European Commission

Support study accompanying the evaluation of the Commission Notice on the definition of relevant market for the purposes of Community competition law

Final Report

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List of definitions and abbreviations

AIDS	Almost Ideal Demand System
CLA	Critical Loss Analysis
DG COMP	Directorate General for Competition
EC	European Commission
EEA	European Economic Area
EFTA	European Free Trade Association
EU	European Union
HMT	Hypothetical Monopolist Test
MDN	Market Definition Notice
NCA	National Competition Authority
OECD	Organisation for Economic Co-operation and Development
R&D	Research and development
SSNIP	Small but significant and non-transitory increase in price
Study	Support study accompanying the evaluation of the Commission Notice on the definition of relevant market for the purposes of Community competition law
Team	The team of Experts proposed by the Consortium made of VVA, Grimaldi Studio Legale and London Economics
Topics	Digitalisation, innovation, geographic market definition, and quantitative techniques.
UK	United Kingdom
US	United States

List of National Competition Authorities

Australian NCA	Australian Competition & Consumer Commission (ACCC)
Austrian NCA	Bundeswettbewerbsbehörde (BWB)
Belgian NCA	Autorité belge de la Concurrence/ Belgian Competition Authority
Brazilian NCA	Brazil's Administrative Council for Economic Defense, hereinafter (CADE)
Bulgarian NCA	Commission for Protection of Competition
Canadian NCA	Competition Bureau Canada
Croatian NCA	Croatian Competition Agency (CCA - AZTN)
Cypriot NCA	Commission for the Protection of Competition (CPC)
Czech NCA	Office for the Protection of Competition (UOHS)
Danish NCA	Danish Competition and Consumer Authority (KFST)
Dutch NCA	Authority for Consumers and Markets
Estonian NCA	Competition Authority
Finnish NCA	Finnish Competition and Consumer Authority (KKV - previously Finnish Competition Authority)
French NCA	Autorité de la Concurrence
German NCA	Bundeskartellamt
Greek NCA	Hellenic Competition Commission
Hungarian NCA	Hungarian Competition Authority (GVH)
Irish NCA	Competition and Consumer Protection Commission (CCPC)
Italian NCA	Autorità Garante della Concorrenza e del Mercato (AGCM)
Japanese NCA	Japan Fair Trade Commission (JFTC)
Latvian NCA	Competition Council of Latvia
Lithuanian NCA	Competition Council of Lithuania (KT)
Luxembourgish NCA	Luxembourg Competition Council
Maltese NCA	Malta Competition and Consumer Affairs Authority
Polish NCA	Office of Competition and Consumer Protection (UOKiK)
Romanian NCA	Competition Council
Slovak NCA	Antimonopoly Office of the Slovak Republic
Slovenian NCA	Slovenian Competition Protection Agency
South African NCA	South African Competition Appeal Court (CAC)
South Korean NCA	Korean Fair Trade Commission (KFTC)
Spanish NCA	National Commission of Markets and Competition (CNMC)
Swedish NCA	Swedish Competition Authority (Konkurrensverket)
UK CC	Competition Commission
UK CMA	Competition and Markets Authority
UK OFT	Office of Fair Trading
US DOJ	US Department of Justice
US FTC	US Federal Trade Commission

Executive summary

Introduction and methodology

This document contains the final report of the "Support study accompanying the evaluation of the Commission Notice on the definition of relevant market for the purposes of Community competition law" contracted by the European Commission - Directorate-General for Competition.

The main objective of this study is to distil principles and best practices for the definition of relevant markets that can inform the evaluation of the Market Definition Notice (MDN) that the Commission is currently undertaking. The final output identifies and describes such principles and best practices, organised under the four topics on which the study is focused: **digitalisation, innovation, geographic market definition, and quantitative techniques**. For this report, a team of topic experts prepared a narrative analysis by topic, based on all relevant economic and legal literature that focuses on the key questions listed in the terms of reference including points of convergence, points of divergence and gaps with the guidance provided in the MDN. The research team analysed and reviewed a range of competition enforcement guidelines, cases and court judgments by NCAs inside and outside the EEA[1].

Digitalisation

Defining relevant markets for multi-sided markets

Online platforms typically operate as multi-sided markets, whose nature and dimension must be taken into account when applying competition law. However, there is no universally accepted or valid criterion to carry out the market definition in two- or multi-sided platforms, and decisional practice has not endorsed any platform typology as a decisive criterion for market definition. At the heart of the interdependence between the various market sides, there are direct and indirect network effects. Direct network effects are present when the value of a product/service received by a user fluctuates (either directly or inversely) with the variation of the number of the product/service's users. Indirect network effects occur when a platform or service depends on the interaction of two or more user groups, such as producers and consumers, or buyers and sellers, or users and developers. Direct network effects are less discussed in decisional practice and usually fall within the competitive assessment stage. For indirect network effects, there is no single, coherent and common approach with regard to their impact on market definition across jurisdictions. Some NCAs have taken indirect network effects into account only at the level of the competitive assessment and others consider them relevant for market definition.

