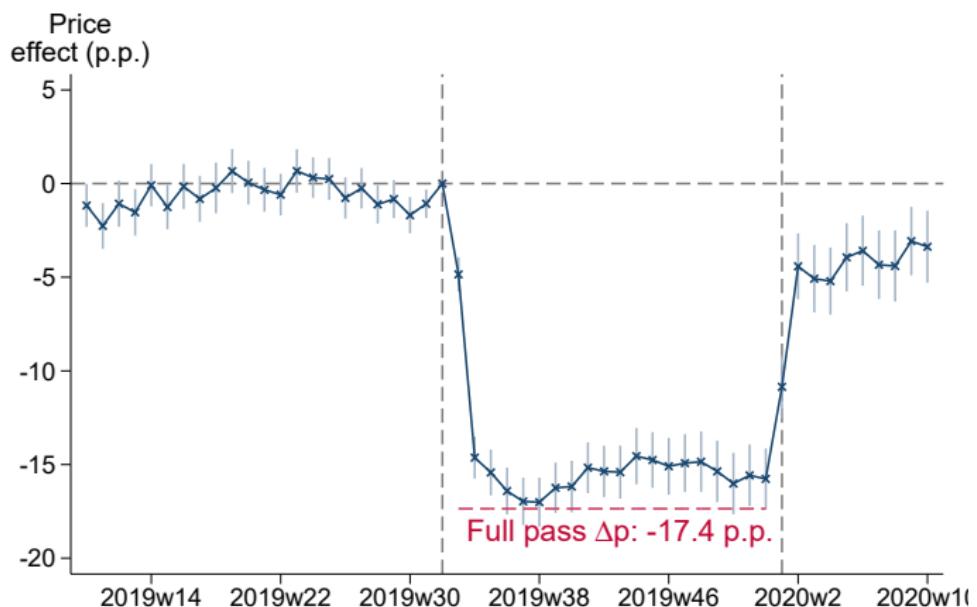
## CAPITAL FEDERAL



# Heterogeneities by region

▶ Back

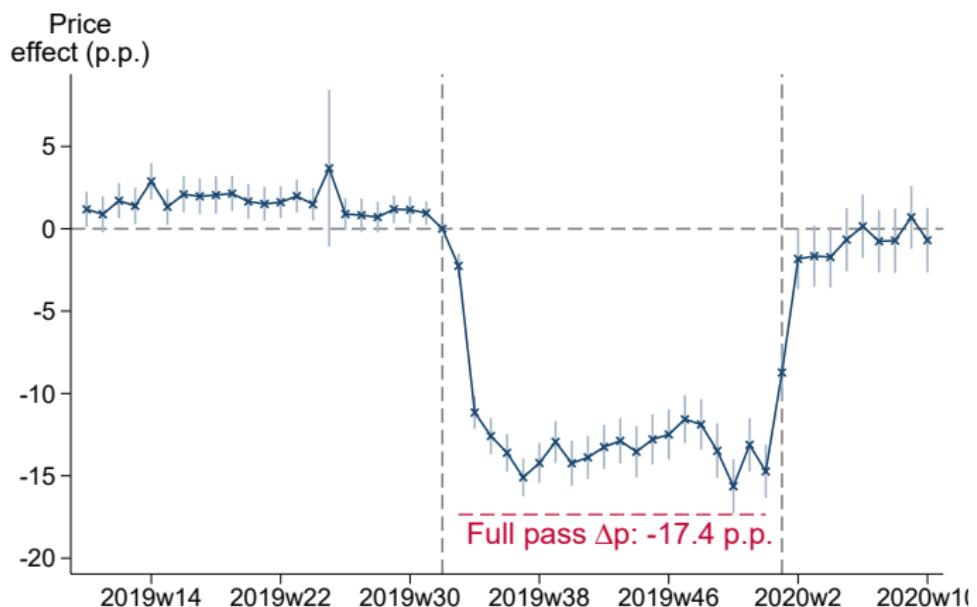
