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Monetizing Privacy and Price-setting for Personal Data

Evidence from the 2012 ENISA study on Privacy

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I. Introduction

Price-setting Models for Personal Data

II. Experimental Design

Motivation

Design

Main Results

III. Conclusions

I.

Introduction

Price-setting Models for Personal Data

Dissecting Transaction Structures

Fig. 1

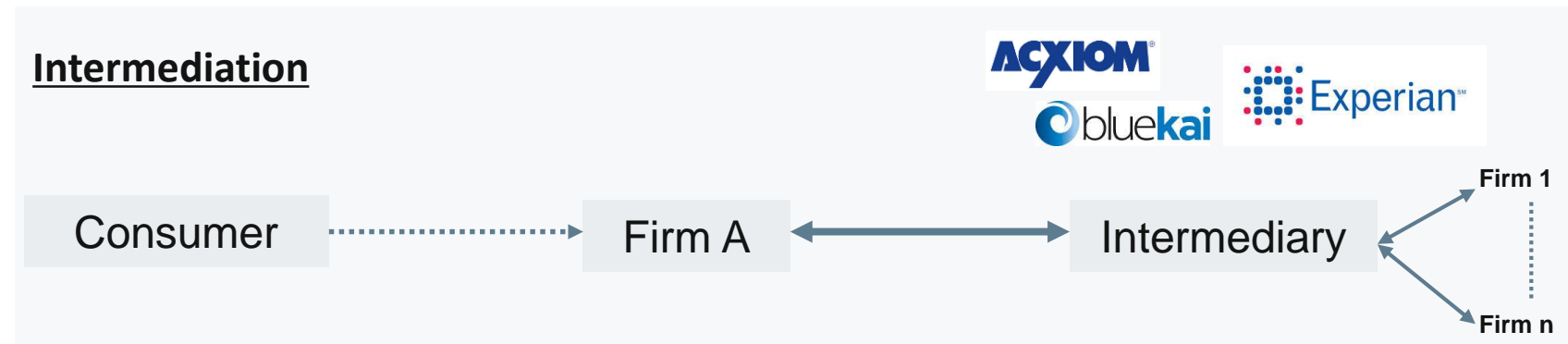
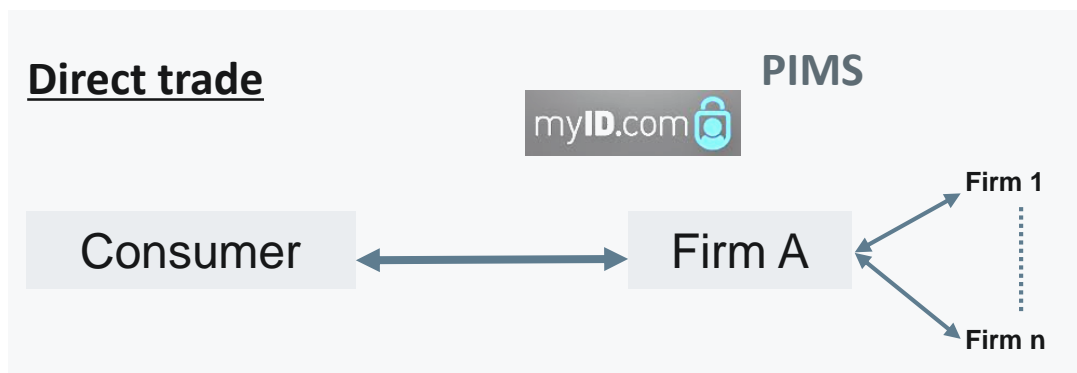


Fig. 2



I.

Introduction

Price-setting Models for Personal Data

Price-setting Mechanisms

= Mechanism design to match sellers and buyers of personal data

Take-it-or-leave-it (TIOLI), e.g. price discounts

Auction

= Mechanisms differ on who sets the price for personal data, this gives rise to differences in uncertainty (about the price).

One of the most common mechanisms is TIOLI

II.

Experimental Design

Motivation



ENISA P/34/10/TCD Project

Monetizing Privacy – An Economic Model for the Pricing of Personal Information



Motivation

Scale and scope of collection of personal data on consumers

What is the effect on consumers & competition?

Personalization of services as switching barrier?

Implementation of TIOLI

II.

Experimental Design

Design

- Laboratory experiment, field & hybrid experiment
- Consumers go on cinema portal www.kinofix.de, where they can compare offers of sellers of cinema tickets
- Choice of one of two sellers of cinema tickets, offers differ according to treatments
- Personalization (filled-in form) possible in case of return

The portal and two firms were for real, as well as the cinema showings, online payment mechanisms and tickets.

