The Economics of Deceptive Products

A taste of theoretical insights, based partly on joint work with Paul Heidhues and Takeshi Murooka

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Hidden Prices/Fees

Stylized fact: **many consumers underestimate fees** associated with product use ("hidden fees").

- Retail banking: avoidable fees, e.g., overdraft fees.
- Credit cards: interest payments.
- Mortgages: broker compensation, payment changes.
- Investments: management fees.
- Printers: cartridge costs.
- Cell phones: extra minutes/data, roaming.

How does this change our understanding of markets and firm interaction?

Simple Example: Bank Accounts

loosely based on Armstrong and Vickers (JEL 2012)

Suppose a bank account costs \$50, overdraft protection \$0 to provide.

- Or: foreign transactions, currency conversions.
- Other examples: printer and cartridge, hotel room and wifi/minibar.

Banks choose an account maintenance fee and an overdraft fee $\leq$ \$50.

Consumers value bank account at \$100.

Consumers are **naive**:

- ignore overdraft fee when signing up, but
- end up paying it.

Results

Monopoly.

- Account maintenance fee: $100; overdraft fee: $50.
- Consumers pay $150 altogether.
  - Rational consumer would pay $100.

Competition.

- Still impose maximum overdraft fee, $50.
  - Competition doesn't eliminate deception.
- But they charge $0 for account maintenance.
  - Starting point: compete down maintenance fee to cost, $50?
  - No: compete harder for profitable consumers.
  - "Free if in credit" banking model.
- Consumers pay $50 in total.
  - Rational consumers would also pay $50.

Safety in markets: competition protects the naive.

- Competition even more beneficial than for rational consumers.

Sophisticated Consumers

Let's focus on competitive market.

Suppose half of consumers are **sophisticated**.

- Aware of, but don't observe, overdraft fee.
- At effort cost \$10, can avoid it.

Equilibrium:

- Firms still impose max overdraft fee, \$50.
- Sophisticated consumers avoid overdraft fee.
- Firms charge \$25 for account maintenance.

$$= \text{cost} - \text{average profit from overdrafts}$$

Economic Implications

1. **Cross-subsidy** from naive to sophisticated consumers.
   - Naive consumers now pay \$25+\$50=\$75 instead of \$50.
   - Sophisticated consumers obtain accounts at \$25, i.e., below cost.
   - Empirically, naive consumers tend to be poorer.

2. **Efficiency losses**.
   - Inefficient avoidance by sophisticated ("exploitation distortion").
   - Wrong set of consumers buys ("participation distortion").
     - E.g., naive consumers with value between \$25 and \$50 inefficiently buy.

But Won't Market Forces Help?

Classical general view: whenever consumers have a problem that leads to inefficiency, firms will help.

Specifically: if consumers make inefficient mistake, firms will **educate**.

- Explain to consumers what's going on, including inefficiency.
- Propose to trade efficiently.
- Cash in part of efficiency gain as profit.
- Conclusion: hidden fees can't persist.

Recall:

- Sophisticated consumers' cost of avoidance: $10.
- Firms' cost: $50.
- In equilibrium, all firms charge $25 for account, $50 for overdrafts.

Incentive to Educate Consumers

based on Gabaix and Laibson (QJE 2006)

Would a competitive bank want to reveal overdraft fees?

- If a bank reveals, all consumers become sophisticated.
- Sophisticated consumers can choose to buy from another bank at price $25 and avoid overdrafting for $10.
- This costs $35 in total.
- Revealing bank can't profitably beat this.
- Hence, **education is not profitable**!

Intuition:

- Revealing allows efficient trade with sophisticated.
- BUT: sophisticated prefer inefficient trade at cross-subsidized price.

Broader intuition: **education turns profitable naive consumers into unprofitable sophisticated consumers**.

Education by Government

Go-to regulatory approach: education by government. Does it help here?

Full education is welfare-increasing.

Partial education may not be.

- E.g., suppose initially all consumers are naive, and we educate half.
- This makes consumers who remain naive worse off.
  - With everyone naive, consumers pay $50.
  - With half sophisticated, naive pay $75.
- It also lowers total welfare.
  - Sophisticated have total cost $35 ($25+$10).
  - So half gained $15 and half lost $25.
  - Reason: now half the consumers inefficiently avoid.

Inferior Products and Profitable Deception

based on Heidhues, Kőszegi, and Murooka (REStud 2017)

Study **profitable deception**.

- Hidden prices often generate high profits.
- Logic of previous models with hidden prices (or switching costs):
  - Once have consumer, very profitable $\Rightarrow$ compete really hard for consumer $\Rightarrow$ prices just as low as without hidden prices.

Take model from above with the following modifications:

- Sophisticated consumers observe, but can't avoid, hidden fees.
- **Transparent price must be non–negative.**
- There are two products in the market:

	value	cost	max. hidden fee
superior	10	0	0
inferior	11	2	3

- Example: Vanguard versus actively managed mutual funds.
  - Passive funds are better, yet active funds remain popular.

