The Economics of Digital Media Platforms

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Introduction

Internet has affected our daily lives in many ways:

- communication (email, Skype) replacing (mail, phone)
- Shopping (Amazon, Ebay)
- Services (Uber, AirBnb)
- Social networks (Facebook, Twitter)
- ...

Today: media industry. (News in particular)

Introduction - some facts

People spend 50% of available time consuming media (Wilbur (2016)).

Media influences culture, politics.

47% of time spent on media is online.
3 hours a day online (UK, 2015)

What has Internet changed?

Online dramatically changes media landscape:[1]

- Distribution (lower costs, legacy vs digital players, intermediaries)
- Consumption (Multihoming, recommendations)
- New forms of advertising, better targeting.

[1] See Peitz & Reisinger (2016) for overview.

Roadmap for today

1. Media financing in the digital age: consumer fees vs advertising ;

2. The new gatekeepers: How Google and Facebook dominate the digital media landscape.

Financing the media

Historically, media financed through a mix of advertising and consumer fees (subscription and per-issue).
(Also public subsidies)

- Printed press: Around 70% advertising-30% sales
- Hertzian TV, radio : advertising only;
- Canal + : advertising and subscription
- HBO, Canard Enchainé: sales only.

This business model is different from "standard" product market (cereals, clothes...).

The revenue that a firm can generate on one side (say advertisers) will depend on the number of consumers on the other side.

Media firms are what economists call "multi-sided platforms"

- Rochet & Tirole (2003, 2006), Caillaud & Jullien (2003), Armstrong (2006), Anderson & Coate (2005)

Presence of cross-side externalities:

- Positive from viewers to advertisers
- Ambiguous the other way: neutral or positive in magazines, negative on TV and radio (See Chandra & Kaiser (2016))

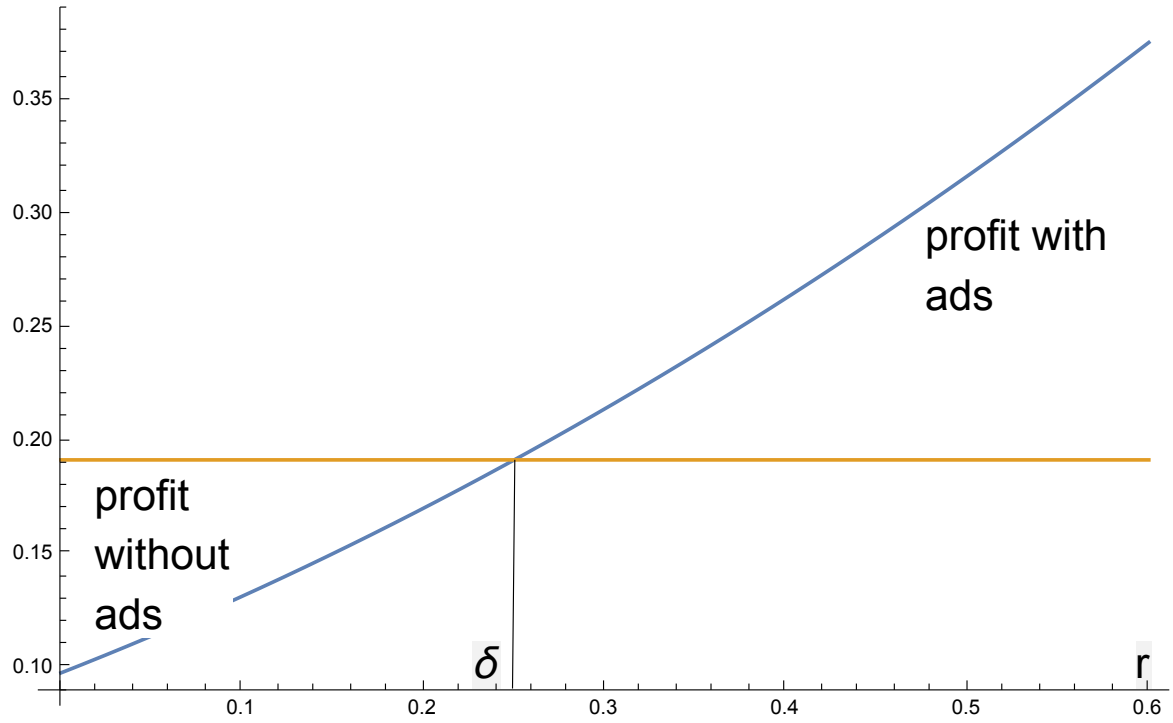
Optimal pricing of a newspaper

Suppose that consumer demand for newspaper is $D(p) = 1 - p$.
Marginal cost c.
Without ads, the firm's program is

$$\max_p (p - c)(1 - p) \Rightarrow p^{NA} = \frac{1 + c}{2}$$

Suppose ads reduce demand by δ, but generate revenue r per consumer.

$$\max_p (p + r - c)(1 - \delta - p) \Rightarrow p^{A} = \frac{1 + c - (r + \delta)}{2}$$


0.35
0.30
0.25
0.20
0.15
0.10
0.1
0.2
0.3
0.4
0.5
0.6
profit with ads
profit without ads
δ
r

We have :

- A firm should show ads when $r > \delta$: trade-off between participation and revenue from advertisers.
- $p^A < p^{NA}$: if a firm decides to show ads, it should lower its price;
- p^A can be lower than c (if $1 - (r + \delta) < c$): cross-subsidization;

Implications for content choice

Caricatural example: Firm can choose among two types of content:

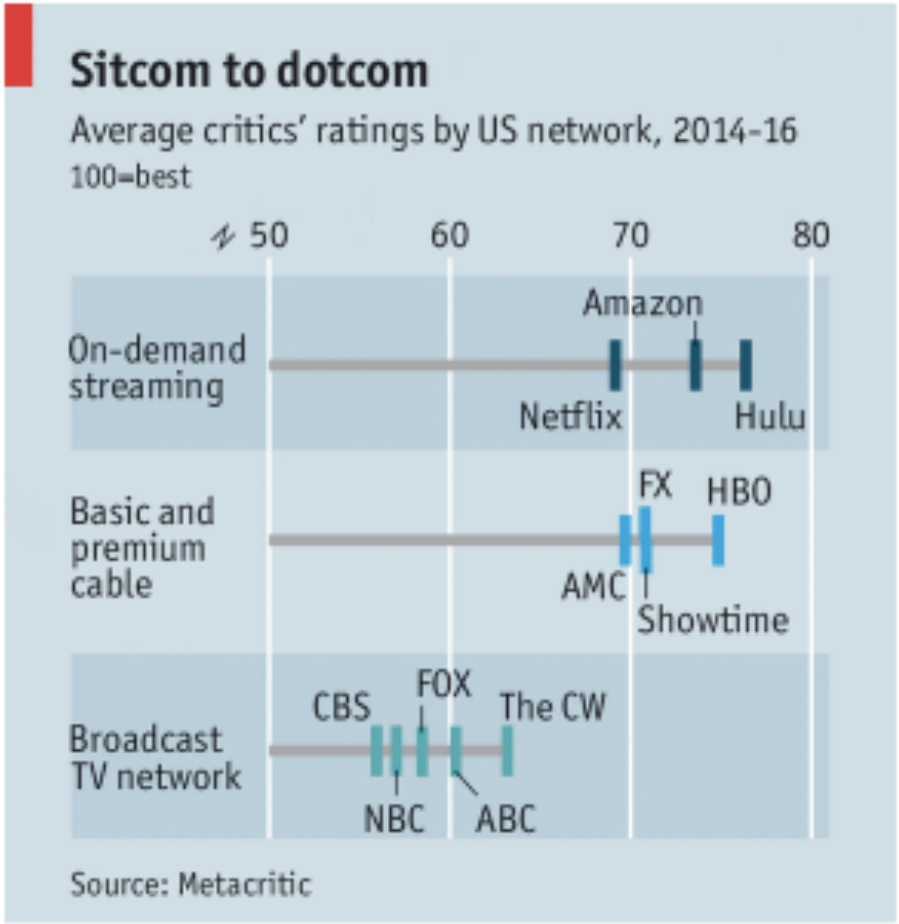
1. A "low quality" content (e.g. gossip), good enough for a large number of consumers;
2. A "high quality" content (e.g. investigative journalism), which some consumers value highly but others don't care for.