In defining the relevant market for multi-sided platforms, the use of the SSNIP test can be challenging due to the features of multi-sided platforms. Some authors consider that the SSNIP test is an inaccurate tool to capture the complexity of multi-sided markets. However, decisional practice shows that this concept is used by the NCAs alongside other types of qualitative evidence such as surveys of both competitors and consumers.

NCAs are prepared to acknowledge the existence of relevant markets in the context of low or zero prices. Some authors highlight the need not to place too much emphasis on market definition in these contexts. When this is not possible, and the NCA needs to carry out a market definition analysis, reliance on qualitative tools instead of the SSNIP test could be envisaged.

Multi-homing occurs where a user group consumes, in addition to a given platform product or service, at least one comparable second product or service simultaneously; if users (on both sides of the platform) only consume the service or product of the

[1] The EEA jurisdictions under analysis were the 27 EU jurisdictions, in addition to Iceland, Liechtenstein and Norway. In addition the following countries outside the EEA were included: United States (US), United Kingdom (UK), Canada, Australia, South Korea, South Africa, Brazil and Japan.

platform under consideration, they are said to be single-homing. In the literature, single- and multi-homing user behaviour is found to be dependent on the pricing scheme of alternatives and the degree of heterogeneity among services or products. In the cases reviewed, identifying a multi-homing/single-homing framework has not always been considered a decisive factor for market definition.

Defining relevant markets for digital ecosystems

Digital ecosystems are defined as a number of firms that work together to create a new market and produce goods and services of value to the consumer. Open systems are equipped with an interface that is accessible to component makers or system developers other than the system owner itself; while in a closed system, each component can work only with selected components. The literature and practice show that the more closed an ecosystem is, the more appropriate it may be to define the relevant market at a single ecosystem-level. Within open or intermediate ecosystems, interoperability plays an important role. More interoperability typically leads to separate market definitions (more open systems), less interoperability to a single ecosystem market definition (more closed systems).

A cluster market exists when transactional complementarities are such that consumers do not consider unbundling as a suitable alternative to purchasing the bundled products. In terms of market definition, it is challenging in these cluster markets to decide which products of the ecosystems to include and which to exclude. Multiple markets and system markets are therefore the most relevant and applicable approaches in defining the relevant market in digital ecosystems. The former refers to one market for the primary products and separate aftermarkets for each primary market, while the latter includes the primary product and the aftermarkets in one single market. Both these approaches are in line with the MDN.

In the context of digital ecosystems, consumers are less likely to switch to an alternative platform or system as a result of high switching costs. High switching costs on the user side, together with increased network externalities within the services of the ecosystem, lead to lock-in effects. Few NCAs have analysed switching costs in digital ecosystems but where this has been done they have been found to play a key role in market definition.

Market definition and access to data

Digital markets are characterised by companies that collect large amounts of personal data. The core value of data is based on the amount of information derived from the data and the context in which it is used. The essential role of (user) data in the digital ecosystems and its resulting competitive effects, raises the question of whether data could constitute a separate market. When data is not traded, the literature is acknowledging that no such separate market can be defined. The decisional practice, instead, does not distinguish between markets where data is traded and data is not traded and it can acknowledge the existence of separate markets in both cases.

Defining relevant markets in e-commerce

The growth of e-commerce has increased the number of alternative suppliers that are available to consumers, who are no longer limited to the retailers that have a physical presence within a certain distance from the consumer. In defining relevant markets, it can be challenging to determine whether online and offline retail segments should be separately defined or be part of the same relevant market.

The growth of e-commerce has not led to a pattern where the relevant product market for online sales as a distinct market from the one for offline sales would have been abandoned by the NCAs: pricing patterns, differences in customer experience, quality of the service as well as the nature of the product may drive a narrow product market definition. Market definition may at times hinge on the balance of one particular factor

such as the price dimension. Evidence of price convergence emerged in the decisional practice as a factor that may lead to product markets encompassing both the online and the offline channel.

There is no evidence of broader geographic markets due to e-commerce. Indeed, even online product markets separate from the offline segment can lead to a delineation of geographic markets that are as narrow as national or even potentially regional, or local markets.

Innovation

Where innovation plays a significant role, there is an increasing tendency in NCA decisional practice and soft law to take a spectrum of undertakings' innovation efforts into account in defining relevant antitrust markets and assessing competitive effects more accurately.

Traditional market definition and innovation

Anchoring market definition in existing products is suitable where R&D efforts are directed towards specific products, their link to existing products is clear, and substitutability between innovative and existing products is likely high. The time-to-market factor may be industry-specific and thus prone to a case-by-case basis assessment. Moreover, in an incremental innovation setting, it may be easier to link new products with existing product markets. Instead of using static price tests, observing the change in key products' performance attributes may give better views on substitutability. Finally, external experts may help to identify the link between future/innovative products and existing products to facilitate substitutability considerations.

An approach using different concepts may be more appropriate, however, in cases of R&D efforts that demonstrate "uncertainty features" and where the link between innovation efforts and future products on the one hand, and existing products, on the other hand, is weaker.

