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Antitrust in Two-sided Markets

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Workshop on

Antitrust for platform and network markets

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The background

- Still some missing links between antitrust practice, economic principles and two-sided markets
- Especially missing links concerning market definition
 - Important for almost all antitrust cases, although not much covered in text books
 - How to take into account the two-sidedness?
- Still open questions on mergers in two-sided markets
 - Do we have a solid basis for a theory of harm that can be used in antitrust cases?
- Traditional anti-competitive agreements might not be harmful for consumers in two-sided markets, or ...?
 - Again possible new aspects on theory of harm

The structure of the talk

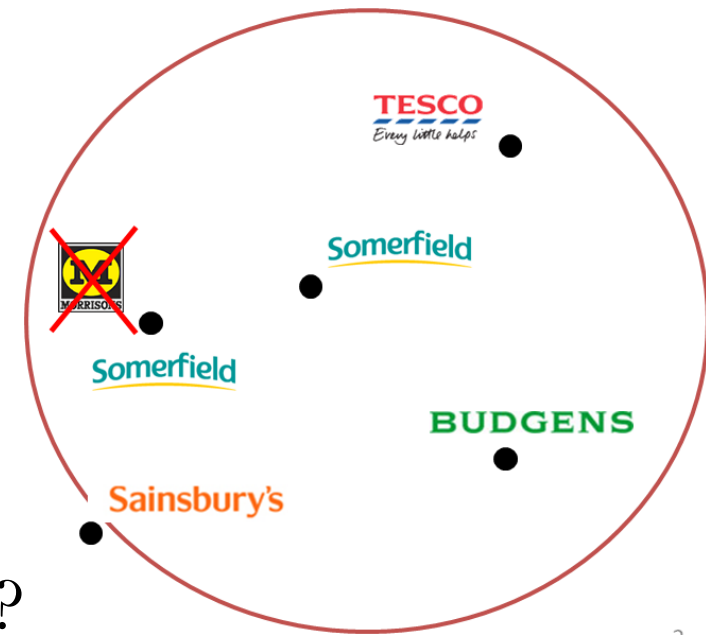
- From market definition to the theory of harm
 - From market definition to critical loss to UPP
 - UPP extended to a two-sided market
 - Some applications
- More on the price effect of mergers
 - Lower ad prices in a media market?
 - A model for a merger in the TV market
 - Some applications
- [An ex. of possible (not) anti-competitive agreement]
 - National market segmentation and two-sided markets
- Some concluding remarks

The role of market definition

- Relevant market not much discussed in the economic literature, but crucial in many antitrust cases
- If the relevant market is wide, often no longer an antitrust case
 - No abuse, since firm not dominant
 - Merger not anticompetitive, since such a small share of a large market
- Last five years we have seen that market definition and theory of harm has (almost) merged
- Let me explain the (not so) new approach, and extend it to two-sided markets

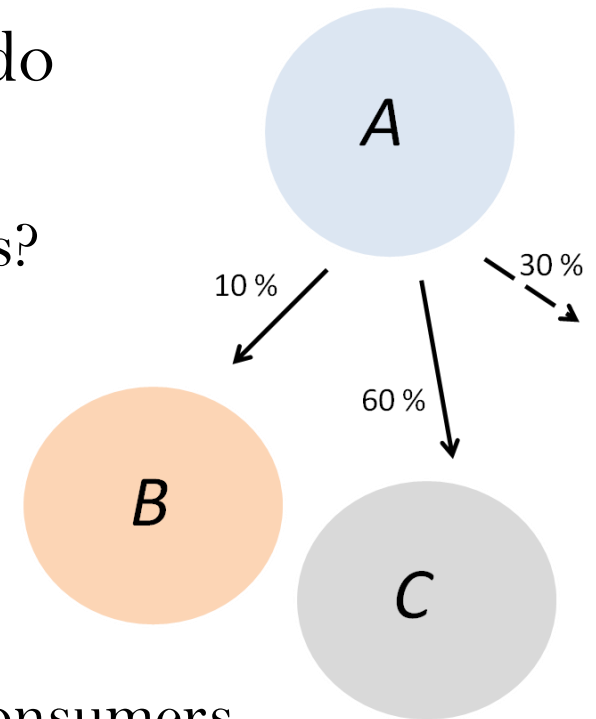
Example: A merger in UK grocery sector

- Traditional method in retail (one-sided)
 - Draw a circle (isochrone) to define the relevant market
 - Calculate market shares and HHI for merging parties
- But some obvious problems
 - Rather crude 0/1 definition of rivals (cf Sainsbury's)
 - Those stores differ in f.ex. product range
- Why not directly measure rivalry between Morrison and Somerfield?



The concept diversion ratios

- If higher price on product A, where do the consumers divert?
 - What is the second choice for consumers?
- Example of diversion ratios
 - 10 % will divert to product B
 - 60 % will divert to product C
- Large diversion ratio – large overlap
 - Then firms fight head-to-head to win consumers
 - Would shoppers at Morrisson have Somerfield as their second choice, and vice versa?
- The new approach a sound theoretical foundation



Harm to consumers?