INCENTIVE-COMPATIBLE!



II.

Experimental Design

Main Results

Summary stats: 443 lab participants (192 buyers)
+ 2300 visitors, 642 choosers, 86 buyers

Main results from the lab (with personal data verification):

In treatments without price differences (treat. 2, 4 and 5) and **VERY obvious differences** in data collection practices, the privacy-friendly firm **snatches a greater share of the market.**

In treatments, where the **invasive firm undercuts its competitor** (treat. 1, 3), **it obtains a greater market share**, but the share of the privacy-friendly firm stays well above 10%.

Main results from the field (no personal data verification, except for buyers):

With no difference in prices, but obvious differences in data collection, the privacy-friendly firm gets a greater market share

Data protection can be a competitive advantage under the following conditions:

The product comparison is not too complex

There are no price differences for the product offered by different firms

The data collection practices *are obvious* (!)

Personal data is verifiable and is in fact verified (giving rise to privacy concerns)

Price-setting mechanism is TIOLI

Vielen Dank für Ihre Aufmerksamkeit.



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Redaktion

BACKUP

1. Laboratory Experiment: Statistics on All
2. Stats on Field & Hybrid Experiment
3. Laboratory Protocol

III.

Preliminary Results

Laboratory Experiment - Overview of Buyers and their Purchases at both Firms: All

Treatment	Number of participants (no. buyers)	No. buyers	Total no. tickets sold	Firm 1 (tickets purchased)		Total no. tickets over two periods (firm 1)	Firm 1 %-share of all tickets sold (col. 4), rounded	Firm 2 (tickets purchased)		Total no. tickets over two periods (firm 2)	Firm 2 %-share of all tickets sold (col. 4), rounded
		Zero, one or two tickets bought		Period 1	Period 2			Period 1	Period 2		
(1)	(2)	(3)**	(4)**	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1***	104 (51)	0 - 53 1 - 7 2 - 44	95	7	5	12	13%	42	41	83	87%
2	68 (32)	0 - 36 1 - 9 2 - 23	55	20	14	34	62%	10	11	21	38%
3***	80 (37)	0 - 43 1 - 6 2 - 31	68	12	9	21	31%	25	22	47	69%
4	69 (31)	0 - 38 1 - 4 2 - 27	58	26	22	48	83%	4	6	10	17%
5*	122 (41)	0 - 81 1 - 14 2 - 27	68	27	15	42	62%	13	13	26	38%
Total	443		344	92	65	157	Avg. 50%	94	93	187	Avg. 50%

Price-undercutting effect, diff. data items

Source: DIW Berlin. * There is no difference between firms in treatment 5, in all other treatments firm 2 is the privacy-unfriendly firm. ** Column (3) adds up to the number of buyers in column (2). The column means that in treatment 1, seven buyers bought one ticket and 44 bought two tickets. Column (4) is based upon these numbers. *** In these treatments, price differences exist.

III.

Preliminary Results

Field & Hybrid Experiment

Results:

- +2,300 visitors, 86 buyers, 71% bought at privacy-friendly firm

Overview of Choosers at Firm 1 and Firm 2 in the Field & Hybrid (P1)*

Treat.	Description	Obs	Choosers		Total no. of buyers	Buyers			
			Firm 1 Choosers			Buyers at firm 1 privacy-friendly		Buyers at firm2	
			Counts	%		Counts	%	Counts	%
3	number_pp	67	28	42	5	1	20	4	80
4	number_pp_control	390	303	78	54	41	76	13	24
5	control_pf_pp	185	142	77	27	19	70	8	30
		642	473	73	86	61	71	25	29

Notes: *About 90% are field observations and 10% are hybrid observations. Choosers typed in their data and either purchased or not afterwards.

- 3 Difference in no. of data items + difference in prices
- 4 Difference in no. of data items, same prices
- 5 Control treatment, no differences in data items, same prices

II.

Experimental Design

Lab Protocol

1. Invitation sent out to subject pool.
2. Subjects show up, take seat, and read the instructions, they sign a general consent declaration.
3. Entry questionnaire with comprehension test.
4. Subjects encounter a live website on which they can buy one or two cinema tickets. They can decide whether to buy a ticket or not from one of two suppliers, displayed simultaneously.

II.

Experimental Design

Lab Protocol

5. Subjects may repeat the purchase. Once they conduct a purchase they fill out the purchase form with their personal data. They can decide whether their data is stored for the next period. The purchase form has to be filled out completely.
6. After the conclusion of the transaction, subjects receive an exit questionnaire. They also received payoffs and left.