EUROPEAN UNION-MERCOSUR AGREEMENT:

a partial equilibrium analysis for the milk powder production chain in Brazil

KRISLEY MENDES (University of Brasília - UnB/ ECLAC - UN)
ANDRÉ ARAÚJO LUCHINE (IPEA)

PRESENTATION SCRIPT

INTRODUCTION

Contextualization, research question, objectives, motivations

LITERATURE REVISION

Discussion about models of analysis and the empiric works already developed

Empirical Strategy

Challenges faced

Results

Final considerations

End

Introduction

Contextualization

New impulse in the commercialization of agricultural products in the world: bilateral and regional agreements
History of difficulty in the competitiveness of the Brazilian dairy sector
Mercosur-European Union Agreement
EU competitiveness in milk powder

Research question

What are the effects of the Bi-regional Association Agreement between Mercosur and the European Union (EU) on the Brazilian powdered milk production chain?

Motivations

- The pressure that this and new agreements can bring about for greater trade openness to be promoted by the country for milk and dairy products;
- The expected expansion of the presence of imported products on supermarket shelves;
- Effects on different links in the production chain;
- In Brazil, the sale of raw milk is carried out mainly by small family farmers..

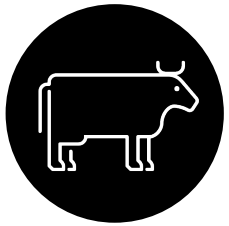
What does the literature say?

History of Brazilian trade policy for powdered milk

90s: liberalization, Mercosur, TEC
'95-to-date: List of TEC Exceptions, elevations, anti-dumping duties for US and New Zealand

Biregional Association Agreement between Mercosur and the European Union

1995 Start of conversations: deep integration;
2016-2019: the commercial agreement was signed
It still does not produce concrete effects: it demands the member countries incorporate it in its legislation
Predictions: tariff reduction; harmonization of NTMs; import quota for 10 years for Brazil



Production chain features

91% of milk production comes from family farming;
47% of production comes from properties with up to 20 hectares
77% of milk is sold to dairies
Powdered milk represents 3.7% of dairy production
But it represents 16% of the industrial production value (R$6 billion market)
Dairy products: downstream competitive market; upstream oligopsony;
Powdered milk consumption: normal good, price and income elastic
deficit trade balance

Empirical Literature

- **Hallren and Riker (2017):** economic simulation model with a focus on partial analysis
- **Hallren and Opanasets (2018):**
  - introduced vertical integration to the partial equilibrium model with constant Armington elasticity of substitution (differentiation by product origin),
  - analyzed uncertainty associated with the value of elasticities
  - effects of the labeling requirement on the beef market links in the United States (US)
- **Matulová et al. (2010)** evaluated price transmission factors in the milk chain in the Czech Republic
- **Asci, Paggi and Yamazaki (2016)** studied the implications of the Trans-Pacific Partnership (TPP) for US milk powder industry exports, using a general algebraic modeling system (GAMS)
- **Owen and Winchester, 2014** effects of changes in legislation for the production of fresh milk in the US on the dairy trade separate CES functions
- **Werneck (2009)**
- **Lima Filho (2017)**

