Competition and Growth: Theory and the Brazilian Experience

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Sailing Plan (do not translate this one – ongoing page)

- Introduction: definitions of question about competition and growth
- Focus of antitrust: welfare of consumers (low price, good quality and penetration)
- Focus of development for a mid-income country: expand industrial activities – increase to wealfare of consumers
- Theory: competition and productivity
- Brazil: no antitrust in the 70s lead the productivity to fall in the 80s
- History: no antitrust and subisidy to inneficienty firms in the 80s / hyperinflation in the end of the 80s
- Recovery from the depression; main drives
- Market design for productivity: privatization, openess and SOE’s
- Antitrust in Brazil: recent experience

Competition, Competition Policy and Productivity

- The general (standard) view in the antitrust analysis is the consumer welfare
- Then, low prices (competitive prices), quality and variety of products are the primary target
- Static vs. dynamic – due to economics technology we focus on static (strong background, etc.). However, in a long run perspective we should focus on dynamic aspects
- Long run gains from competition – productivity dynamics (total factor productivity)

Competition and Growth: Theory

- There is a extensive research about the link between competition and productivity
- Quick review
- General view in economics: productivity (TFP) sustain economic growth (Mankiw – Introductory Economics)
- Determination of productivity: several factors
- Here I will focus on competition: competition could foster productivity
- Several papers deals with this matter. See reviews by Syverson 201111; Aghion and Griffith 2005; Holmes and Schmidt 2010

Competition and productivity

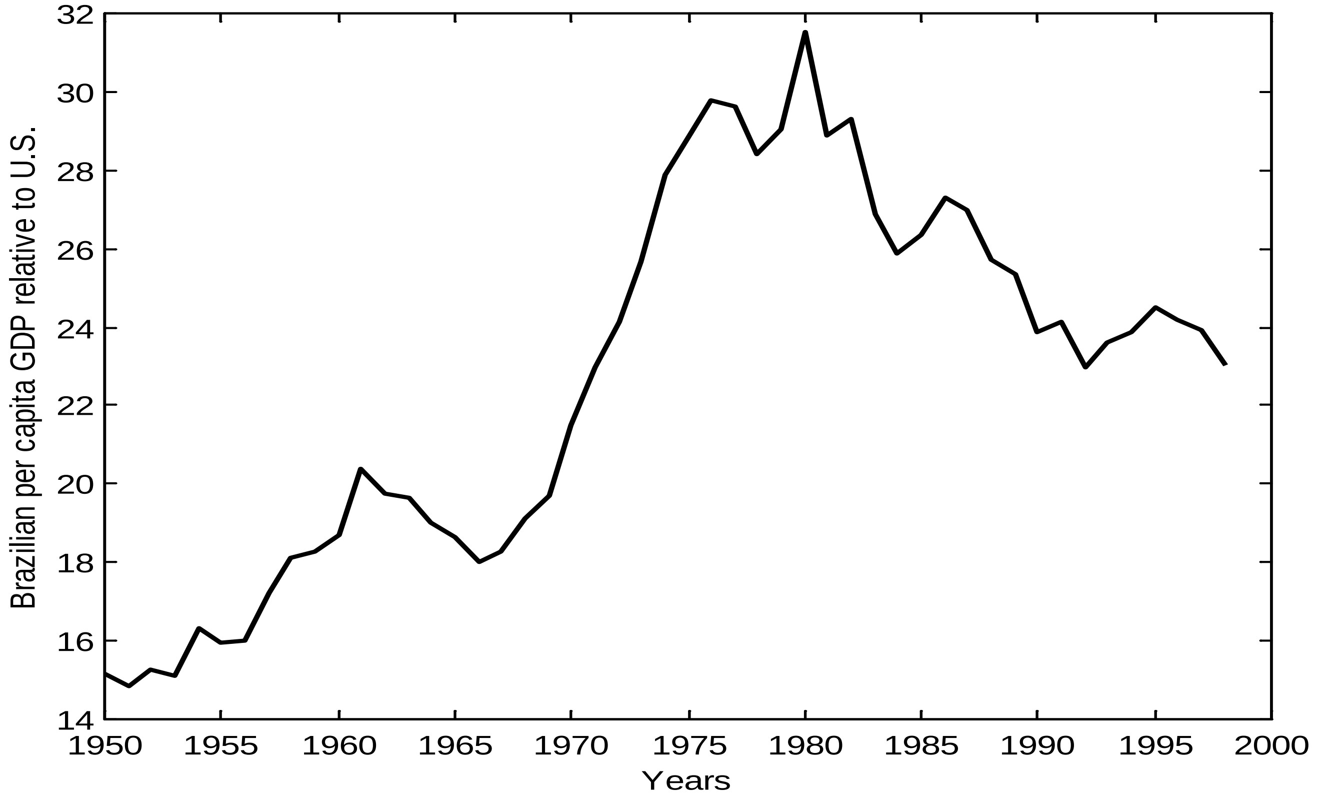
- Holmes and Schimitz (2010) stress the importance of the competitive environment
- Channels of change in productivity:
  - Scale effect
  - Reallocation source (efficiency across plants)
  - Within-firm effect or X-efficiency (inside the plants)
- Explore what drives the X-efficiency
- Main changes in the environment are:
    - (i) changes in entry conditions (like law or regulation) – this goes through within-firm effect and scale effect;
    - (ii) Technological change through conditions of entry;
    - (iii) Tariff and transport cost reductions;
    - (iv) Changes in market size – in some cases bigger markets can accommodate more firms (Bresnaham and Reiss 1991) / in large markets, production is reallocated from inefficient plants to efficient plants, but in small markets this doesn't necessarily happen (Syverson 2004).

