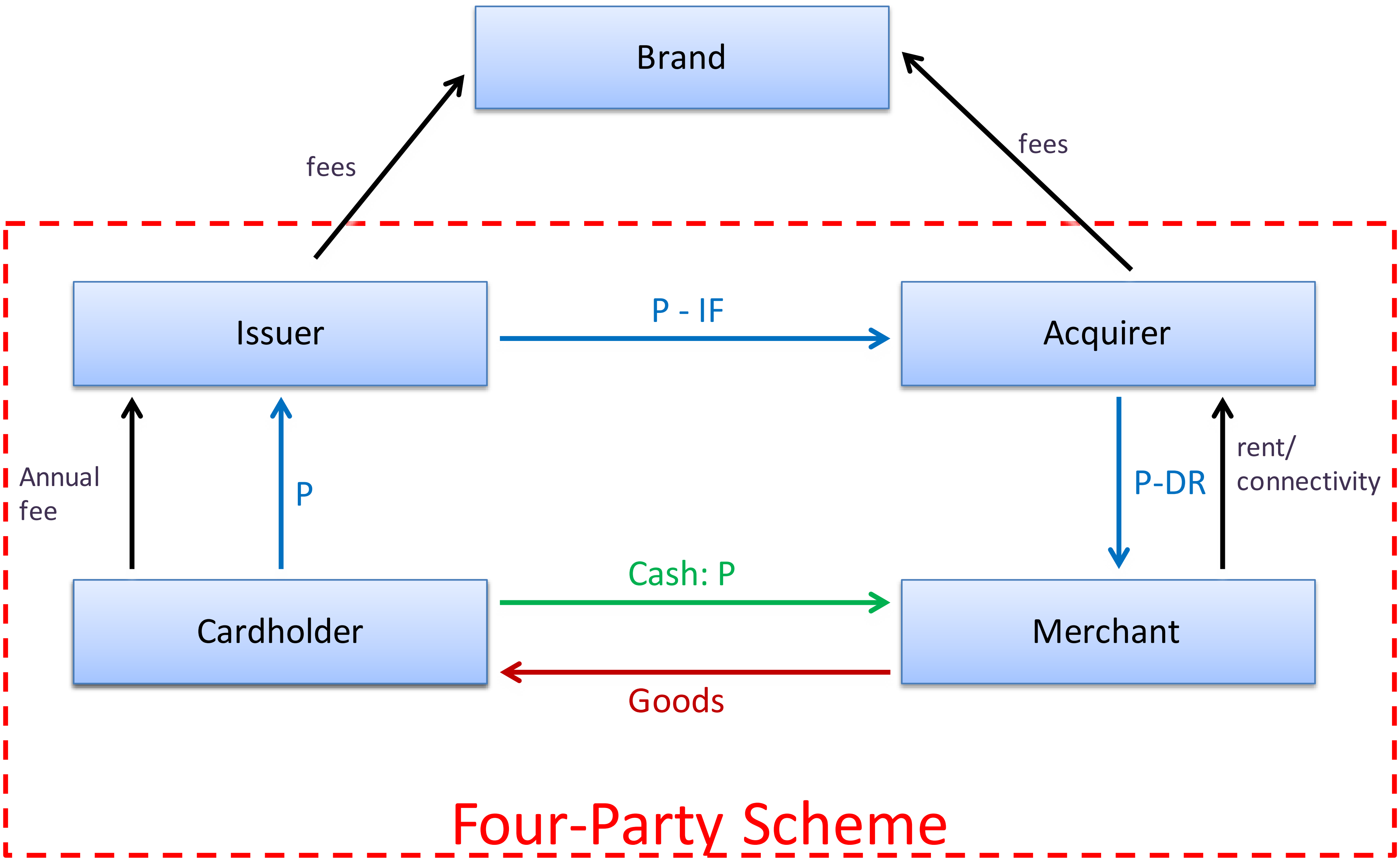
The Break of Brand Exclusivity in Brazilian Credit Card Acquiring: Effects and Markup-Cost Decomposition in a Price Dispersion Setting

Gabriel Garber
Banco Central do Brasil
Márcio I. Nakane
Universidade de São Paulo

