

Private Cards and the Bypass of Payment Systems by Merchants



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Overview of the presentation

- Introduction: why study private cards?
- The model
- The results
- The research perspectives



Payment Cards War

banks versus merchants

- Role of Payment Card Associations
 - Platforms that organise the interactions between the Issuing and the Acquiring side
- The costs of card payments for merchants
 - US (2006): \$57 billion
 - Merchant fees from 1% to 2.7%



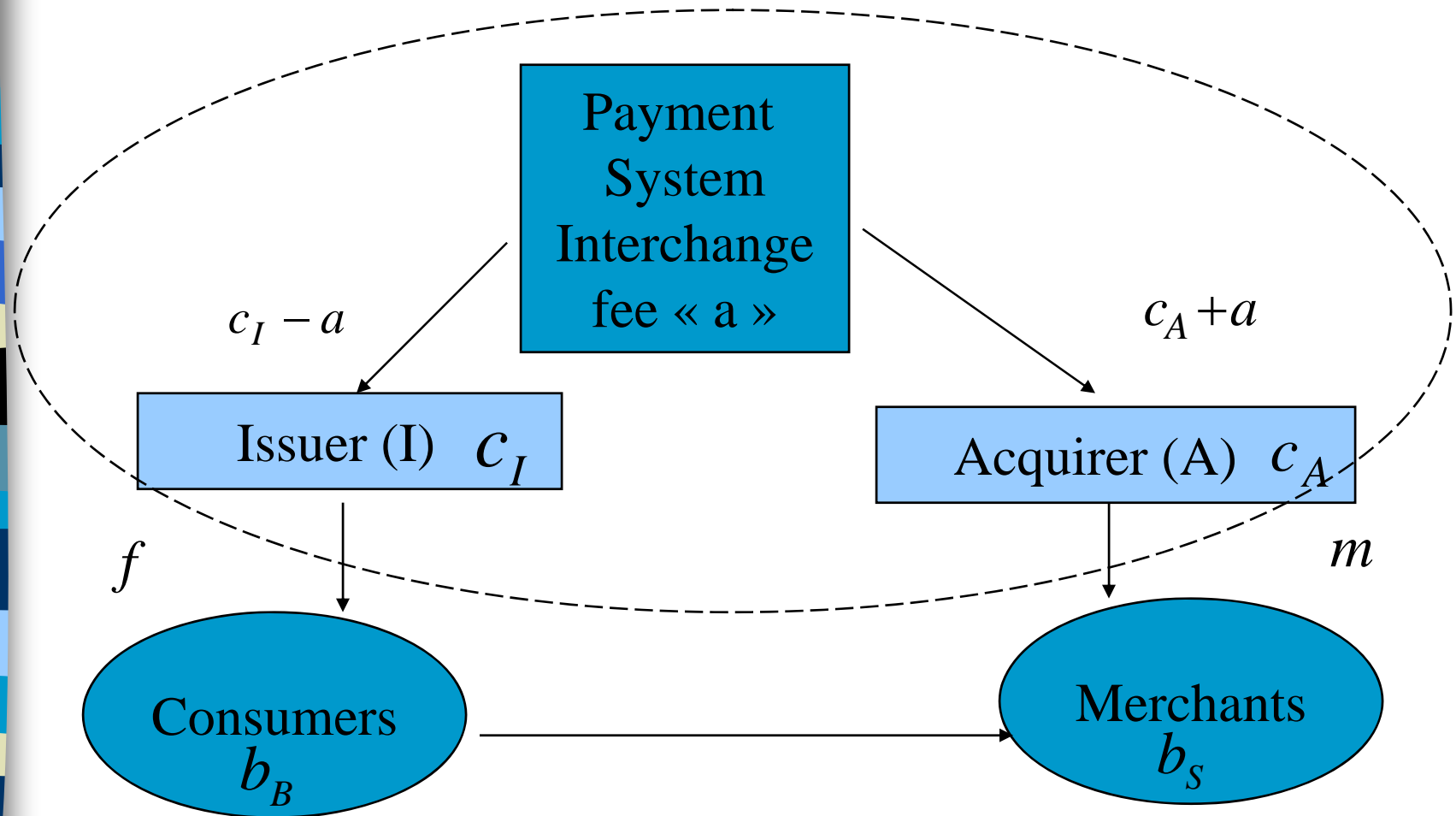
HOW CAN A MERCHANT REDUCE THE COSTS OF PAYMENT CARD TRANSACTIONS?