## CORDOBA



# Heterogeneities by region

▶ Back

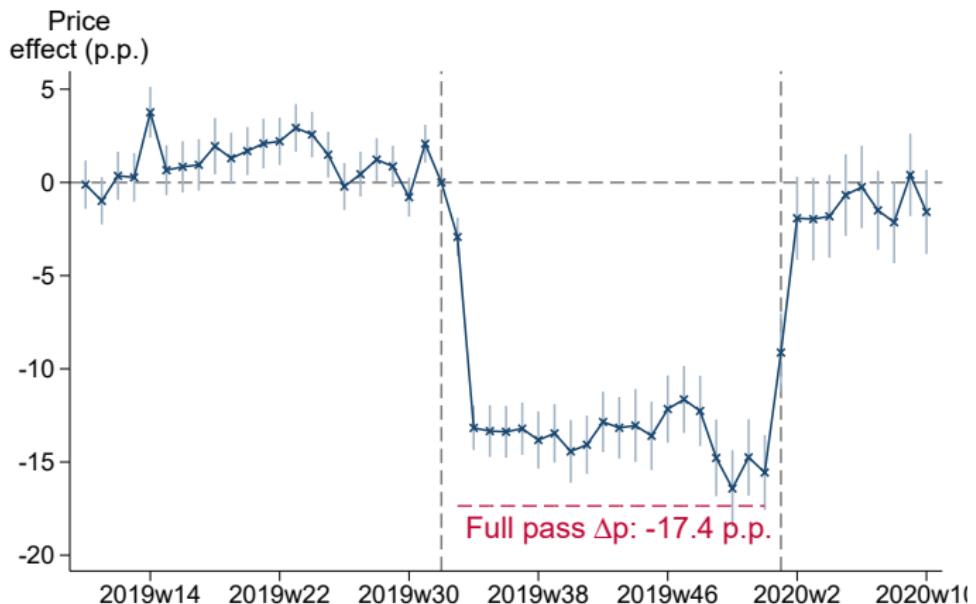
## CUYO



# Heterogeneities by region

▶ Back

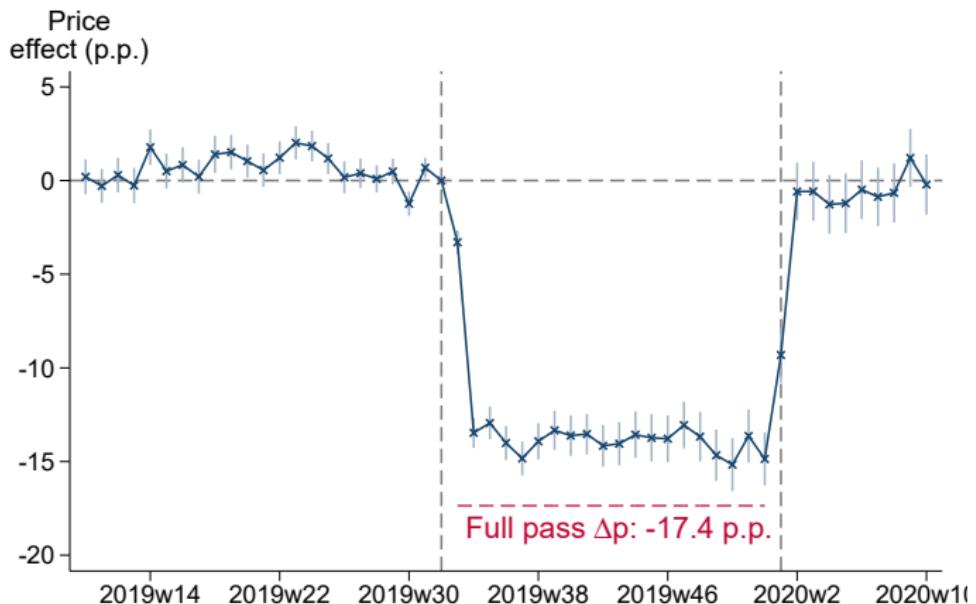