- Price pressure upward/downward?
 - Downward: Lower marginal costs
 - Upward: Large value of diverted sale
 - Large diversion ratio to other merging product
 - High margin on recaptured units
- An upward pricing pressure (UPP) if (Farell and Shapiro 2010):

$$UPP = \underbrace{\underbrace{(P_0 - C_0)}_{\text{Margin}} \cdot \underbrace{D}_{\text{Diversion ratio}}}_{\text{Value of diverted sales}} - \underbrace{(C_0 - C_M)}_{\text{Efficiency}}$$

From *Market Definition* to ..

- Hypothetical Monopoly Test (HMT):
 - Can a hypothetical cartel controlling some products raise prices in a profitable way?
 - Ex.: Will a hypothetical monopoly on bananas raise prices?
 - Old days: Toothless fallacy – consider product characteristics
 - Present: It depends on substitution (value of diverted sale)
- HMT formally derived as a critical loss test:
 - Actual Loss (AL): How much they lose when higher prices
 - Critical Loss (CL): How much they can afford to lose
 - If $AL < CL$, then the relevant market is defined:

$$AL = \alpha * e < \frac{\alpha}{\alpha + L} = CL$$

.. Upward Pricing Pressure (UPP)

Critical Loss extended

- With Lerner Index, 1 and 2 same market if (O'Brien and Wickelgreen 2004):

$$D > \frac{\alpha}{\alpha + L}$$

D = Diversion ratio

α = Relative price increase

L = Relative price cost margin

- Two important, intuitive elements
 - Price-cost margin
 - Diversion ratio

Upward Pricing Pressure (UPP)

- Instead, let's go direct to the theory of harm
 - A merger between 1 and 2
- For a reduction E in marginal cost, UPP on one product if:

$$D > E \frac{1-L}{L}$$

- UPP approach in the same spirit as (modern) critical loss
 - Same factors of importance
 - Can skip the market definition, in theory

UPP – one vs two-sided

- Upward Pricing Pressure, changing the price only of product 1 (as previous slide) (Farrell/Shapiro 2010):