The bypass strategy: private cards

- Cards issued by merchants
- Can only be used at the retailers ' shop
- Costs and benefits for the merchant
 - Costs of starting the private card activity
 - Costs of transaction processing
 - Saves the merchant fee
- ICMA: 5.6 billion private cards issued in 2004.

Literature on payment cards





Research Issues

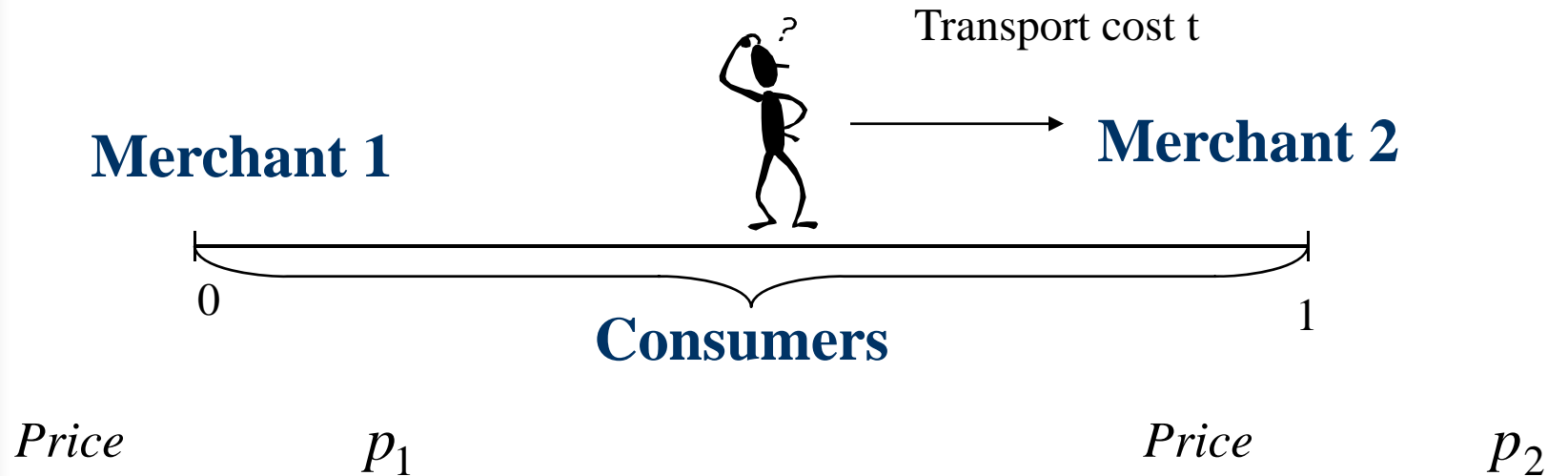
- What are the incentives to issue private cards (PC)?
- What are the effects of PC on
 - Transaction fees?
 - Interchange fees?
- How can the payment platform react to PC?



A basic model

- No strategic interactions
 - Between the merchants (local monopolies)
 - Between the merchants and the PS.
- If $c_M \leq c_I + c_A$ always bypass if the fixed costs are not too high.
- If $c_M > c_I + c_A$ bypass if the fixed costs are low, and the benefits of accepting cards high.
 - Inefficient bypass
 - The merchant can extract some surplus of the card users.
 - The merchant can retain its benefit of being paid by card.