Future markets

Future markets may be suitable for describing observable R&D efforts that are directed to specific future products, which are likely to be substitutable for one another, but where these products are distinct from existing products, such as new-generation products or entirely new product types. The definition of such markets may depend on a sufficient likelihood that the R&D activity is successful in bringing new products to the market. Possible competitors in a future market do not need to compete on any existing markets at the time of assessment, even though incumbency advantages such as firms' experience in historic product development, ownership of capabilities and know-how may play a role in the relevant market definition. Despite the parameters of future products being uncertain, it is possible to consider existing market characteristics such as customers' experience with existing products, existing cross-elasticity, the regulatory requirements applicable, or indicators of market participants' past performance.

Technology markets

Traded technology (typically an IP right) allows a more precise definition of a technology market. However, a market definition may be possible also for areas, in which there is a possibility for technology to be used in the future and where it is likely to be traded, or for a non-traded technology with the indispensable need for antitrust enforcement (e.g. refusal to supply cases).

NCAs approach the technology market definition as any other relevant market definition (identify close substitutes with the help of, e.g. the SSNIP framework). Where this is difficult, they look for reasonable substitute technologies or goods. Where it is difficult to calculate technologies' market shares, the market share of downstream goods

produced with each technology can be used as a proxy. Where market share metrics or market participants' views on the competitive significance of parties on the technology markets are unavailable, and the technologies appear comparably efficient, the parties may be assigned the same market share. Structuring the definition of technology markets and downstream product markets may help evaluate more precisely antitrust restrictions on the use of technology at various supply chain levels.

Innovation markets

Innovation markets may be defined to protect innovation competition. Innovation markets are identified when specific R&D capabilities are required, or in R&D-intensive industries where R&D capacity is an essential parameter of competition, or where the relevant market is driven primarily by continuous innovation competition, and at least one of the parties to the case at hand can be regarded as a significant innovator, or when there is uncertainty about the outcome of the innovation processes and potential application of the innovative products so that the case cannot be assessed based on current product markets.

Innovative markets need not be treated as "markets" strictly speaking, but effects on innovation competition can be considered within the framework of "innovation spaces", future markets, technology markets or product markets, or at other stages of competitive analysis. "Innovation spaces" allow for a broader view of innovation competition that may target groups of different products, can help cover early-stage R&D efforts, and may be useful in light of increasing vertical disintegration and outsourcing of R&D. Defining the group of R&D competitors can be achieved by identification of specific assets used for innovation activities, such as R&D labs or specialised staff or defining a market using a small but significant non-transitory reduction in innovation efforts. If these methods are unavailable, looking at firms' historical "research pipelines", their research targets or their position in other markets may be informative.

Geographic Market Definition

Standard applied

In the MDN, the relevant geographic market is considered as "the area in which the undertakings concerned are involved in the supply and demand of products or services, in which the conditions of competition are sufficiently homogeneous and which can be distinguished from neighbouring areas because the conditions of competition are appreciably different in those areas".

European jurisdictions apply similar standards in their guidelines and proceedings at the national level. Case law at national level in the EEA confirms in fact that "sufficiently homogeneous conditions of competition" appears to be the most widely used standard for defining the geographic market, incorporating concepts of substitutability and suitability, in some cases identified through the framework of the SSNIP test. The non-EEA guidelines, compared with the MDN, do not always make clear what substantive standard is adopted in their approach to geographic market definition. The HMT and the SSNIP test are used by several authorities (the UK, Canada, South Korea) as the foundational framework under which relevant markets are defined. Other non-EEA authorities indicate that geographic markets are to be defined based on the geographic overlap of areas served by merging parties (Australia and Japan). Geographic market definition in the US Horizontal Merger Guidelines is based on demand-side substitutability, with no mention of homogeneous conditions of competition. Some guidelines, including the US and some in the EEA, go on to specify that their approach to geographic market definition will adapt to whether price discrimination by suppliers based on customer location is possible in a given market. If consumer location-based price discrimination is not possible, the focal area of the geographic market is the

location of suppliers. If it is possible, the geographic market can be linked to the location of consumers. Such distinctions are not found in the MDN.

Main factors

The MDN describes the factors that the Commission considers likely to be important for a geographic market definition. Similarly, there are various factors mentioned in the EEA and non-EEA guidelines that may be relevant to the definition of the geographic market. In none of the cases is there a clear hierarchy between them. All guidelines note that it will not, in general, be necessary or feasible to obtain information on each element in an individual case.

Customer/consumer preferences, characteristics of products purchased/characteristics of purchasing processes and price differences/effectiveness of price arbitrage are the most frequently cited factors in the EEA guidelines. In non-EEA guidelines, factors related to transport, price differences and trade barriers are the most cited factors. Price differences and imports are also frequently cited factors in the EEA. In particular, a large share of imports in a market does not automatically point towards a broader geographic market. If trade flows are not driven by price differentials, an increase in domestic price may not be met with an increase in supply from imports. Finally, other factors playing a role in geographic market definition are those linked to transport: in fact, the distance of a foreign supplier may not only increase the cost of the imported product, but it may also limit the availability of the supply itself and hence the geographic scope of the market. Evidence from EEA and non-EEA cases suggests some sector-specific considerations. Some sectors are characterised by a wider market (e.g. some technology products have worldwide markets), while others by a narrower geographic market, i.e. at the national level, or even at the local level (e.g. hospitals and some professional activities, as well as markets where transport costs are important relative to transaction values).