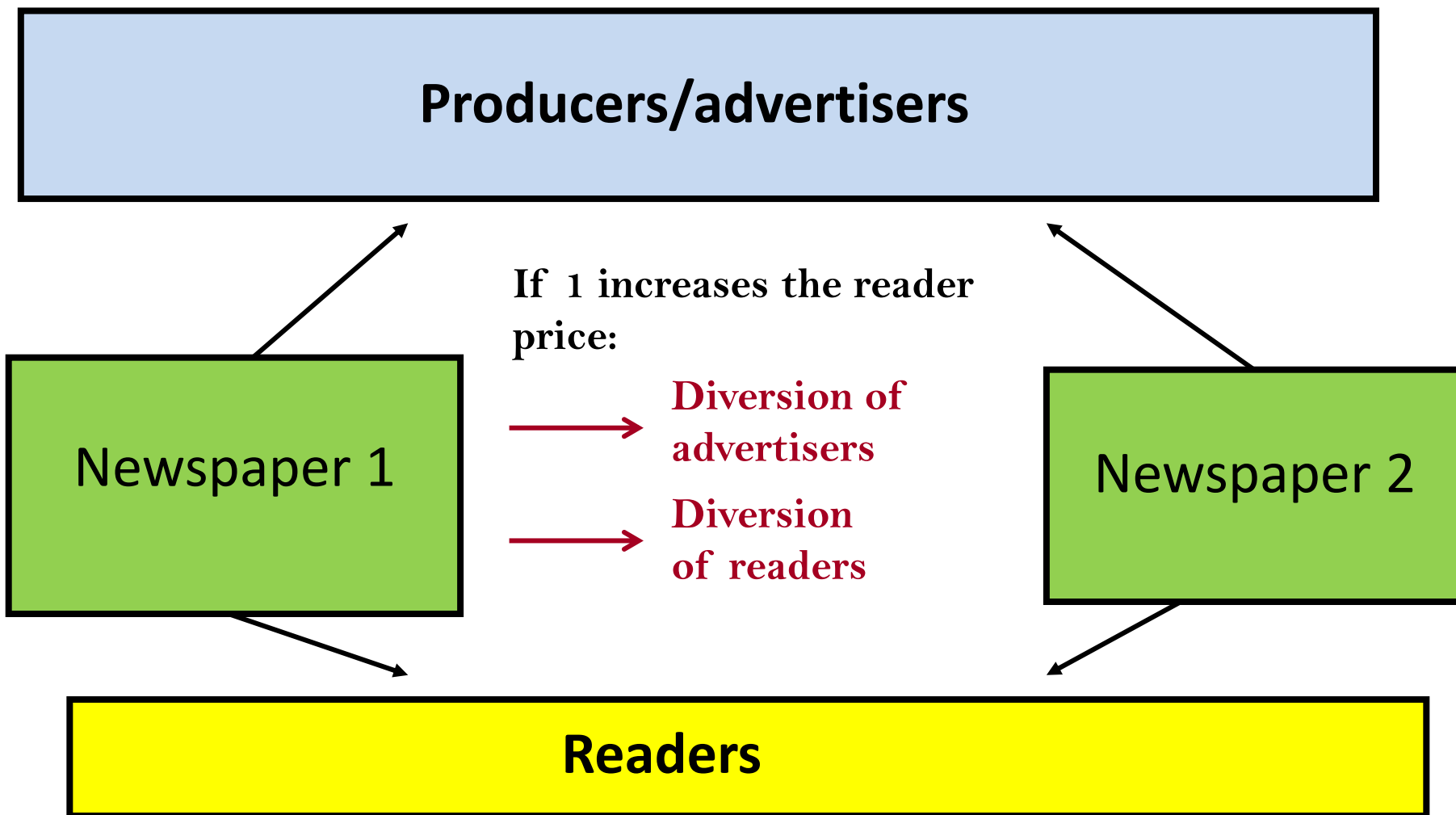
$$UPP_1 = D_{12}(p_2 - c_2) - E_1 C_1$$

- In a two-sided market, must consider changing both prices on platform 1 (Affeldt *et al.* 2013):

$$UPP_1^R = D_{12}^{RR}(p_2^R - c_2^R) + D_{12}^{RA}(p_2^A - c_2^A) - E_1^R C_1^R + D_{11}^{RA} E_1^A C_1^A$$

$$UPP_1^A = D_{12}^{AA}(p_2^A - c_2^A) + D_{12}^{AR}(p_2^R - c_2^R) + D_{11}^{AR} E_1^R C_1^R - E_1^A C_1^A$$

Ex.: Newspapers as platforms



Ex.: Newspaper as a platform

- If merging with a rival newspaper, two UPP effects on the reader price in the reader market as such
- Assuming no efficiencies, the price increase as follows:

$$(Partial) \quad GUPPI_1^R = \underbrace{D_{12}^{RR} \cdot L_2^R \cdot \frac{P_2^R}{P_1^R}}_{\text{One-sided effect; diversion of readers to acquired newspaper}} + \underbrace{D_{12}^{RA} \cdot L_2^A \cdot \frac{P_2^A}{P_1^R}}_{\text{Cross-effect; Diversion of advertisers to acquired newspaper}}$$

One-sided effect; diversion of readers to acquired newspaper

Cross-effect; Diversion of advertisers to acquired newspaper

- Indicates that there is an additional reason for raising the reader price post merger:
 - Traditional: Diversion of **readers** to acquired firm
 - Additional: Diversion of **advertisers** to acquired firm

Feedback effects on platform 1

- Assume higher prices on advertising (will be discussed later)
 - $\alpha_1^A = \Delta p_1^A / p_1^A$: Relative price increase on ads
- Then opposing forces concerning pricing in the reader market on the same platform (assuming symmetric margins):

$$\text{Adjusted } GUPPI_1^R = \underbrace{\left(D_{12}^{RR} + D_{12}^{RA} \right)}_{\text{Cross-effect I}} \cdot L - \underbrace{\alpha_1^A \cdot D_{11}^{RA}}_{\text{Cross-effect II}}$$

Cross-effect I: Ad diversion argument for *higher* reader prices (as shown)

Cross-effect II: Higher ad price an argument for *lower* reader prices

- Cross-effect II: Higher margin on ads will make each new reader more valuable for the newspaper
- Should therefore consider how higher prices on one side affects the prices on the other side

Feedbacks on platform 1 cont.

- Higher prices in advertising market leads to *lower* prices in reader market if:

$$\frac{\alpha_1^A}{L} > \frac{D_{12}^{RR} + D_{12}^{RA}}{D_{11}^{RA}}$$

- More likely with lower reader prices the:
 - The higher the increase in ad prices and the lower the margin
 - The lower the diversion ratio on the reader side
 - The lower the fraction of new ads coming from 2
- Even advertisers could be better off by higher ad prices
 - The reduction in reader prices makes advertising more valuable for the advertisers, even if the ad price has increased
 - See Dewenter *et al.* (2011)

Ex.: Newspaper merger

Advertisers

- Two-sided market
 - Financed by advertisers and readers
- A-Pressen acquired Edda Media in Norway in 2011
- They both had numerous newspapers in various local areas