Inferior Products Rule

Plausible equilibrium:

- Offer superior product at price zero; sophisticated buy.
- Offer inferior product at price zero, but with hidden fee of 3; naive buy.

Some interesting features:

- Firms make **zero profits on superior product, positive profits on inferior product**!
  - $\Rightarrow$ Firms want to push the inferior product.
- The equilibrium is very robust to education.
  - Not even a specialist in the superior product has an incentive to educate.
  - Says that managed funds have remained profitable and attracted so much entry exactly because superior index funds exist.

Naivete-Based Discrimination

based on Heidhues and Kőszegi (QJE 2017)

What is the welfare effect of firms knowing more about consumers?

- Of long-standing interest to economists, topic of huge literature.
- Especially relevant today in the context of privacy debates.

Near-universal assumption: info firms acquire is about preferences.

- Leads to **preference-based discrimination**.

Literature on consumer naivete suggests an alternative perspective.

- Firms may learn about naivete — who can be taken advantage of.
  - We call this **naivete-based discrimination**.
  - Can use correlates of naivete, e.g., education, income, age.
  - Or can use analysis of individual consumer behavior.

How does this change implications?

Classical Preference-Based Discrimination: An Example

Suppose monopolist pharmaceutical is producing drug at cost $0.

- Patients in Hungary have value between $0 and $1,000, all with equal probability.
- Patients in Britain have value between $1,000 and $10,000, all with equal probability.

If firm doesn't observe nationality or can't discriminate.

1. **Drops the Hungarian market.**
2. Sets optimal price for British market, $5,000.

If can discriminate:

- Keep serving Brits at price $5,000.
- Now also serve Hungarians at $500.
- **Hungarians and firm benefit, Brits equally well off.**

Preference-Based Discrimination: Implications

Discrimination often raises welfare by allowing firm to serve more people.

Firm always benefits.

Among consumers, poor are especially likely to benefit.

May happen so nobody is hurt.

To extent that some consumers hurt, they're often richer.

+1: Discrimination can lower search costs.

And: discrimination only relevant with market power.

- If pharmaceuticals are competitive, charge $0 to everyone.

Simple Model of Naivete–Based Discrimination

And of naivete in the credit–card market

Suppose monopolist credit-card provider serves mix of consumers.

- Naive pay 30% of borrowed amount in unexpected charges.
  - Interest, late fees, over-the-limit fees, etc.
- Sophisticated avoid extra charges.
- Half are naive.

No Naivete–Based Discrimination

Basic prediction: **overlending**.

- Suppose consumers are at point where $1 of extra borrowing generates only 90 cents in value for them.
- To get consumers to borrow, the lender must subsidize it by 10 cents (in some form).
- Will still do it: get an extra 30 cents from half of consumers, or 15 cents per consumer.

Such borrowing is social waste.

Consistent with view that consumers borrow too much on credit cards.

Naivete-Based Discrimination

What if **lender knows that a consumer is naive**?

- **Increase overlending**.
  - Knows it can get 30 extra cents from each consumer.
- **Makes naive consumers worse off** by increasing unexpected charges.

So monopolistic naivete-based discrimination:

- Will hurt some consumers.
  - Because it hurts the naive, it tends to hurt lower-income consumers.
- Typically lowers social welfare.
  - Perfect preference-based discrimination maximizes welfare, perfect naivete-based discrimination minimizes welfare.

Competitive Naivete-Based Discrimination

Note: logic of overlending doesn't depend on whether lender is monopolistic or competitive.

- Incentive unchanged.
  - Yet another example where competition doesn't eliminate efficiency cost of naivete.
- So implications of discrimination for total welfare same as in monopoly.

Naivete-based discrimination remains relevant with competition.

Discrimination might hurt all consumers without helping firm.

- Naive consumers hurt due to increase in overlending.
- Sophisticated consumers hurt due to loss of cross-subsidy.
- Firms make zero profits in either case.

Naivete, Degree of Competition, and Prices

based on Heidhues, Kőszegi, and Murooka (2021)

Switching markets: need service for extended period; sign up for one; get other offers, can switch.

Stylized facts:

- Consumers tend not to switch to much better deals.
  - Explanation: high switching costs.
- Prices are high.
  - But this isn't explained by high switching costs: competition should be shifted to beginning.
  - And sometimes there are no price floors to prevent that.

Our explanation: procrastination.

- **Want to, plan to, and expect to switch, but *later*.**
- Once signed up, don't switch $\Rightarrow$ no competition.
- At beginning, think **will** find best deal $\Rightarrow$ not important to get best deal now $\Rightarrow$ **no competition**.

Conclusion

Markets don't just work for the benefit of consumers.

- They provide an incentive not just to serve consumers, but also to take advantage of consumers.

Haven't talked much about **policy**.

- E.g., current approach to privacy: transparency and control.
- I don't know what the right policy is, but I know this is grossly insufficient.

Hope: literature will help provide **economic foundations for consumer protection**.

- Currently, consumer protection is not much informed by economics.
- It would be big step forward to provide general principles founded in economic theory and econometric measurement.
- Might be similar to role of industrial organization in competition policy.