Puzzle: Why Do Merchants Accept Card Payments?

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Is there a puzzle?

- **Merchants *do* reject cards**
  - ☐ Honor only selected cards
  - ☐ Restrict applicable transactions
  - ☐ Post different prices
- **Merchants also reject cash**
  - ☐ On-line, on-phone sales
  - ☐ Reservations, security deposits

Cards appear to be profitable

- **Strategic motive for card acceptance**
  - ☐ Broadens base of potential customers
  - ☐ Differentiates their products
  - ☐ Segments their customers
- **Evidence of profitability**
  - ☐ Merchants issue their own cards
  - ☐ Credit interchange much higher than debit
  - ☐ 2 billion mail solicitations/year !

Hayashi's model

- Find equilibrium among the card network, merchant(s), and consumers
  - Characterize m, f, p, card acceptance, merchant selection, and possibly quantity of purchase
  - Examine monopoly v. duopoly merchants, inelastic v. elastic demand
- Then solve the puzzle
  - Examine whether cards accepted even when: $m > t_m$
  - Welfare analysis comparing equilibrium against no-cards case
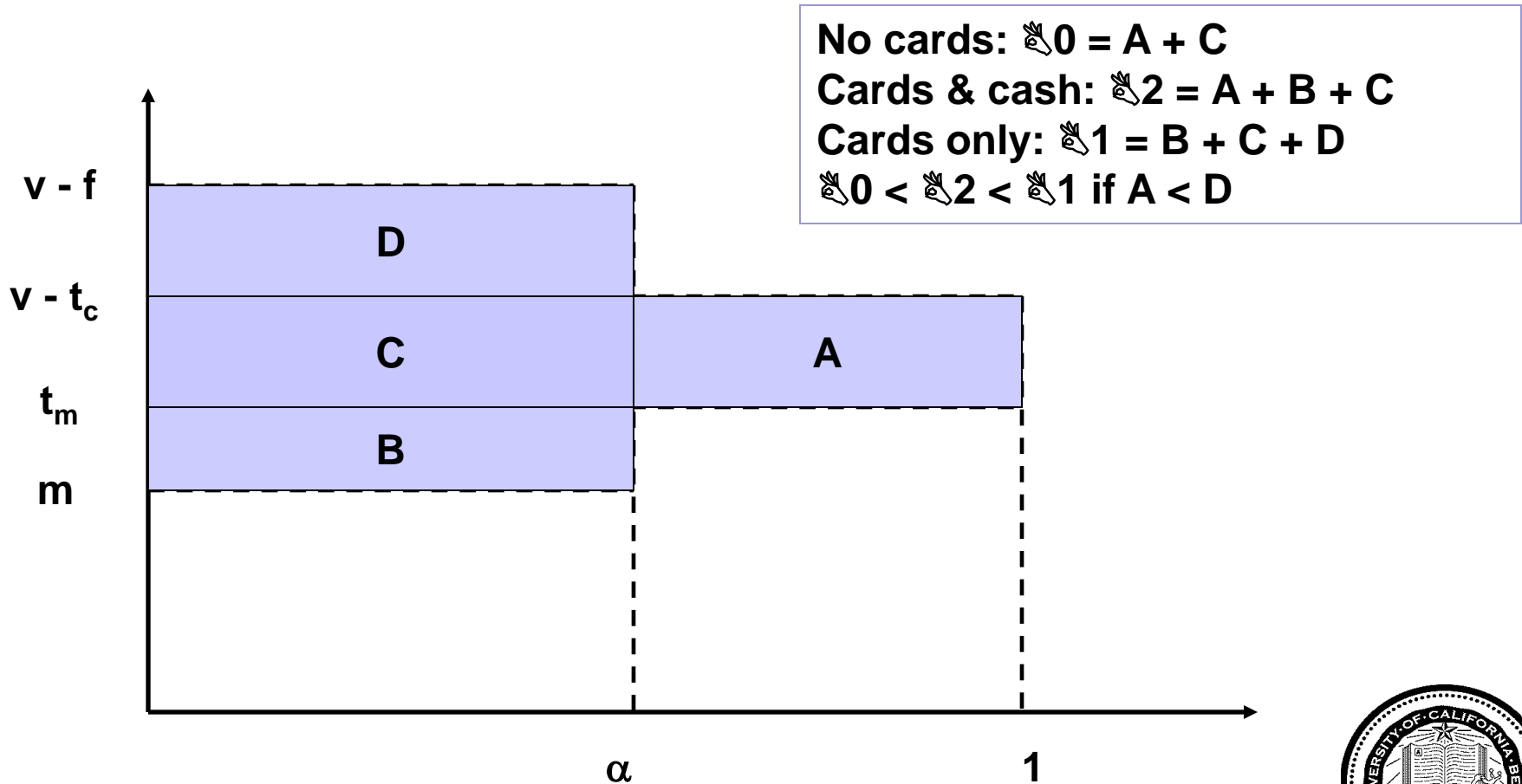 - And much more …