In a purely ad-financed model, option 1 is more profitable.

With consumer pricing, option 2 can dominate.

Intuition: with pure ad-financing, the firm only cares about the number of viewers, and does not care about how much they like the content.

There can also be biased content due to concerns w.r.t. advertisers (Ellman & Germano 2009)


Sitcom to dotcom
Average critics' ratings by US network, 2014-16
100=best
50
60
70
80
On-demand streaming
Amazon
Netflix
Hulu
Basic and premium cable
FX
HBO
AMC
Showtime
Broadcast TV network
CBS
FOX
The CW
NBC
ABC
Source: Metacritic

Media pricing on the internet

- Zero distribution costs $\Rightarrow$ entry. Hard to charge for news (relatively undifferentiated).
- Consumers visit a lot of sites. No very good micropayment system. (Reverse causality may play here).

9% of consumers in English-speaking countries pay for news online.

Improvements in targeting

Main evolution between offline and online advertising: decrease in targeting cost (Goldfarb 2015).

Offline, targeting was linked to content or location.

Online, targeting can be at the user level, thanks to:

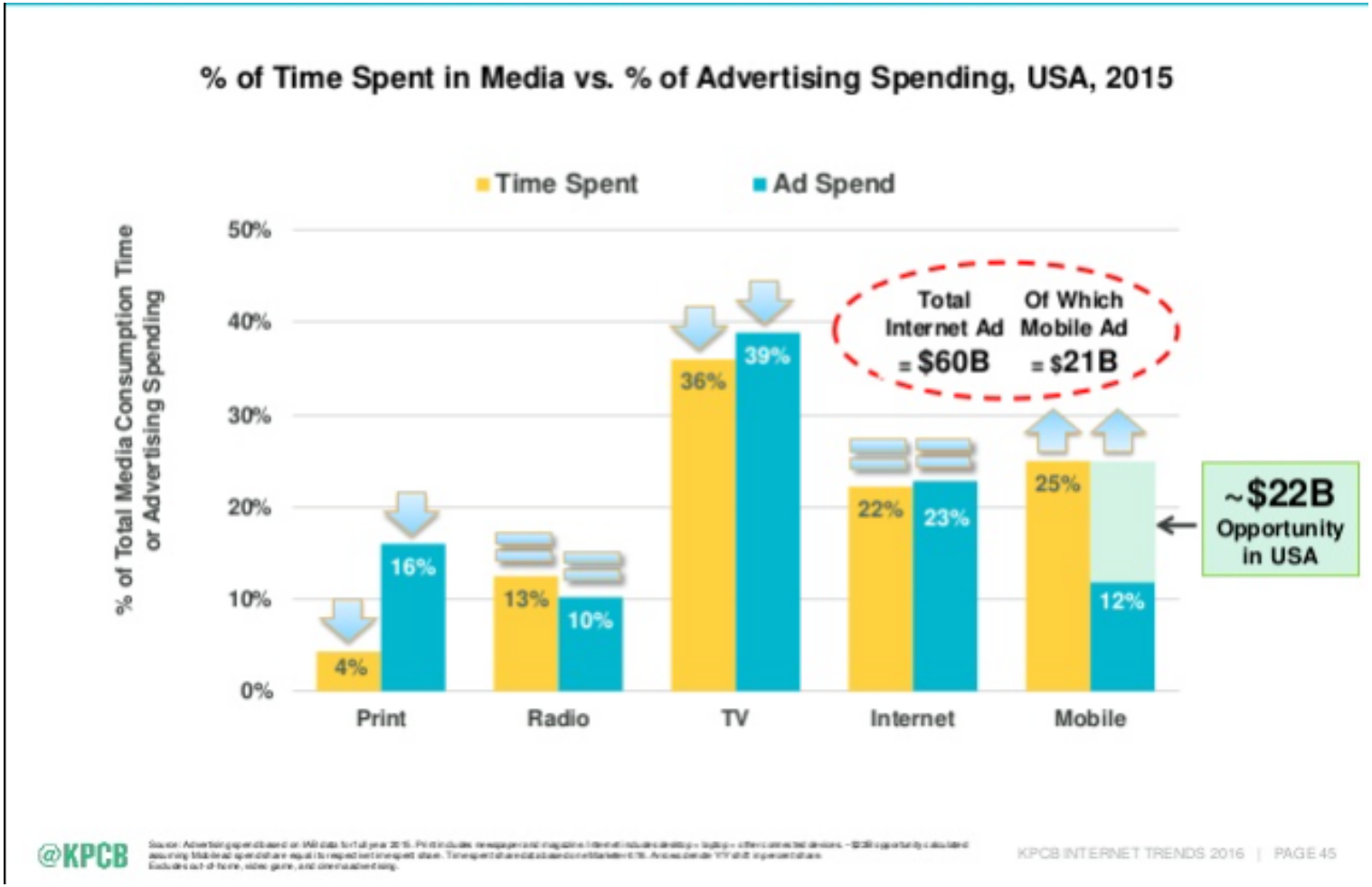
- Quantity of data available;
- Quality of analytics;
- Possibility of real-time bidding;

Allows to subsidize content that was hard to "sell" to advertisers.

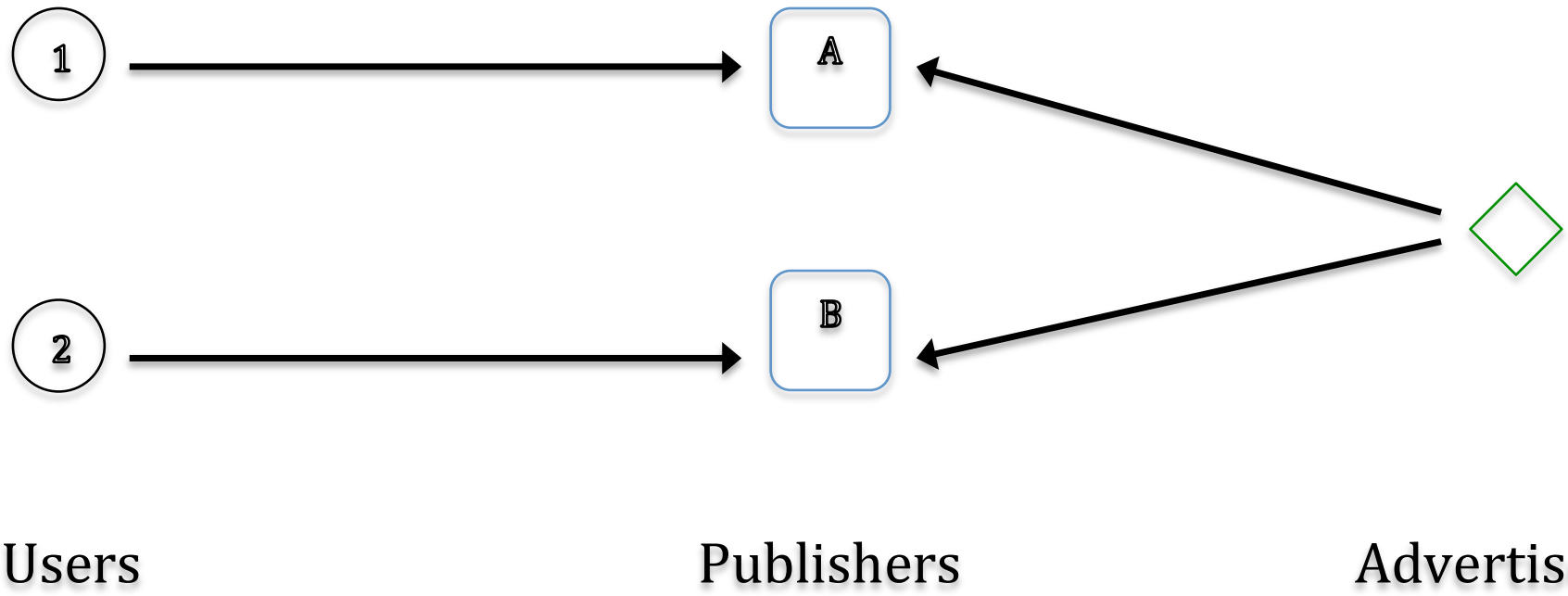
Allows "small" firms to advertise.