Readers

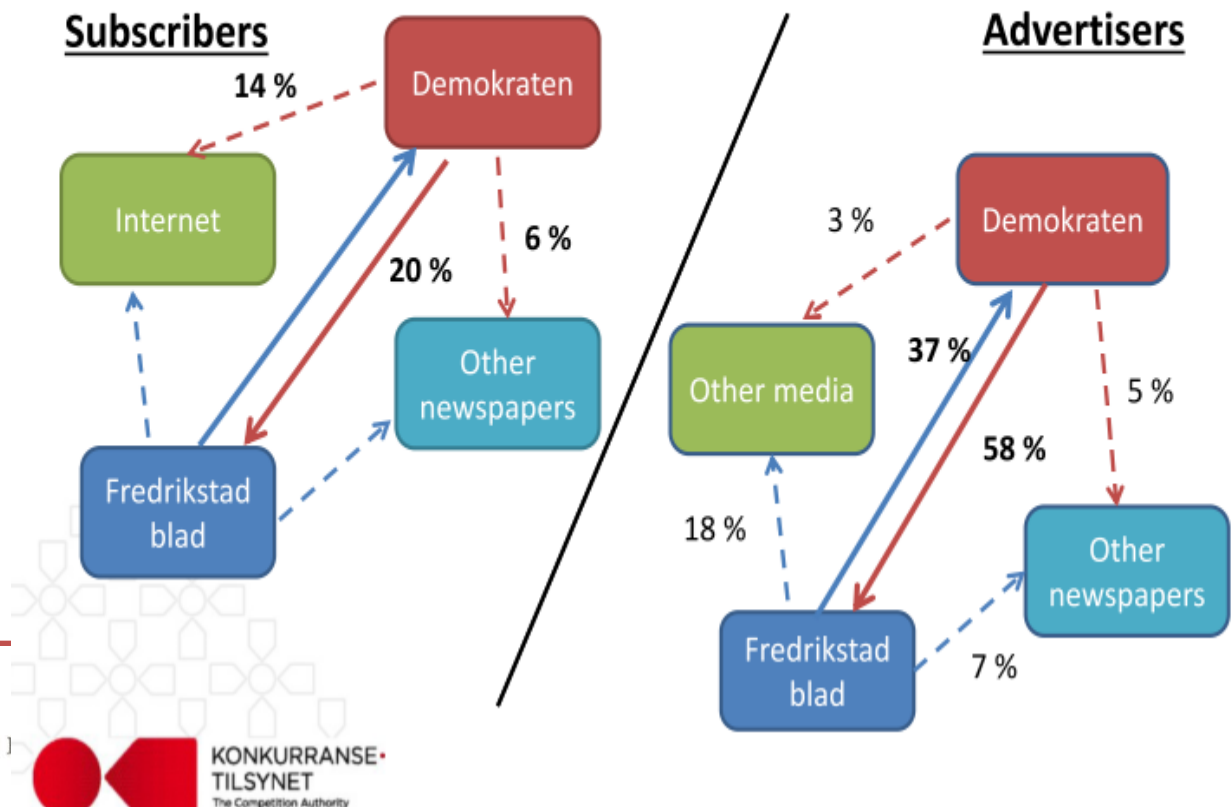
Newspaper merger cont.

- Merger accepted with remedies in June 2012
- Sell out two newspapers in two different local areas
 - Newspapers in area 1: Large overlap in both advertiser and reader market
 - Newspapers in area 2: Overlap primarily in the advertiser market (not same relevant market for readers)
- Clear cut remedy case in area 1?
 - Relaxing the competitive constraint on both sides of the market
 - High diversion ratios in reader market countervails the downward price pressure from higher advertising prices?

Area 2: Remedy not so clear cut?

- Surveys in local area 2 by NCA:
- Diversion ratios
 - High in ad market
 - Lower in reader market
- High increase in ad prices?
- Triggering lower reader prices?
- Even advertisers better off then?

Customer diversion ratios II: Fredrikstad Blad & Demokraten



Ex.: Archant/Independent News and Media

- Merger between local newspapers in the UK in 2004
- Competition Commission focused exclusively on the advertising side of the market
 - Implicitly assuming low overlap on reader side?
 - If newspapers for free, not a good reason for neglecting it
- They did not find an anticompetitive effect (not high enough diversion ratios)
- But what if they had found an anti-competitive effect?
 - Higher ad prices
 - Triggering lower reader prices or higher quality?
 - Even advertisers better off?

Mergers in the TV market

- Several mergers where one firm is mainly financed by ads and one firm mainly financed by subscription
 - ProSieben/Sat1 by Axel Springer (Bundeskartellamt)
 - KirchpayTV by Bsky (DG Competition)
 - Premiere by News Corporation (DG Competition)
- Claimed that two-sidedness did not matter
 - Free to air had no revenues from viewers
 - Pay TV had limited ad revenues
- But this is a flawed reasoning
 - Less competitive constraint in the ad market, and then for example pay TV could finance more through advertising
 - If higher margin on ads, free to air TV incentives to invest more in quality to attract more viewers

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Merger and advertising prices