Types of evidence

The MDN identifies the types of evidence that are relevant to define geographic markets. In addition, some authorities mention specific types of evidence, especially to establish customer and consumer preferences. Specifically, four NCAs within the EEA and almost all non-EEA authorities indicate in their guidelines that they survey consumers. Both EEA and non-EEA NCAs also refer in their guidelines and decisions to the analysis of data relating to trade flows, suppliers' data and purchase patterns. Nonetheless, NCAs are generally clear that evidence on trade flows on its own cannot be taken as decisive for geographic market definition. In particular, suppliers can sell across several geographic areas, while offering significantly different conditions to customers in each, if they are able to price discriminate. Observing large trade flows can therefore be uninformative about the similarity of conditions of competition across two areas. Data requirements and access to data are recognised as relevant issues by NCAs, as NCAs might not have the power to request information beyond national borders/jurisdictions. To tackle this issue, new methodologies for geographic market definition are being developed to limit the need of data or otherwise address the issue, such as the use of natural experiments or event studies.

The role of supply-side substitutability

The MDN places significant weight on demand-side substitution. However, supply-side substitution may also be an in-market constraint affecting geographic market definition under some conditions. In particular, to impact market definition, supply-side substitution must respond promptly to price increases, involve "uncommitted entry," i.e. entry at a low cost and without incurring an irreversible investment, and be such that the competitive constraint it imposes has a clear-cut significant impact on pre-entry prices.

EEA jurisdictions tend to use demand-side substitutability as the primary factor in delimiting a geographic market but do also consider supply-side substitutability where supply-side effects can be demonstrated as imposing an effective competitive constraint on the behaviour of suppliers in the focal area. The US and Canada do not take supply-side substitution into account at the geographic market definition stage: such factors are to be considered at the stage of competition effects assessment. Similarly to the MDN, Japan and the UK instead take supply-side substitution into account at the market definition stage (but only under certain conditions), while the South Korean and Australian NCAs, according to their guidelines, are likely to consider supply-side effects at the market definition stage together with demand substitutability. The relevance of supply-side constraints for market definition is debated: some commentators argue that the secondary importance attributed to supply-side substitutability leads to overly narrow markets. Others suggest that supply-side substitutability should be considered as a competitive constraint in the competitive assessment while adopting a narrower geographic market definition.

Quantitative techniques

Hypothetical monopolist test / SSNIP

The HMT is widely viewed as a suitable framework to consider demand substitution and to aid in delineating the relevant market. This framework is well established among NCAs in delineating relevant markets. It is often formalised by the SSNIP test. The initial market definition in the SSNIP test is often based on the focal product of the case at hand, while the set of closest substitutes to the focal product(s) is evaluated through own and cross-price elasticities of demand. A SSNIP of 5-10% is often applied; however this might vary depending on the exact nature of the market (there is convergence on this point in Guidelines). If firms are able to price discriminate, it may be necessary to treat each customer group separately and apply the SSNIP test to each individually. If the hypothetical monopolist sells products outside the candidate market and if demand for these and the focal product is correlated (either substitutes or complements), it may be necessary to consider this interaction.

Critical loss analysis

The CLA is a method to formalise the SSNIP test. It involves evaluating the maximum loss of sales, following a price increase, for such a price increase to remain profitable (the “critical loss”), and comparing it to an estimate of the ‘actual loss’ of sales likely to result from said price increase. If the critical loss is greater than the actual loss, a SSNIP would be profitable and so the market is no wider than the currently included products.

This approach is very commonly used by NCAs and also very widely discussed in the literature. Some NCAs mention this method and offer guidance on its use, noting in particular potential pitfalls. The method is not explicitly mentioned in the MDN. The early literature noted a potential inconsistency in the way that, in particular, merging parties made use of the CLA test by arguing for, simultaneously, a small critical loss and a large estimated loss, and thus arriving at wide relevant markets. The inconsistency arises because the two sides of the CLA test are not independent: low critical loss implies high profit margins while high actual loss implies high elasticity of demand. The recognition of this inconsistency gave rise to refined approaches to CLA which are sometimes referred to as ‘modern CLA’. A new element in these approaches is the calculation of aggregate diversion ratios. However, standard formulae presented in the literature tend to make strict assumptions surrounding linearity of demand and constant marginal costs and should not be used if these assumptions are unlikely to hold in a particular case. Finally, whilst it is clear that fixed and variable costs need to be correctly assigned, there is little guidance on this point in NCA Guidelines or the MDN.

Natural experiments

When a shock with the right characteristics (sudden, exogenous, well-identified) has occurred, and data on its impacts can feasibly be collected, its analysis can provide powerful direct evidence of demand elasticity and demand-side substitutability. In practice, there are relatively few examples of the use of natural experiments due to the lack of observed shocks and lack of data on such shocks. The MDN mentions the use of natural experiments: this reference is consistent with the limited focus on technical details in national Guidelines. The Notice describes "launches of new products in the past" as a suitable shock for analysis: there are also several other shocks that have been used in practice and mentioned in national Guidelines.