Brazilian Evidence: before the CADE `the facto' (1994)

- After the first oil shock in 1973, the productivity of the Brazilian economy falls for 17 years (Ferreira, Ellery and Gomes, 2008) – see Figure (next slide).
- This drop is not directly related to competition policy, but the general idea is that in the 70s and 80s there was huge protection and pretty consolidation in many sectors in the economy.
- As noted by the literature (see Holmes and Schmitz, 2010), incumbents of concentrated (and cartelized) sectors are related with higher wages and higher profits (rent extraction).
- In the next page we show the productivity of the Brazilian economy (from Bugarin, Ellery, Gomes and Teixeira, 2010).

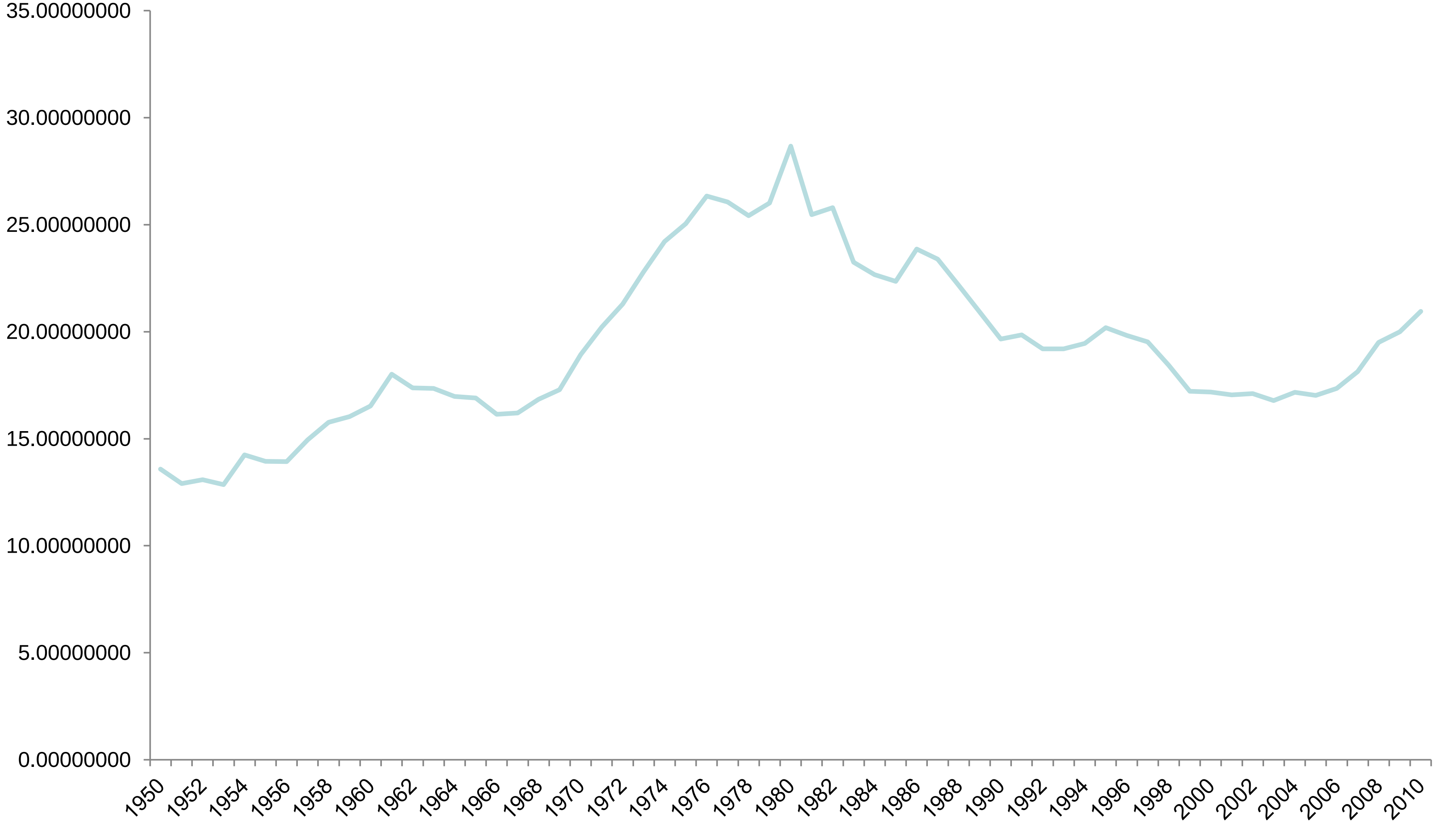
The Brazilian Depression, 1980-1992:

Brazilian per capita GDP relative to United States at International Prices (PWT)