Model with strategic interactions



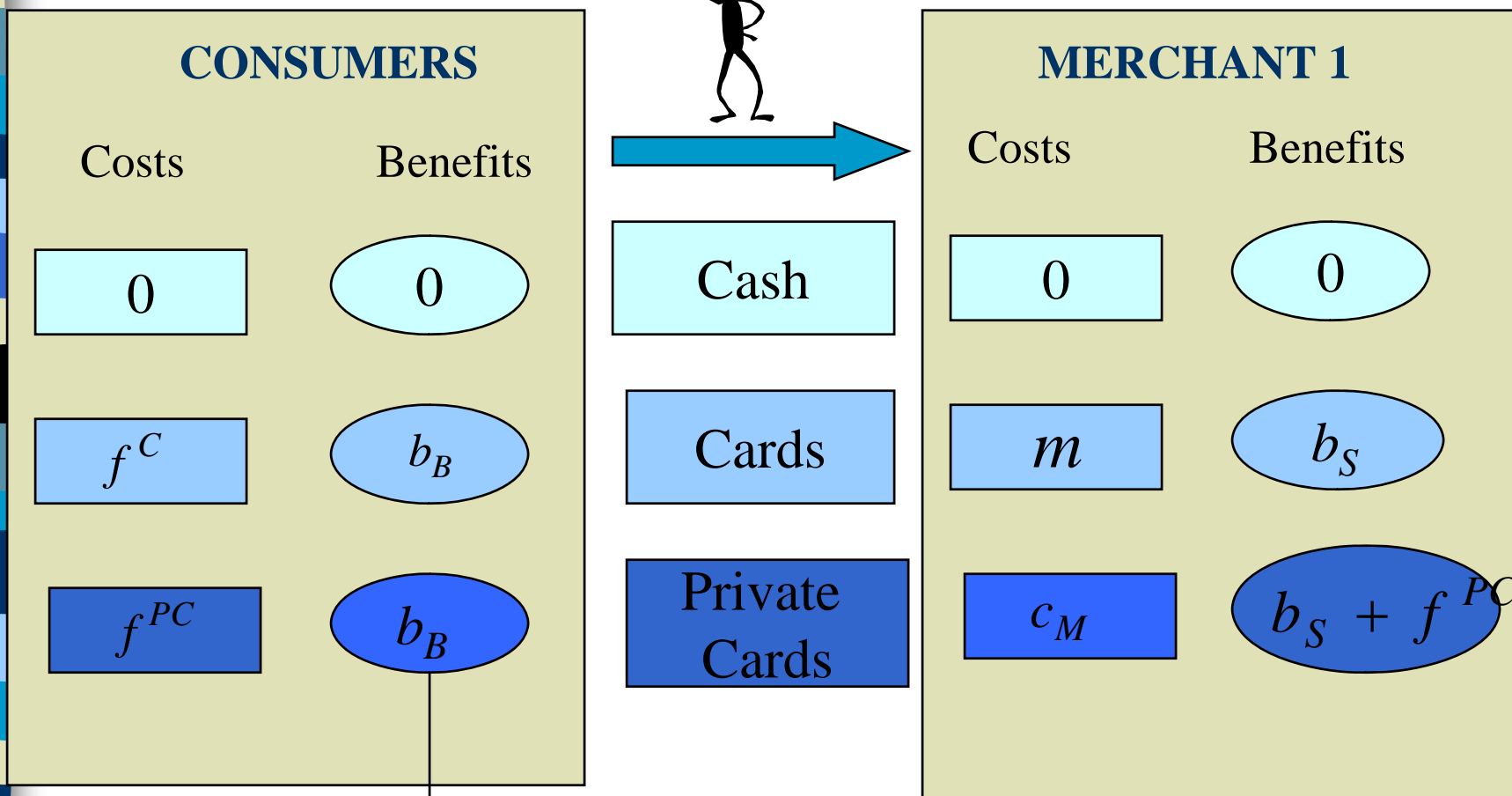
PAYMENT SERVICES

- Cash
- Payment Card (if accepted)
- Private Card (if issued at a cost F)

PAYMENT SERVICES

- Cash
- Payment Card (if accepted)

The model



Uniform distribution over $[0,1]$



The model

- A monopolistic Issuer:
 - Marginal cost c_I
 - Card fee f^C
- A monopolistic Acquirer:
 - Marginal cost c_A
 - Merchant fee m
- The payment platform chooses the interchange fee a^P that maximises banks' joint profits.