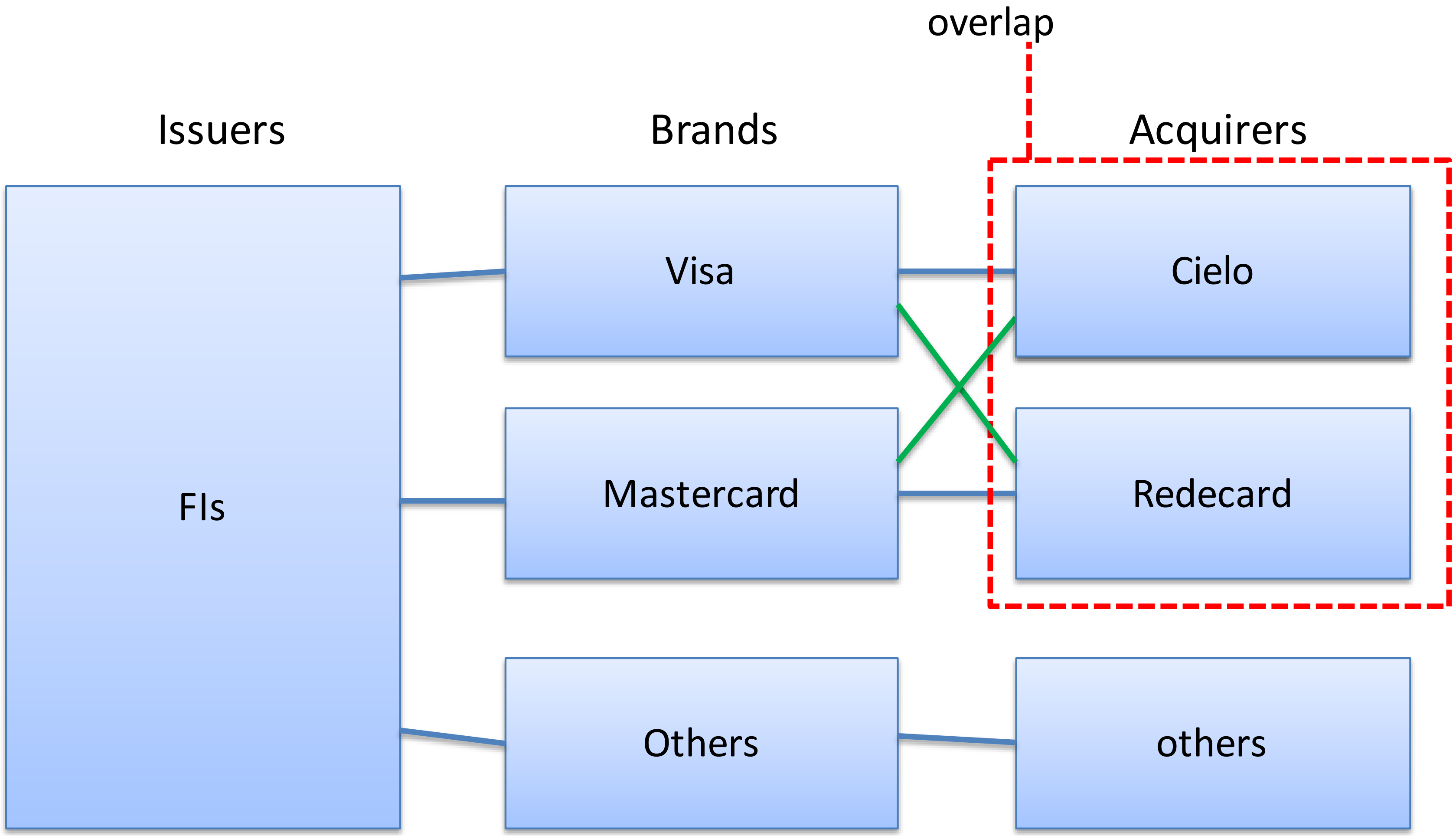
BCB XI Annual Seminar on Risk, Financial Stability and Banking
2016