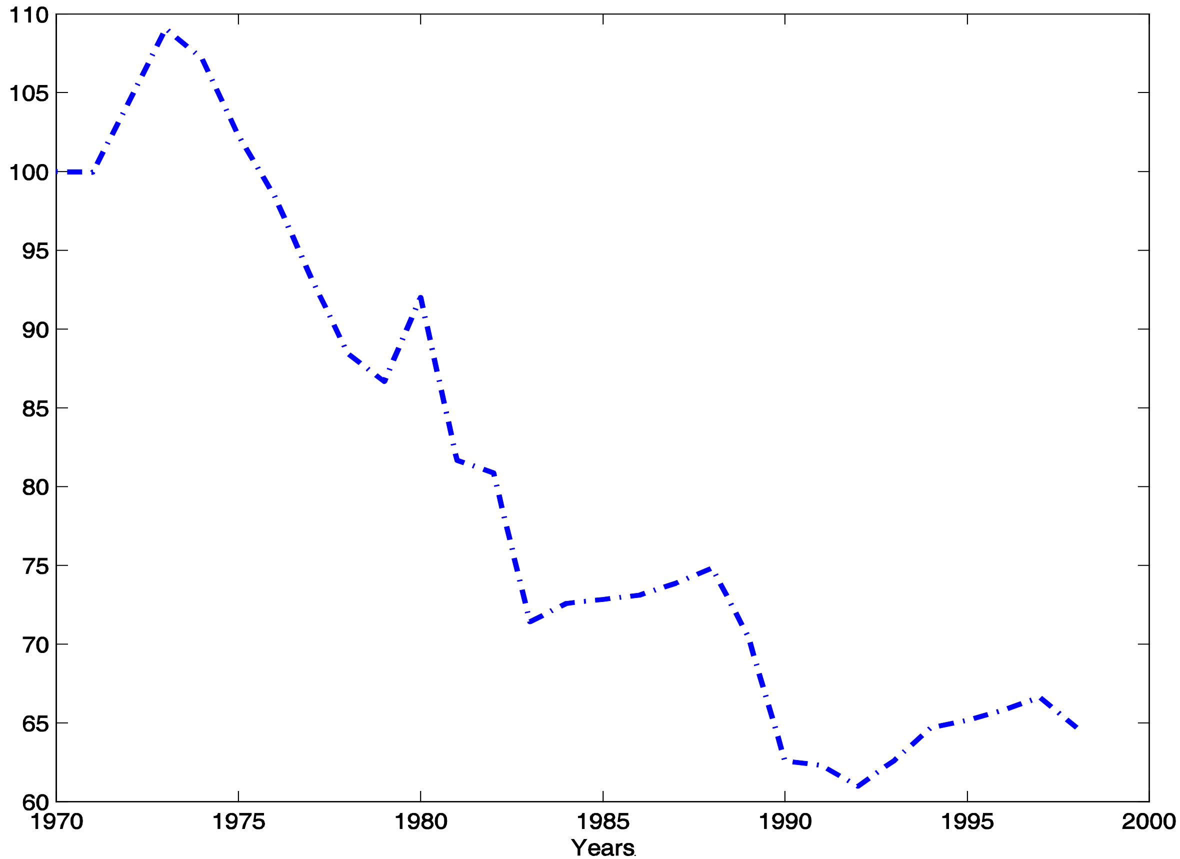


Source: Bugarin, Ellery, Gomes and Teixeira (2010).

…And The Recent Growth Surge



Productivity in Brazil, 1970-1998 (TFP)



Note: Detrended Total Factor Productivity, 1970-1998. Detrended by 1.44%.
Source: Ferreira, Ellery and Gomes, 2008.

Growth Accounting

- Growth accounting exercise
- Here following Hayashi and Prescott (2005).

$$\ln\left[\frac{Y_{t+s}}{N_{t+s}}\right]-\ln\left[\frac{Y_t}{N_t}\right]/s=\frac{1}{1-\theta}\left[\ln A_{t+s}-\ln A_t\right]/s+$$

$$+\frac{\theta}{1-\theta}\left[\ln\frac{K_{t+s}}{Y_{t+s}}-\ln\frac{K_t}{Y_t}\right]/s+\left[\ln\frac{H_{t+s}}{N_{t+s}}-\ln\frac{H_t}{N_t}\right]/s$$

Growth Accounting for Brazil

- Decomposition of Brazilian GNP Per Working-Age Person (changes in %)

Period	*change in Y/N*	*due to TFP*	*due to K/Y*	*due to H/N*
1971-1980	5.05	2.85	0.79	1.41
1981-1998	0.28	0.48	-0.01	-0.17

- Why is the growth rate of the Brazilian TFP so low for such a long time?
- Candidates:
  - Creation of SOE in the 70s
  - Increasing barriers to trade
  - Government subsidies and old bankruptcy law in a closed economy
  - In sum, lacks competition in the Brazilian economy in the past