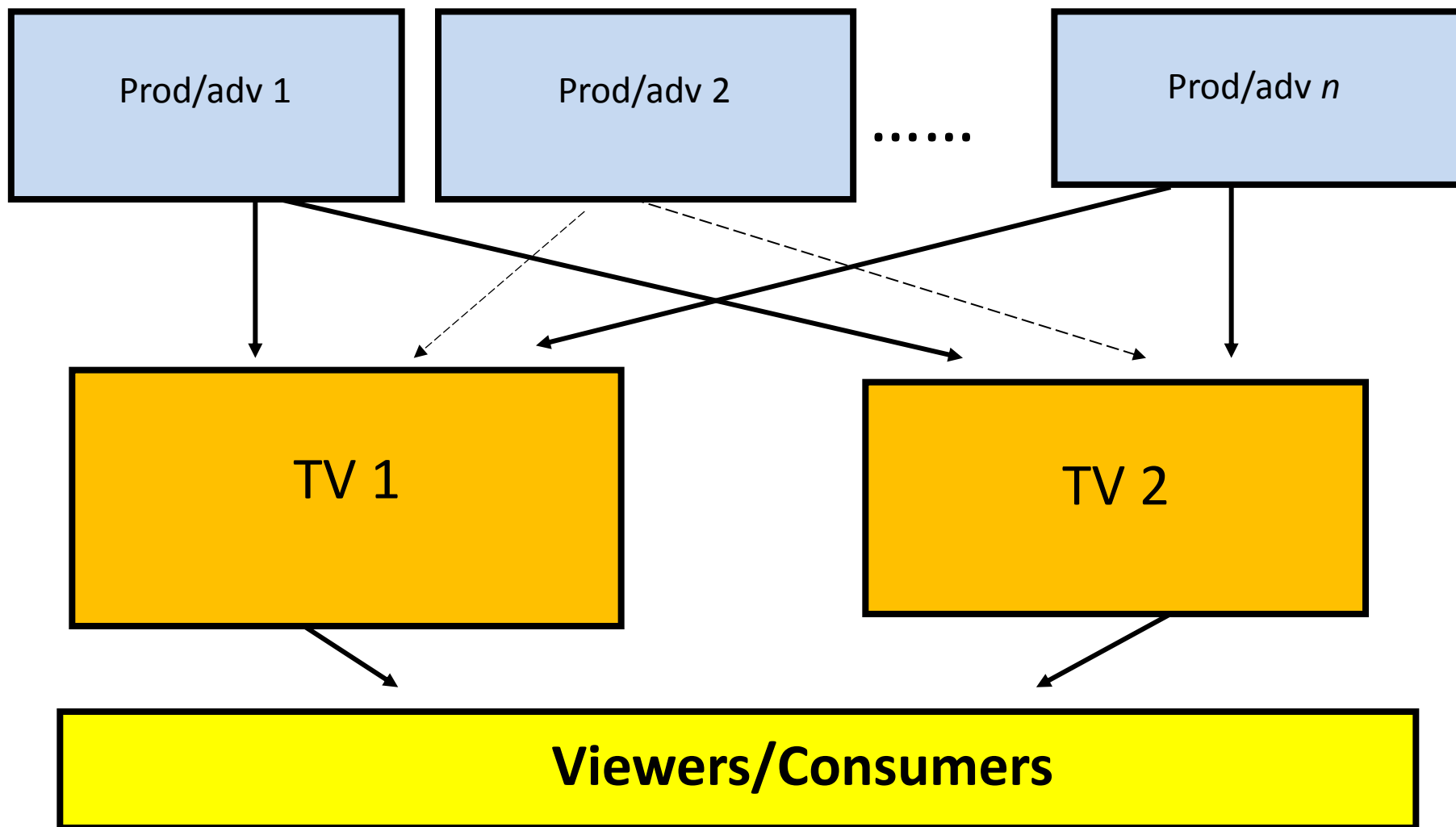
- We have assumed that merger leads to higher advertising prices
 - Traditional mechanism when the platforms are close substitutes for the advertisers
- But this is not always true
- Think about media firms competing on advertising, and ads a nuisance to listeners/viewers/readers
- Then tough competition might lead to *low* amount of advertising and *high* advertising prices
 - See for example Anderson and Coate (2005) and Barros *et al.* (2005)

A simple model

- Two TV stations, 1 and 2
- Both financed only by advertising, A_i , where $i = 1, 2$
- n producers that advertise on TV
- Viewers dislike being interrupted by commercials (important assumption)

- The following game:
 - Stage 1: TV channels set advertising levels
 - Stage 2: Advertisers choose amounts of advertising to buy

The model



The Demand Side (viewers)

- V_i = The time each viewer spends viewing on TV i
- Gross utility from visiting channel 1 and 2:

$$U = V_1 + V_2 - \frac{1}{1+b} \left(\frac{V_1^2}{2} + \frac{V_2^2}{2} + bV_1V_2 \right)$$

- $b=0$: channels are unrelated; $b=1$: perfect substitutes

- b captures differentiation, not market size

- γ = Disutility from being interrupted by commercials
- Consumer surplus from visiting channel 1 and 2:

$$CS = U - \gamma(A_1V_1 + A_2V_2)$$

- Then we have the following *viewer* function:

$$V_i = 1 - \gamma \frac{A_i - bA_j}{1-b}, \quad \text{where} \quad \frac{\partial V_i}{\partial A_i} < 0, \quad \frac{\partial V_i}{\partial A_j} > 0$$

The Supply Side (advertisers)

- R_k = Price of advertising on channel k
- TV channel k 's profit function:

$$\pi_k = R_k \left(\sum_{i=1}^n A_{ki} \right), \text{ where } k=1,2 \text{ and } i=1,\dots,n$$

Producer/advertiser i 's profit function:

$$\pi_i = \underbrace{(A_{1i}V_1 + A_{2i}V_2)}_{\text{Sales revenue generated by advertising}} - \underbrace{(R_1 A_{1i} + R_2 A_{2i})}_{\text{Cost of advertising}}$$

The effect of a merger

- Pre-merger, each TV channel's ad level:

$$A_i^M = \frac{1}{\gamma} \left(\frac{n}{n+1} \right) \left(\frac{1-b}{2-b} \right)$$