## LITORAL NORTE



# Heterogeneities by region

▶ Back

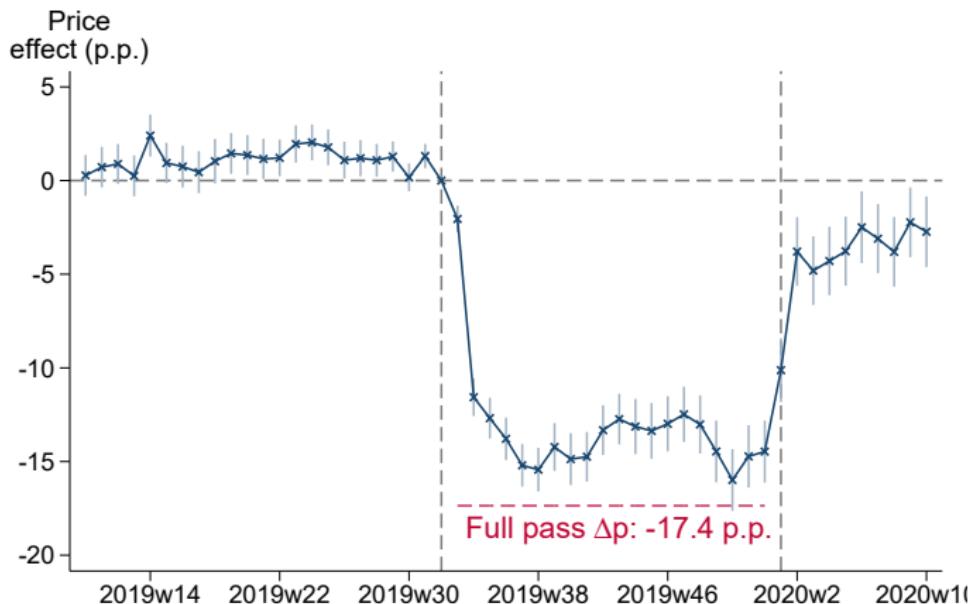
## LITORAL SUR



# Heterogeneities by region

▶ Back