Payment Card Scheme Functioning



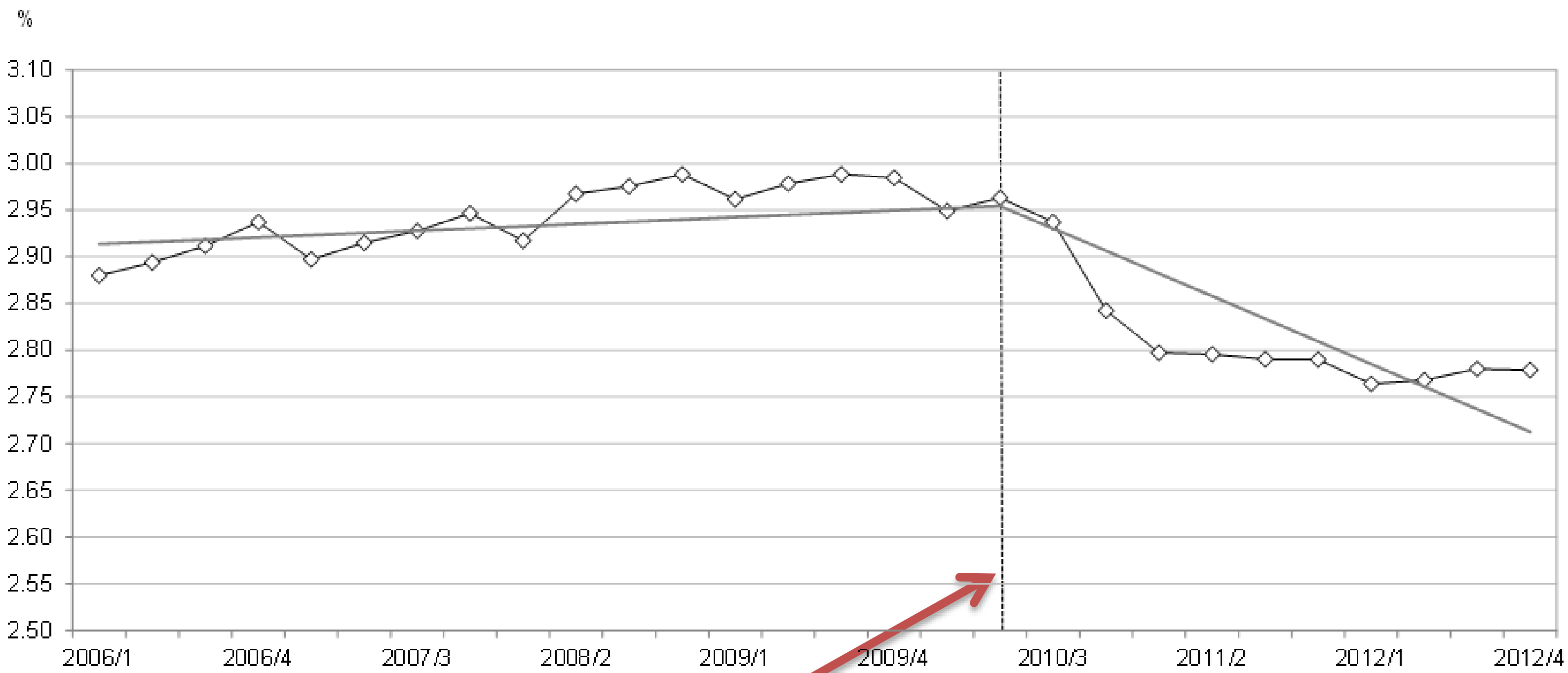
Brazil

After 2010-2



Regulatory change

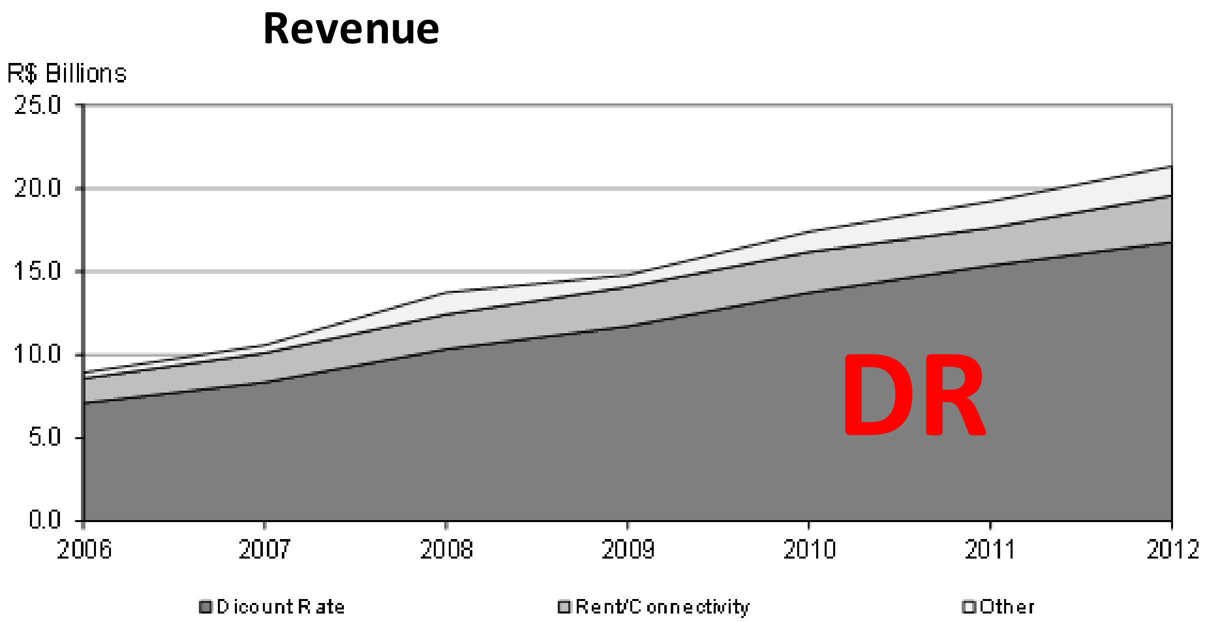
Average Merchant Discount Rate – Credit Cards

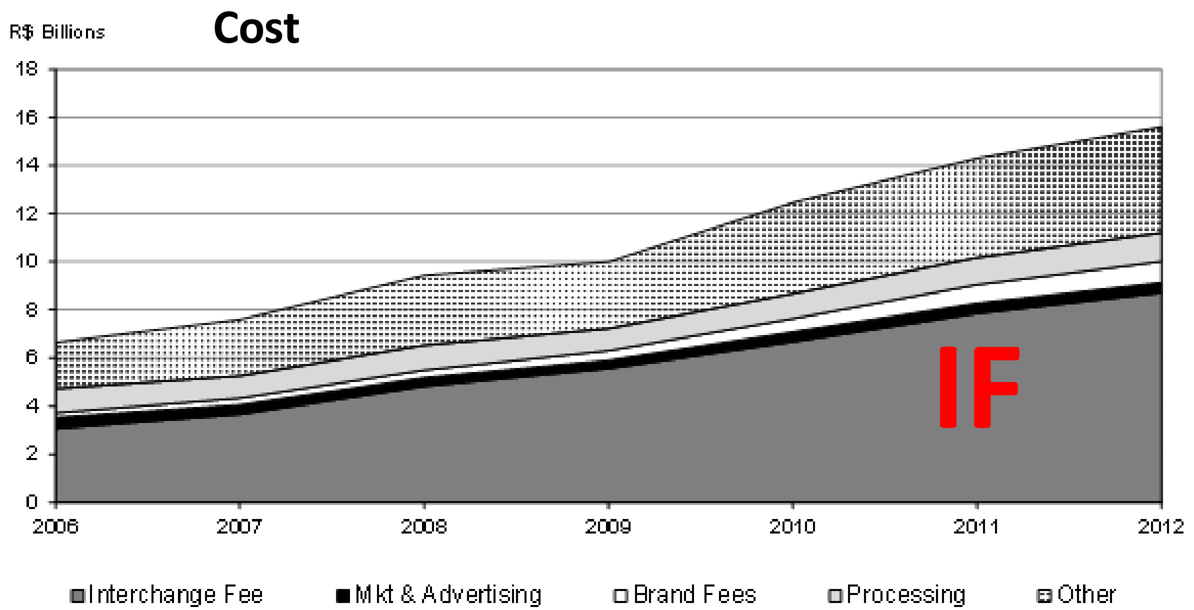


2nd semester 2010

→ **Our aim: Decompose into Markup and Marginal Cost**

Acquirers’ Revenue and Cost composition





Literature

- Model needed to study the impact of the regulatory change
- Relevant literature:
  - Two-sided markets: careful interpretation and controls
    - Kaiser and Wright (2006);
    - Sokullu (2012);
    - Argentesi and Filistrucchi (2007);
    - Argentesi and Ivaldi (2005);

    Publications

    - Carbó-Valverde, Liñares-Zegarra and Rodríguez-Fernández (2012);
    - Rysman (2007);