Consumer surveys

Consumer surveys are commonly used by NCAs to assess demand substitutability questions in the definition of relevant markets, particularly within the HMT/SSNIP framework, to evaluate a SSNIP question, as well as, in general, as a way to estimate own and cross price demand elasticities. Consumer surveys can also be used to implement the CLA test, e.g. for estimation of aggregate diversion ratios. Difficulties in conducting a representative consumer survey under the tight deadlines of a merger control proceeding are well recognised. A sufficiently large sample is required to ensure that survey results are robust and statistically meaningful. Sampling methods, in particular, should take care to be representative of marginal consumers – those most likely to react to a SSNIP. It is common, in practice, for surveys to ask for the consumers' response to the product being unavailable rather than their reaction to a 5-10% SSNIP. Surveys are referred as an evidentiary tool for market definition in the MDN without specific guidance on the methodology.

Demand estimation techniques

Econometric methods of demand estimation can be used to estimate own and cross price demand elasticity. These estimates can be used as a direct indication of substitutability or in the performance of a SSNIP test, or in critical loss analysis. Demand estimation is challenging and it is frequently necessary to use econometric techniques, such as instrumental variables, to discern between supply-side and demand-side factors. As such, for robust analysis, sufficient data, resources and time are required. As a result, econometric techniques of demand estimation for market definition are not used often in the NCA cases reviewed for this study. Specific guidance as to the use of these techniques is not explicitly mentioned in national guidelines. This may reflect the complexity of such models which are time-consuming to estimate, require a large amount of data and may not be well understood by non-econometricians. The MDN does note that there are "various econometric and statistical approaches estimates of elasticities and cross-price elasticities" similarly to the limited mention in the national guidelines of the same point.

Price series analysis

A separate class of quantitative methods focuses on analysing price time-series data. These techniques (such as price correlation, stationarity tests, cointegration tests, Granger causality) do not rely on the estimation of own- and cross-price elasticities but instead group products into relevant markets to the extent that their prices "move together" in some well-defined sense. Price time-series analyses are common because they require a limited amount of data and with a focus on price data which is typically the most likely variable to be observable in any given market.

It is well recognised that prices of different products can have significant co-movement even if they do not belong to the same market, for example due to common cost elements or being similarly affected by macro shocks. In that sense, price co-movement tests are more reliable at ruling out that two products belong to the same market than at confirming that they do. Price correlation tests also suffer from their dependence on

the choice of an arbitrary critical correlation level, above which product would be considered to be in the same relevant market. The literature on time series analysis of prices for market delineation is vast. In response to the criticism to simplistic correlation studies, the econometric literature has developed a range of alternative time series techniques that achieve better statistical properties. In particular, studies of long-run equilibrium relationships between variables have received significant attention in the market definition literature, and focus price tests to investigate price convergence. Price co-movement techniques are mentioned in varying level of detail in NCA guidelines. The MDN refers to “tests based on similarity of price movements over time, the analysis of causality between price series and similarity of price levels and/or their convergence”, without further comment except to say that any such methods must withstand “rigorous scrutiny”. A few NCAs discuss the methods more thoroughly in their respective Guidelines but only very few NCAs go into much detail.

Catchment areas

The use of catchment areas for geographic market definition was observed frequently in the NCA cases reviewed. Catchment areas are particularly prominent in competition cases concerning bricks and mortar retailers, where location and transport costs are an important consideration in consumer behaviour. Isochrones (drive-time based catchment areas) should be used rather than distance-based measures to delineate catchment areas when geographical and road network features of the area of study are likely to result in a significant discrepancy between the two measures. Even where local catchment areas can be delineated, it does not necessarily follow that relevant markets are local rather than regional or national. Defining local markets based on catchment areas requires that significant elements of competition are set locally, and that suppliers would have an incentive to adjust their retail offer in response to local competitive conditions. Local markets may be appropriate even if prices are set nationally, since there are other aspects, besides price, that can affect competition and consumer outcomes at local level.

Over the last few years, with greater availability of consumer data, some NCAs have adopted a refinement of the catchment areas approach based on the actual location of origin of customers buying from each of the suppliers. A small number of NCAs provide methodological guidance in relation to the use of catchment areas for market definition, whilst no mention of catchment areas is given in the MDN. Whilst recognised as a practical method to implement a geographical market definition, catchment areas are also subject to criticism, particularly because any threshold, of 80% ‘closest’ customers or otherwise, does not have a theoretical foundation, and does not correspond, namely, to an implementation of a SSNIP test.

Kurzfassung

Einführung und Methodik

Dieses Dokument enthält den Abschlussbericht der "Begleitstudie zur Evaluierung der Bekanntmachung der Kommission über die Definition des relevanten Marktes im Sinne des Wettbewerbsrechts der Gemeinschaft", die von der Europäischen Kommission - Generaldirektion Wettbewerb in Auftrag gegeben wurde.