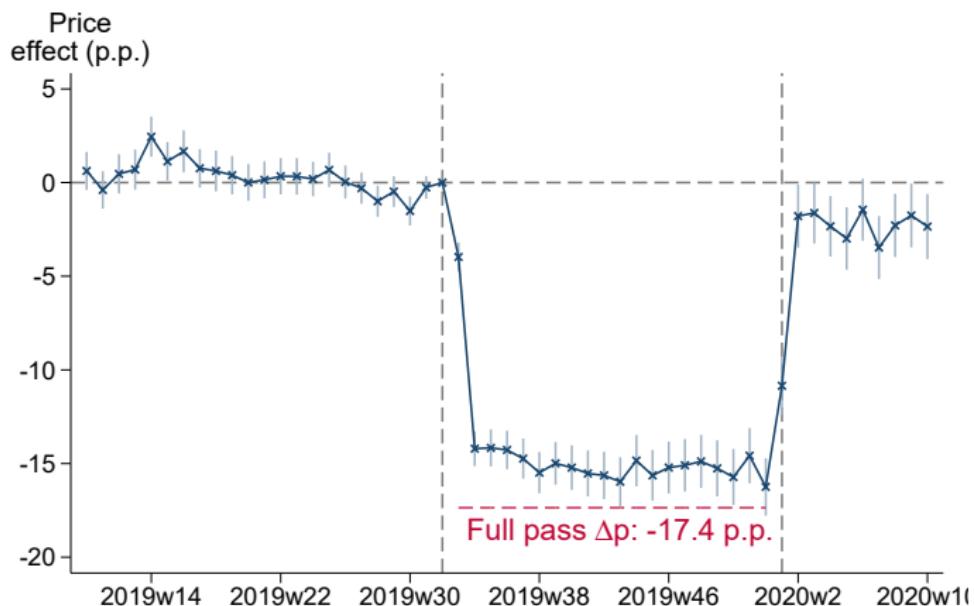
## NOA



# Heterogeneities by region

▶ Back

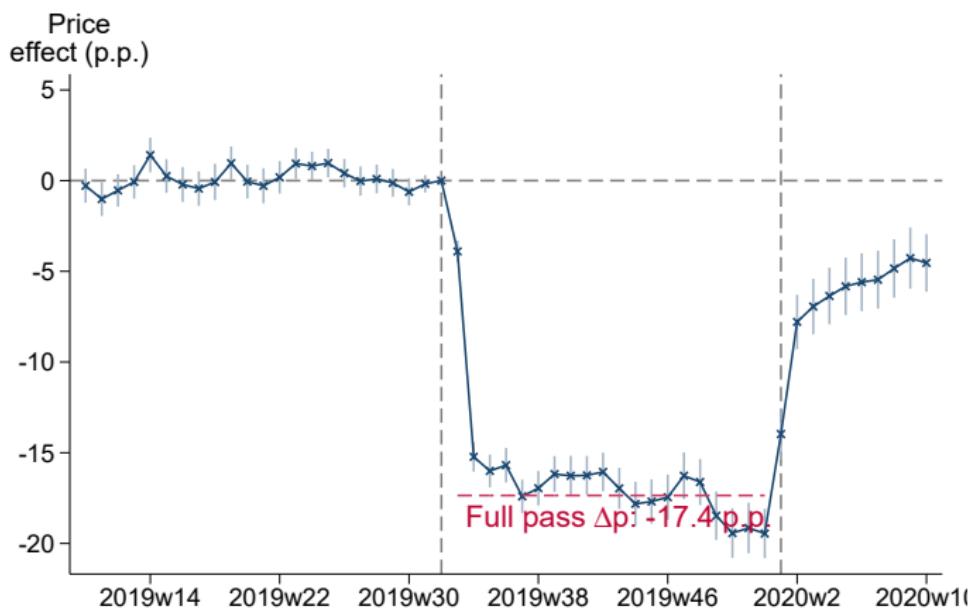
## PERIFERIA



# Heterogeneities by region