    Payments

  - Price discrimination/dispersion: models' framework and controls
    - BCB,SEAE and SDE (2010), Annex C;
    - Shepard (1991) → gasoline retailing;
    - Busse and Rysman (2005) → yelow pages;

    Assumption of equal demand or cost

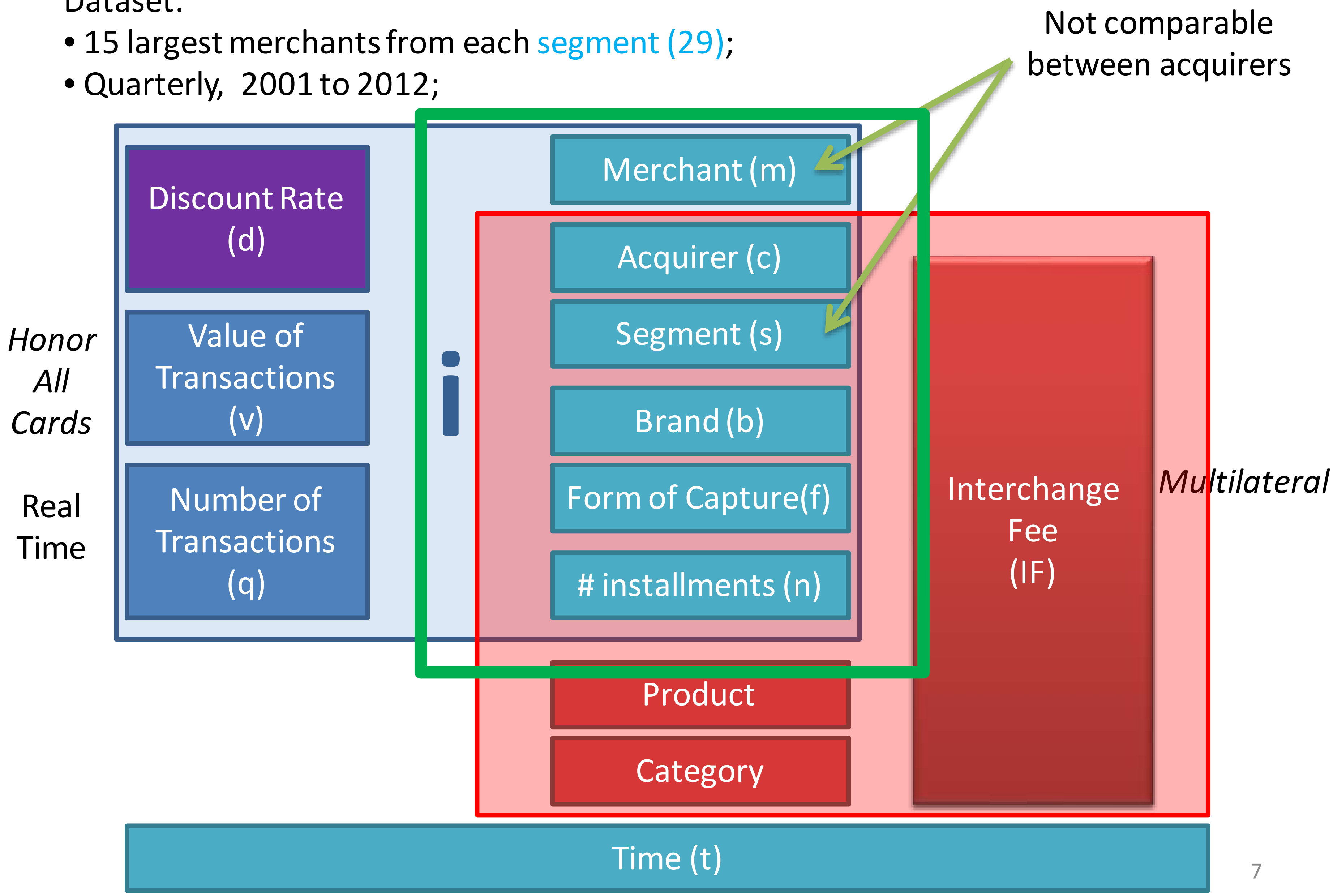
    - Borenstein and Rose (1994);
    - Gerardi and Shapiro (2009);

