

Is competition policy fit for digital markets?

- Wide debate among authorities and academia: EC (Cremer Report) and CMA (Furman Report), Stigler Center report.
- Digital Market Act: defines gatekeepers and gives them special obligations
- An anti-Easterbrook presumption:
 - Market tipping and barriers to entry make incumbents hard to replace
 - Decentralized innovation contributes to technical progress
 - Under-enforcement more dangerous
- Ex-ante regulation of tech giants in parallel with the enforcement of Competition policy.

Digital Market Act: Objectives

Art.1: *“This Regulation lays down harmonised rules ensuring contestable and fair markets in the digital sector across the Union where gatekeepers are present.”*

- Promote contestability and competition in digital markets.
- Protect business users and end users from unfair practices.
- Enhance user choice, control and interoperability.

Digital Market Act: Services and Subjects

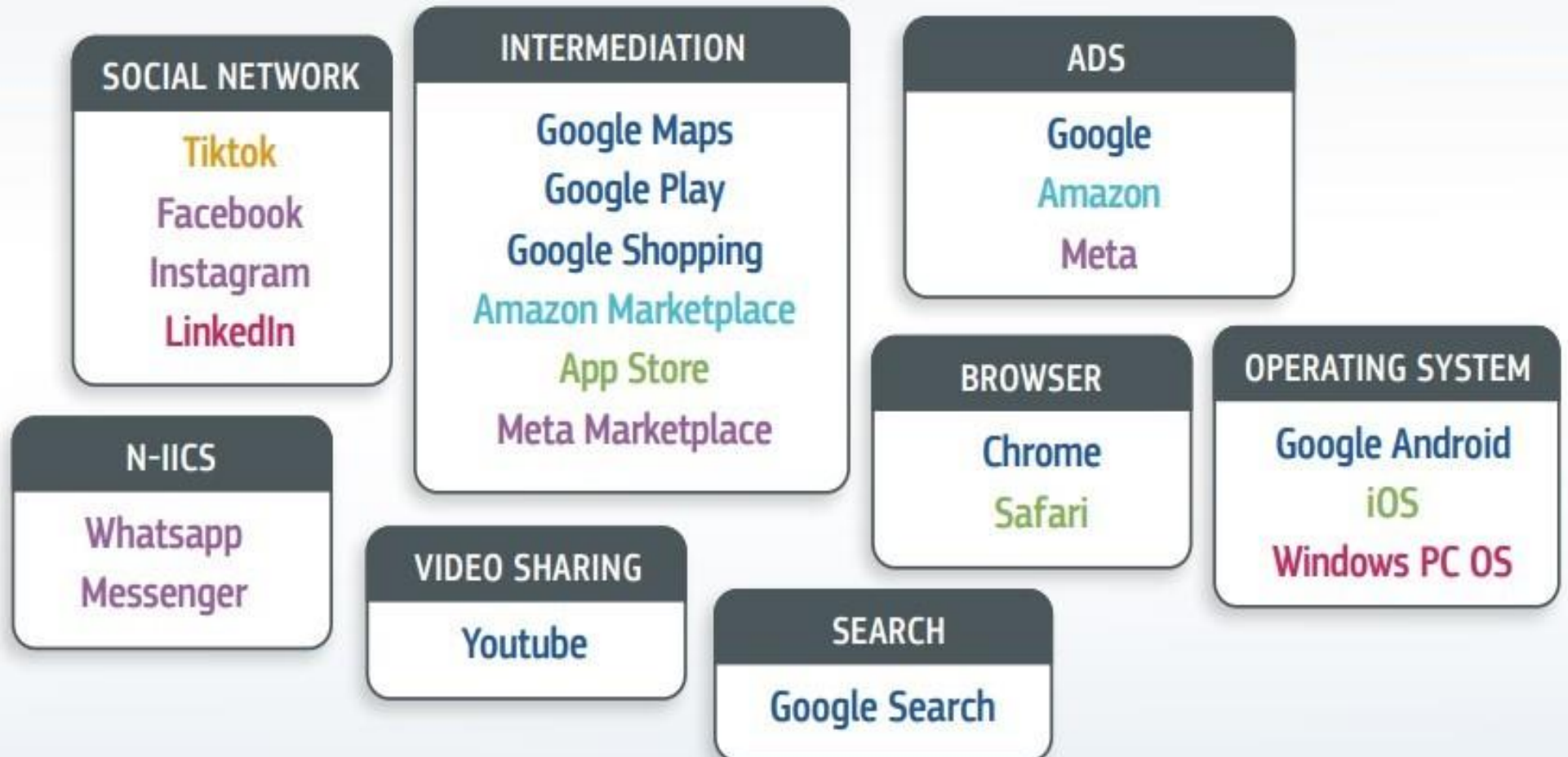
- Art. 3 defines the Core Platform Services (CPS), including:
 - a. online intermediation services;*
 - b. online search engines;*
 - c. online social networking services;*
 - d. video-sharing platform services;*
 - e. number-independent interpersonal communication services;*
 - f. operating systems;*
 - g. cloud computing services;*
 - h. advertising services, including any advertising networks, advertising exchanges and any other advertising intermediation services, provided by a provider of any of the core platform services listed in points (a) to (g);*
- Art. 1.2: *“This Regulation shall apply to core platform services provided or offered by gatekeepers to business users established in the Union or end users established or located in the Union.”*
- Gatekeeper: provider of at least one CPS with turnover above a given threshold for a sufficient number of years.