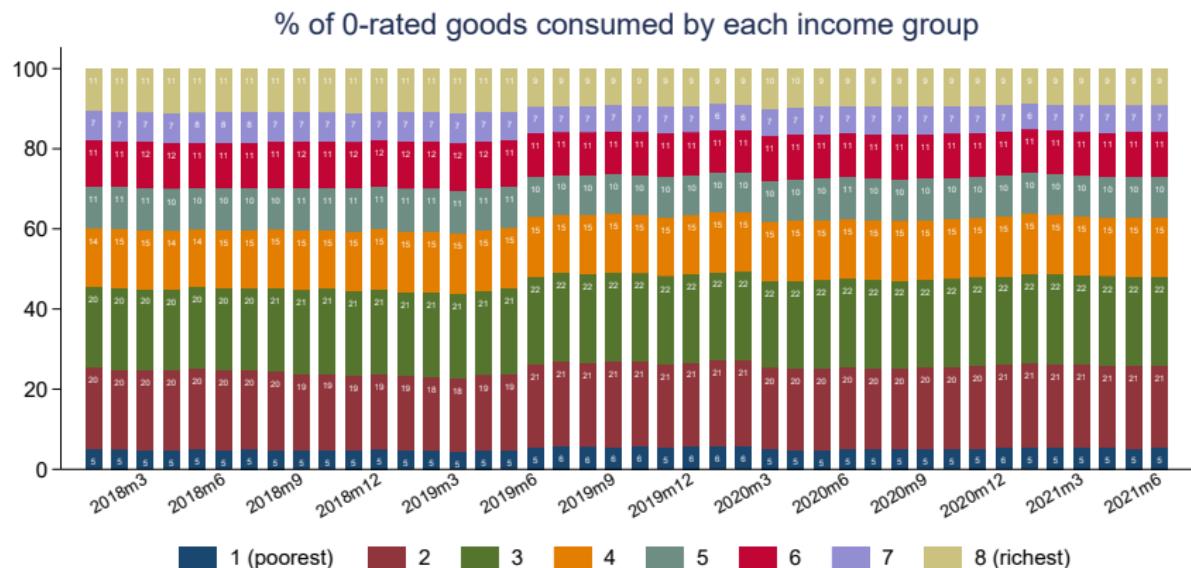
▶ Back

SUR



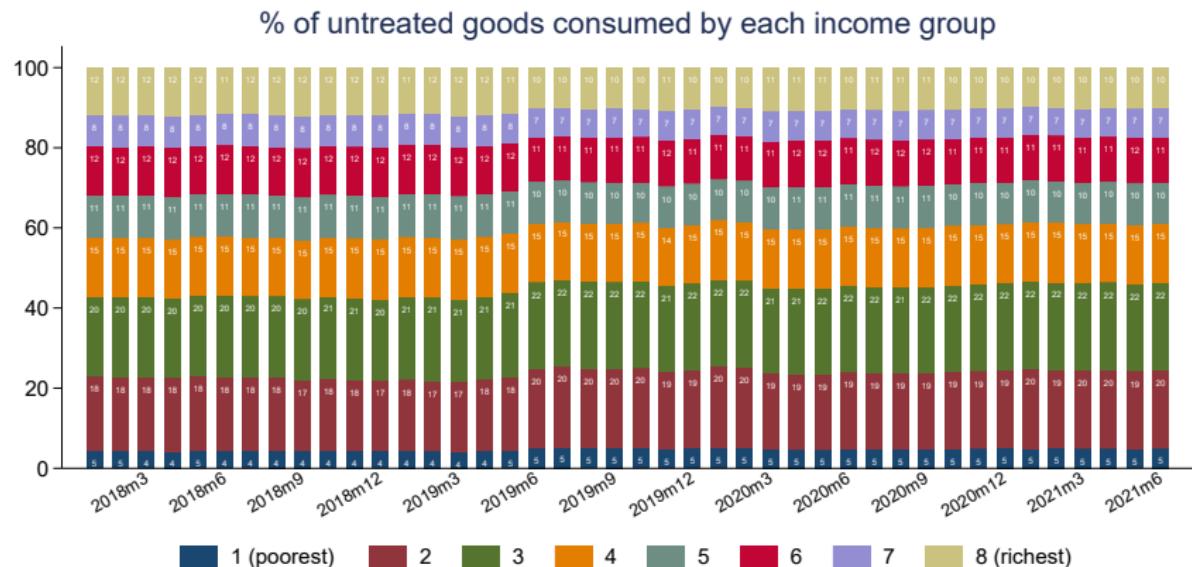
# Low-income people do not seem to switch to chain supermarkets

