App Store Competition

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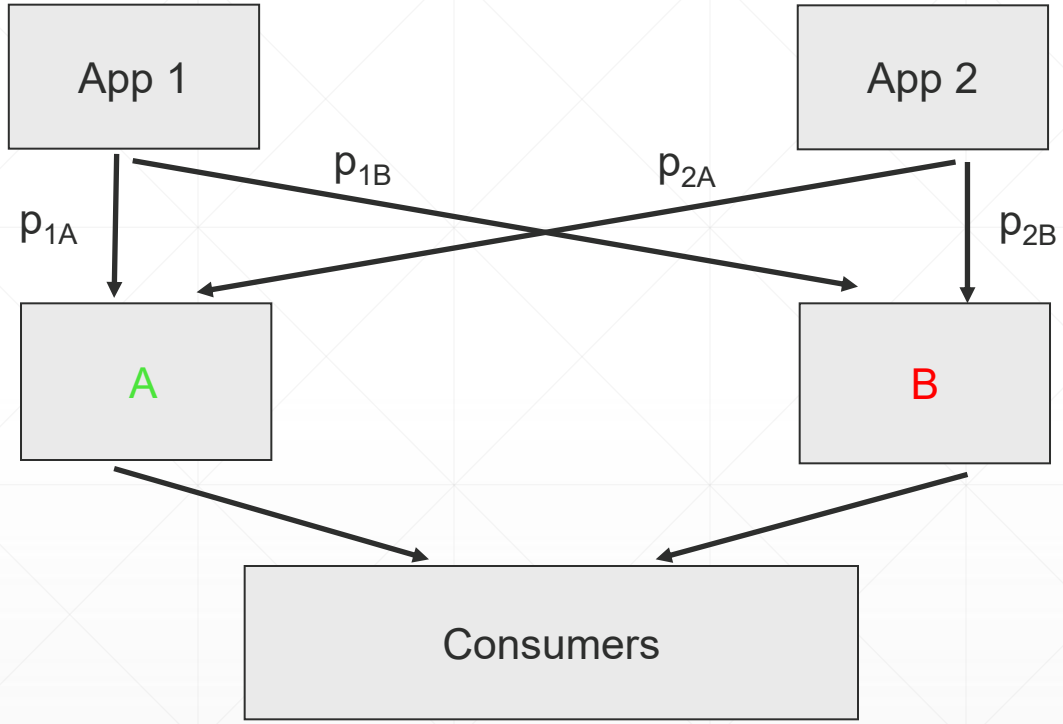
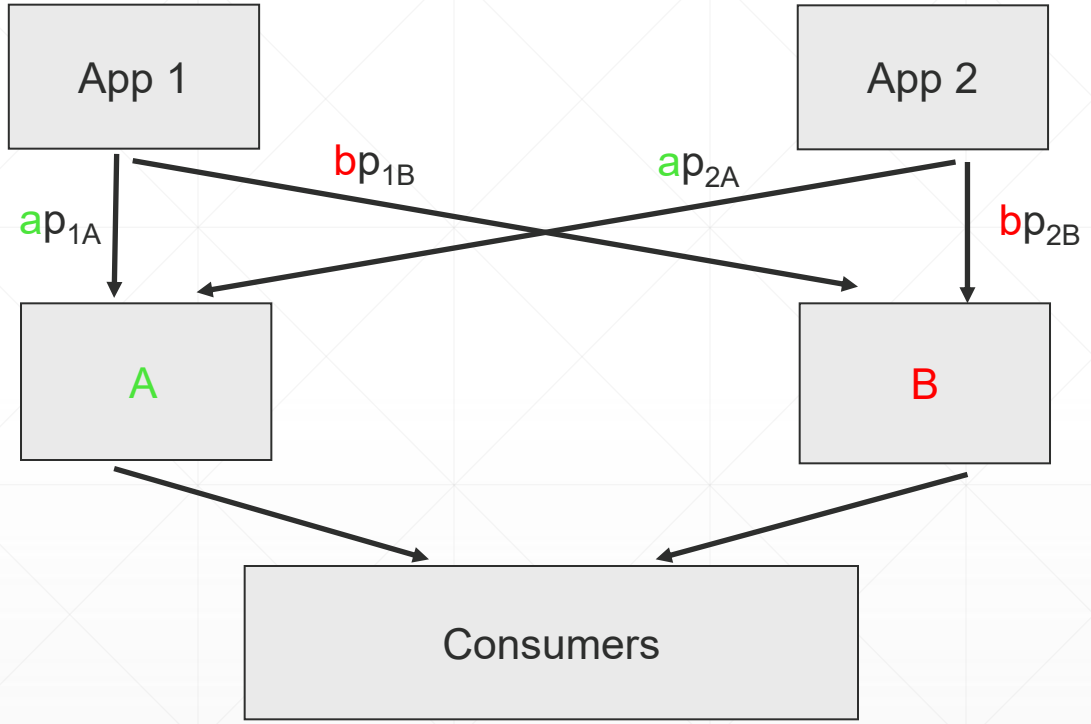
The research question

