On the Antitrust Economics of the Electronic Books Industry

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2013 judgment against Apple – What happened?

Prior to Apple's entry, Amazon dominated the ebook market (still true). In 2009, it sold 90% of ebooks in the U.S. It was contracting with publishers via "wholesale" agreements.

Most ebooks were sold at a retail price of $9.99.

When Apple entered the market in early 2010 (iBookStore & iPad):

- Many ebook prices rose to somewhere between $12.99 and $14.99,
- Vertical contracting agreements between the main publishers and retailers (Apple and Amazon) switched from "wholesale" to "agency".

Blame it on agency?

Plaintiffs asserted and the judge accepted that the adoption of the agency agreements played a role in causing ebook prices to go up.

One of the remedies the judge ordered was for Apple to get rid of agency agreements.

In their settlements with the DOJ (Spring 2012 - Feb. 2013), publishers also agreed to this with Amazon.

The market has largely moved (back) to using wholesale agreements.

Summary of our analysis

We formulate a straightforward theory that can explain why ebook prices rose following Apple's entry into the market.

In our theory, the rise in prices:

- Is *not* driven by the switch from wholesale to agency agreements,
- Is *instead* driven by the newly competitive market for devices (e-readers and tablets).

A competitive device market

"We sell the hardware at cost (...) we want to make money when people use our devices, not when they buy them"

Jeff Bezos, Amazon CEO, October 2012.

A competitive device market

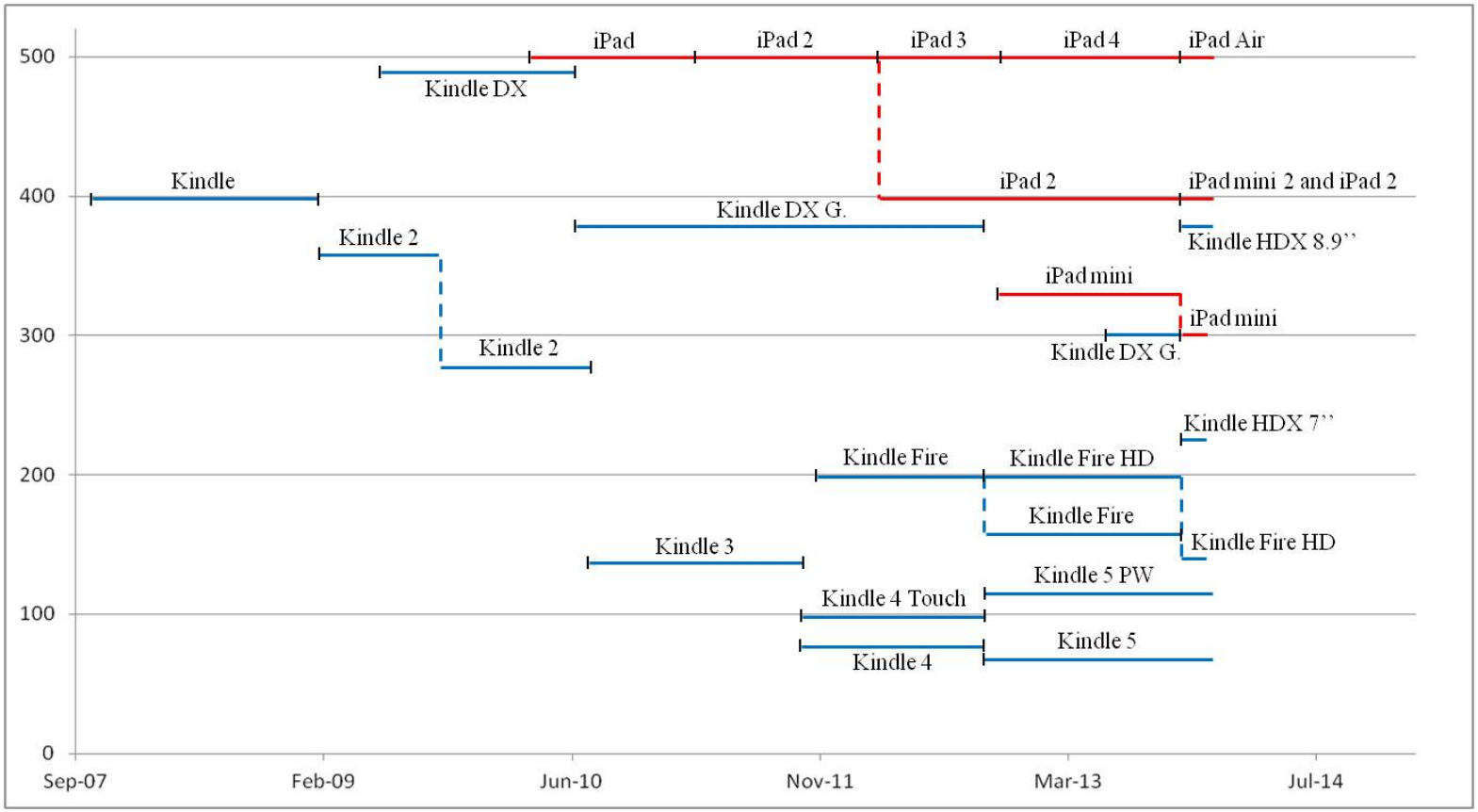

Figure 1: US device prices (base model, current price in $US at launch date)

Summary of our analysis

Our results suggest that, despite the increase in ebook prices, consumers are better off:

- Than they *were* prior to Apple's entry,
- Than they *would be* if, following Apple's entry, wholesale agreements were still used.

