Economics of Payment Cards
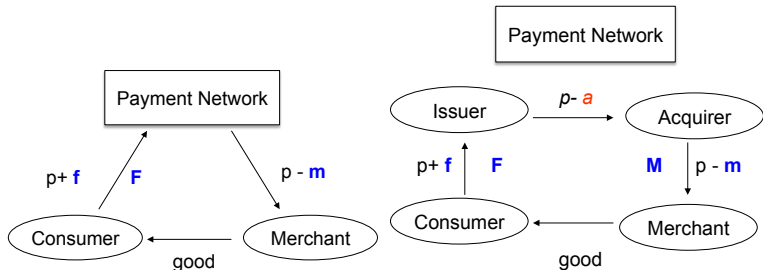
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The payment card industry

(a) 3-party (closed) card network (E.g., AMEX) (b) 4-party (open) card network (E.g., Visa)

- *p* : price of good, *F* : Card membership fee, *f* : card transaction fee, *M* : merchant membership fee, *m* : merchant fee per transaction, *a* : interchange fee (IF).
- IF determines the price structure; how the total transaction price is allocated between the two sides.

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- Profitability of issuing is higher than acquiring in EU and in US.

Policy makers' concerns and interventions

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  - In 2010 Visa and MasterCard reached a settlement with the US DOJ to stop using NSRs.
  - AMEX refused the DOJ's rule and fights with a US law suit.
  - In Australia, Czech Republic, Denmark, Ireland, Netherlands, New Zealand, UK NSR is banned, but in Australia and UK merchants' surcharges are subject to cap regulation based on merchants' costs of card acceptance.

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- There are usage externalities from cardholders to merchants:
  - When cardholders pay by card, merchants have to pay a commission to their bank and might enjoy convenience benefits of being paid by card.

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- Usage externalities could be internalised perfectly and IF is neutral; volume of transactions, profits do not depend on *a*, if merchants could price discriminate based on payment method at no cost (Gans and King, 2003).

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- A 4-party network can set a MIF and a 3-party network set directly end user fees to balance the demand between the two sides.

Questions

1. The role of MIF: Does a 4-party network need a MIF to be efficient?
2. Do the pricing policies of payment networks promote the efficient card usage volume?
   - Should merchant fees (or MIF) be capped?
   - If so, what should be the optimal cap level?
3. The extent to which merchants should be allowed to price discriminate according to payment method.
   - How does NSR impact the consumer surplus, merchant profit and overall welfare?

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  - $f = c_I - a^* = c_I - (b_S - c_A)$, $m = c_A + a^* = b_S$, and so induce efficient volume: Cards are used whenever $b_B + b_S \geq c_I + c_A$.

2. Potential reasons of market failures

Compared to the social optimum

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- Platform competition will correct the first distortion, but it is unclear how it affects the price structure distortion.

2.1. Merchant internalisation

- Ex-ante: Card acceptance is a way to increase quality of the merchant services, so increase store demand and/or steal business from rivals and so to internalise (at least partially) consumer surplus from card transactions, $v_B = E[b_B - f | b_B \geq f]$.

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- The greater merchant internalisation, the more likely it is that the card network exploits the lower merchant resistance by setting an inefficiently high merchant fee (so MIF).

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- Hence, the platform sets a higher IF than the planner, over-taxing merchants and over-subsidising consumers.

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- In general whether network competition leads to a higher or lower MIF is an empirical question.

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- If there is issuer market power, the socially (1st best) optimal IF does not pass tourist test. Privately optimal and 2nd best optimal are both equal to a^*: there is under-provision of card payments due to issuer market power (Guthrie and Wright, 2003).

Socially optimal IF when merchants are homogenous

- When only consumers are heterogenous in their card usage benefits (merchant demand is inelastic), issuer and acquirer markets are perfectly competitive, the Baxter's IF is optimal: $a^* = b_S - c_A$

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- If there is issuer market power and issuers use two-part tariff fees, the first best optimal IF and privately optimal IF are both equal to $a*$. (Bedre-Defolie and Calvano, 2013)

Socially optimal IF

- When both consumers and merchants are heterogenous, there is issuer market power and issuers use two-part tariff fees, the socially optimal price structure (IF) depends on the average user surpluses and the elasticity of demands (Bedre-Defolie and Calvano, 2013):

$$f + m = c$$

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- When both consumers and merchants are heterogenous, issuer and acquirer markets are perfectly competitive, and merchant internalisation holds, the optimal interchange fee is the "average Baxter's IF" (or "tourist test"): $\overline{a}* = \overline{b_S} - c_S$ (Wright, 2003). So efficiency requires tourist test to be met by only the average merchant (Rochet and Tirole, 2011) .

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- We know very little about how we should address vertical restraints in two-sided markets:
  - What should be the relevant market? Total volume of transactions or market for consumers or market for merchants?
  - If a payment network has no dominant position for the total volume of transactions, it could still have strong market power vis-a-vis one side of the market: If cardholders are single-homing and merchants are multi-homing, even if a network has very low market share on the consumer side, it has monopoly power on the merchant side. (competitive bottleneck, Armstrong, 2006)

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- Under NSR, the costs of card acceptance are passed on to the retail price which is paid both by card users and cash users, so lead to redistribution from ("less wealthy") cash users to ("more wealthy") card users (Schuh, Shy, and Stavins, 2010).

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    - Competition among intermediaries intensifies these distortions.

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- Affect of NSRs on the social welfare is ambiguous.
- Optimal policy towards NSR is related to public policy towards merchant fees or MIFs.

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