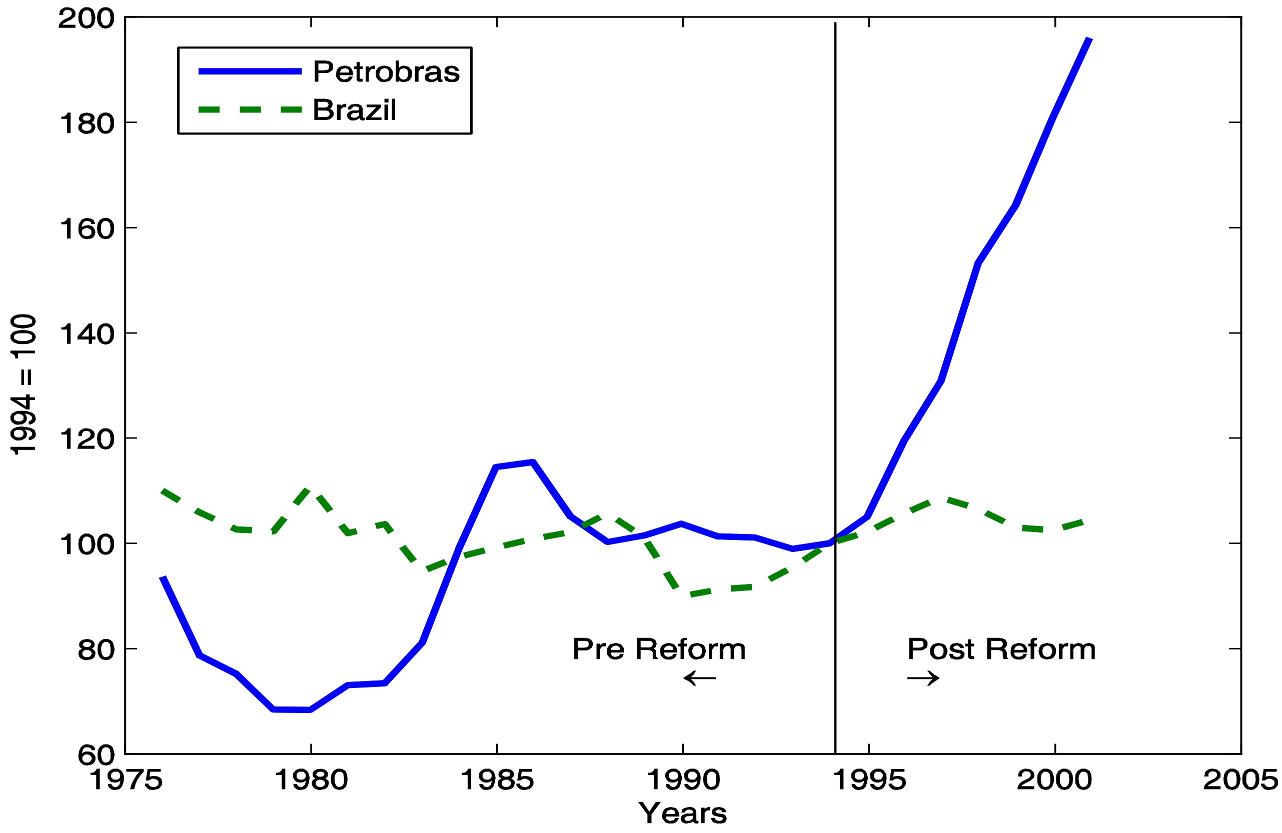
Recent Advances

- After 1990:
  - *CADE* re-foundation, 1994 law and improvements with a new law in 2011 (*)
  - Openess after 1990
  - Factors that can sustain productivity and growth
  - But about the SOE:
    - We had some privatizations (telecom, energy)
    - Also, we had some change in enviroment (oil and gas) – market regulation

Sustaining growth through competition: oil and gas exploration case

- Bridgman, Gomes and Teixeira (2011) found that a new bill addressed to the oil exploration market 1995 foster the TFP of Petrobras in the 90s and 00s.
- Until 1995, Petrobras had a legal monopoly in research, exploration, and extraction of oil and gas
- The evidence suggets that:
  - SOE can sustain productivity in more competitive enviroments without privatization
  - The threat of entry skyrocks Petrobras' productivity

Threat of Entry and TFP: Brazil *vs* Oil and Gas Exploration (Petrobras)



Note: Brazilian TFP and Oil/Gas TFP

Source: Bridgman, Gomes and Teixeira (2011).

The Threat of Entry and TFP in Oil and Gas Exploration

- Constitutional ammendment (new bill) 1994-1995
- There is no entry between 1995 and 2001
- Between 1976 and 1994 labor productivity (as measured by oil/gas extracted per worker) grew at an annual average of 4.7% whereas between 1995 and 2001 it grew at an annual average of 14.6%.
- TFP was 0.3%. After 1995 it grew at an annual average of 9.6%.

