

Economics of Privacy

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Well Known Quote from Stigler, JPE 1961

One should hardly have to tell academicians that information is a valuable resource: knowledge is power. And yet it occupies a slum dwelling in the town of economics.....

Stigler, JPE 1961



Information of Economics Revolution

Empirically there has been a seismic shift in the economics of 'individual' information

In 2001, 1 GB cost \$19.70 to store.

In 2010, 1 GB cost \$0.06 to store.

This has made possible the advertising-supported internet.

This has made possible the advertising-supported internet.

Tracking Data is being used to target

Tracking Data is being used to measure and attribute

A Whole New Regulatory Focus

Regulation of use of data in advertising-supported internet
(and in general)

Big Sector: In US, one million jobs in 2007, two million jobs
in 2012

Not enough regular economists thinking about this

I am (gulp) a marketing professor

Difficult to get mainstream IO excited

Continuation of Quote from Stigler, JPE 1961

..... And one of the information-producing industries, advertising, is treated with a hostility that economists normally reserve for tariffs or monopolists

Stigler, JPE 1961

Three papers about economic effects of government intervention in economics of personal information

How did European 2001 E-privacy directive regulation focused on consent affect advertising outcomes?

How do firm efforts to allow consumer control over personal data affect advertising outcomes?

How does European regulation focused on storage-length of personal information affect outcomes?

Also newer work on interaction between anti-trust and privacy regulation.

Implications

Huge debate in Europe and US about regulation of personal data and online advertising.

Policy focus has been on restricting use of data

Little discussion of whether business owners have an incentive to allow users to restrict use of their data.

Focus on user-centric controls surrounding types of personal data might lead to better outcomes for advertising-supported online firms

The Future

I have said very little about the benefits of personal data and personalization

Modeling

Taking models of personal data beyond price discrimination (such as unobserved profitability of the customer)

Is the use of the name 'the economics of personal information' a useful marketing tool?

Extending the discussion beyond advertising

Extending the conversation to health and financial sector

Outline

Introduction

E-Privacy Directive in Europe

Controls Over Personal Data

Data Storage

Study regulation over personal data in Europe

European Law become stricter 2003-4 as countries implemented E-privacy directive.

Some restriction of data-based targeting techniques

Personal Data regulation elsewhere had not changed since advent of commercial internet

Compare change in ad effectiveness in Europe relative to elsewhere.

Data

Field (a/b) tests of 9596 different online display ad campaigns across multiple countries

For each campaign, on average 347 web users surveyed on purchase intention and ad recall. Half had seen the ad and half were in a control group

Method: Diff-in-Diff-in-Diff

Difference between treatment and control groups in a/b tests

Difference before and after the regulation in Europe

Difference between Europe and elsewhere

Regulation affects performance of online ads

Implications

Regulation over use of personal data affects how well online ads work.

If ads are less effective, it will limit the scope of the ad-supported internet.

Back-of-the-envelope non-equilibrium calculations bound the cost of comparable legislation at \$14.8 billion to US advertisers or \$5.2 billion to US-based websites

If ads on general internet websites are particularly affected, such sites will be less able to support themselves through advertising.

They may become less prevalent or they may begin to support themselves by other means

If unobtrusive ads become less effective, advertisers may increase obtrusive multimedia advertising at the expense of subtle, well targeted ads

More Generally

Currently, regulatory debate is conducted with little empirical guidance

There may be good reasons to regulate use of personal data but there are trade-offs

- The potential reduction in the size of the ad-supported internet

- The potential change in content on the ad-supported internet

- The potential increase in the obtrusiveness of ads.

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Can firms win by catering to consumers' concerns about privacy

Low click-through rates on websites such as Facebook attributed by commentators to privacy concerns

Intrusive advertising can lead to reactance (Clee and Wicklund 1980; White et al 2008)

Study how websites' attempts to resolve these privacy concerns affects advertising outcomes.

If consumers have perception of control they may be more likely to click on ads

Or consumers may resent privacy-intrusive advertising more

Study non-profit's field experiment on Facebook

Mission to increase awareness in US of its educational programs for women in East Africa.