- Tougher competition (higher b) leads to *less ads*, *higher advertising prices* and *lower profits*
- Post-merger, always more advertising and lower ad prices:

$$A_i^C = \frac{1}{2\gamma} \left(\frac{n}{n+1} \right)$$

Merger and welfare

- Welfare: Sum of consumer surplus and profits
- Pre-merger, underprovision of ads if:

$$b > \frac{\gamma(n+2) - 2}{n + \gamma - 1} \equiv \hat{b}$$

- If close substitutes, advertising (almost) competed away

- Post-merger, underprovision of ads if:

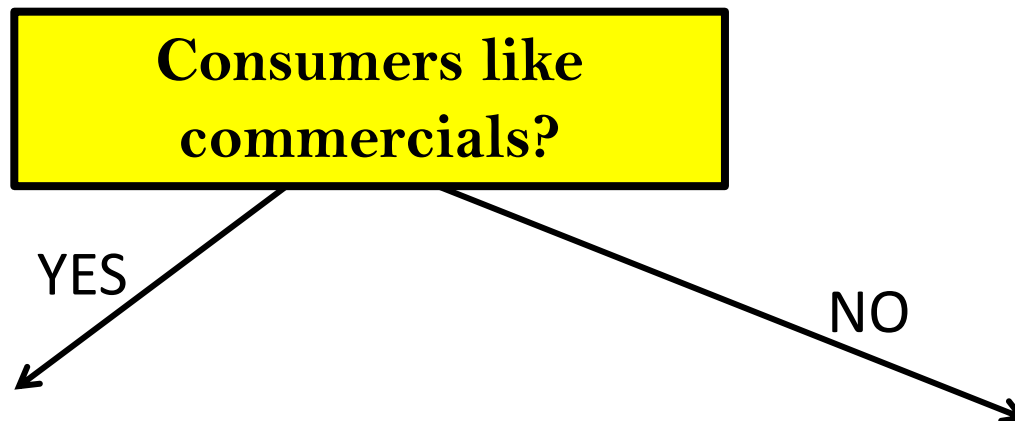
$$\gamma < \frac{2}{n+2}$$

- Less advertising following a merger
- But welfare depends on whether under- or overprovision pre-merger

Merger and ad prices – again

- Evidence that in some cases more competition leads to more advertising
 - Example: ‘Fox News puzzle’
 - Then a merger can lead to higher ad prices
- Can be explained in some recent work
 - Anderson *et al.* (2013): Incremental value of ads
 - Ambrus *et al.* (2014): Business sharing effect of ads
- Ambiguous effect on ad prices of a merger
 - Do the consumers like or dislike advertising?
 - How strong incremental/business sharing effects?

Higher or lower ad prices post merger?



- Higher: Competing on ads
- Higher: Incremental or business sharing
- Problematic to apply the UPP framework?
 - Cannot just assume **U**pward **P**ricing **P**ressure, f. ex. on reader side, if no efficiencies as in a traditional one-sided market
- Lower: Competing on ads
- Higher: Incremental or business sharing

Ex.: Carlton Comm./Granada

- Merger in the UK in 2002 in the TV market investigated by Competition Commission
- Focused only on the ad side of the market, and was concerned about an anticompetitive effect
- But argued that since viewers dislike ads, they could benefit from lessening of competition
 - Assuming fewer ads after the merger
- But fundamental problems with their approach
 - What would be the feedback on the viewer side of the market?
 - Could the theory of harm be reversed, with dampened competition on having ads and more ads post merger?

Ex.: Two-sidedness recognised

- US Supreme Court already in 1995:
 - *‘Every newspaper is a dual trader in separate though independent markets; it sells the paper’s news and advertising content to its readers’*
- Truvo Netherlands and European Directories in 2008:
 - *‘The supply of directories is thus marked by two-sidedness. It is accepted that this two-sidedness can have a certain effect. ... The [NMA] board accept that (certainly in time) a strong increase or decrease in usage will lead to a reaction from advertisers’*
- Travelport/Worldspan Technologies in 2007:
 - DG Comp acknowledged that travel distribution services are two-sided markets

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Motivation: TV rights for Premier League

- Soccer on TV a two-sided market
 - Payment from advertisers and end-users
- Market segmented into national markets
 - Viewers purchase rights from a national distributor
- EU Court of Justice ruled that a person could purchase Premier League on TV from another country
 - Karen Murphy in UK could lower the price from £ 7000 to £ 800 by shifting to Nova in Greece
- What if the market is no longer segmented and all viewers can do as Karen Murphy?
 - Analysed in Kind and Sørsgard (2014)

Pub landlady Karen Murphy wins Premier League TV battle

High court quashes conviction for using cut-price Greek satellite decoder to bypass Sky's official satellite feed

Mark Sweney
guardian.co.uk, Friday 24 February 2012 18.24 GMT

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31 Jan 2011
Rights holders alliance to defend Digital Economy Act



Great result: Karen Murphy hails her victory over the Premier League. Photograph: Matthew Lloyd/Getty Images

Pub landlady Karen Murphy has won a legal battle at the high court in London to overturn her conviction for using a cut-price Greek satellite decoder to air Premier League football matches.