Competition Policy in Brazil

- In the 70s and 80s there is no competition policy
- After 1990 compeition policy has been taken more seriously
- To foster growth Brazil should take care of competition policy
- Why? If all productivity is driven by economies of scale competition there is no explicity role
- As showed by many (see Holmes and Schmitz - 2010), X-efficiency or within plants efficiency is crucial.
- There is a room for competition policy (antitrust and market regulation)

Competition Policy in Brazil

- CADE new law begins in 1994
- CADE could block mergers
- Conduct analysis also – fines
- First big merger was blocked 10 years after 1994
- Recently others mergers were blocked: Coca-Cola vs. Matte Leão, among others
- A controversial decision was the creation of BRF: the merger between Sadia and Perdigão (it will be my example latter)

Competition Policy in Brazil

Law 12,529 from 30 November 2011

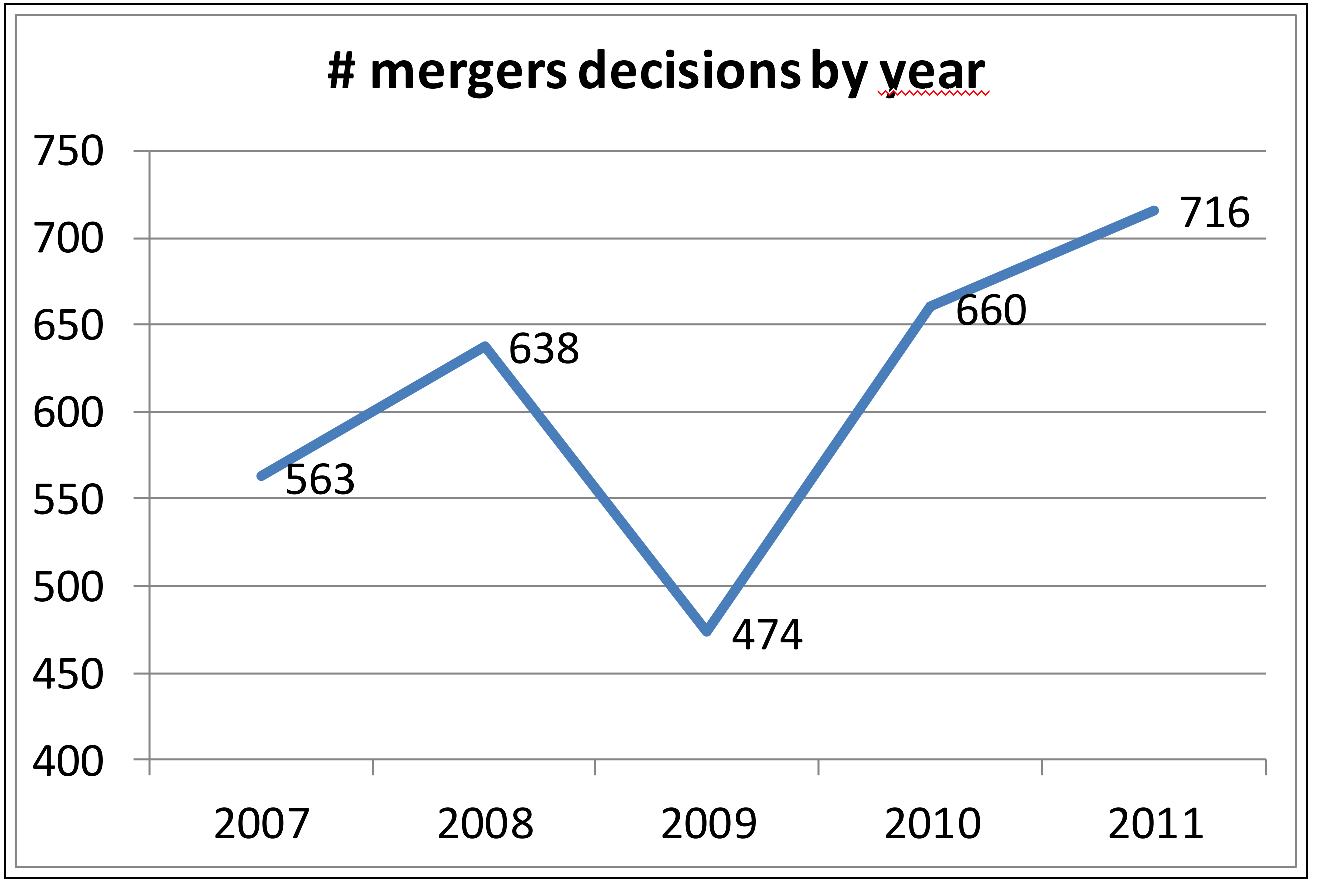
(into effect on 29 May 2012)