Increases the value created by advertising.

Privacy issues (see e.g. Tucker 2016)

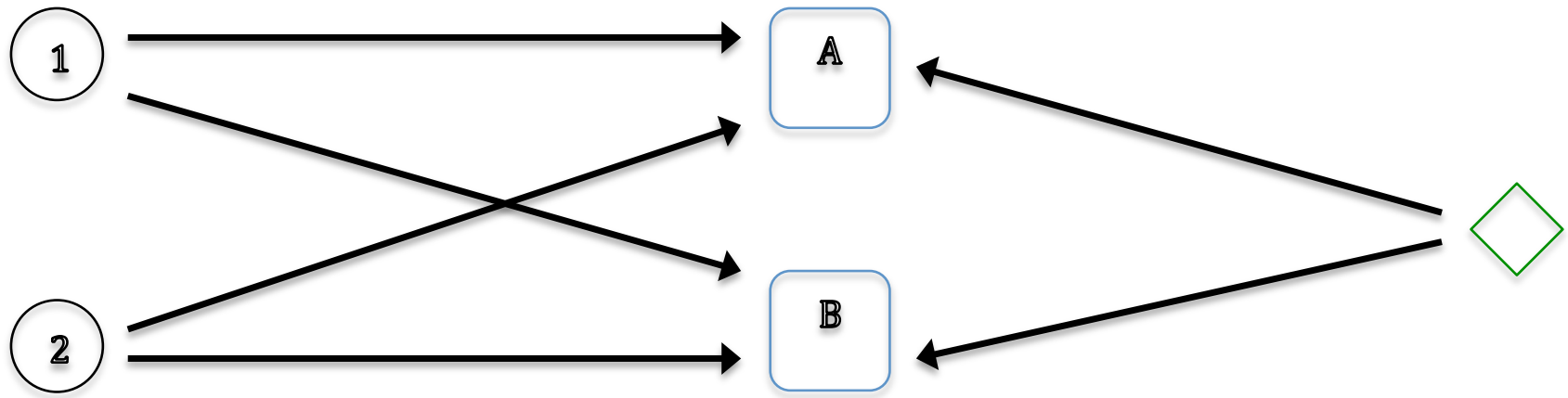

% of Time Spent in Media vs. % of Advertising Spending, USA, 2015
Time Spent
Ad Spend
% of Total Media Consumption Time or Advertising Spending
50%
40%
30%
20%
10%
0%
4%
16%
13%
10%
36%
39%
22%
23%
25%
12%
Total Internet Ad = $60B
Of Which Mobile Ad = $21B
~$22B Opportunity in USA
Print
Radio
TV
Internet
Mobile
@KPCB
KPCB INTERNET TRENDS 2016 | PAGE 45

Threats on advertising revenue: Multihoming



Single homing: competitive bottleneck

Threats on advertising revenue: Multihoming



Multi-homing

Threats on advertising revenue: Ad blocking

Between 20% and 30% of consumers use ad-blocker.

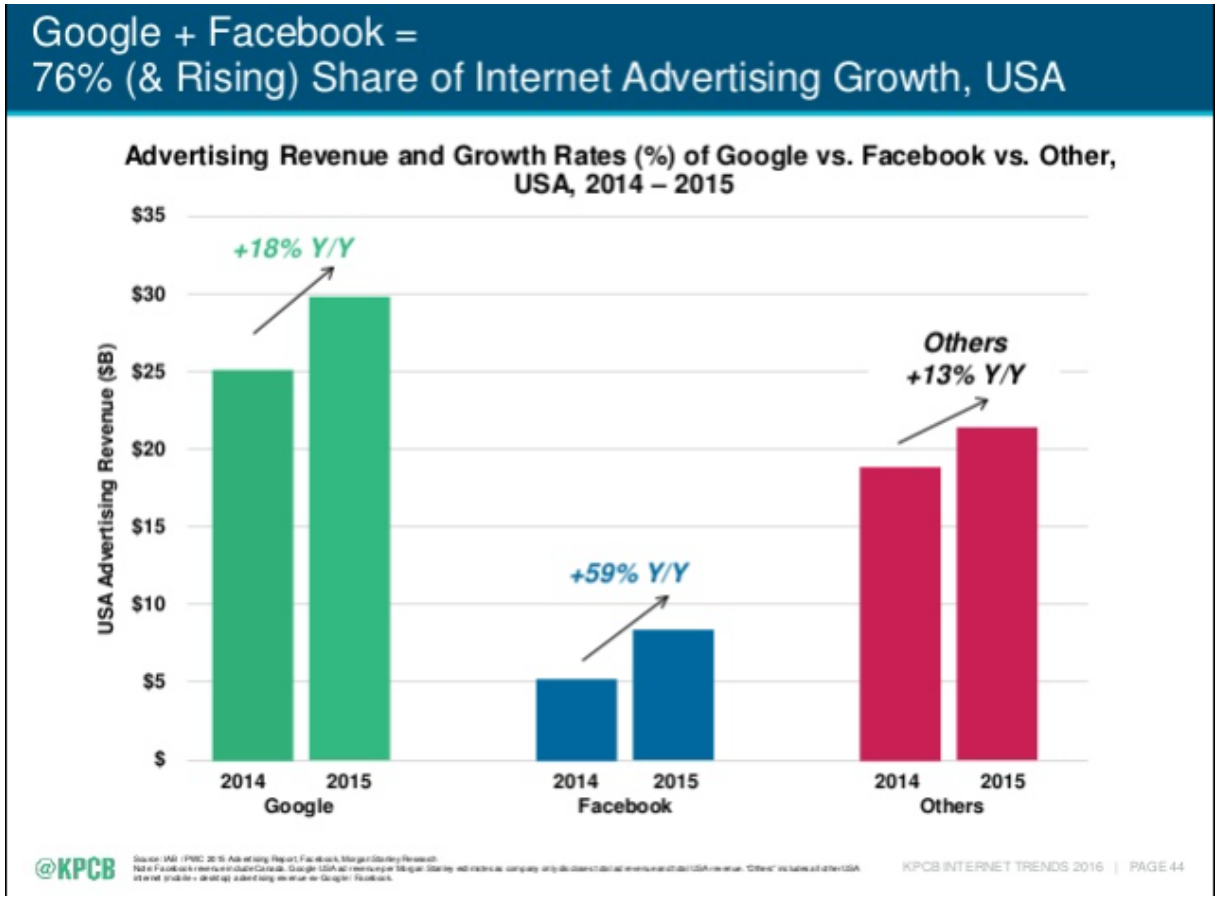
More so for young and heavy users.