Das Hauptziel dieser Studie ist es, Prinzipien und Best Practices für die Definition relevanter Märkte herauszuarbeiten, die in die Evaluierung der Marktdefinitionsbekanntmachung (MDN) einfließen können, die die Kommission derzeit durchführt. Das Endergebnis identifiziert und beschreibt solche Prinzipien und Best Practices, gegliedert nach den vier Themen, auf die sich die Studie konzentriert: Digitalisierung, Innovation, geografische Marktdefinition und quantitative Techniken. Für diesen Bericht erstellte ein Team von Themenexperten eine narrative Analyse nach Themen, basierend auf der gesamten relevanten wirtschaftlichen und rechtlichen

Literatur, die sich auf die in der Aufgabenstellung aufgeführten Schlüsselfragen konzentriert, einschließlich der Punkte der Konvergenz, der Punkte der Divergenz und der Lücken mit den im MDN gegebenen Leitlinien. Das Forschungsteam analysierte und prüfte eine Reihe von Leitlinien zur Durchsetzung des Wettbewerbsrechts, Fälle und Gerichtsurteile von nationalen Wettbewerbsbehörden innerhalb und außerhalb des EWR.[2]

Digitalisierung

Definition der relevanten Märkte für mehrseitige Märkte

Online-Plattformen agieren typischerweise als mehrseitige Märkte, deren Art und Dimension bei der Anwendung des Wettbewerbsrechts berücksichtigt werden müssen. Es gibt jedoch kein allgemein akzeptiertes oder gültiges Kriterium, um die Marktabgrenzung bei zwei- oder mehrseitigen Plattformen vorzunehmen, und die Entscheidungspraxis hat keine Plattformtypologie als entscheidendes Kriterium für die Marktabgrenzung gebilligt. Im Kern der Interdependenz zwischen den verschiedenen Marktseiten gibt es direkte und indirekte Netzwerkeffekte. Direkte Netzwerkeffekte liegen vor, wenn der Wert eines Produktes/Dienstes, den ein Nutzer erhält, (entweder direkt oder invers) mit der Variation der Anzahl der Nutzer des Produktes/Dienstes schwankt. Indirekte Netzwerkeffekte treten auf, wenn eine Plattform oder eine Dienstleistung von der Interaktion zweier oder mehrerer Nutzergruppen abhängt, z. B. von Produzenten und Konsumenten oder Käufern und Verkäufern oder Nutzern und Entwicklern. Direkte Netzwerkeffekte werden in der Entscheidungspraxis weniger diskutiert und fallen meist in die Phase der Wettbewerbsbeurteilung. Für indirekte Netzwerkeffekte gibt es keinen einheitlichen, kohärenten und gemeinsamen Ansatz in Bezug auf ihre Auswirkungen auf die Marktdefinition in verschiedenen Rechtsordnungen. Einige nationale Wettbewerbsbehörden haben indirekte Netzwerkeffekte nur auf der Ebene der wettbewerblichen Beurteilung berücksichtigt, während andere sie als relevant für die Marktdefinition ansehen.

Bei der Definition des relevanten Marktes für mehrseitige Plattformen kann die Anwendung des SSNIP-Tests aufgrund der Merkmale mehrseitiger Plattformen eine Herausforderung darstellen. Einige Autoren sind der Ansicht, dass der SSNIP-Test ein ungenaues Instrument ist, um die Komplexität mehrseitiger Märkte zu erfassen. Die Entscheidungspraxis zeigt jedoch, dass dieses Konzept von den natiolen Wettbewerbsbehörden neben anderen Arten von qualitativen Beweisen, wie z. B. Umfragen sowohl bei Wettbewerbern als auch bei Verbrauchern, verwendet wird.

Die nationalen Wettbewerbsbehörden sind bereit, die Existenz relevanter Märkte im Zusammenhang mit niedrigen oder Null-Preisen anzuerkennen. Einige Autoren betonen die Notwendigkeit, der Marktdefinition in diesen Kontexten nicht zu viel Bedeutung beizumessen. Wenn dies nicht möglich ist und die nationale Wettbewerbsbehörde eine Marktdefinitionsanalyse durchführen muss, könnte der Rückgriff auf qualitative Instrumente anstelle des SSNIP-Tests in Betracht gezogen werden.

Multi-Homing liegt vor, wenn eine Nutzergruppe zusätzlich zu einem bestimmten Plattformprodukt oder -dienst mindestens ein vergleichbares zweites Produkt oder einen zweiten Dienst gleichzeitig konsumiert; wenn Nutzer (auf beiden Seiten der Plattform) nur den Dienst oder das Produkt der betrachteten Plattform konsumieren, spricht man von Single-Homing. In der Literatur wird festgestellt, dass das Single- und Multi-Homing-Verhalten der Nutzer von der Preisgestaltung der Alternativen und dem Grad der Heterogenität der Dienste oder Produkte abhängt. In den untersuchten Fällen wurde die Identifizierung eines Multi-Homing/Single-Homing-Rahmens nicht immer als entscheidender Faktor für die Marktdefinition angesehen.

[2] Untersucht wurden die 27 EU-Mitgliedstaaten sowie Island, Liechtenstein und Norwegen. Darüber hinaus wurden folgende Länder außerhalb des EWR einbezogen: Vereinigte Staaten (USA), Vereinigtes Königreich (UK), Kanada, Australien, Südkorea, Südafrika, Brasilien und Japan.

Definition der relevanten Märkte für digitale Ökosysteme

Durch das Wachstum des E-Commerce hat sich die Zahl der alternativen Anbieter erhöht, die den Verbrauchern zur Verfügung stehen. Sie sind nicht mehr auf die Einzelhändler beschränkt, die in einer bestimmten Entfernung zum Verbraucher physisch präsent sind. Bei der Definition der relevanten Märkte kann es eine Herausforderung sein, zu bestimmen, ob Online- und Offline-Einzelhandelssegmente separat definiert werden sollten oder Teil desselben relevanten Marktes sind.