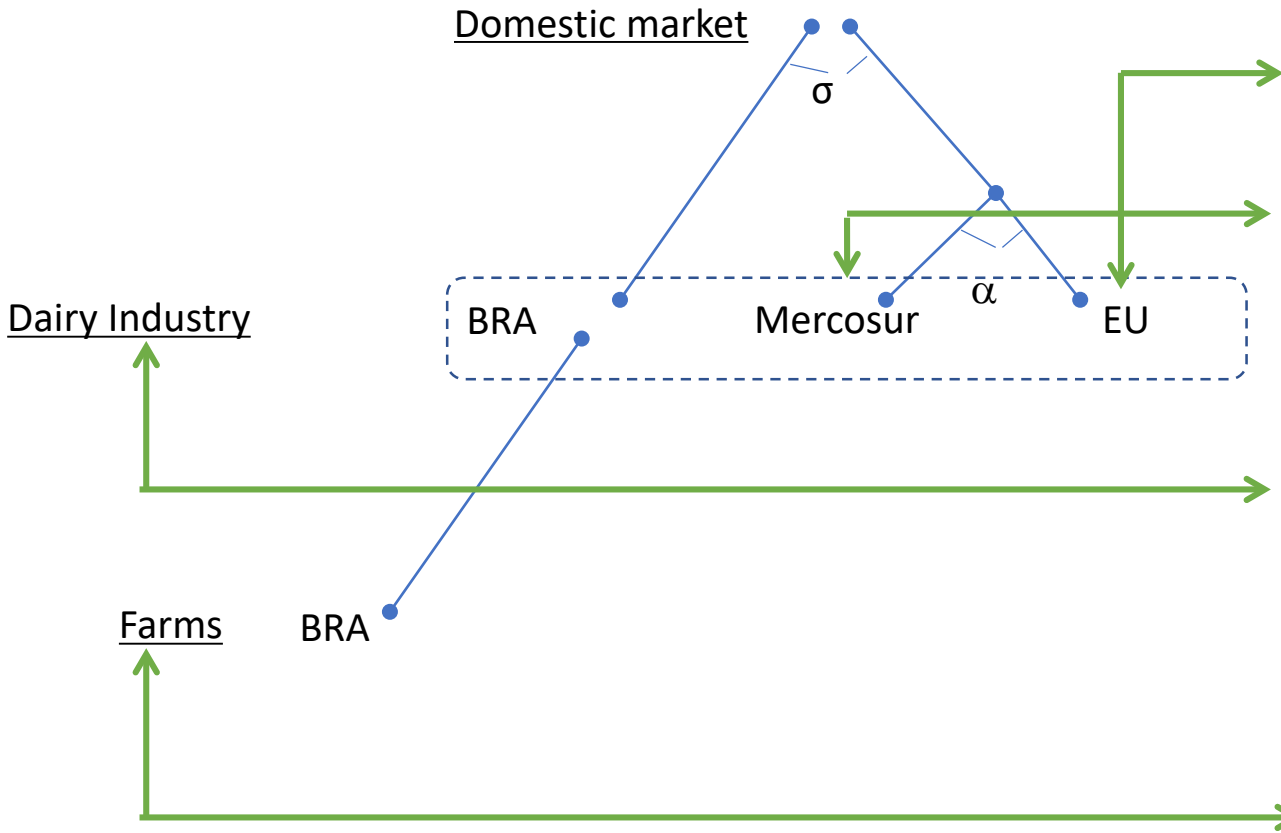
Armington Model

$$\max U\,(q_i) = \sum \left(b_i q_i^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{1-\sigma}} \; s.j.\, Y = \sum p_i q_i$$

$$q_i = \left[\frac{b_i^{\sigma}}{p_i} \right] P^{\sigma-1} Y = b_i^{\sigma} p_i^{-\sigma} P^{\sigma-1} Y$$

$$S_{i,j,k} = \frac{\gamma_{j,k} p_{j,k}^{1-\sigma}}{\sum_{m=1}^{n} \gamma_{m,k} P_{m,k}^{1-\sigma}}$$

Empirical Strategy



$$S_{D,I_{UE},MN} = 1 - S_{D,I_{MS},MN}$$

$$S_{D,I_{MS},MN} = S_{D,FI,MN}\left[\frac{\theta . p_{D,I_{MS},MN}^{1-\alpha}}{\theta . p_{D,I_{MS},MN}^{1-\alpha} + (1-\theta) p_{D,I_{UE},MN}^{1-\alpha}}\right]$$

$$S_{D,I_{BR},MN} = \frac{\delta . p_{D,I_{BR},MN}^{1-\sigma}}{\delta . p_{D,I_{BR},MN}^{1-\sigma} + (1-\delta) p_{D,FI,MN}^{1-\sigma}}$$

Index $\quad P_{FI,MN} = \left[\theta P_{I_{MS},MN}^{1-\alpha} + (1-\theta) P_{I_{EU},MN}^{1-\alpha}\right]^{\frac{1}{1-\alpha}}$

$$S_{D,LB,I_{BR}} = \frac{\gamma . p_{D,LB,I_{BR}}^{1-\beta}}{\gamma . p_{D,LB,I_{BR}}^{1-\beta} + (1-\gamma) p_{D,FF,I_{BR}}^{1-\beta}}$$

Procedures

- **Effects are modeled as responses to deviations in initial prices from a shock represented by the removal of tariffs and NTMs (Armington effect)**
- **by changes in elasticities, which represent preferences (preference effect).**
  - The preference effect is captured by sampled elasticities once it is unknow
  - and can be seen as a long run effect, once it represent elasticities and take time to people changes preferences

Three different shocks was considered:

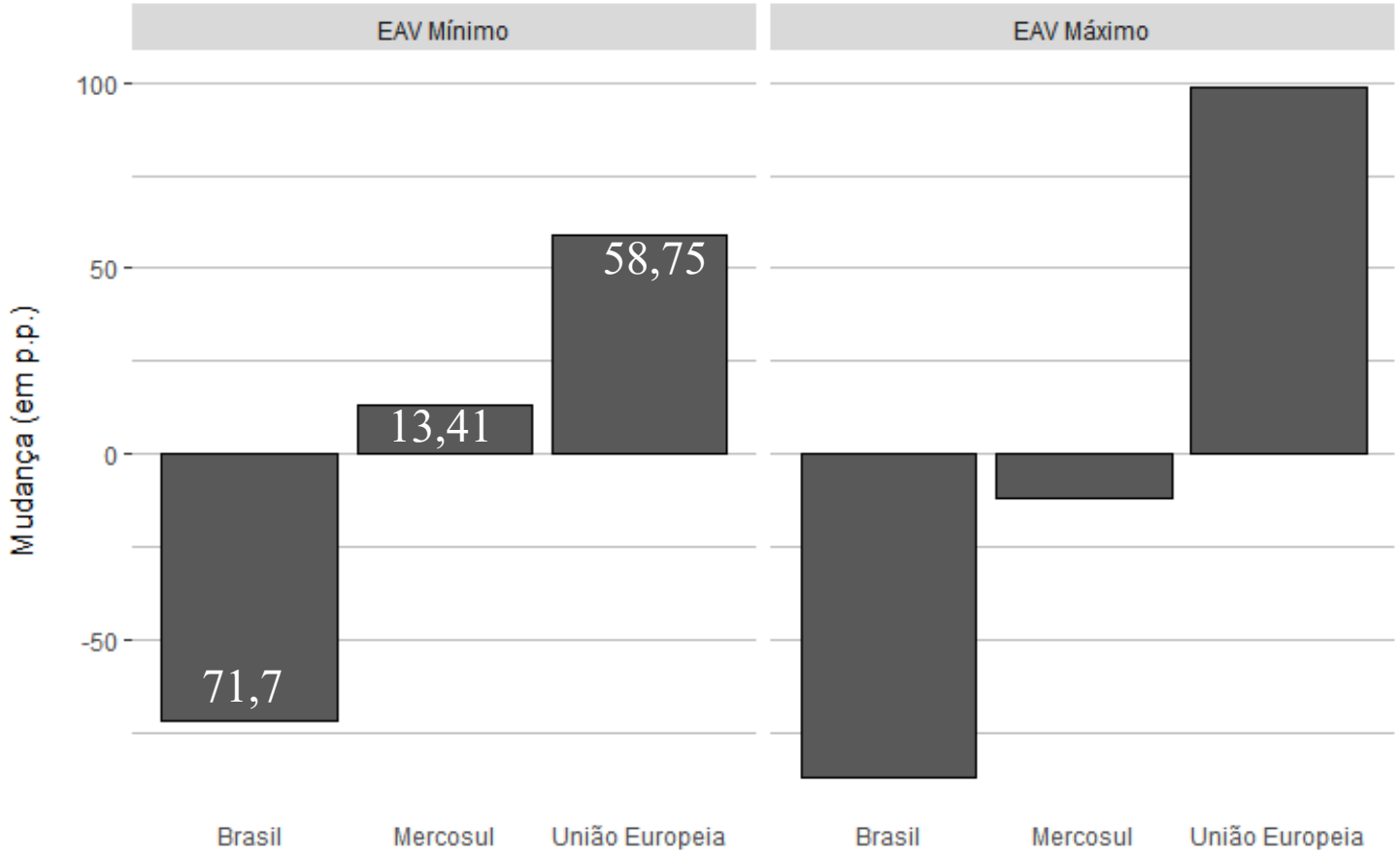
1. **reduction of 28% tariff, which will affect just EU;**
2. **removal of the restrictive NTMs – it will affect both**
   - Two levels of AVE:
   - 24% (Minimum)
   - 52% (maximum)
3. **Removal of both tariff and non-tariff measures, affecting EU and Mercosur partners**

A Monte Carlo simulation was run 1,000,000 (one billion) times. 200.000 for each scenario to capture the preference effect.