Gatekeeper Designations

Gatekeeper

Core Platform Service



Digital Market Act: Subjects

- The DMA avoids to define relevant markets and goes directly to the subjects regulated.
- Does not include a reference to business models (contrary to CMA), i.e. how CPS map into the wide heterogeneity of digital platforms.
- Advantages:
 - the procedure is shorter
 - avoids the complex exercise of defining the relevant markets in digital ecosystems.
- Disadvantages:
 - designed to identify the dominant firms in today's digital markets: what about OpenAI?
 - lacks a methodology (e.g. SSNIP test) to update the definitions to the evolving markets.

Digital Market Act: Practices ART. 5-6

Main obligations:

- Enable Interoperability and Data Portability
- Give access to key platform features and services that competitors, business users, or developers need to compete.
- Transparency about how their services operate, including data use practices, ranking systems etc
- Permit users to uninstall pre-installed software, choose alternative apps or services (e.g., default search engine or browser), and control how their data is shared.
- Notify all significant merger and acquisition plans that could affect the market.

Digital Market Act: Practices ART. 5-6

Main Prohibitions:

- Self-preferencing: should systematically favor their own products or services over those of competitors on their platforms (e.g., ranking their own service preferentially).
- Should not merge data from different services for profiling unless users explicitly consent.
- No unjustified restrictions that prevent users or business users from switching to rival services or using competing products alongside their own.

Digital Market Act: Practices

- They adopt a formalistic approach: define GK and define practices prohibited.
- Disadvantages of a formalistic approach:
 - Hardly exhaustive and future proof (in particular when conducts are implemented through algo's)
 - Does not evaluate the practices together with the business models (very different effects)
 - Does not allow for efficiencies.
- A serious risk to be ineffective
- CMA: bespoke remedies are preferable

Is the DMA able to limit market power?

- Even abstaining from certain practices the tendency to concentration remains (investment in stand-alone value, network effects)
- Some of the mitigating factors depend on platforms' strategies and cannot be significantly affected by regulation

Digital Services Act (DSA)

- Focus on safety, transparency, fundamental rights protection, and accountability for online services.
- All digital intermediaries are subject to baseline obligations;
- Very Large ones face enhanced obligations (risk management, independent auditing, transparency, crisis mechanisms).
- Key obligations: removing illegal content, mitigating systemic risks (e.g., disinformation, manipulation), transparency of algorithms and recommendation systems, cooperating with authorities, etc.

AI Act

EU regulatory framework for AI systems, based on a risk-based approach (i.e., different obligations depending on the AI system).

- Focus: on trustworthy AI, human-centredness, risk mitigation

Main features

- Prohibition of some AI practices (e.g., social scoring by governments, manipulation of behaviour, certain biometric surveillance).
- “High-risk” AI systems subject to heavy obligations (data governance, documentation & traceability, human oversight...).
- General-purpose AI (GPAI) and other systems have lighter obligations;
- AI systems must meet the essential requirements to access the EU market;
- Member States must designate supervisory authorities...

General Data Protection Regulation (GDPR)

EU's framework for the protection of **personal data** (since **25 May 2018**)

- Covers any info relating to a person. **Special categories of data**—e.g. health, biometric, genetic, political, religious— stricter safeguards.
- Key principles: **lawfulness, fairness, and transparency; purpose limitation; data minimisation; accuracy; storage limitation; security; and accountability**, requiring organisations to demonstrate compliance.
- Personal data may be processed only on a valid legal basis, such as consent...
- GDPR grants individuals strong rights, of access, rectification, erasure, restriction...
- Organisations must implement data protection by design, ensure security, keep records, report data breaches, and in some cases appoint a Data Protection Officer.