Das Wachstum des E-Commerce hat nicht dazu geführt, dass der relevante Produktmarkt für den Online-Verkauf als ein von dem für den Offline-Verkauf getrennter Markt von den nationalen Wettbewerbsbehörden aufgegeben worden wäre: Preismuster, Unterschiede in der Kundenerfahrung, die Qualität der Dienstleistung sowie die Art des Produkts können zu einer engen Produktmarktdefinition führen. Die Marktdefinition kann zuweilen von der Ausgewogenheit eines bestimmten Faktors wie der Preisdimension abhängen. Hinweise auf Preiskonvergenz tauchten in der Entscheidungspraxis als ein Faktor auf, der zu Produktmärkten führen kann, die sowohl den Online- als auch den Offline-Kanal umfassen.

Es gibt keine Beweise für breitere geografische Märkte aufgrund von E-Commerce. In der Tat können sogar Online-Produktmärkte, die vom Offline-Segment getrennt sind, zu einer Abgrenzung geografischer Märkte führen, die so eng sind wie nationale oder sogar potenziell regionale oder lokale Märkte.

Marktdefinition und Zugang zu Daten

Digitale Märkte sind von Unternehmen geprägt, die große Mengen an personenbezogenen Daten sammeln. Der Kernwert von Daten basiert auf der Menge an Informationen, die aus den Daten abgeleitet werden, und dem Zusammenhang, in dem sie verwendet werden. Die wesentliche Rolle von (Nutzer-)Daten in den digitalen Ökosystemen und die daraus resultierenden Wettbewerbseffekte werfen die Frage auf, ob Daten einen eigenen Markt darstellen könnten.

Wenn Daten nicht gehandelt werden, wird in der Literatur eingeräumt, dass ein solcher separater Markt nicht definiert werden kann. Die Entscheidungspraxis hingegen unterscheidet nicht zwischen Märkten, in denen Daten gehandelt werden, und solchen, in denen Daten nicht gehandelt werden, und kann in beiden Fällen separate Märkte anerkennen.

Definition der relevanten Märkte im E-Commerce

Durch das Wachstum des E-Commerce hat sich die Zahl der alternativen Anbieter, die den Verbrauchern zur Verfügung stehen, erhöht. Die Verbraucher sind nicht mehr auf Einzelhändler beschränkt, die in einer bestimmten Entfernung physisch präsent sind. Bei der Definition der relevanten Märkte kann es eine Herausforderung sein, zu bestimmen, ob Online- und Offline-Einzelhandelssegmente separat definiert werden sollten oder Teil desselben relevanten Marktes sind.

Der wachsende elektronische Geschäftsverkehr hat nicht dazu geführt, dass die nationalen Wettbewerbsbehörden den sachlich relevanten Markt für Online-Verkäufe als einen von dem für Offline-Verkäufe getrennten Markt aufgegeben hätten. Preisgestaltungsmuster, Unterschiede in der Kundenerfahrung, die Qualität der Dienstleistung sowie die Art des Produkts können eine enge Produktmarktdefinition begründen. Die Marktabgrenzung kann zuweilen von der Analyse eines bestimmten Faktors, z. B. der Preisdimension, abhängen. In der Entscheidungspraxis ergeben sich Hinweise auf Preiskonvergenz als einen Faktor, der zu Produktmärkten führen kann, die sowohl den Online- als auch den Offline-Vertrieb umfassen.

Es gibt keine Hinweise auf weitere geografische Märkte aufgrund von E-Commerce. In der Tat können sogar vom Offline-Segment getrennte Online-Produktmärkte zu einer

Abgrenzung von räumlichen Märkten führen, die so eng sind wie nationale oder sogar potenziell regionale oder lokale Märkte.

Innovation

Wo Innovation eine wichtige Rolle spielt, gibt es in der Entscheidungspraxis der Wettbewerbsbehörden und im Soft Law eine zunehmende Tendenz, ein Spektrum von Innovationsbemühungen der Unternehmen bei der Definition der relevanten Kartellmärkte und der genaueren Bewertung der Wettbewerbsauswirkungen zu berücksichtigen.

Traditionelle Marktdefinition und Innovation

Die Verankerung der Marktdefinition in bestehenden Produkten ist geeignet, wenn Forschung und Entwicklung (F&E) auf bestimmte Produkte gerichtet sind, ihre Verbindung zu bestehenden Produkten klar ist und die Substituierbarkeit zwischen innovativen und bestehenden Produkten wahrscheinlich hoch ist. Der Faktor "Time-to-Market" kann branchenspezifisch sein und ist daher von Fall zu Fall zu beurteilen. Außerdem kann es bei kleinstufigen Innovationen einfacher sein, neue Produkte mit bestehenden Produktmärkten zu verknüpfen. Anstatt statische Preistests zu verwenden, kann die Beobachtung der Veränderung der Leistungsattribute von Schlüsselprodukten bessere Einblicke in die Substituierbarkeit geben. Schließlich können externe Experten dabei helfen, die Verbindung zwischen zukünftigen/innovativen Produkten und bestehenden Produkten zu identifizieren, um Substituierbarkeitsüberlegungen zu erleichtern.

