Exploding Offers and Buy-Now Discounts

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Exploding Offers and Buy-Now Discounts I

- Relatively little work in economics about sales techniques
- One technique involves forcing a customer to decide to buy quickly, before she knows what other offers are available
- Attempts to ban this practice under EU’s *Unfair Commercial Practices Directive*

**Exploding offer**: customer cannot return to buy later

- photography studio tells customers they must decide what pictures to buy that day (since negatives are destroyed)
- salesman may say he is in the area for that day only, or it’s his last day in that job
- life insurance firm may give quote valid for 10 days, but it takes more than 10 days to generate another quote
- (law) journal offers to publish author’s paper, but requires immediate agreement
Buy-now discount: seller promises to raise price if customer does not buy immediately
- car dealer offers extra $500 off so (as he claims) he can make his monthly quota
- landlord offers $100 reduction in monthly rental if tenant agrees straightaway
- kitchen firm offers long-term quote, together with discount if customer signs immediately

“Surprise” price hike: seller implements unannounced price rise when customer returns to buy
- when browsing for air tickets, customer may find price has risen on returning to previously-visited website
- consulting firm may raise fee if prospective client comes back after finding other consultants are unsuitable
We consider two scenarios:

1. Monopoly model, in which consumers have uncertain—and initially unknown—outside option
2. Oligopoly search model, where consumers search sequentially for good product and/or low price

We assume firm(s) can distinguish first-time from returning visitors

- e.g., job offers, home improvements, doorstep sellers, life insurance, time-share companies, car dealers, “cookies” on computer

Firm(s) then often have incentive to discriminate against returning visitors

- either by making exploding offer, by offering a buy-now discount, or with a surprise price hike
- **Strategic benefits**
  - by making it difficult for a new visitor to return, seller makes continued search less attractive
  - but may also harm seller by reducing the demand from those customers who would wish to buy later
  - applies when seller can commit to its selling policy

- **Information benefits**
  - when seller knows customer has returned after investigating rivals (or outside option), this suggests she likes its offer best
  - when seller cannot commit to selling policy, seller often has incentive to surprise returning buyer with a price hike
Monopoly Analysis

- Single firm supplies product at zero cost
  - its strategy is an initial price and—where relevant—a “buy-later” policy

- Consumers:
  - surplus from buying firm’s product at price $p$ is $u - p$
  - $u$ is idiosyncratic match value: fraction of consumers with $u \geq p$ is $Q(p)$
  - we call $Q(\cdot)$ the “demand curve”
  - the firm does not observe $u$

- If consumer does not buy seller’s product, her uncertain outside option is $v \geq 0$
  - she does not know $v$ when she first visits the monopolist
  - $u$ and $v$ are independent
  - possibly has to pay search cost $s$ to discover $v$ (otherwise just gets zero)
  - no intrinsic cost of returning to monopolist (until later)
  - consumers are risk neutral
For simplicity set $s = 0$ (doesn’t affect result)

Free recall:
- consumers always investigate outside option
- with price $p$, consumer buys if $u - p \geq v$
- expected demand is $\mathbb{E}_v[Q(p + v)]$

Exploding offer:
- with price $p$, consumer buys if $u - p \geq \mathbb{E}_v[v]$
- expected demand is $Q(p + \mathbb{E}_v[v])$

Proposition: From Jensen’s Inequality
- firm makes exploding offers if demand curve is concave
- firm allows free recall if demand curve is convex

This result also holds without commitment if some consumers are “credulous”
For given price $p$, use of exploding offers harms consumers.

Impact of sales tactic on price depends on elasticity (not levels) comparison between $\mathbb{E}_v [Q(p + v)]$ and $Q(p + \mathbb{E}_v [v])$

- ambiguous, but "typical case" (eg., if $Q'$ concave) is that exploding offer involves higher price
- in this case, exploding offers cause two kinds of harm: poor matching and higher price
Monopoly Analysis: Buy-now Discounts

- Instead of extreme policy of refusing to sell to returning buyer, suppose firm offers a discount for immediate purchase.

- Proposition: If the demand curve is strictly log-concave, the firm has incentive to offer a buy-now discount.

- Thus, car salesman (say) has incentive to offer discount to a potential customer visiting for the first time (but if returning later she pays the regular price).

- Introducing buy-later premium:
  - boosts immediate demand
  - reduces returning demand
  - boosts revenue from returning demand [extra effect relative to exploding offer case]

- Sometimes neither price falls when firm engages in this form of price discrimination.
Suppose consumers anticipate firm’s price will be same on return visit
  - does firm have incentive to raise its price to those consumers who buy later?

With no search frictions, answer is clearly “no”

With $s > 0$ but no intrinsic cost of returning to seller after seeing outside option, answer is ambiguous (so far, we have no clear sufficient condition either way)

With $s > 0$ and some small intrinsic cost of return $r > 0$, answer is clearly “yes”...
Suppose $p$ is firm’s initial price (which is also the price anticipated by consumer if she returns to buy later)

- if consumer decides to return to buy then her preferences are such that $u - p - r > v$
- seller can raise price to $p + r$ and not drive any such consumers back to outside option

Same argument shows there is no equilibrium buy-later price which induces any consumers to return

- equilibrium outcome without commitment is as if firm makes an exploding offer
- result is akin to Diamond’s (1971) Paradox
Monopoly analysis useful to obtain economic understanding of individual firm’s incentives

But has some strange features

- all consumers have same distribution of outside option
- no consumer has alternative offers already “in the bag”

Model with sequential search overcomes these problems

Use Wolinsky’s (1986) market model

- consumers search sequentially for a single item
- $n < \infty$ symmetric firms supply differentiated products
- surplus from buying firm $i$’s product at price $p_i$ is $u_i - p_i$
- i.i.d. match values (across consumers and products): probability $u_i \geq p$ is $Q(p)$
- consumer discovers any seller’s match utility, price and buy-later policy by incurring search cost $s \geq 0$
- outside option has zero surplus
Then just as in monopoly model:

**Proposition**

- firms use exploding offers if demand curve is concave
- firms allow free recall if demand curve is convex

**Proposition**

- suppose the demand curve is strictly log-concave
- then starting from Wolinsky’s free-recall equilibrium a firm has incentive to offer a buy-now discount
Suppose the demand curve is $Q(p) = 1 - p$

Suppose there are no intrinsic search frictions ($s = 0$; $p$ is buy-now price; $\hat{p}$ is buy-later price):

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<th>$p$</th>
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