Wanted to try more 'tailored' advertising but worried it might be 'creepy'

Use randomized field test on Facebook to compare personalized with non-personalized campaigns

Change in policy had three components

By May 2010 Facebook faced a lot of pressure over privacy

NYT, Lawsuits

On May 26 unveiled new privacy controls

- ➊ Easier access to data sharing controls
- ➋ Information no longer had to be public
- ➌ Third-party sharing easier to turn off and opt out of.

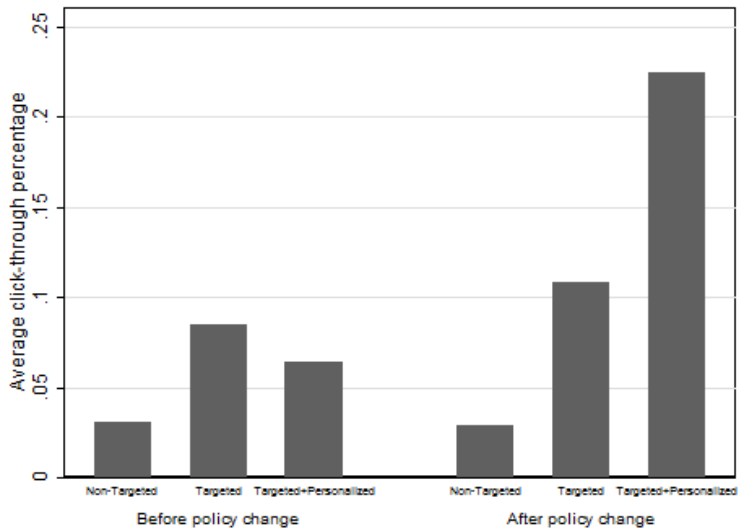
Warmly received in Press

The addition of simplified options (combined with the continued ability to fine-tune your settings if you wish) and user control over Facebook's 'connections' are significant improvements to Facebook's privacy.

Chris Conley, American Civil Liberties Union

But advertising data and methodology did not change
Facebook sent out an email to its advertisers saying that
'this change will not affect your advertising campaigns'
Facebook views advertising data as anonymous.

Figure : Comparison in click-through rates before and after



Also obtain similar results with regressions

Little change in click conversions (correlation unchanged)

Little change demographics

Little change usage behavior

Little change prices

No change in kind of ads served.

Increase more pronounced for personal information that is more unusual

Very personal advertising perceived as more intrusive and more likely to lead to reactance (White et al 2008)

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Data from Comscore on aggregate search engine usage behavior.

Focus on whether or not after using a search engine a user did another search as proxy for search engine accuracy

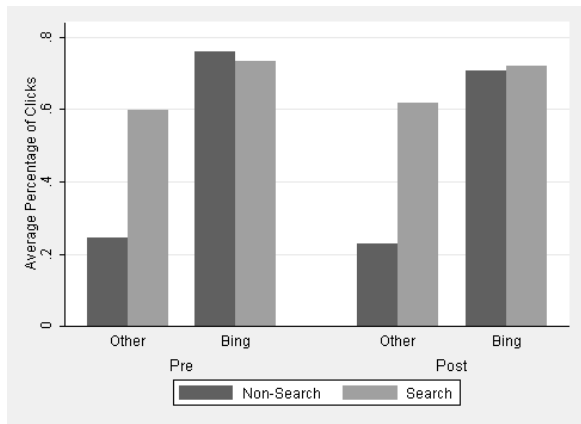
Method: Diff-in-Diff

Difference between search engines that changed their policies versus those that did not.

Difference before and after the change for these search engines.

Little measured effect on search engine performance

Figure : Bing January 19, 2010: Storage time reduced from 18 to 6 months



Implications

Storage time privacy regulation appears to have little effect.

But the length of time that data is stored does increase the risk of privacy-harm to an individual

Think of AOL scandal

It may be because:

Old Data is not that valuable for predicting current behavior.

Other ways of predicting behavior (such as structure of web itself) dominates.