Timing

- Stage 1: The payment platform chooses the interchange fee.
- Stage 2: Merchant 1 decides whether or not to issue a private card.
- Stage 3: Banks choose the transaction fees and merchant 1 chooses the private card fee.
- Stage 4: Merchants decide whether or not to accept cards.
- Stage 5: Consumers decide which payment instrument to use and which merchant to buy from.

A benchmark: no private card

- Strategic merchants are ready to pay for a higher merchant fee to attract consumers to their stores as in Rochet and Tirole (2002).
 - Both merchants accept cards if $m \leq b_S + (1 - f^C)/2$
- The PS sets the maximum IF compatible with merchants' acceptance of payment cards,

$$(a^P)^B = (4(b_S - c_A) + 1 - c_I) / 3.$$



IF MERCHANT 1 ISSUES PRIVATE CARDS...

15/11/2008

Stage 5 and 4

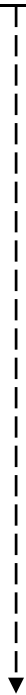
If both merchants accept cards and if the price of the private card is lower than the card fee ($f^{PC} \leq f^C$).



Merchant 1

Merchant 2

Cash	$b_B \in [0, f^{PC}]$	Cash
Private Card	$b_B \in [f^{PC}, f^C]$	Cash
Private Card	$b_B \in [f^C, 1]$	Card



Stage 5 and 4

Merchant 1

$$D_1^{Cash} = f^{PC} w_1$$

$$D_1^C = 0$$

Merchant 2

$$D_2^{Cash} = f^C w_2 - \underbrace{(\Delta f)^2 / 4t}$$

$$D_1^C = (1 - f^C) w_2 - \underbrace{(1 - f^C) \Delta f / 2t}$$

$$D_1^{PC} = (1 - f^{PC}) w_1 + (1 - f^C) (\Delta f) / 2t + (\Delta f)^2 / 4t$$

Stage 5 and 4

- Each merchant chooses the price that maximises its profit:

Merchant 1:

$$\pi_1^{C,C} = (D_1^{Cash} + D_1^{PC})(p_1 - c) + D_1^{PC}(b_S + f^{PC} - c_M)$$

Merchant 2:

$$\pi_2^{C,C} = (D_2^{Cash} + D_2^C)(p_2 - c) + D_2^C(b_S - m)$$

Stage 5 and 4

- Merchant 1 is indifferent between accepting cards or not since its consumers always prefer the private card when they come to his shop.
- Merchant 2 accepts cards if:

$$\pi_2^{C,C} (m, f^C, f^{PC}) \geq \pi_2^{C,NC} (m, f^C, f^{PC})$$




Stage 3: Transactions fees

- If Merchant 1 issues private cards, his best response is to set $f^{PC} = 0$.
- On the market for payment card transactions:
 - Competition with the Issuer.
 - Higher benefits with the PC than with cash.
- On the product market
 - Strategy to attract consumers who shop at M2 's.
 - A lower PC fee softens the competition on the product market.

Stage 3: transaction fees

- Maximum merchant fee $\tilde{m}(f^C)$ such that both merchants accept cards and


$$\tilde{m}(f^C) \in \left[b_S + (1 - f^C)/2, b_S + 3(1 - f^C)/4 \right]$$

Merchants less resistant to card acceptance with the PC.

- Equilibrium transaction fees:

$$(\tilde{m}((f^C)^*), (f^C)^*, 0)$$



Stage 3: transaction fees

- Effects of competition with the private card.
 - ↓ *On the price structure:*
 - Higher merchant fee for M2.
 - Lower card fee for consumers.
 - ↓ *On the total price:*
 - It increases for low values of the IF.