Murphy has spent six years fighting a prosecution involving £8,000 in fines and costs for bypassing BSkyB's official Premier League satellite feed to

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EUROPEAN COMMISSION

[CHECK AGAINST DELIV]

Joaquín ALMUNIA

Vice President of the European Commission responsible for Competitiveness and Growth

Statement on opening of investigation into Pay TV services

Statement, press room

Brussels, 13 January 2014

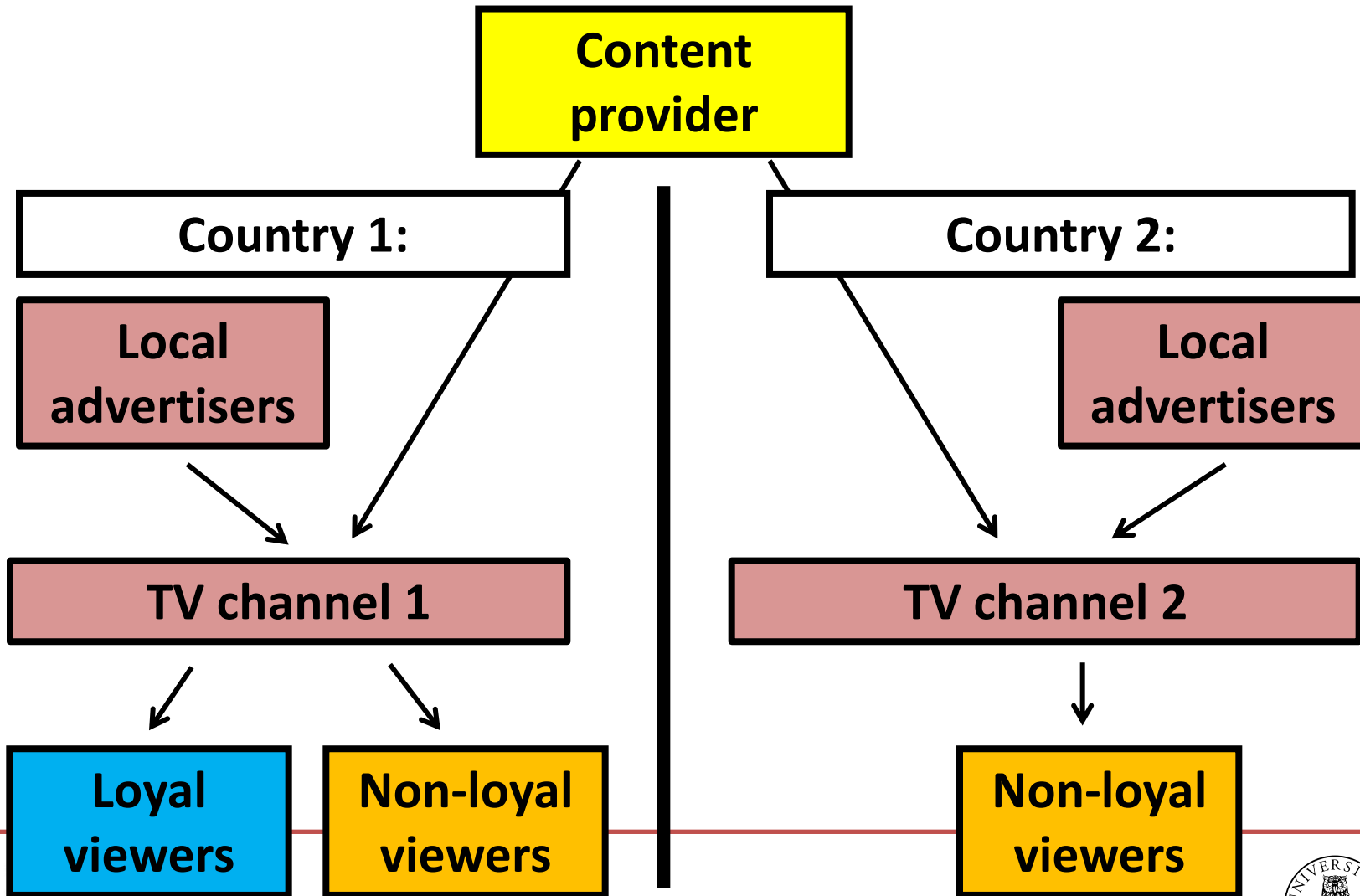
I want to be clear on one point: we are not calling into question the possibility to grant licenses on a territorial basis, or trying to oblige studios to sell rights on a pan-European basis.

Rather, our investigation will focus on restrictions that prevent the selling of the content in response to unsolicited requests from viewers located in other Member States - the so-called "passive sales" - or to existing subscribers who move or travel abroad.