1b) Market power, competition, and welfare

1. Allocative efficiency
2. Productive efficiency
3. Dynamic efficiency
4. Public policies, and incentives to innovate

1. Allocative efficiency

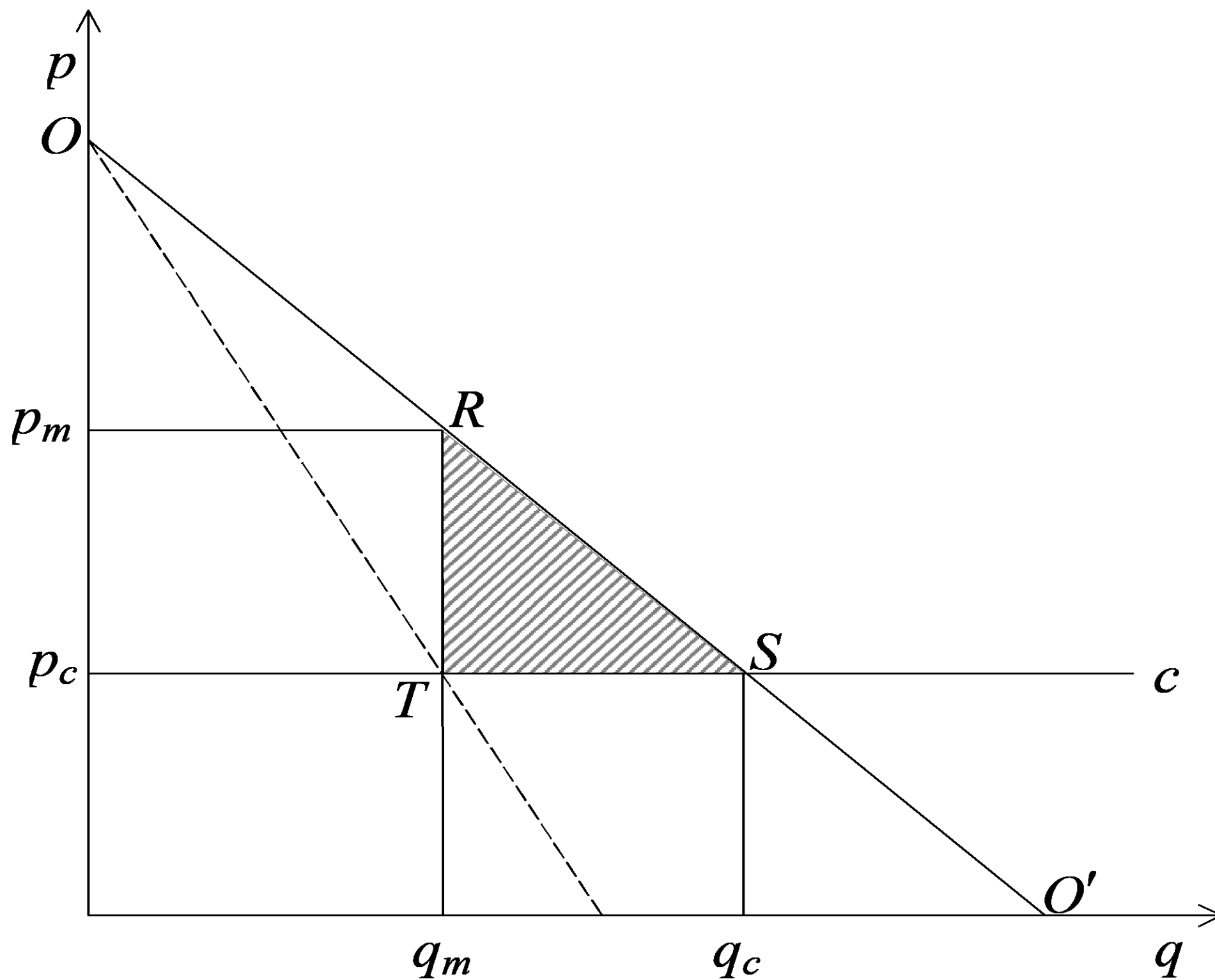
Definition of market power: the ability of a firm to profitably raise price above marginal costs

The deadweight loss (see Figure 2.1)

Inverse relationship between market power and welfare

A matter of degree, not of existence

Figure 2.1. Welfare loss from monopoly



2. Productive efficiency

Additional welfare loss if monopolist lobbies to keep monopoly power and has higher costs