▶ Back

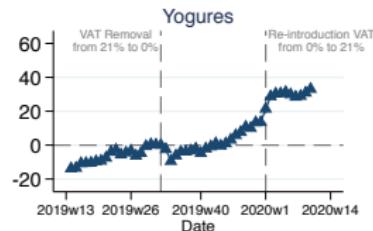
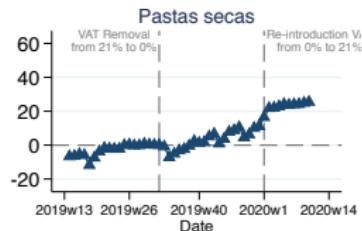
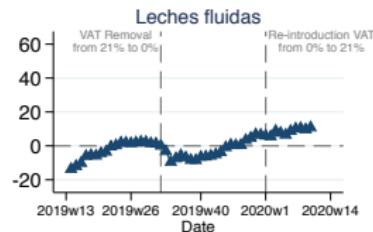
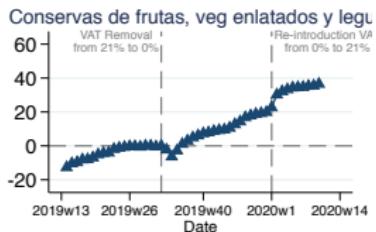
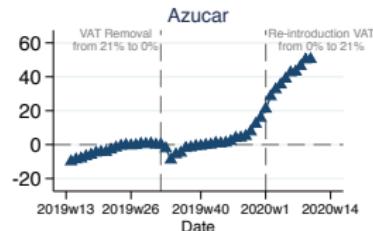
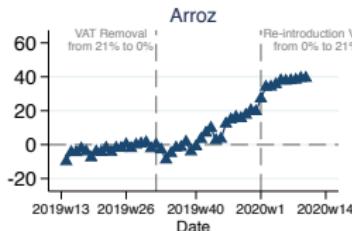
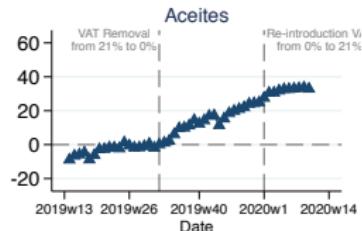


# Low-income people do not seem to switch to chain supermarkets

▶ Back



# Heterogeneities by products



## Robustness (aggregate price data)

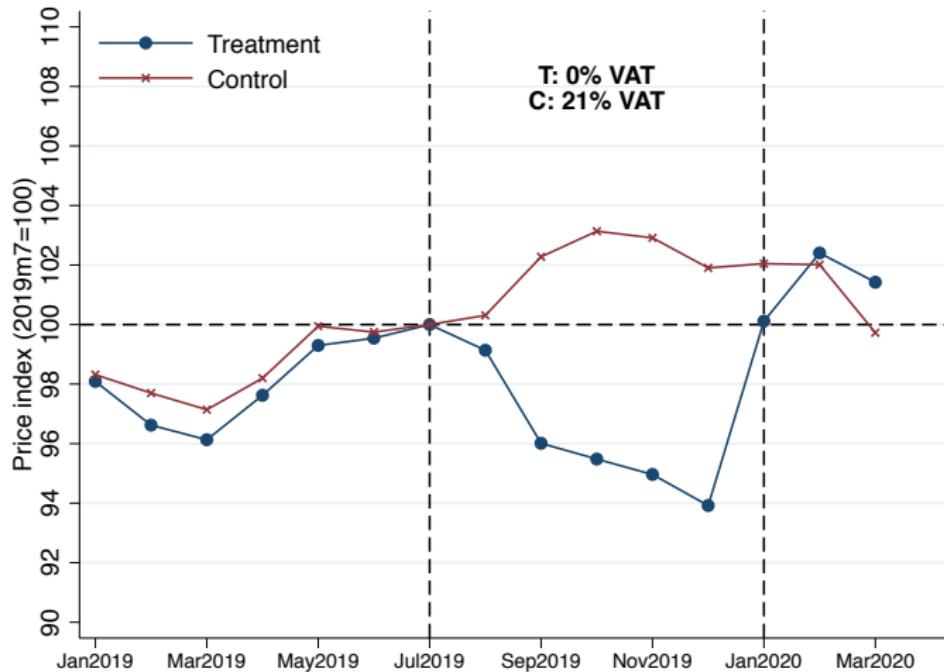
- ▶ Result is also present in aggregate price data!
- ▶ National Institute of Statistics (INDEC) publishes average monthly **prices** of some products ([link](#)) used in the CPI index (59 products in GBA; 14 products across 6 regions)
- ▶ We break the list into T (0% VAT) and C (21% VAT) and run:

$$\log P_{it} = \alpha_i + \gamma_t + \sum_{t=2019m7}^{2020m5} \beta_t D_{it} + \epsilon_{it}$$