Stage 2: entry decision

- Merchant 1 decides to issue private cards if:

$$\pi_1^{C,C}(0, (f^C)^*, \tilde{m}((f^C)^*)) - F \geq \pi_1^B((f^C)^B, m^B)$$

Stage 1: interchange fee

- Effect of IF on transaction fees:
 - The card fee decreases with the IF.
 - The merchant fee increases with the IF.
- Effect of IF on M1's incentives to issue PC:
 - (1) A higher IF increases M2's perceived marginal cost, and lowers its market share (+)
 - (2) A higher IF reduces the card fee, increases the demand of M2, and reduces M1's incentives to compete with the Issuer (-)

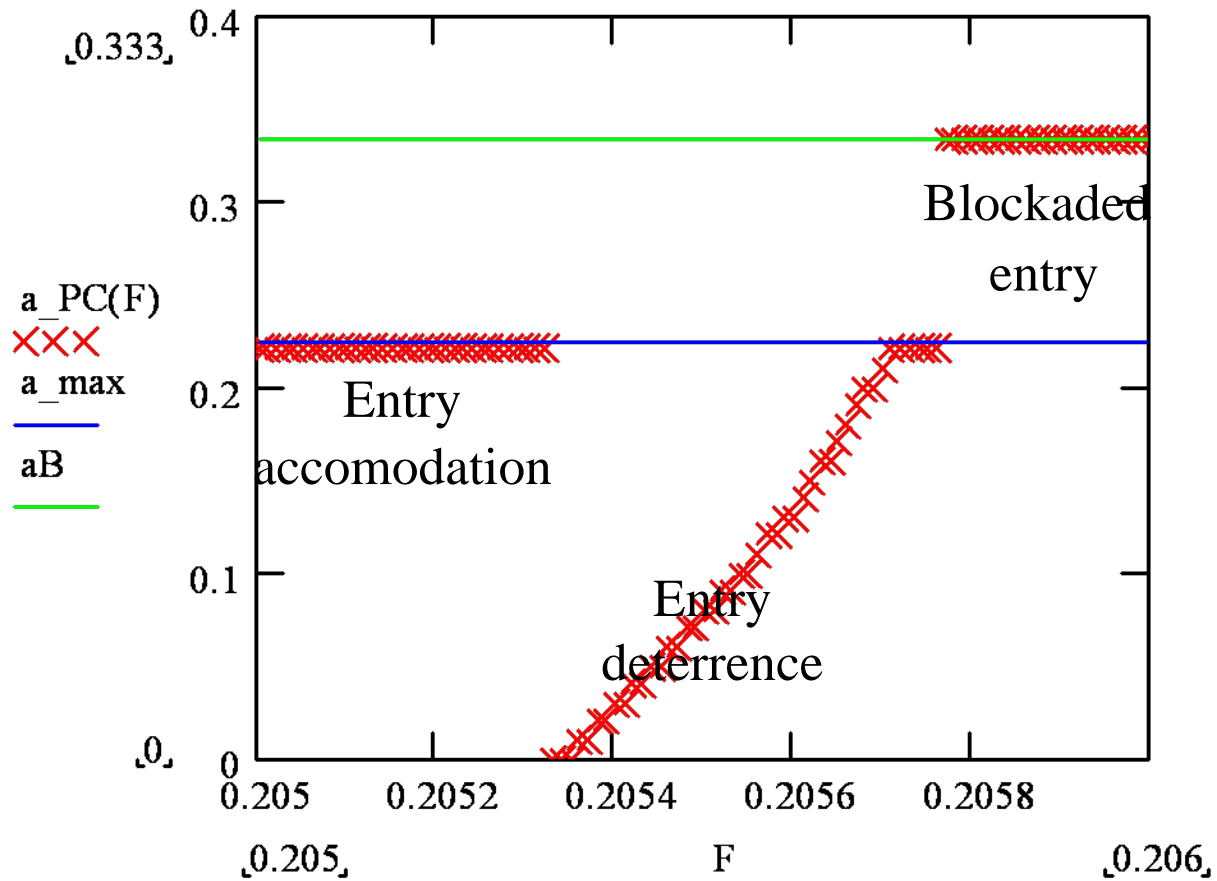


The equilibrium depends on these two effects.