- New structure of the Brazilian Competition Policy System – CADE
- Conduct Analysis
- Introduction of pre-merger control system (like Hart-Scott-Rodino 1976 act in US)

Competition Policy in Brazil

- Tribunal (1 president + 6 commissioners – non renewable 4 year terms)
  - Final decisions concerning anticompetitive practices and merger filings
- SG (General Superintendent – 2 year term renewable)
  - Investigation of anticompetitive conducts
  - Merger review
  - DEE (Chief-economist – no term)
- Economics analysis and market studies

Merger reviews: 2007-2011



New Thresholds for Filling a Merger, 2012

- Two turnover thresholds:
  - Group A: R$ 750 million (~ 370M USD) (revenue per year) AND
  - Group B: R$ 75 million (~ 37M USD) (in revenue or assets)
- More flexibility: it is possible to adequate the level of the thresholds without legislative reforms (recently done)

Examples of Decision: The Sadia-Perdigão Merger

- Main question on the table: how the antitrust authority deals with the national champions
- Antitrust authority have an independent role (by law)
- Here I will describe a decision toward the merger between Sadia and Perdigão, that create the #3 biggest Brazilian exporter.

The Sadia-Perdigão Merger

- Relevant markets in *in natura* food (frozen or not):
  - (1) chicken/poultry; (2) beef
  - (3) pork; (4) turkey.
- Relevant markets in processed food:
  - (1) ready-too-eat food (mainly lasagna);
  - (2) frozen pizza;
  - (3) hamburger;
  - (4) meatballs and similar;
  - (5) breaded chicken;
  - (6) mortadella;
  - (7) franks (hot dogs);
  - (8) ham and similar;
  - (9) salami;
  - (10) parma ham, copa, and similar;
  - (11) smokey turkey breast and similar;
  - (12) non-cooked sausage;
  - (13) bacon;
  - (14) cooked sausage;
  - e (15) margarine.

The Sadia-Perdigão Merger

- Relevant markets in processed food with antitrust concerns (checking for concentration and upward price pressure test):
  - (1) ready-too-eat food (mainly lasagna); [> 70%]
  - (2) frozen pizza; [> 70%]
  - (3) hamburger;
  - (4) breaded chicken;
  - (5) mortadella;
  - (6) franks (hot dogs);
  - (7) ham and similar;
  - (8) parma ham, copa, and similar;
  - (9) cooked sausage;
  - e (10) margarine.

[Market shares source: BRF annual demonstration 2010].

The Sadia-Perdigão Merger

- The total revenues of BRFoods are separated between:
  - Exporter: 51~55%
  - Domestic market: 45~49%
  - Processed market (mainly domestic ~ 40% of total revenues)
- The final decision was an agreement between CADE and BRFoods.
- The decision was to sell nominal productive capacity related to relevant market with high concentration.
- The size of this remedy is equivalent to 11~12% of total revenue of BRFoods.
- Since processed foods accounts for 40% of total revenue it was almost to block the merger in domestic market.
- Exports was free of intervention.

The Sadia-Perdigão Merger

- The total amount of the remedy:
  – 10 plants
    - Included processed plants.
  – Millions of chicken head (live) by year;
  – Hundreds of pork heads by year;
  – Dozen of brands (included some market-leaders – hamburger for example)
  – Perdigao brand should be out of 6 markets for 2 years.
  – Marfrig group was the buyer of this package.

- Thank you CPCR / JFTC!