$D_{it}$  is an indicator that denotes whether product  $i$  is treated in month  $t$

Coefficients  $\beta_t$  test the effect relative to 2019m7

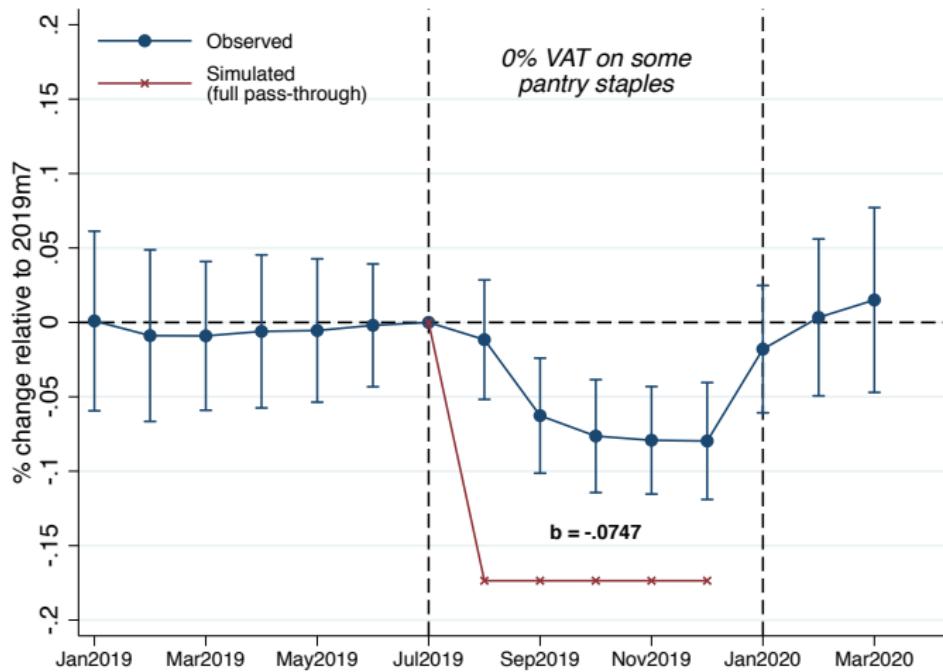
## Pass-through to consumer prices [levels]



# Partial pass-through [DiD]

► Back

► Robustness



$$\log P_{it} = \alpha_i + \gamma_t + \sum_{t \neq 2019m7} \beta_t D_{it} + \epsilon_{it}$$