Reasons: volume of ads, data usage, privacy and security concerns (adware).

The problem can be viewed as an example of the *tragedy of the commons*.

Recently, some phone operators wanted to pre-install ad-blockers. Blocked by EU regulator.

The new gatekeepers: Google and Facebook



The new gatekeepers: Google and Facebook

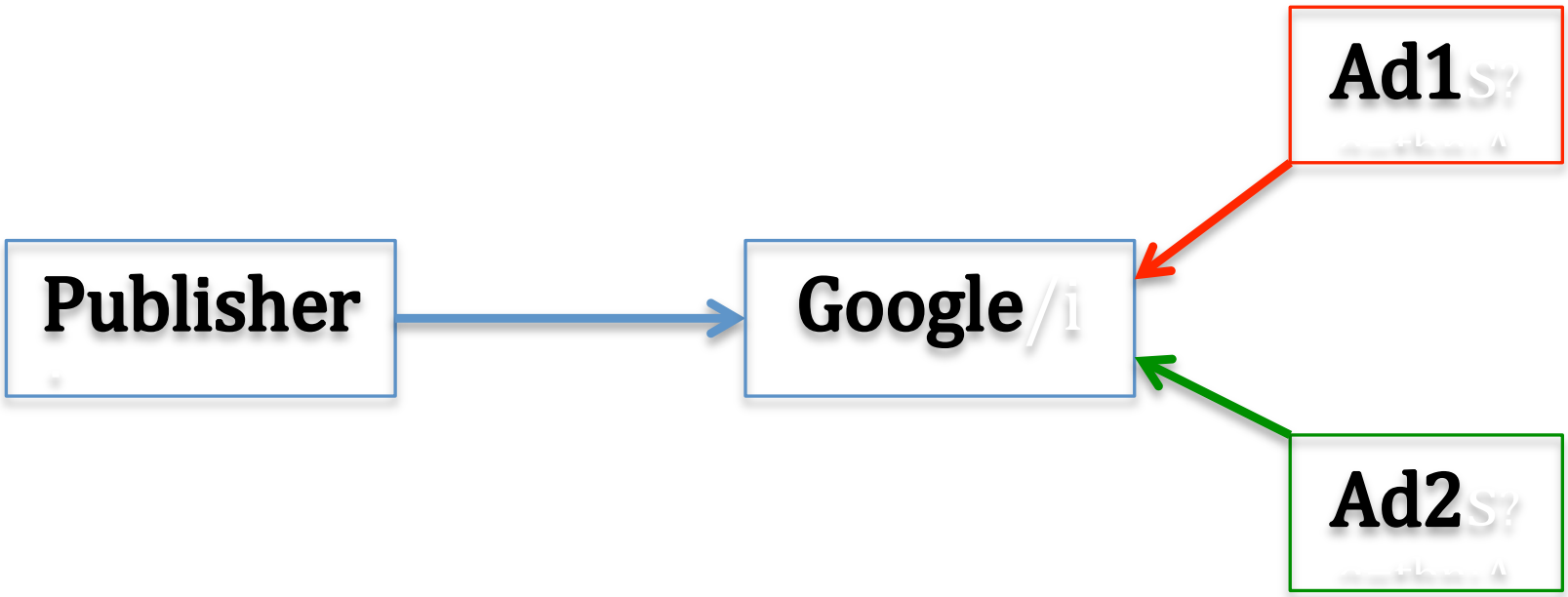
Two pillars to their ad-business:

1. serve ads on their own websites;
   - Google: targeting of "intention" with sponsored links. People are actively searching. (de Cornière 2016)
   - Facebook: targeting of "identity". Data, time spent ($\simeq$ 1 hour/day). High engagement.

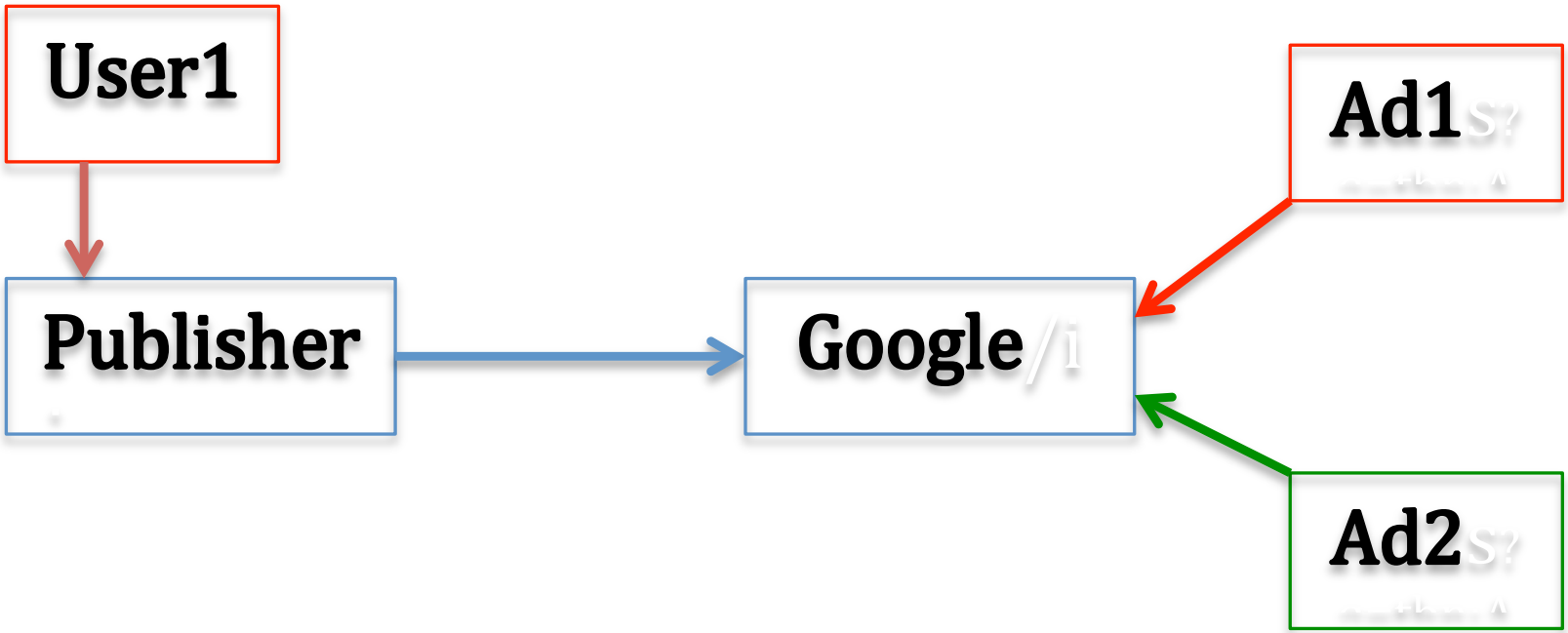
2. act as advertising intermediaries.
   - Match advertisers and publishers-consumers