“Quiet Life” and managerial slack

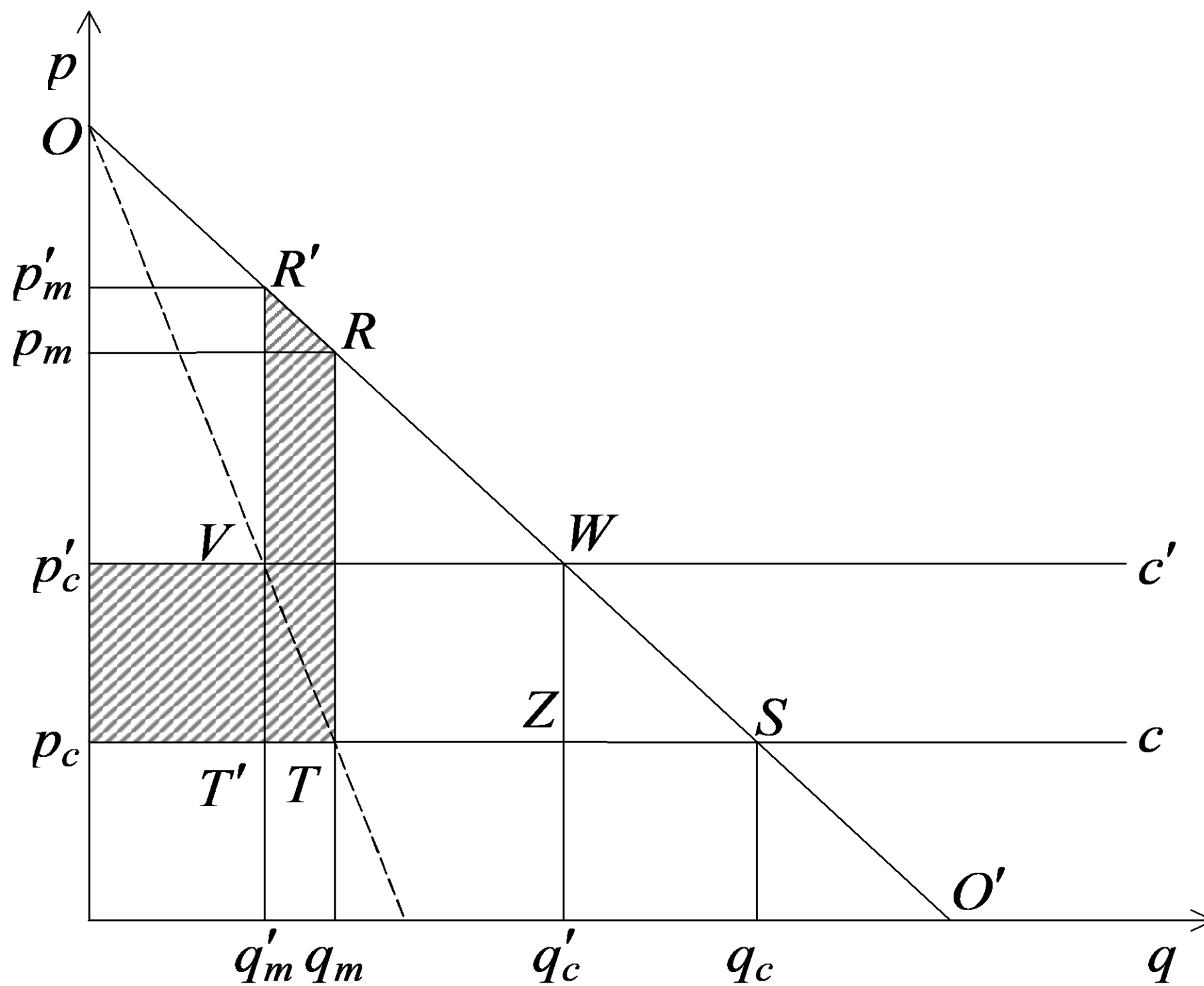
Principal-agent models: market competition helps.

Nickell 1996: individual firms' productivity higher in competitive industries; Buccirossi et al. 2011

Darwinian arguments: competition selects more efficient firms

Olley-Pakes 1996: industry productivity mostly increases through entry/exit

Figure 2.3. Additional loss from productive inefficiency



3. Dynamic efficiency

Lower incentives to innovate of a monopolist: innovation introduced if *additional* profits higher than costs (Arrow's replacement effect, but Shumpeter...)

Appropriability matters: less innovations if no patent protection, compulsory licensing, etc... (Debated)

4. Public policies and incentives to innovate

Ex ante (incentives) v. ex post (diffusion): IPR protection guarantees monopoly power

In general, balancing competition with appropriability (the importance of preserving incentives to innovate) is the key issue in many abusive cases:

- Refusal to supply/to deal/to license
- Interoperability
- Excessive prices

Increasing market power problem?

De Loecker, Eeckhout, Unger (2020)

- Document the evolution of firm-level price/cost ratios (markups) for the US since 1955.
- Initially, markups are stable, even slightly decreasing. In 1980, average markups start to rise from **21%** above marginal cost to **61%** now.
- The upper percentiles have increased sharply, while the median is unchanged.
- There is reallocation of market share from low to high markup firms.
- This rise occurs mostly within industry for all industries.

Increasing market power problem?

Werden and Froeb (2018), Benkard et al. (2025)

- Not at disaggregated level, the one that matters most for competition and prices

IMF (2019), Calligaris, Criscuolo, Marcolin (2024)

- Across a number of advanced economies, price/marginal cost rose by about 8 percent between 2000 and 2016, concentrated in few highly productive innovative firms.

Syverson (2019)

- Plausible but more empirical work to be done

However: Other worrisome pieces of evidence...

Corporate profits in the US

- Risen significantly over the past few decades. Share of US GDP accounted for by **corporate profits** from around **7.5** to over **11%** from 1985 to 2016 (Shapiro 2018).
- Furman and Orszag (2018): premium on the **return to private capital** over safe assets has risen from about **200** basis points in 1985 to more than **800** basis points in 2015, much more skewed among few large US firms.
- **Market capitalizations** of leading US firms indicate that investors expect high profits to persist, suggesting substantial and durable market power.
- Gutierrez and Philippon et al. (2022), Europe more competitive than US: **lack of free entry after 2000, increase in lobbying**

Other worrystome trends

- Larger, more efficient “superstar firms” growing much faster at the expense of smaller, less efficient rivals, **increasing market concentration** (Autor et al. 2017; Van Reenen 2018), US not EU
- **Reduced productivity growth:** after a surge in 90s, falling in all developed countries (in US less than 0.5% in 2005-2018, vs long-term average 1.3%), despite increase in productivity-enhancing investments (U.S. investments in corporate R&D up 61% last 30 years).
- **Slowdown in business dynamism:** decline in rate at which workers reallocate to different employers, and start-up rate
- **Decreased labor share** of GDP since the 1980s, linked to reallocation of activity toward the superstar firms (Autor et al 2017), monopsony power in labor markets, declining unions, lowering wages and exacerbating inequality.