In each time I have a different level of elasticity

Results 3 : tariff and NTM removal – Total change

Figure 5: Total change in Brazil, Mercosur, and EU market shares in response to the reduction in NTM costs and 28% tariff



INDUSTRY LINK
Brazilian dairy industries will see their market share fall by almost 72%,

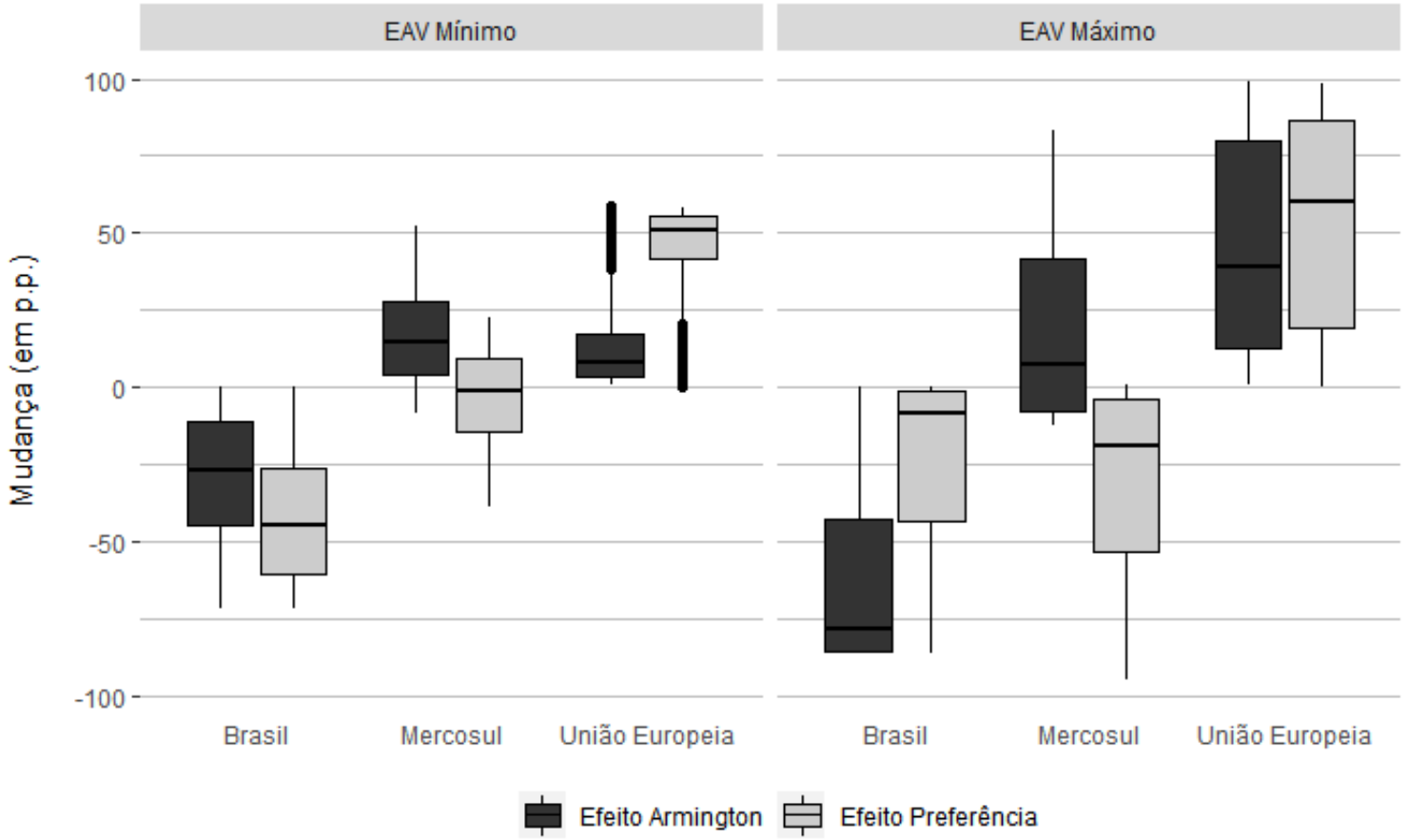
which means they will produce 475 thousand fewer tons of powdered milk.

AGRICULTURAL LINK
This level of drop in dairy production would represent a reduction in the demand for raw milk by about 15%,

or 3.8 billion liters

Results 3 : tariff and NTM removal – price (Armington) and preference effects

Figure 6: Breakdown of the total effect on market shares of Brazil, Mercosur, and the EU in response to the removal of NTMs and the 28% tariff.



Final Considerations

The Bi-regional Association Agreement between Mercosur and the European Union provides

- the elimination of tariffs
- the harmonization of regulatory norms (non-tariff measure – NTM).
- Brazil has established a quota of up to 10,000 tons

When both the tariff and the NTMs are removed - the scenario worked on by the agreement - the effects would be quite negative for the Brazilian powdered milk industries and consequently the agricultural link

The quota established in the agreement is a reasonable strategy for a transition process in the Brazilian dairy production chain

Strategies that improve the competitiveness of the national market against international competition will also be necessary

UnB

Obrigada!
Gracias!
Thank you!

KRISLEY MENDES – krisley@unb.br

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Instituto de Pesquisa Econômica Aplicada