Advertising intermediation

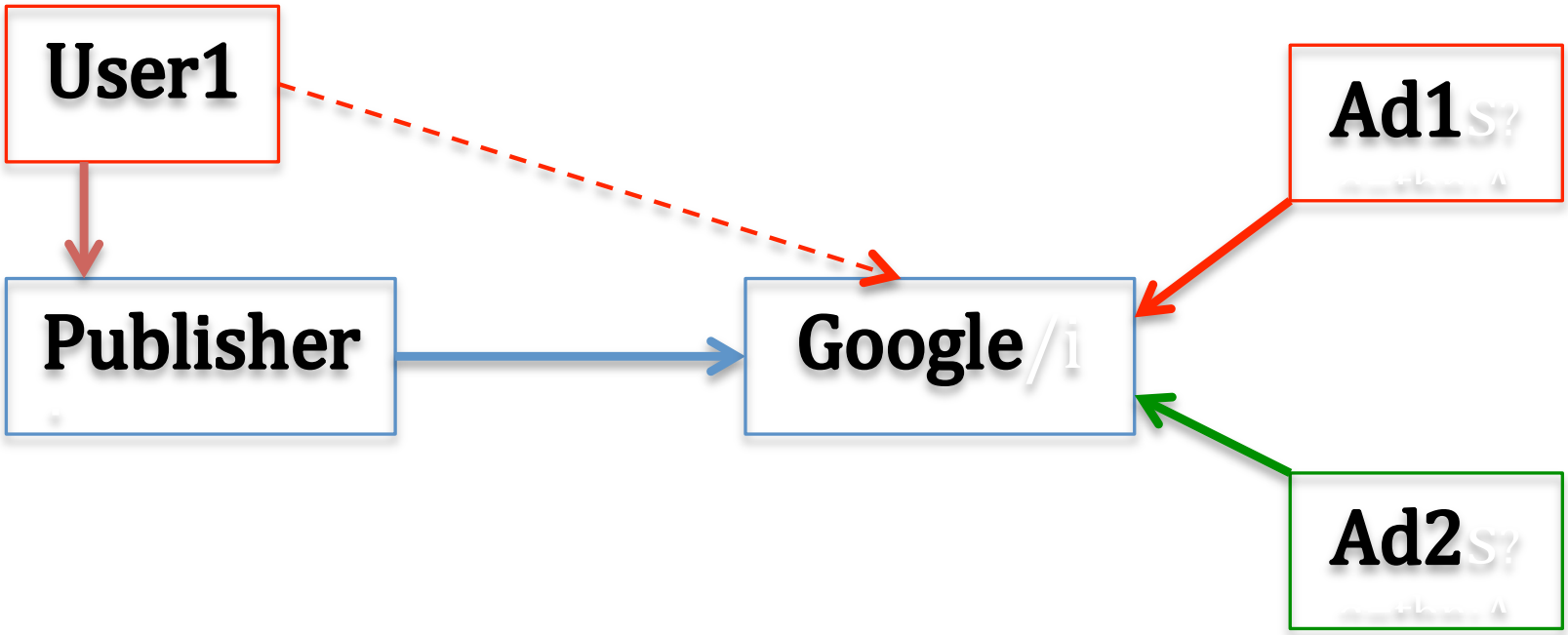
Advertising intermediation



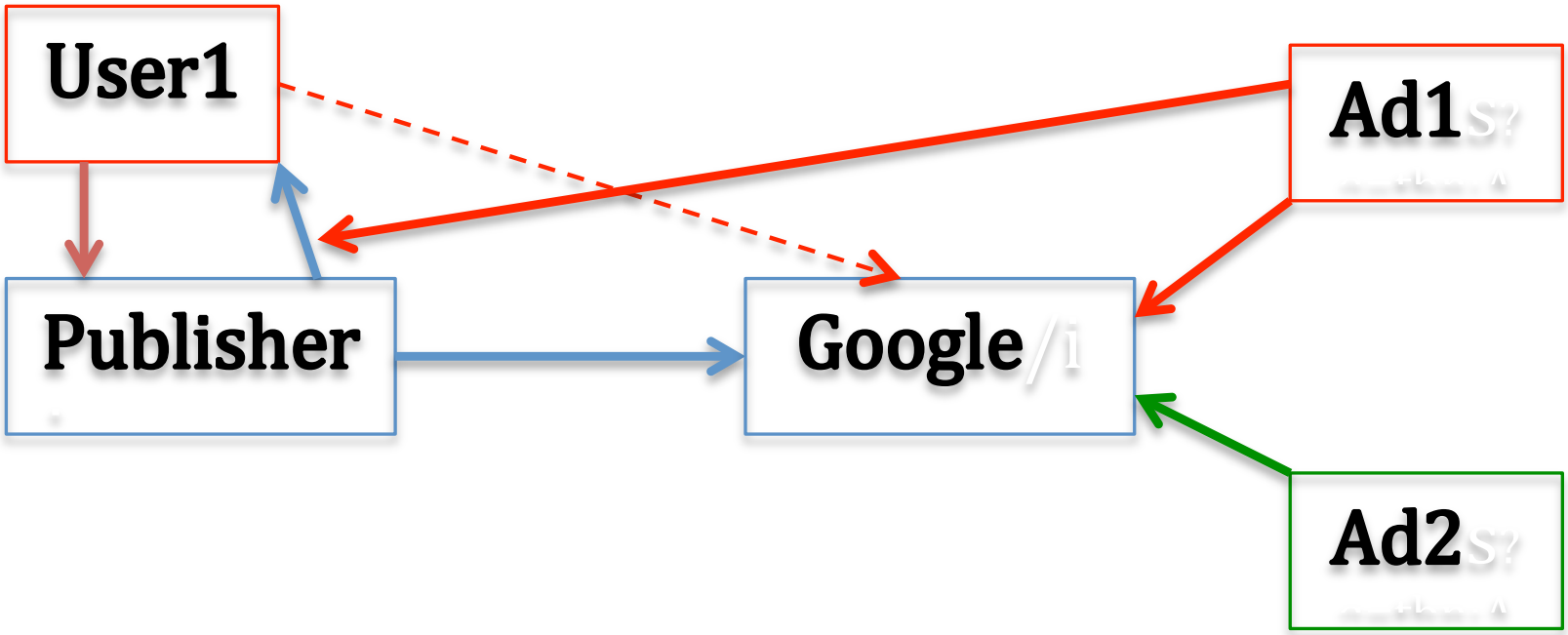
Advertising intermediation



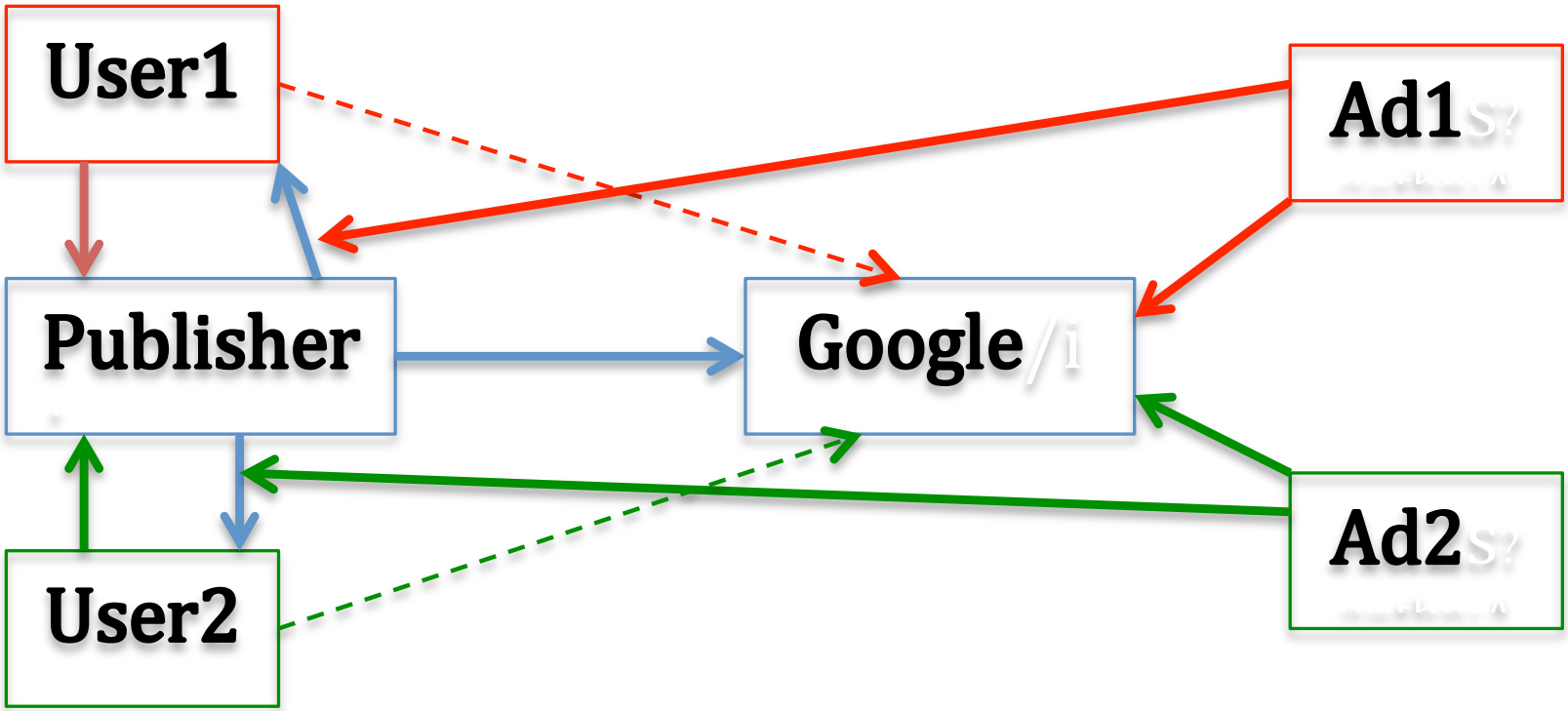
Advertising intermediation



Advertising intermediation



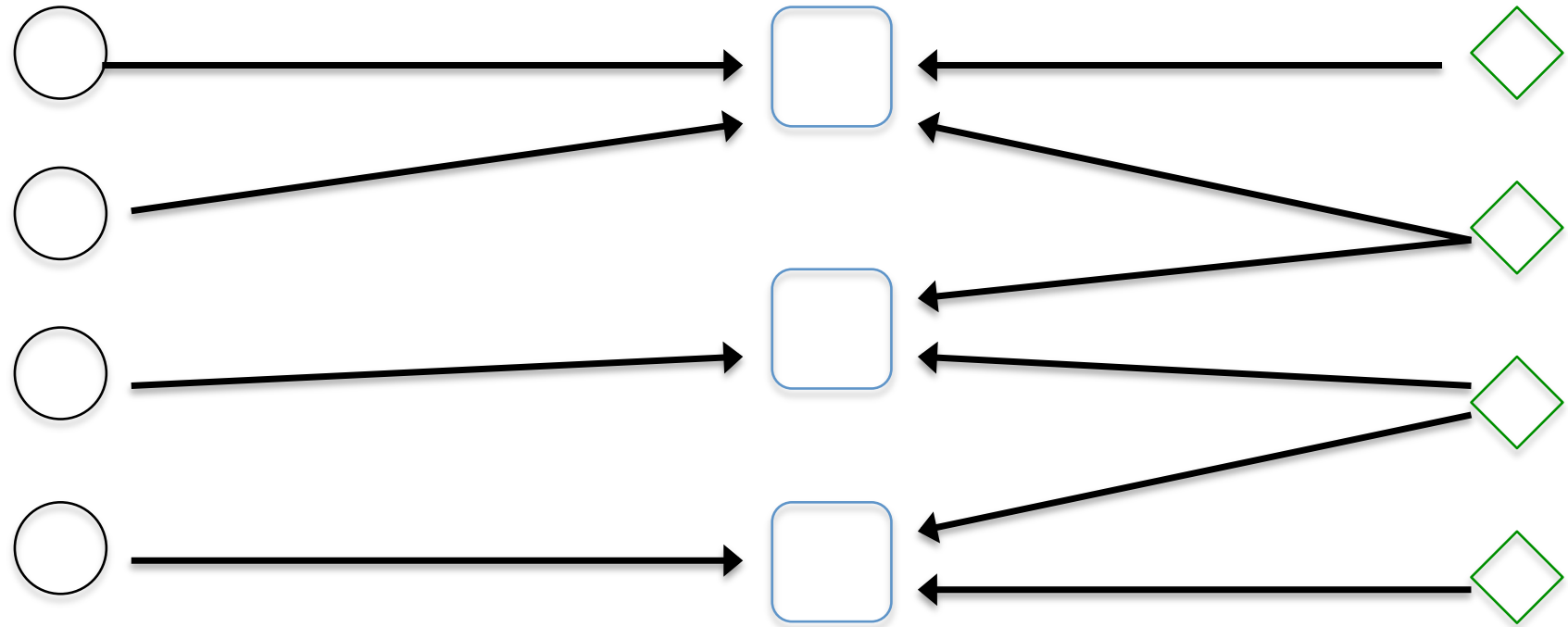