The latter point suggests that the court's remedy to abolish agency agreements in favor of wholesale ones will cause harm to consumers.

The Model

The Model

One Publisher

- Marginal cost $c > 0$ (royalties).

One Retailer

- Marginal cost of device normalized to zero.

Consumers who demand ebooks

- No valuation for the device per se.

$$D(p,T) = \begin{cases} D(p) & \text{if } T \leq \int_p^\infty D(x)\,dx \\ 0 & \text{if } T > \int_p^\infty D(x)\,dx, \end{cases}$$

where p and T denote generic ebook and device prices, respectively.

Four scenarios to consider

	Essential Case Retailer has monopoly control over device	**Non-Essential Case** Competitive market for devices
Wholesale	X	X
Agency	X	X

Timing

Wholesale

1. Publisher sets wholesale price w
2. Retailer sets final ebook price
3. Retailer sets device price T

Agency

1. Retailer sets revenue share α
2. Publisher sets final ebook price
3. Retailer sets device price T

Wholesale

Publisher profits

$$(w - c)D(p)$$

Retailer profits

$$(p - w)D(p) + T$$

Agency

Publisher profits

$$((1-\alpha)p - c)D(p)$$

Retailer profits

$$\alpha p D(p) + T$$

Key condition

Preliminaries:

- $P(q)$ denotes Inverse Demand,
- $MR(q) \equiv P(q) + qP'(q)$ is Marginal Revenue,
- $\eta(q) \equiv -\frac{P(q)}{qP'(q)}$ is Elasticity of Demand.

Assumption

Marshall's Second Law of Demand
The elasticity of demand strictly decreases as quantity increases, up to the point where marginal revenue reaches zero.

Formally, $\eta'(q) < 0$ for all q such that $MR(q) > 0$.

(We also assume a strictly weaker condition, $MR'(q) < 0$ for all q such that $MR(q) > 0$ for SOC)

Essential device

Essential device

Proposition

When the retailer exclusively sells an essential reading device, the equilibrium price of ebooks is strictly greater under an agency contracting arrangement than it is under a wholesale arrangement.

Formally:

Let p_m denotes the "monopoly price," given $D(\cdot)$ and c. It holds that $p_\alpha > p_w = p_m$, where the first inequality holds for any $c > 0$, if and only if Marshall's Second Law of Demand is satisfied.

Intuition

Under wholesale, the retailer extracts all consumer surplus with the device price, T. It has no incentive to set p above w, as a two-part tariff setting monopolist with perceived marginal cost w. The publisher faces the demand curve, and sets the monopoly price $w = p_m$.

Under agency, the retailer can do at least as well as under wholesale by setting a zero revenue share. However, when Marshall's Second Law of Demand holds, it prefers a positive revenue share, which drives up the publisher's perceived marginal cost.

The retailer's incentive to set $\alpha > 0$ stems from an incentive to reduce the market power claimed by the publisher.

Non-essential device

Non-essential device

Now there is a competitive market for reading devices, produced and sold at zero marginal cost ($T = 0$). Supply and demand assumptions for ebooks same as before.

Proposition

When the market for reading device is competitive, the equilibrium price of ebooks is strictly greater under an wholesale contracting arrangement than it is under a agency arrangement.

Formally:
It holds that $p_w > p_\alpha > p_m$, where the first inequality holds for any $c > 0$, if and only if Marshall's Second Law of Demand is satisfied.

Intuition and sketch of proof

Intuition:
The distortion arising from double marginalization exceeds that brought on under agency by the retailer's incentive to reduce the publisher's market power.

Proof:
Under **agency**, we can write the first-stage retailer's profits as

$$\left(P(q) - \frac{cP(q)}{MR(q)}\right) q = \left(P(q) - \frac{c}{1 - \frac{1}{\eta(q)}}\right) q \equiv \Pi_A(q). \quad (1)$$

In the first-stage of the **wholesale** case, the publisher's profits are

$$(MR(q) - c) q = \left(\left(1 - \frac{1}{\eta(q)}\right) P(q) - c\right) q = \left(1 - \frac{1}{\eta(q)}\right) \Pi_A(q). \quad (2)$$

Marshall's Second Law of Demand (i.e., $\eta'(q) < 0$) implies that the quantity maximizing expression (1) is strictly greater than the quantity maximizing expression (2).

Summary & Discussion

Summary – Prices

	Essential Case	**Non-Essential Case**
Wholesale	ebook price lowest & device price highest	ebook price highest & device price lowest
Agency	ebook price middle & device price middle	ebook price middle & device price lowest

Discussion

Possible extensions

- Consumer heterogeneity,
- Competition,
- Print books and industry dynamics,
- Parallel with specific and ad valorem taxes.

Other applications

- App Store,
- Music,
- Expedia.

Literature

Related work

- Most Favored Nation clauses (Johnson, 2013a),
- Adverse-selection and intermediaries (Condorelli et al., 2013),
- Impact on traditional business (Abhishek et al., 2013),
- Switching costs (Johnson, 2013b),
- Competing publishers and retailers (Foros et al., 2013).

Conclusion

We show that a straightforward argument exists for why ebook prices rose that does not depend on the switch from wholesale mode to agency mode, but instead depends on the increased competitiveness in the market for e-readers and tablets.

In view of this argument, and it's parsimony, we should be very careful about abolishing agency contracting in favor of wholesale.