1c) Market power and market definition

Market definition is only an intermediary objective

Modern econometric tools (but also simple quantitative evidence, see e.g. the US Horizontal Merger Guidelines 2010) allow in some cases to assess market power directly: if so, defining the market is not needed.

If not, two steps in the analysis:

- i. Market definition (product and geographic)
- ii. Market power assessment

i. Market definition

i. Market definition

Product Market:

the set of products “substitutes enough” to each other (in the sense of exercising a competitive constraint on each other, not of ‘resembling’ each other).

a) Demand substitutability and supply substitutability

b) How to find this set?

SSNIP (Small Significant Non-transitory Increase in Prices) test:

could a hypothetical monopolist selling products X profitably raise prices by 5-10%?

If yes, X is the product market

If no, apply SSNIP test again with X and Y, etc...

Ex: Nestlé-Perrier case

- In 1991 Nestlé' and IFINT launched a bid to obtain control of (and eventually merge with) Perrier, a French company. Nestlé' eventually outbid its competitors.
- Nestlé', Perrier and BSN are big players in the French bottled mineral water market. **Nestlé'** owned Vittel and Herpar; **Perrier** owned Perrier, Volvic, St. Yorre, Thonon and Vichy. **BSN** owned Evian and Badoit. In total >80% of the market in value.
- Nestlé' claimed that mineral water belonged to the same market as carbonated drinks (sodas), purified water, spring water, flavored water and soft drinks in general. The merged entity would have had only a relatively small market share and therefore could hardly be viewed as "dominant."
- **Hence, to assess whether a case involves the exercise of market power, a preliminary definition of the relevant market is necessary**

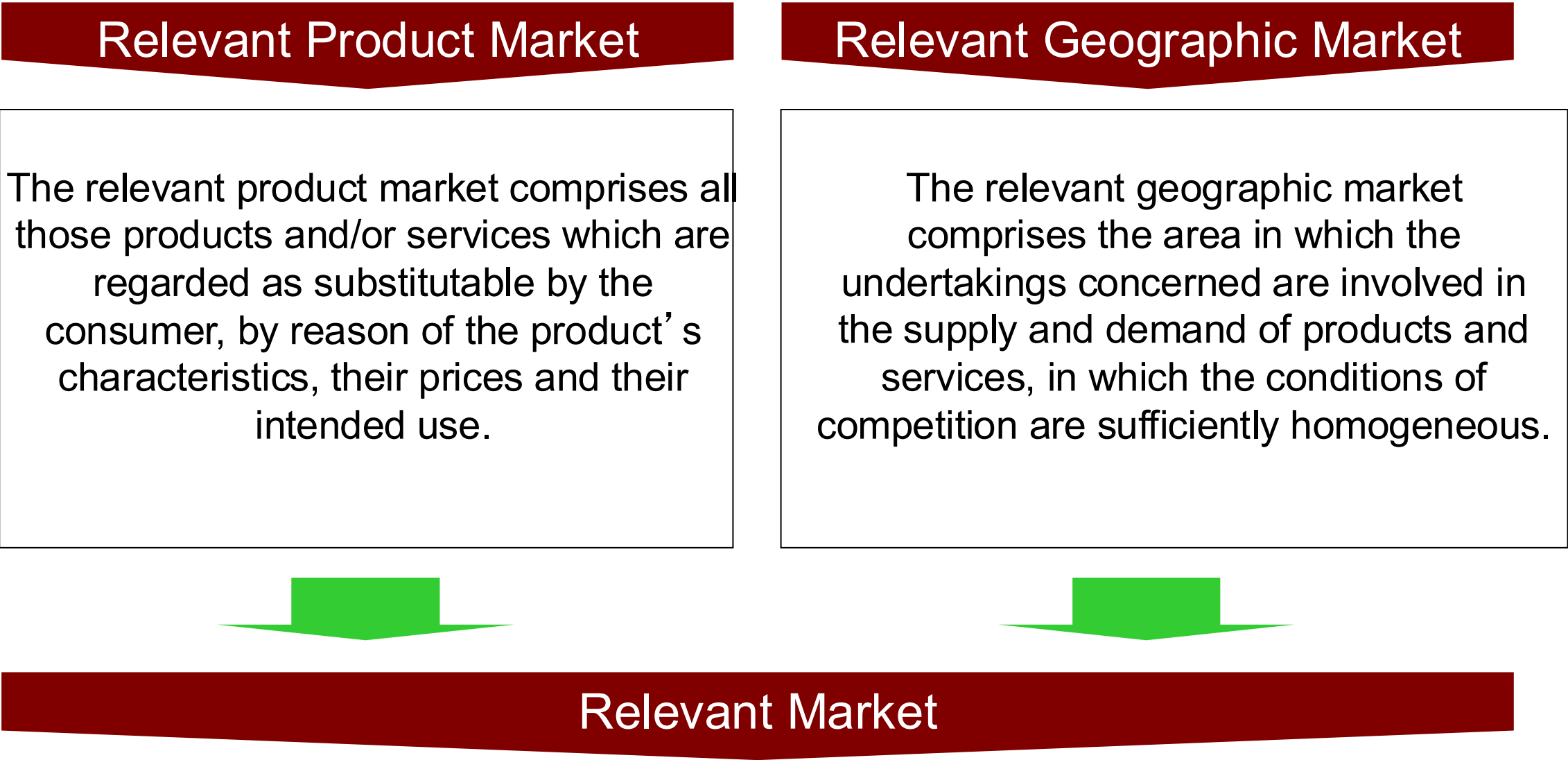
The Two Dimensions of a Relevant Market

Relevant Product Market

The relevant product market comprises all those products and/or services which are regarded as substitutable by the consumer, by reason of the product's characteristics, their prices and their intended use.