Advertising intermediation

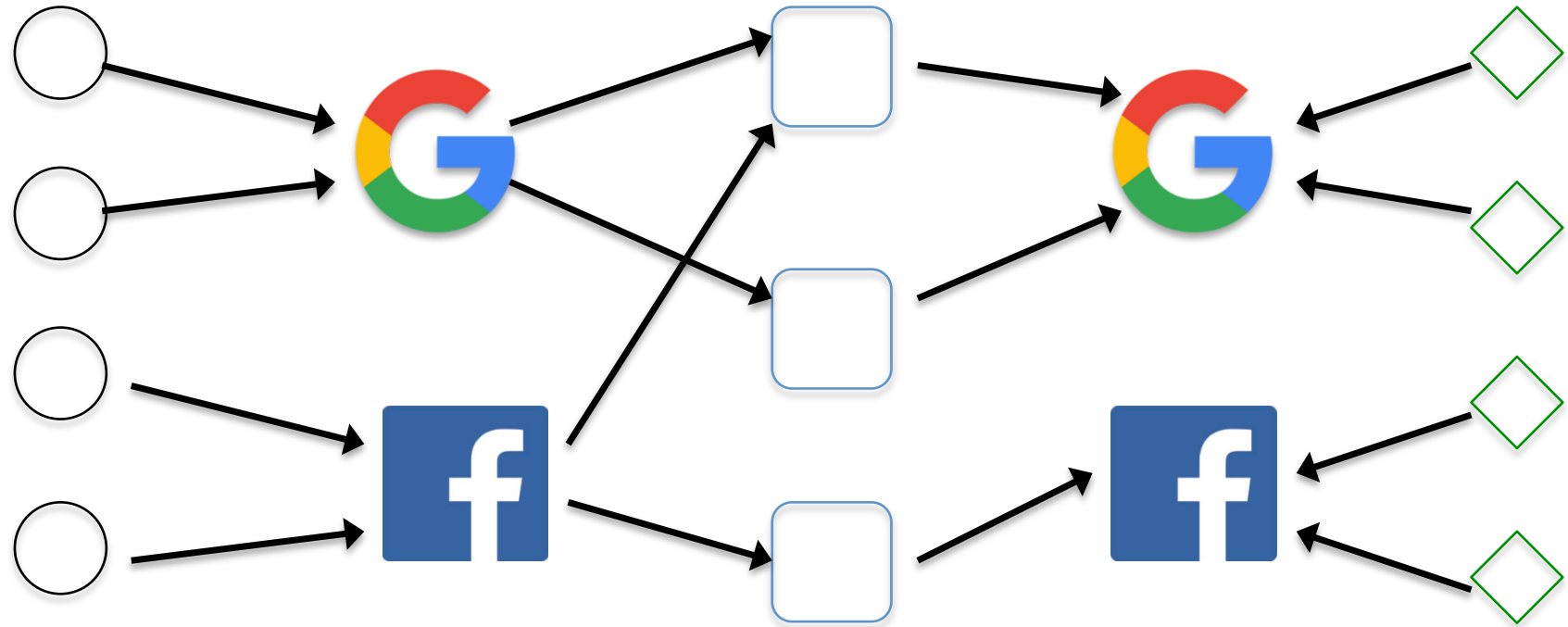


Incumbents' advantages

- Quantity of data & analytics;
- Ability to track users (log in);
- Network effects (publishers $\leftrightarrow$ advertisers)
- Domination on mobile (9 most used apps belong to either Google or Facebook).

