Platform Competition in Two-Sided Markets: The Case of Payment Networks

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Two-Sided Markets

- Markets where a single or multiple providers serve two distinct types of end-users

- A market is said to be two-sided if a change in the price structure at a given price level affects the volume of transactions

- Examples: yellow pages (advertisers and users), Adobe Acrobat (creators of documents and readers), and video games (developers and users)

Retail Payment Networks

- The market for payment services is an example of a two-sided market with two distinct end-users—consumers and merchants

- Merchants seldom charge different prices based on the type of payment instrument used

- Policymakers concerned with the effects of competition on price level and price structure
  - U.S. vs MasterCard and Visa (2001)
  - The VisaCheck/MasterMoney Antitrust Litigation (1996)
  - Reserve Bank of Australia (2002)

Existing Literature

- Modeling of a four-party payment network
  - Baxter (1983)

- Single payment platform
  - Chakravorti and To (2003)
  - Gans and King (2003)
  - Rochet and Tirole (2002)
  - Schmalensee (2002)
  - Schwartz and Vincent (2002)
  - Wright (various)

- Multiple payment platforms
  - Guthrie and Wright (2003)
  - Rochet and Tirole (2003)

Key Differences with the Literature

- Consider network-specific benefits to consumers and merchants

- Consider the effects of competition on both price level and price structure

- Consumers pay fixed fees to participate on the network whereas merchants pay per-transaction fees

- Do not explicitly model interchange fees

The Model

- 3 Types of agents

  - Consumers (large number)

    - Each consumer buys one good from every merchant

    - Choose among three payment instruments

    - Have specific individual benefits from participating on each payment network

    - Pay fixed fees to join a payment network (only joins one)

The Model

- Merchants (large number)

  - Each merchant sells one unique good to each consumer

  - Choose to accept one to three payment instruments

  - Have individual firm benefits for accepting each network's payment instrument

  - Pay per-transaction fees to join one or both payment networks

The Model

- 2 Payment Networks

  - Face fixed consumer cost and per-transaction merchant cost

  - Set consumer membership fee and per-transaction merchant fee

Network's Share of Consumers
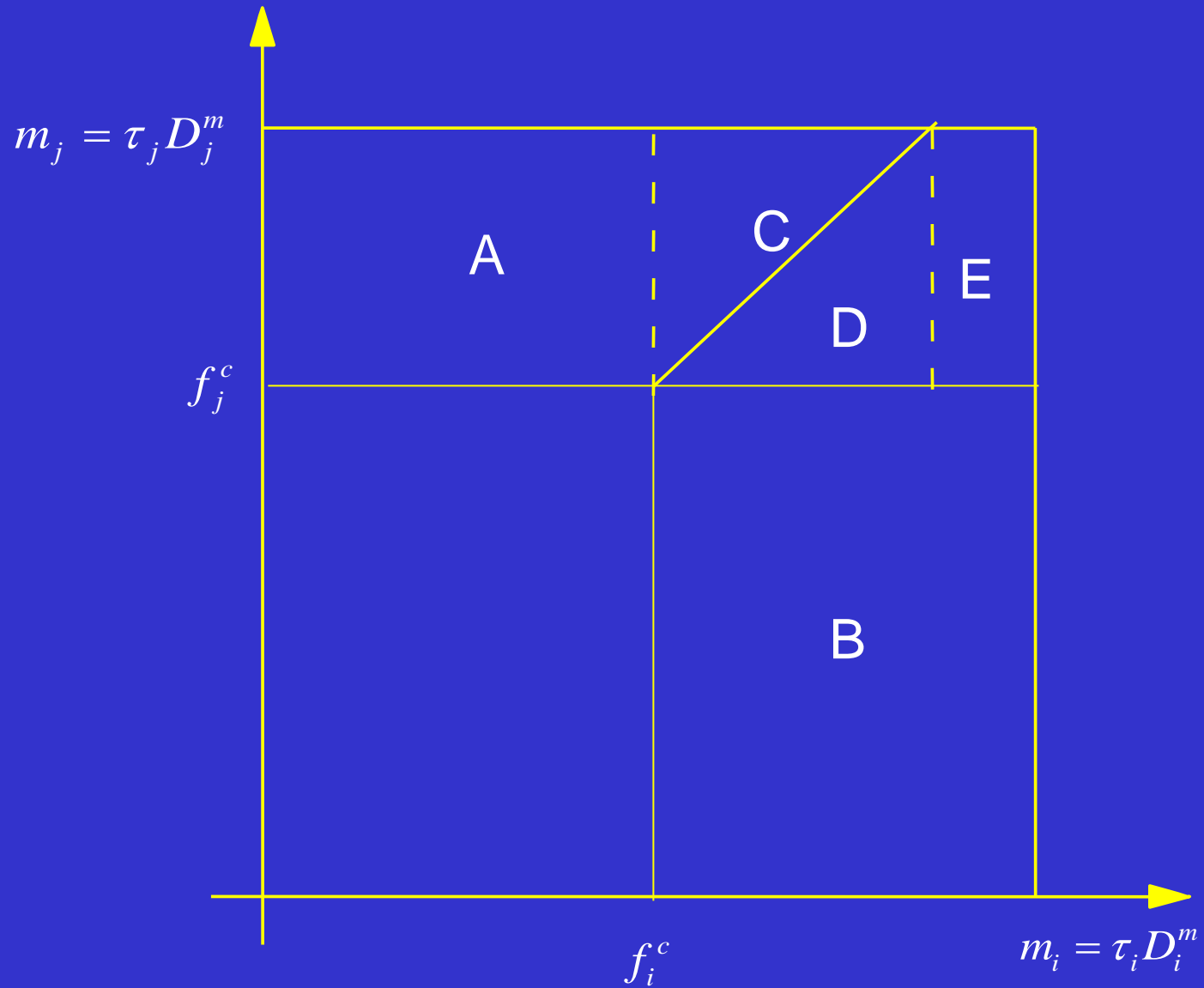
Timeline

- Consumers and merchants learn their level of benefit for each network

- Networks maximize profits, by choosing consumer and merchant fees

- Merchants decide which payment forms to accept

- Consumers decide which payment option to use to make purchases

- Transactions are realized

Results

Proposition 1: Prices in duopoly are always lower than in monopoly, so that competition is always welfare enhancing for both consumers and merchants.

Results (cont.)

Proposition 2: In the symmetric dupolistic market, there is more competitive pressure on the consumer side, if in the monopolistic equilibrium either the merchant fee is zero or:

$$\frac{Mf^c}{D^m} \leq 2\mu - \tau$$

Asymmetric Competition

- Consider two networks that have different cost structures and different ranges of benefits

- As before, competition increases welfare of both consumers and merchants

- The price structure is different for the cartel versus duopolistic competition

Conclusion

- Consider networks that offer differentiated payment products to merchants and consumers

- Competition improves consumer and merchant welfare by reducing the price level for symmetric and asymmetric competition

- We explore whether the monopolistic and duopolistic price structures for a given price level are efficient