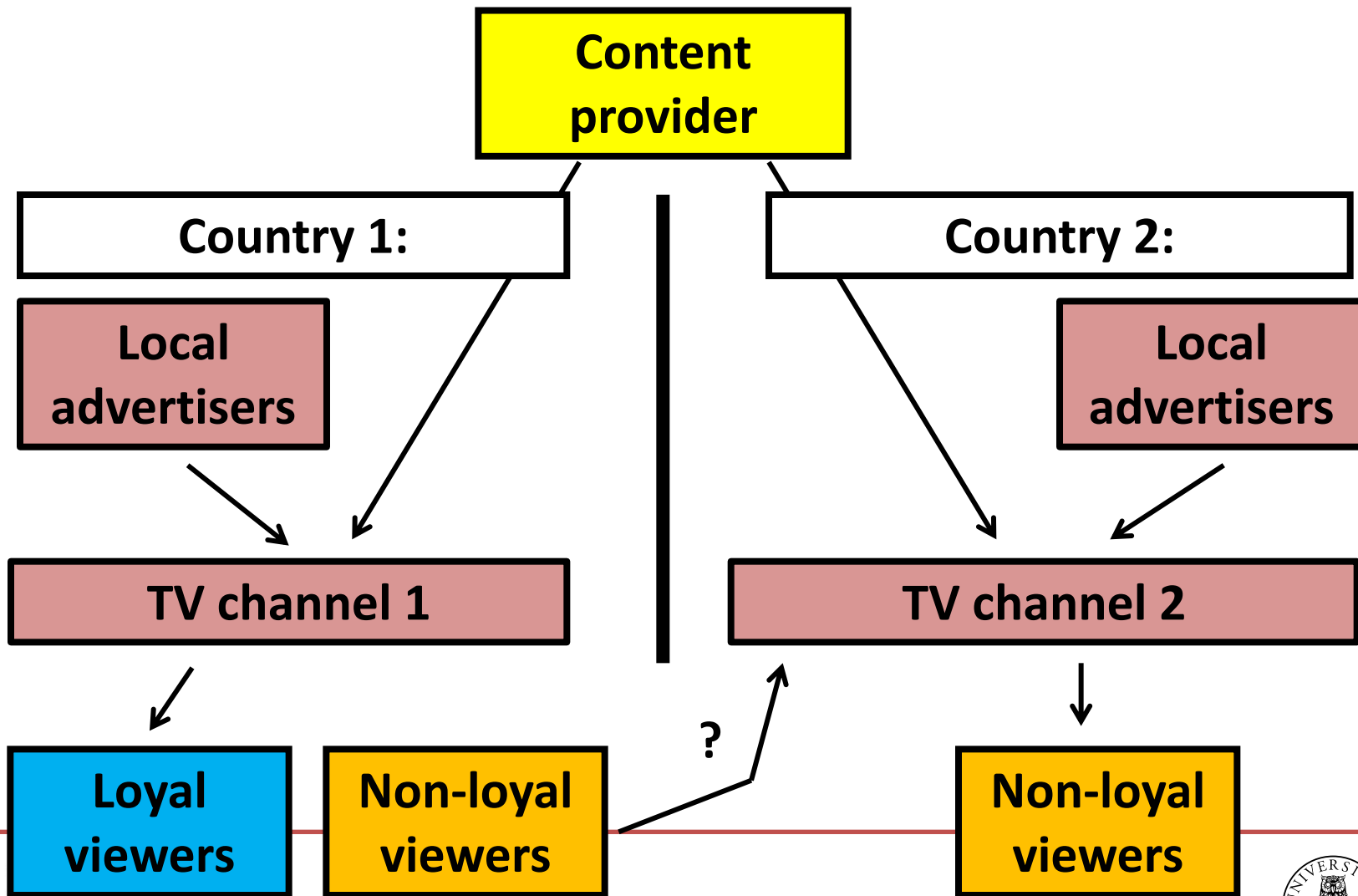
To illustrate: if you subscribe to a Pay TV service in Germany and you go to Italy for holidays, you may not be able to view the films offered by that service from your laptop during your holidays. Similarly, if I live in Belgium and want to subscribe to a Spanish Pay TV service, I may not be able to subscribe at all if there is absolute territorial exclusivity.

- Exclusive territories is OK
- Restrictions on 'passive sales' can be a problem
 - Production by US film studios
 - Agreement with TV channels in different countries
 - A consumer cannot buy from another country

Complete market segmentation



If shift to no segmentation (passive sales)



Passive sales problematic?

- A shift to no market segmentation can be detrimental to the two-sidedness of the market
 - Less scope for ad tailored to each country, and can lead to break down of two-sidedness
 - Can indirectly lead to higher end-user prices, and also higher generalised prices in both countries
 - Can have larger consumer harm than in a one-sided market
- Even non-loyal switchers might be worse off from no market segmentation
 - Higher generalised prices in both countries
- Problematic with exclusive territories and at the same time allowing for passive sales across borders?

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Some concluding remarks

- Given that market definition is so important, anti-trust cases in two-sided markets a challenge
 - Does not fit to think about a potential for a price increase, when some prices raise and some prices may fall
- Even more important to go direct to the theory of harm
 - Consumers like or dislike advertising?
 - SLC on only one side?
 - What do we predict about the other side?
- The theory of harm must guide us a lot, since hard to quantify all mechanisms?
 - Proposing the right theory of harm very important

Concluding remarks cont.

- Can be welfare improving to preserve the two-sidedness
 - Advertiser market can be an efficient information channel
 - Problematic if competitive pressure makes it unprofitable to raise revenues from the advertising side
- Should be taken into account in various antitrust cases ...
 - See the cases from the TV market we referred to
- ... including potential anti-comp. agreement cases
 - Ex.: Market segmentation into national markets to target the audience