Interestingly, they also jointly dominate the "referral market": 75% of referrals to news sites.


Users
Publishers
Advertisers


Users
Publishers
Advertisers

The question of news aggregators

Google

News

U.K. edition

Top Stories

- Mother Teresa
- Zika virus
- SpaceX
- China
- Formula One
- Apple
- iPhone
- Brexit
- Mark Zuckerberg
- Nicola Sturgeon

Portet-sur-Garonne, ...

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Entertainment

Sports

Science

Health

Spotlight

Top Stories

Telegraph.co.uk

See realtime coverage

G20 Summit: Japan warns it will take banks and car makers out of UK - unless it gets Brexit trade deal

Telegraph.co.uk - 4 hours ago

Japan has warned Britain that its banks, car manufacturers and pharmaceutical companies may leave the UK for Europe if Brexit leads to the loss of tariff-free trade.

US, Russia labour over Syria truce deal but battles rage on Daily Mail

Little On Offer For Brexit Britain From Obama Sky News

Opinion: May tells Putin she wants 'frank and open' dialogue with Russia swissinfo.ch

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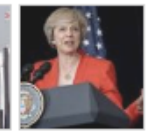


Daily Mail

Reuters

Daily Mail

Married Labour statesman Keith Vaz 'met male prostitutes in his London flat

Daily Mail - 1 hour ago

When asked how he knew the man was clear of sexually transmitted diseases, Mr Vaz replied: 'I didn't know.' Earlier, when the younger escort said he had never used poppers, Mr Vaz replied: 'You've never had poppers?

Daily Mail

China tells G20 to avoid 'empty talk', cure global economy

Daily Mail - 55 minutes ago

Chinese President Xi Jinping urged world leaders to avoid "empty talk" and confront sluggish economic growth and rising protectionism as their summit opened Sunday in the scenic city of Hangzhou.

BBC News

Nicola Sturgeon miscarriage: First minister reveals baby loss

BBC News - 4 hours ago

Scotland's First Minister Nicola Sturgeon has spoken for the first time about her "painful experience" of losing a baby in 2011.

The question of news aggregators

Considerable share of traffic (estimates vary between $\simeq 10\%$ and $\simeq 30\%$, more in certain countries).
(Some) Publishers complain:

> *News aggregators are parasites, content kleptomaniacs, vampires, tech tapeworms in the intestines of the Internet, and, of course, thieves who steal all our copyrights.*

- Rupert Murdoch, News Corporation

Lobbying: Germany, France, Spain... Recent EU regulation

Two potential effects:

- Business stealing
- Market Expansion

Empirical studies indicate that market expansion dominates, at least in short run. (Chiou & Tucker 2001, Athey & Mobius 2012. See NERA 2015 for more.)

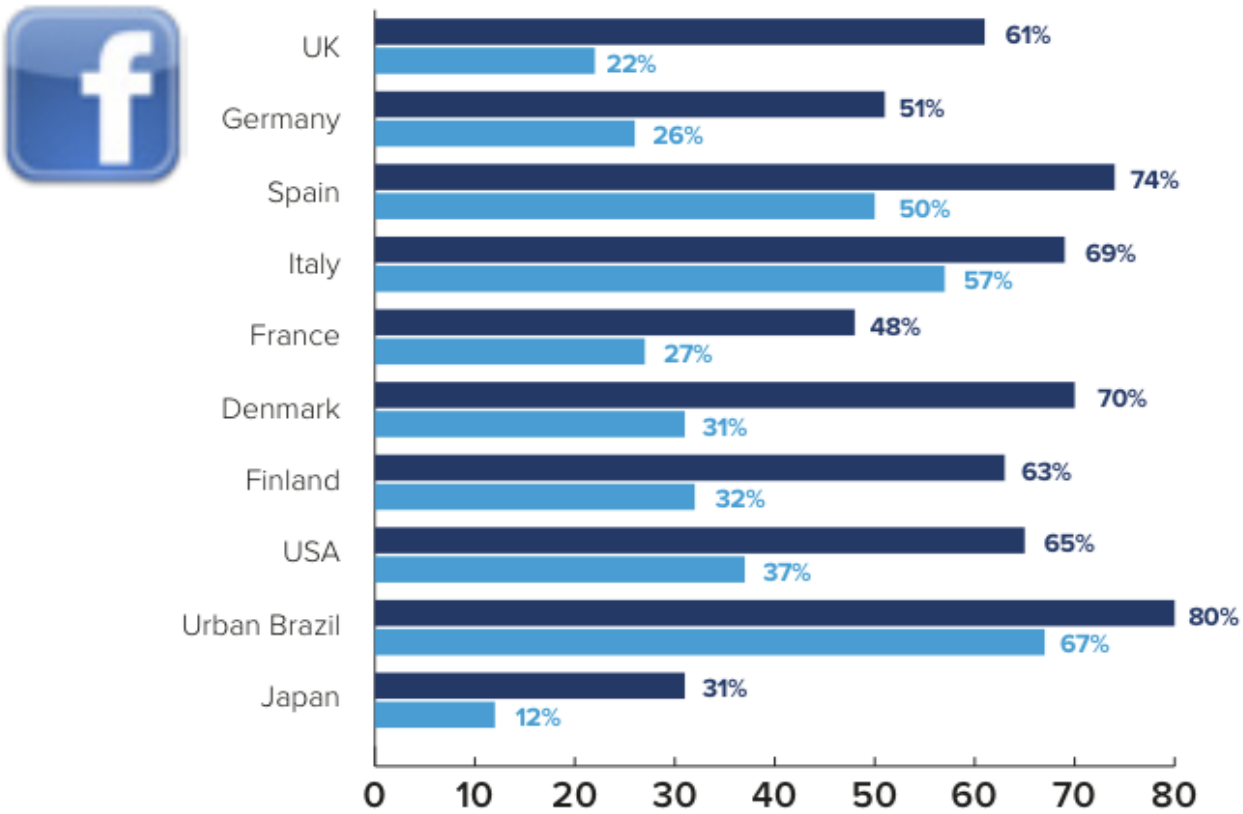
Explains limitations of regulations/opt out

Other effect: Aggregators increase multihoming: bad for ad revenue.

Long run:

- Increase in quality? (Rutt 2012, Jeon & Nasr 2016)
- Risk of brand dilution.

The case of Facebook



Facebook $\neq$ news aggregator.

Shows news stories shared by friends, selected by algorithm.