Relevant Geographic Market

The relevant geographic market comprises the area in which the undertakings concerned are involved in the supply and demand of products and services, in which the conditions of competition are sufficiently homogeneous.



Relevant Market

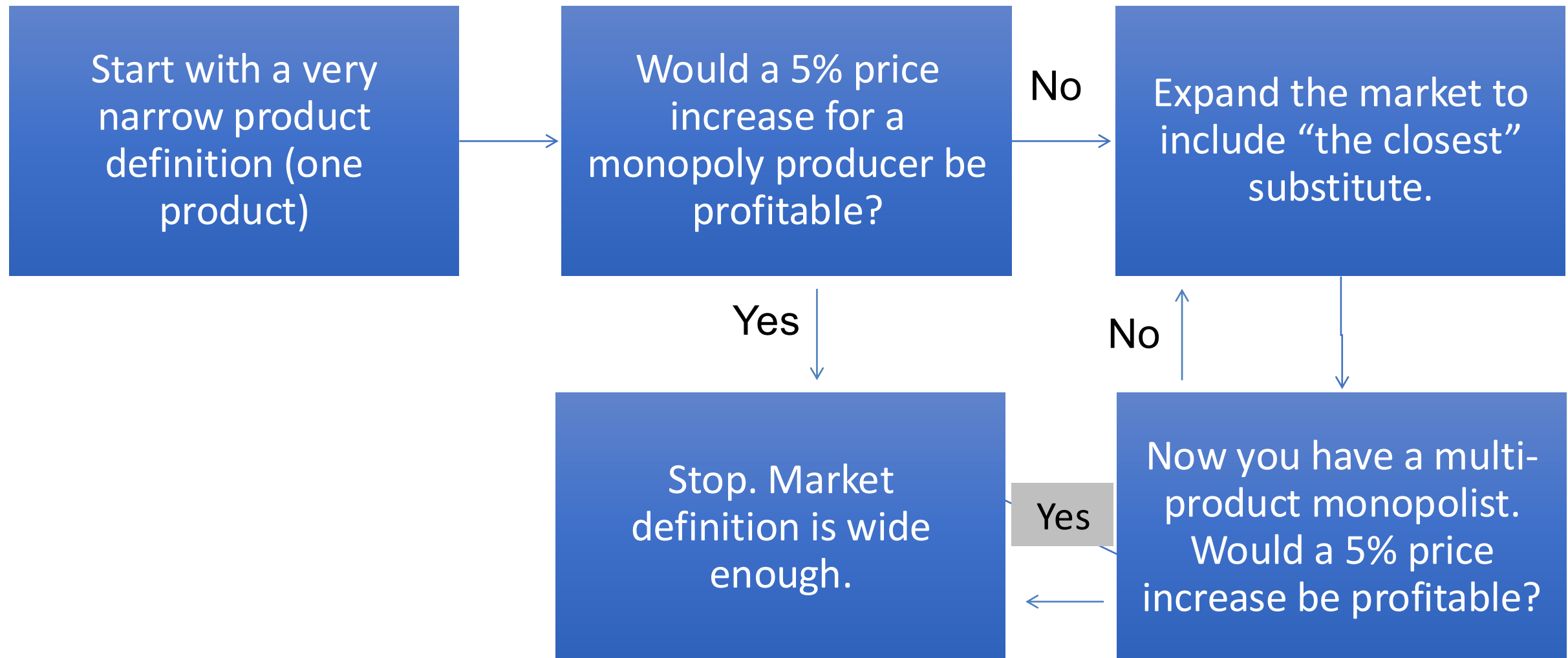
How to Define a Relevant Product Market?

- The first step is to consider a reference “product” (or “products”); i.e., a candidate market. This choice is determined by the nature of the case at hand.
 - Merger control: products of the merging parties
 - Abuse of dominance: the products that are allegedly dominated or the products that are to be monopolized
- The next step consists in identifying which “products” can be **reasonably** considered **substitutes** for those in the candidate market.
 - There are two potential sources of substitution:
 - Demand side substitution (**primary role**)
 - Supply-side substitution

An illustration with mineral waters

- Consider again the Nestlè-Perrier case. The candidate market includes the mineral waters produced by the merging firms.
- The SSNIP test works as follow:
 - Imagine the two brands are sold by a single firm and imagine this firm increases prices by 5%. Is this profitable?
 - If yes, it means that other products (other waters, or other drinks) do not represent a serious competitive constraint. Hence, these waters represent a separate market.
 - If not, do the test again including other waters (other brands of waters, sparkling or still waters, juice, Coke).

The SSNIP Decision tree



Market definition, II

How to implement this 'thought experiment'?