    Airline, identification through regressors

  - Two-sided market + Price discrimination
    - Asplund, Eriksson and Strand (2008) → Regional morning newspaper
  - Payments
    - Bolt and Humphrey (2013);

Dataset

Dataset:
- 15 largest merchants from each segment (29);
- Quarterly, 2001 to 2012;



Profit optimization model for acquirer

Decomposition Model

3rd degree price discrimination

$$\Pi = \sum_j d_j q_j v_j - TC$$

Network effect

$$d_k v_k = M_k (MC_k - n_k)$$

Observables

Not Identified

$$d_k v_k = M_k(s, t_k, c)[IF_k v_k + f(s, t_k) - n_k(s, t_k)]$$

Network effect

Part of known marginal cost (coefficient = 1)

Effects of exclusivity break

$$d_{kt} = \left(\sum_{s \in S} \alpha_s b_s + \beta t_{kt} + \gamma c_t + \varphi dpost_t\right)\left[IF_{kt} + \sum_{s \in S} \theta_s \frac{b_s}{v_{kt}} + \mu \frac{t_{kt}}{v_{kt}} + \omega \frac{dpost_t}{v_{kt}}\right]$$

Results

- Final sample:
  - Symmetric number of observations arount the intervention: 2004(4) to 2012(2)
  - 284,304 observations
- Main results: NLLS, robust cov

$$\hat{\varphi} = -0.142$$

23% mark-up reduction (from 62% baseline) or 14.2 p.p.

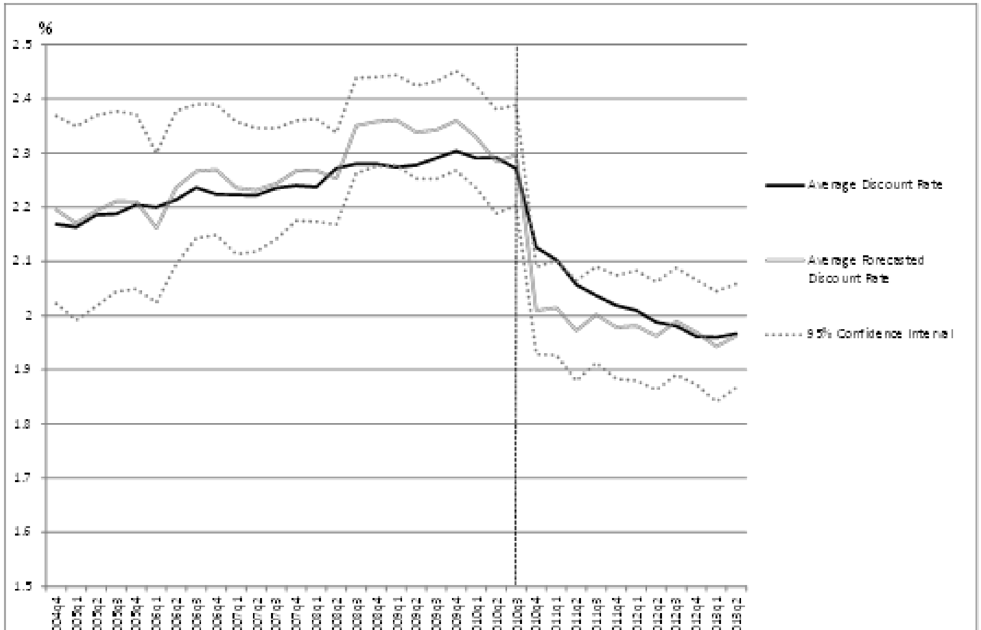
$\hat{\omega}$ not significant

- Robustness: linear model, coefficient of $dpost_t IF_{kt}$
  - OLS (no intercept): -0.137
  - OLS: -0.132
  - RE: -0.138

Results: Observed vs Forecast

Panel A – No Break

Panel B – Break



Conclusions

- Our main conclusion is that the break of brand exclusivity produced a price reduction mainly explained by a markup decrease, which we interpret as an increase in competition. We find a reduction of 14.2 percent points on an average margin of 62% over marginal cost, representing a reduction of almost 23% of that measure.
- Although the composition of the sample (the largest merchants of each market segment) restricts the reach of the results, they still remain a strong indication of the success of the intervention.
- Our results also strongly reflect another characteristic of acquirers operation in Brazil: price discrimination. We find that markups vary between market segments and are smaller for larger merchants.

Thanks!!