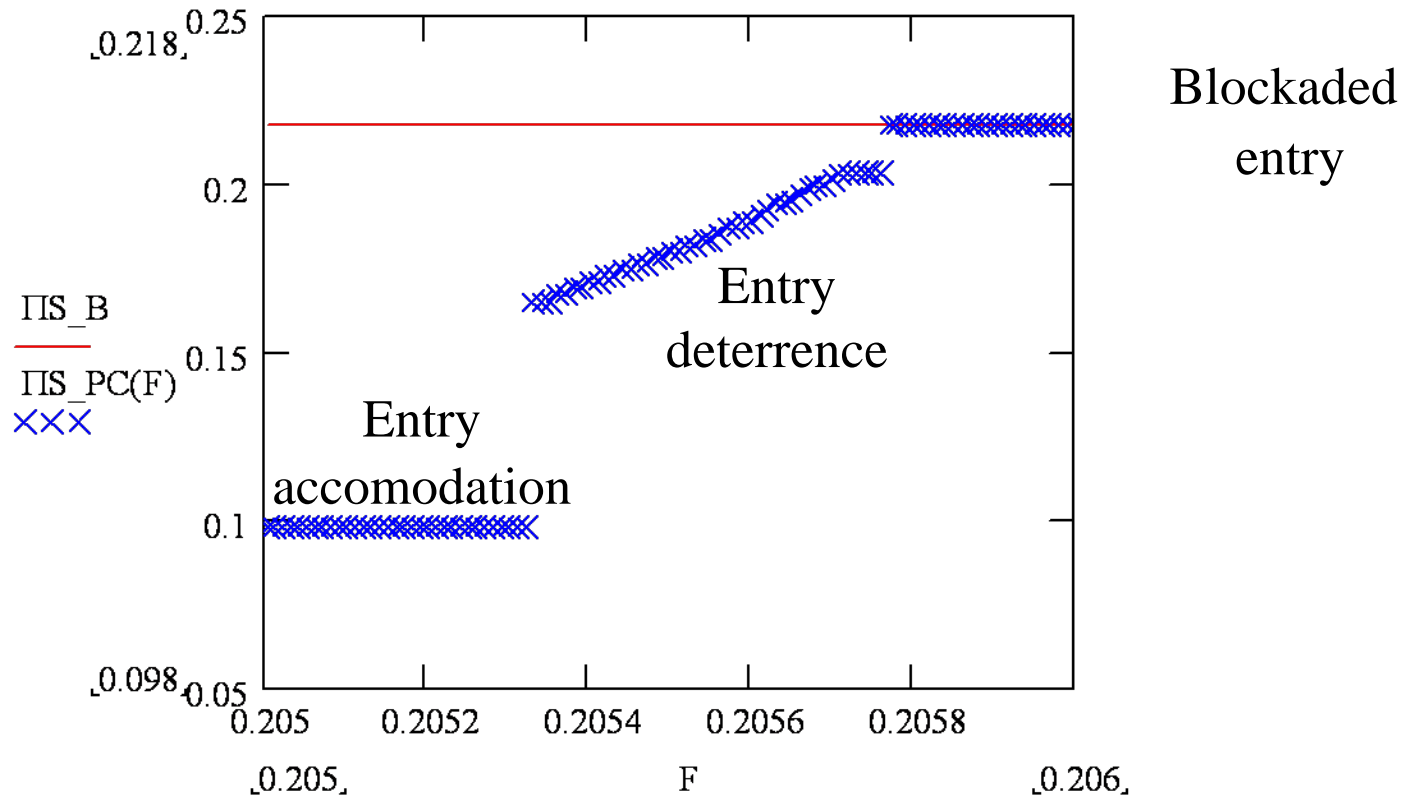
Stage 1: Interchange fees

- Definition: \hat{a} , the maximum IF such that merchant 1 enters the market.
- There are three equilibrium outcomes
 - (1) Blockaded entry
 - (2) Entry accomodation
 - (3) Entry deterrence, the payment platform deters entry by choosing $(a^P)^* = \hat{a}$