Cross-price elasticities, price correlation tests; shocks/event analyses (e.g. unplanned outage of a plant);

Caution(!): Price differences and product characteristics

A problem with this test: raise prices relative to what?

Merger cases: current prices

Art. 102 cases: competitive price? (more difficult to check)

Geographic definition: SSNIP test, transport costs

Shock analysis/natural experiments

- **Example.** We wonder whether for a certain, say, chemical product the EU is the relevant geographic market, or whether US (where imports come from) should be in the same market. Suppose there is an *unexpected* outage of a plant in the EU. Two possibilities:
 - (1) EU supply shrinks, but imports from US do not increase: EU prices rise, US prices stable: separate markets.
 - (2) Imports from US rise: prices in both EU and US increase: same geographic market.

Price Correlation Tests

Main idea: if two products are substitutes, arbitrage by consumers will make prices move in parallel.

Possible difficulties:

- Spurious correlation: prices move together because of common inputs, inflation, or common demand shocks (e.g. crisis hits both products; or same seasonal effects)
- Which level of correlation? (.60, .70,.90?)
- How quick? (correlation might be high, but delayed)

➔ Asymmetric test: if little correlation, different market; if high correlation, look for other evidence

Price Correlation coefficients in Nestle'/Perrier

	A	B	C	D	E	F	G	H	I
A	1								
B	0.93	1							
C	0.91	0.94	1						
D	0.91	0.85	0.86	1					
E	0.94	0.97	0.95	0.92	1				
F	0.93	0.99	0.96	0.88	0.99	1			
G	0.11	0.05	-0.01	0.33	-0.02	0.01	1		
H	-0.57	-0.55	0.25	0.16	0.24	0.27	0.17	1	
I	-0.77	-0.75	-0.81	-0.86	-0.86	-0.79	0.33	-0.11	1

Selection of 9 brands:

A-C Still Water; D-F Sparkling water; G-I Soft Drinks

Diversion ratios

Diversion ratios: proportion of sales captured by different substitute products when the price of a product rises.

For instance, if following a 5% increase in price of apples, demand of apples decrease by 100 units, the quantity of pears increase by 60 units and of oranges by 40 units, then: $d_{ap} = \Delta q_p / \Delta q_a = 60\%$, $d_{ao} = \Delta q_o / \Delta q_a = 40\%$.

Such ratios can either be measured directly, for instance by customer surveys* or 'natural experiments' such as entry or shocks; or by resorting to econometric estimates of demands, which give estimates of elasticities...

Geographic Market Definition

- SSNIP test is still the conceptual framework.

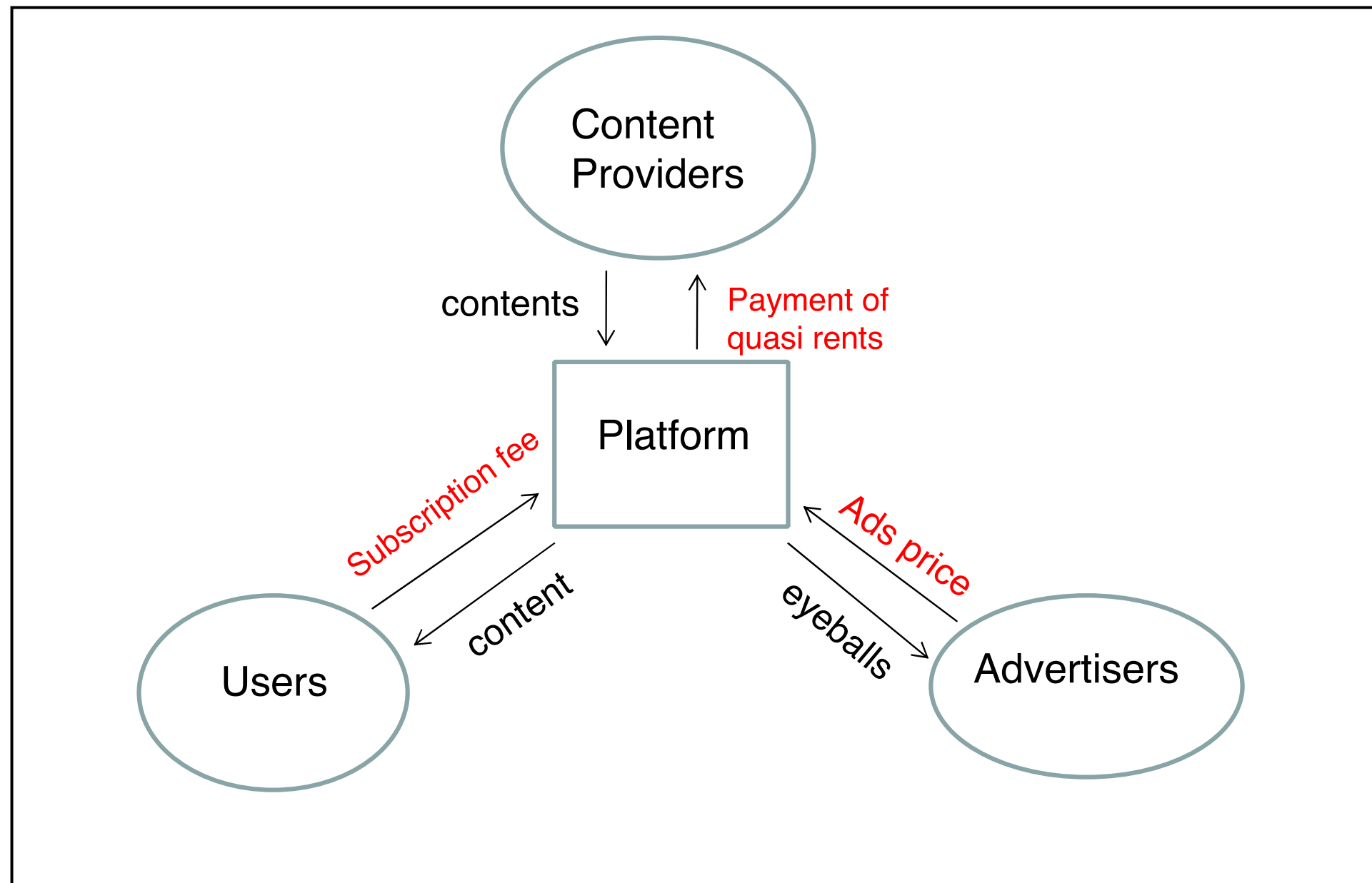
On top of previous elements:

- Shipment test:
 - Is there little in from outside? Is there little out from inside?
- Transportation costs:
 - Ex.: retailing, cement (local markets); aircrafts (global market).

Market definition in two-sided markets

- Two-sided markets are industries in which a platform is used by different groups of agents to interact (e.g. credit cards, media, malls, dating clubs etc.)
- Agents on the different sides exert externalities across sides (vendors and customers, advertisers and viewers, sellers and buyers, men and women)
- Platforms price for access and/or consumption taking into account cross side externalities
- Asymmetric price structures: cut the price on one side, increase participation, increase willingness to pay of the other side, charge the other side
- We often observe asymmetric and opposite price structures (free-to air and pay tv, free press and traditional newspapers)

Market definition in two-sided markets: free-to-air vs. pay tv



Market definition in two-sided markets: free-to-air vs. pay tv

- Traditional antitrust approach: FTA and PAY belong to different relevant markets: FTA does not sell subscriptions, PAY does not sell advertising space.
- One-sided approach: opting for opposite business models is the result of intense competition, a way to relax competition for revenues on the same side
- If one platform chooses FTA: imitating gives low revenues, offering (high quality) content with no ads allows charging a subset of viewers >> PAY
- If one platform chooses PAY: some viewers do not subscribe, they can be reached by advertisers exclusively through a FTA channel, high ads revenues >> FTA
- Hence, FTA and Pay should be considered in the same relevant market.

Assessment of market power

- Once defined the relevant market, the CA proceeds to assess dominance/market power (in mergers, in abuse of dominance)
- Market power and dominance are a fuzzy concept: the ability to raise price above marginal costs. But:
 - How much?
 - How long?
- Antitrust practice has developed several tools to assess, under different perspectives, market power and dominance.

A framework for assessing market power

- Market power can exist in a variety of contexts:
 - in some markets, a single undertaking may possess market power (unilateral effects)
 - in other markets, a number of undertakings may collectively possess market power (coordinated effects)
- It is necessary to have a conceptual framework to assess whether and to what extent market power exists

The “old” economic assessment framework

- The traditional approach for assessing market power relied on the causal link between **structure–conduct–performance**
- Main focus on structural factors

Structural analysis: steps

- **Step 1:** Define a relevant market (product and geographic)
- **Step 2:** Analyse the supply-side structure of the market
 - Number of competitors
 - Market shares and concentration indexes
 - Vertical integration; etc.
- **Step 3:** Assess barriers to entry (potential competition)
- **Step 4:** Assess countervailing buyer power (if any)

Assessment of market power

- **Market shares:** a rough measure of «how large» is the firm compared to the market.
 - Which variable? Value added, turn over, capital stock, employment, reserves....
 - Thresholds: <40% not dominant, >50% dominant
- Other measures based on market shares:
 - **Concentration ratio:** $C_n = \sum_{i=1}^n m_i$ sum of the first n largest firms.
 - **Herfindhal Hirshman Index :** $HHI = \sum_{i=1}^N m_i^2$ sum of the square of the market shares of all N firms.
 - $HHI < 1500$ not concentrated, $HHI > 2500$ concentrated, $1500 < HHI < 2500$?

Assessment of market power

- Further elements that may restrict the exercise of market power, even when market shares are large:
 - **Entry and potential entry** of new competitors (economies of scale, administrative barriers, patents and know how, trade barriers)
 - **Buyer/countervailing power** (concentration on the demand side, oligopsony)

Modern economic approach: developing a theory of harm

- In the latest years, antitrust authorities focused on articulating a “*theory of harm*” behind a competition concern
- The theory of harm is a **story** that explains why an agreement between two or more firms or a practice engaged by a firm may harm competition and adversely affect consumers
- It does not only take into account the **structural features** of the market but also the **incentives** and the **ability** of the firms involved