1. Echo chambers
2. Filter bubbles

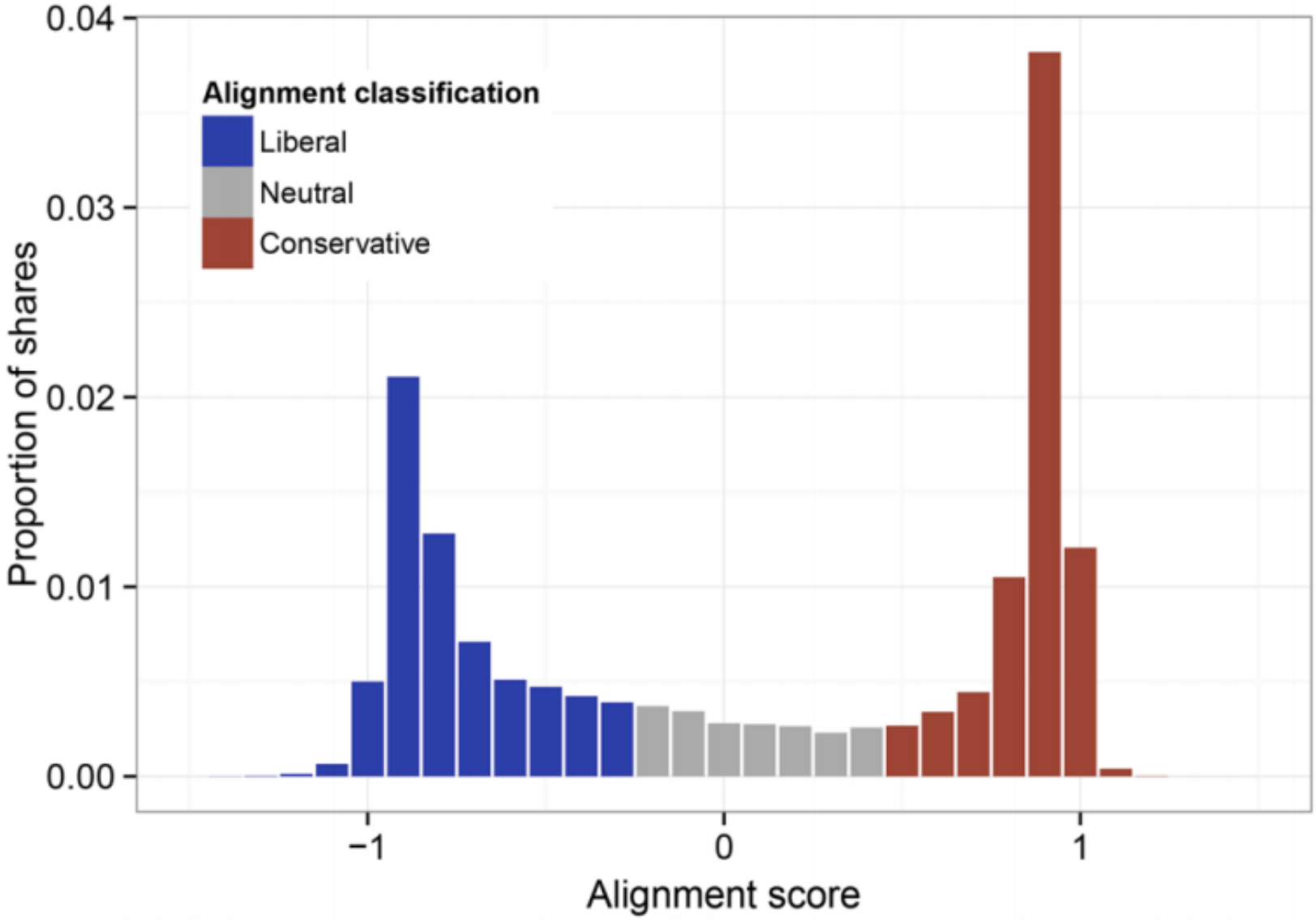
Exposure to ideologically diverse news and opinion on Facebook

Bakshi, Messing & Adamic, (2015) Science.

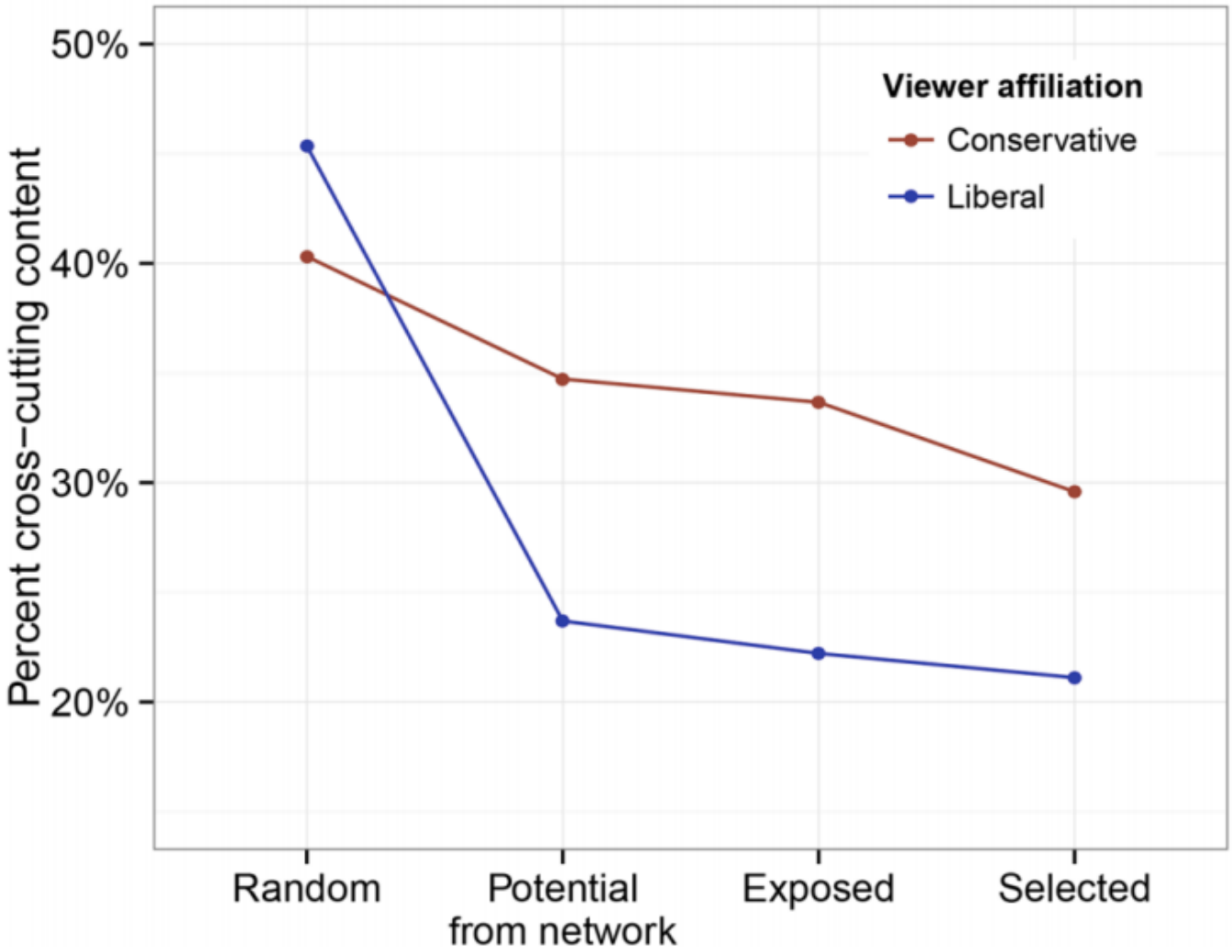
- How do online social networks influence exposure to perspectives that cut across ideological lines?
- Dataset with 10m users who self-report ideological affiliation.
- Liberals: 65% of their friends are liberal, 20% conservative;
- Conservatives: 70-18
- Results

What kind of content is shared?

Alignment: "share" of conservatives among those who share the story



What do people see/read?



Gentskow & Shapiro (2011) had compared online and offline segregation. Show that online segregation was moderate, compared to offline (family, work).

With Facebook, the "friends" effect is actually large (especially for liberals): risk of echo chambers appears real.

Filter bubbles: not so much.

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