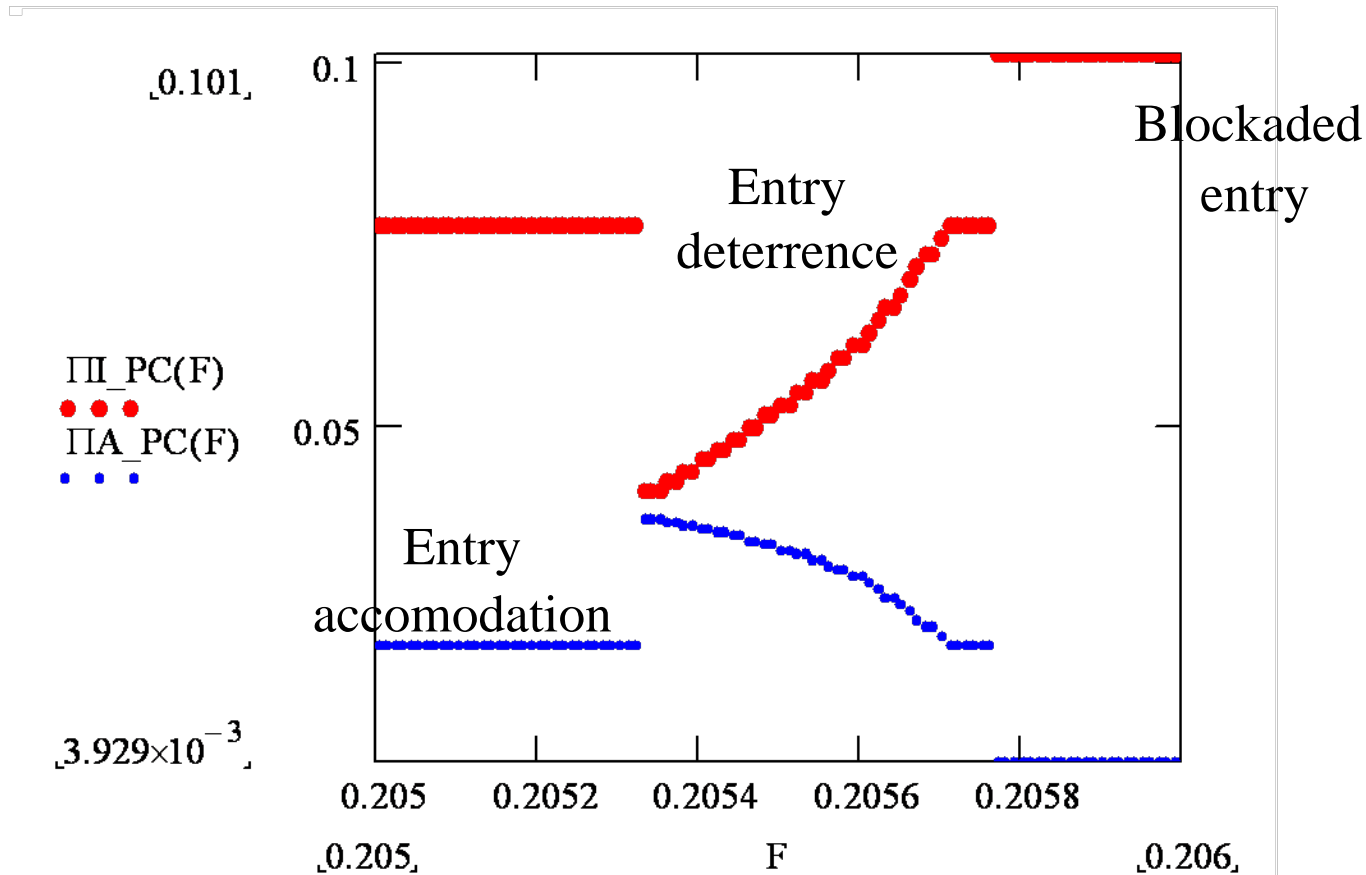
Stage 1: Interchange fees



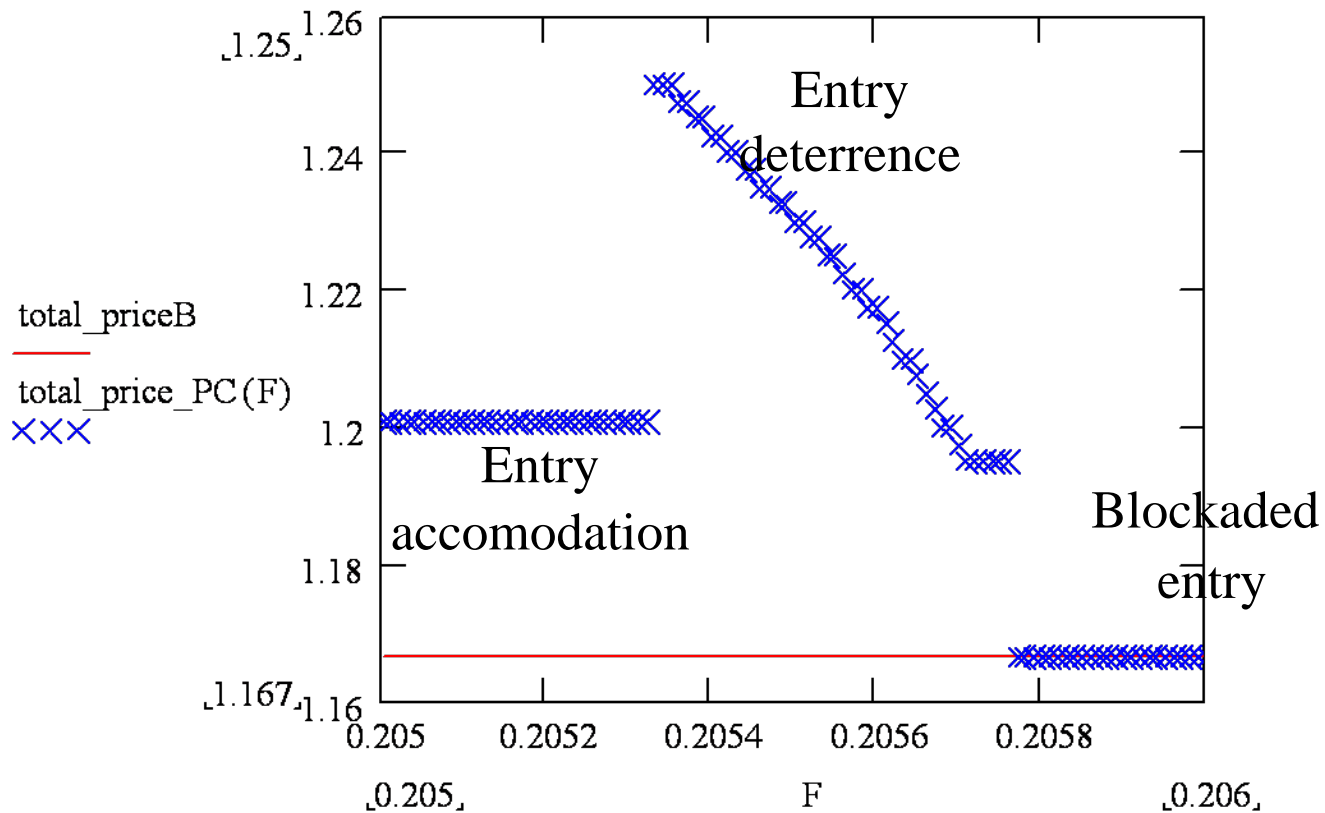
Stage 1: the profit of the platform



Stage 1: the profits of the banks



Stage 1: the total price





Stage 1: interchange fees

- The threat of the competition with the private card leads the payment platform to choose a lower IF.
- The total price is higher with private cards.
- The acquirer benefits more from entry than the issuer with a bilateral monopoly.



Conclusion

- The IF can be used by payment platforms to deter or accommodate entry of private cards.
- Other forms of opt-in strategies?
 - Cobranding agreements
 - Merchants as banks
- Other forms of opt-out strategies?
 - Private networks for an association of merchants.