- How competition between an integrated app store and an independent app store affects commission fees?
- The main idea: competition does not lead to lower fees
- Not sure what the practical implication is…
- Why study fees? Consumer care about the prices of apps…

The general setting



The setting: Ad Valorem fees



- Question: How does competition between A and B affect app's prices?

The effect of commission fees on the prices of apps

- The profit of developer 1:

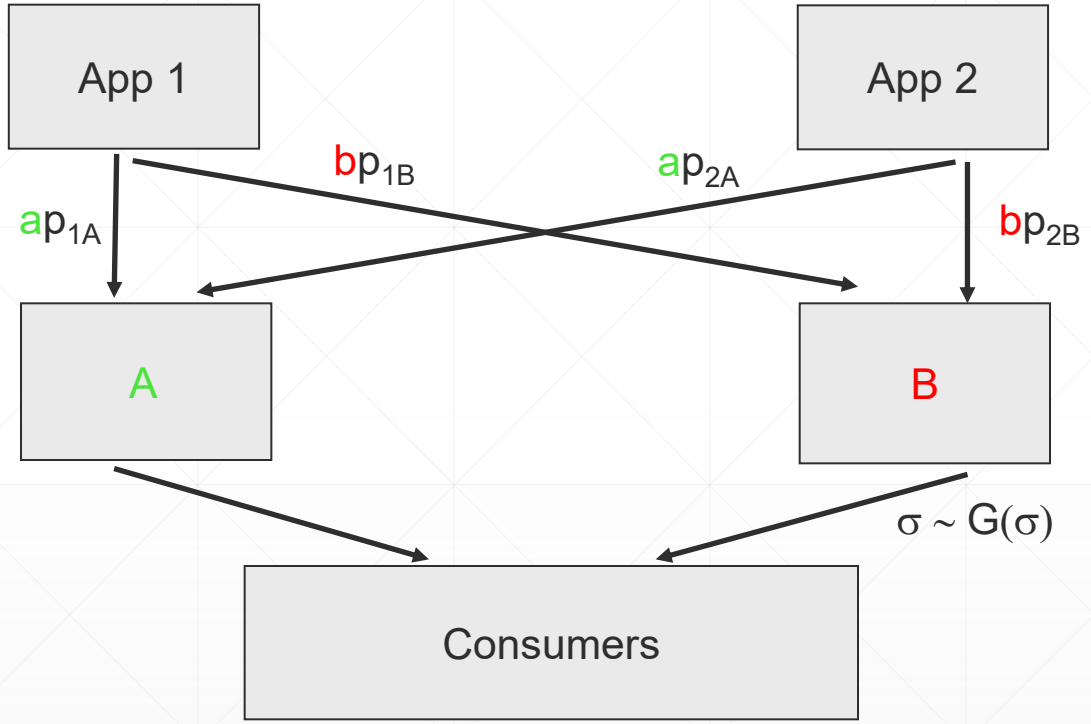
$$\underbrace{(1-m)(1-a)\,p_{1A}d\left(p_{1A}\right)}_{\text{Shoppers in A}}+\underbrace{m(1-b)\,p_{1B}d\left(p_{1B}\right)}_{\text{Shoppers in B}}-k_i$$