Some restrictive assumptions

- Monopoly card network
- Fixed proportion of card holders
- One price for cash and card
- Nonstrategic consumer fee (f)
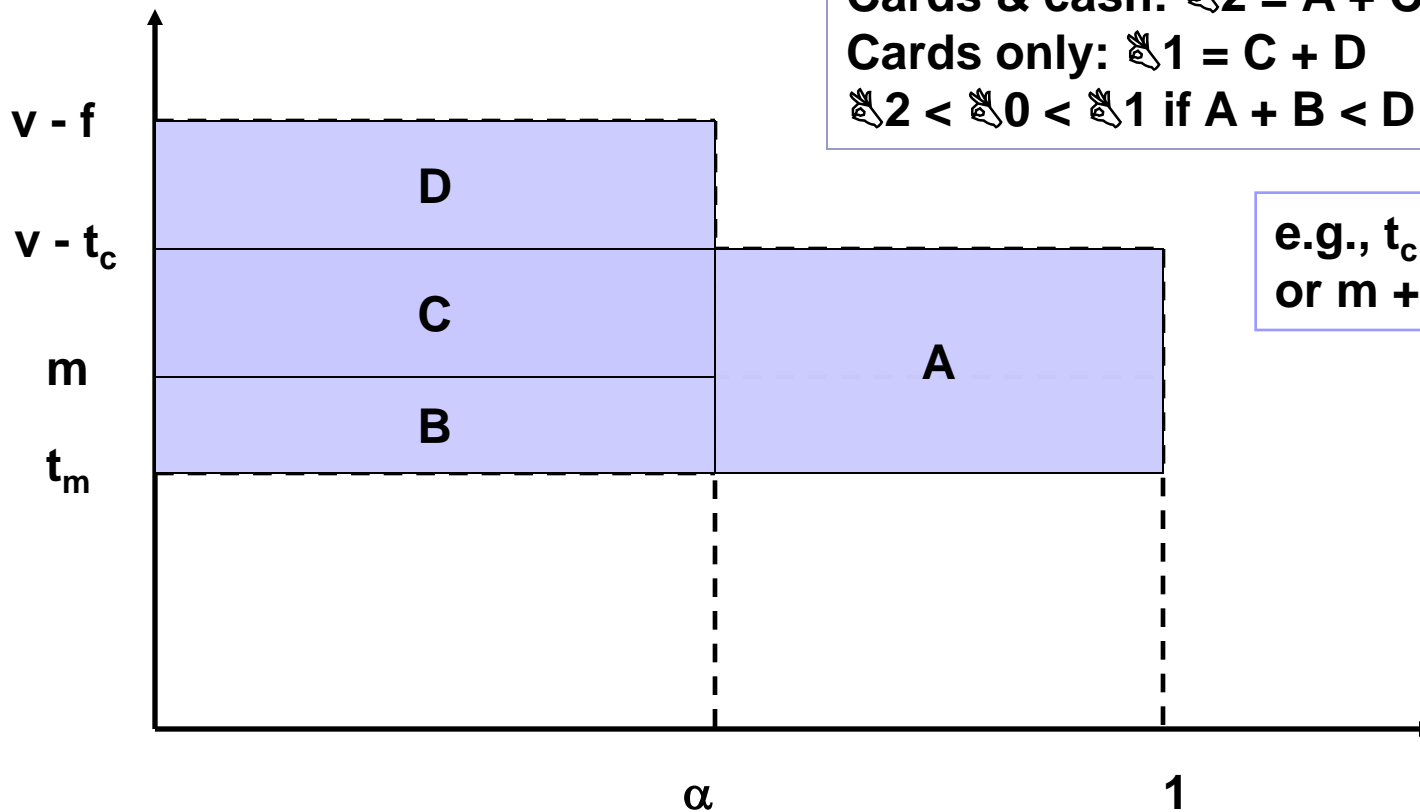- Transaction costs proportional to quantity

Monopoly pricing when m < t_m

No cards: $\pi_0 = A + C$
Cards & cash: $\pi_2 = A + B + C$
Cards only: $\pi_1 = B + C + D$
$\pi_0 < \pi_2 < \pi_1$ if $A < D$

Puzzle solved: m > t_m

No cards: 0 = A + B + C
Cards & cash: 2 = A + C
Cards only: 1 = C + D
2 < 0 < 1 if A + B < D

e.g., t_c - f > m – t_m
or m + f < t_m + t_c

Card surplus creation is key

- Monopoly with linear demand
    - $m + f < m^1 + f < t_m + t_c$
- Duopoly with inelastic demand
    - $m + f < m_1 + f = t_m + t_c$
- Critical role of customer fees: f

What if's

- What if there was card network competition?
    - Customer fees (f) likely to be lower, creating surplus
- What if different cash and card prices?
    - More surplus available by relaxing constraint
- What if customers were heterogenous?
    - Additional surplus available from price discrimination