2020m5

# Purchase responses

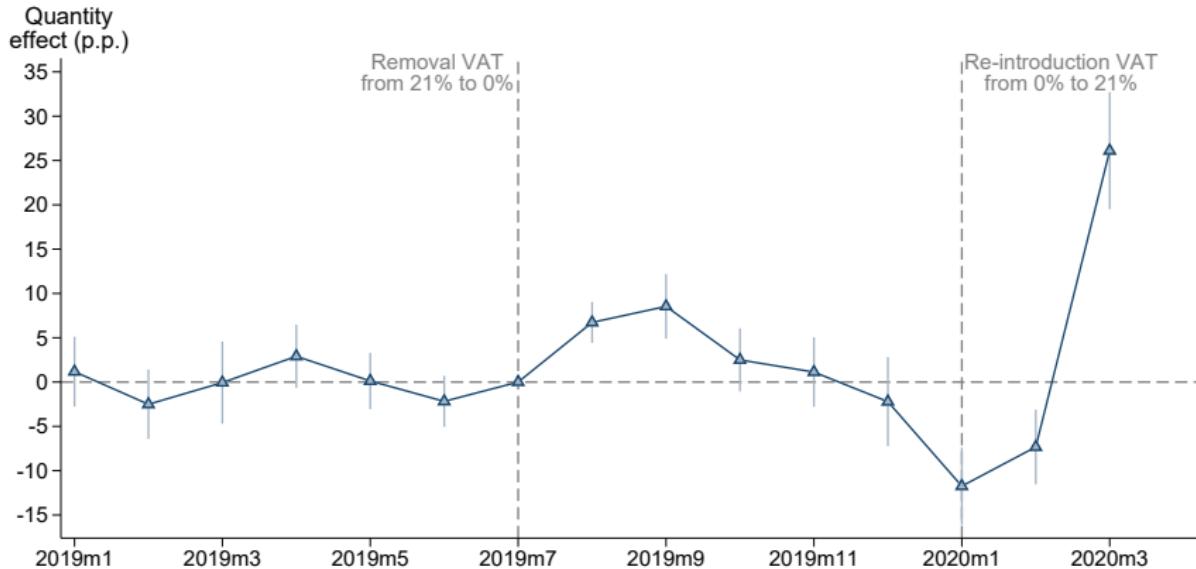
## Quantity effects

Policy goal of the temporary VAT cut was to ensure that households would still be able to purchase necessities

- ▶ **Income effect:** increased purchasing power
- ▶ **Intertemporal substitution effect:** cheaper to consume today

# Units sold increased in supermarkets chains

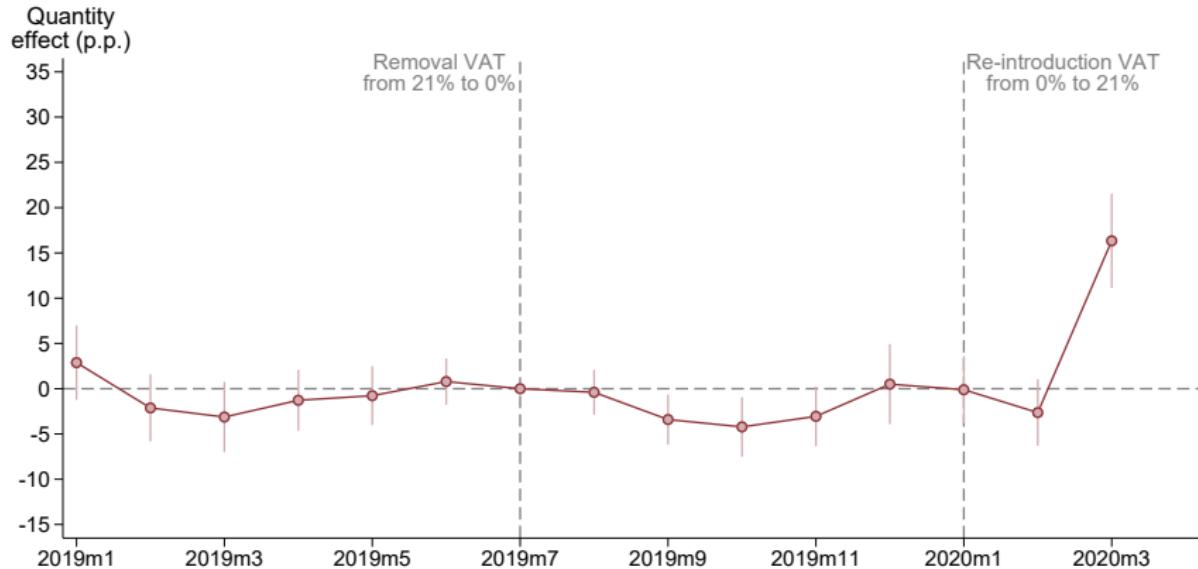
► COVID-19



- The policy was successful at sustaining the demand for basic necessities
- But the govt may have overshot it, leading to some hoarding of commodities

# Q effect is more muted in independent stores

► Robustness



- The policy was successful at sustaining the demand for basic necessities
- Muted response in small stores where pass-through was limited