- a and b are neutral: no effect on p_{1A} and p_{1B}
- In principle, a and b affect developers' entry and hence prices if demands are interrelated
  - But in this paper, the demands for apps are independent of each other
- The "trick" is to assume that selling the app generates an extra income λ:

$$\underbrace{(1-m)\left[(1-a)\,p_{1A}+\lambda\right]d\left(p_{1A}\right)}_{\text{Shoppers in A}}+\underbrace{m\left[(1-b)\,p_{1B}+\lambda\right]d\left(p_{1B}\right)}_{\text{Shoppers in B}}-k_i$$

- a and b are now distortionary and hence affect p_{1A} and p_{1B}

The setting: A is integrated with the device



- Accessing A is costless while accessing B is costly $\Rightarrow p_{iB} \leq p_{iA}$ (o/w all consumers buy from A)
- b < a (o/w B has a lower price and requires a higher fee, so it's dominated for developers)

Results 1

- The profit of developer 1 when $p_{iB} \leq p_{iA}$:

$$\underbrace{(1-m)\left[(1-a)\,p_{1A}+\lambda\right]d\left(p_{1A}\right)}_{\text{Singlehomers}}+\underbrace{m\left[(1-b)\,p_{1B}+\lambda\right]d\left(p_{1B}\right)}_{\text{Multihomers}}-k_i$$

- "Edgeworth paradox": $a\uparrow \Rightarrow$ the developer keeps less of $d(p_{1A})p_{1A} \Rightarrow$ boost $\lambda d(p_{1A})$ by $p_{1A}\downarrow$
  - Deviating from the optimal p_{1A} has a negligible effect on $d(p_{1A})p_{1A}$ but a non-negligible effect on $\lambda d(p_{1A})$
- If $b < a \Rightarrow p^*_{1B} > p^*_{1A}$ due to the Edgeworth paradox
- But $p^*_{1B} \leq p^*_{1A}$ (o/w all consumers buy from A) $\Rightarrow p^*_{1B} = p^*_{1A}$

Results 2

- Since $p^*_{1B} = p^*_{1A}$, consumers have no incentive to install B $\Rightarrow$ A is a monopoly
- Extra assumptions are needed to study competition…
- Comments:
  - A is not a “natural monopoly”
    - Natural monopoly is an industry not a firm
    - An industry is a natural monopoly of the cost function is subadditive
  - The result arises as B adds nothing… there’s no differentiation of unique features of B
  - Not sure how costly a new store is
    - Consumers who buy a new phone may continue to use their old store (a consumer who buys Samsung may continue to use the Google app store rather than the Galaxy store

Results 2

- Suppose that B provides an extra utility $\Rightarrow$ some consumers install B
- Mixed strategy equil. in the fee setting game between A and B
  - A has “loyal” consumers so Bertrand competition does not lead to 0 fees (similar to Narasimhan (*JB*, 1988))
- The support of A’s prices includes prices above the monopoly level
  - Not clear what the intuition is

Results on competition

- The paper considers various variants that make B viable and do not involve mixed start
  - A is a price leader
  - B is a free store
  - An app is a superstar and may affect the decision to adopt B
- The average commission fee is not affected by competition
  - Not entirely sure what the intuition is
  - Is there one big reason why this is so?
- Consumers who use B are better off when A is a price leader or B is free. So why do we care about fees?
- There's a section on steering but it seems like a different paper

Conclusion

- The paper shows that having an integrated store does not lead to higher commission fees (relative to competition)
- I'd focus on consumers' welfare
- Are there general conditions under which competition benefits consumers?