Ein Ansatz mit alternativen Konzepten kann in Fällen von F&E, die ein „Unsicherheitsmerkmale" aufweisen und bei denen die Verbindung zwischen Innovation und zukünftigen Produkten einerseits und bestehenden Produkten andererseits schwächer ist, jedoch angemessener sein.

Zukünftige Märkte

Künftige Märkte können geeignet sein, beobachtbare F&E-Anstrengungen zu beschreiben, die auf bestimmte künftige Produkte gerichtet sind, die wahrscheinlich untereinander austauschbar sind, bei denen sich diese Produkte jedoch von bestehenden Produkten unterscheiden, z. B. Produkte einer neuen Generation oder völlig neue Produkttypen. Die Definition solcher Märkte kann von einer hinreichenden Wahrscheinlichkeit abhängen, dass die F&E-Aktivitäten erfolgreich sind, um neue Produkte auf den Markt zu bringen. Mögliche Wettbewerber auf einem künftigen Markt müssen zum Zeitpunkt der Würdigung nicht auf bestehenden Märkten konkurrieren, auch wenn etablierte Vorteile wie die Erfahrung der Unternehmen in der historischen Produktentwicklung, der Besitz von Fähigkeiten und Know-how bei der Definition des relevanten Marktes eine Rolle spielen können. Obwohl die Parameter künftiger Produkte ungewiss sind, können bestehende Marktmerkmale wie die Erfahrungen der Kunden mit bestehenden Produkten, die bestehende Kreuzelastizität, die geltenden rechtlichen Anforderungen oder Indikatoren für die bisherige Leistung der Marktteilnehmer berücksichtigt werden.

Technologie-Märkte

Bei gehandelter Technologie (typischerweise ein Recht des geistigen Eigentums) ist eine genauere Abgrenzung eines Technologiemarktes möglich. Eine Marktdefinition kann jedoch auch für Bereiche möglich sein, in denen die Möglichkeit besteht, dass die Technologie in Zukunft genutzt wird und wahrscheinlich gehandelt wird, oder für eine nicht gehandelte Technologie, die für die kartellrechtliche Durchsetzung unerlässlich ist (z. B. Fälle von Lieferverweigerung).

Die nationalen Wettbewerbsbehörden gehen bei der Definition des Technologiemarktes wie bei jeder anderen Definition eines relevanten Marktes vor (Ermittlung enger Substitute z. B. mit Hilfe des SSNIP-Rahmens). Wo dies schwierig ist, suchen sie nach

angemessenen Ersatztechnologien oder -gütern. Wenn es schwierig ist, die Marktanteile von Technologien zu berechnen, kann der Marktanteil der nachgelagerten Güter, die mit der jeweiligen Technologie hergestellt werden, als Näherungswert verwendet werden. Stehen keine Marktanteilszahlen oder Ansichten der Marktteilnehmer über die wettbewerbliche Bedeutung der Parteien auf den Technologiemärkten zur Verfügung und erscheinen die Technologien vergleichbar effizient, kann den Parteien derselbe Marktanteil zugewiesen werden. Eine strukturierte Abgrenzung von Technologiemärkten und nachgelagerten Produktmärkten kann dazu beitragen, kartellrechtliche Beschränkungen des Technologieeinsatzes auf verschiedenen Ebenen der Lieferkette genauer zu bewerten.

Innovationsmärkte

Innovationsmärkte können zum Schutz des Innovationswettbewerbs definiert werden. Innovationsmärkte werden abgegrenzt, wenn besondere F&E-Kapazitäten erforderlich sind, oder in F&E-intensiven Wirtschaftszweigen, in denen F&E-Kapazitäten ein wesentlicher Wettbewerbsparameter sind, oder wenn der relevante Markt in erster Linie durch einen kontinuierlichen Innovationswettbewerb bestimmt wird und mindestens eine der Parteien als bedeutender Innovator angesehen werden kann, oder wenn Ungewissheit über das Ergebnis der Innovationsprozesse und die potenzielle Anwendung der innovativen Produkte besteht, so dass der Fall nicht auf Grundlage der derzeitigen Produktmärkte beurteilt werden kann.

Innovative Märkte müssen nicht als "Märkte" im engeren Sinne behandelt werden, sondern die Auswirkungen auf den Innovationswettbewerb können im Rahmen von "Innovationsräumen", Zukunftsmärkten, Technologiemärkten oder Produktmärkten oder in anderen Phasen der Wettbewerbsanalyse betrachtet werden. "Innovationsräume" erlauben eine breitere Betrachtung des Innovationswettbewerbs, die sich auf Gruppen unterschiedlicher Produkte beziehen kann, sie können helfen, FuE-Anstrengungen in der Frühphase zu erfassen, und sie können angesichts der zunehmenden vertikalen Desintegration und Auslagerung von FuE sinnvoll sein. Die Abgrenzung der Gruppe von FuE-Wettbewerbern kann durch die Ermittlung spezifischer Vermögenswerte, die für Innovationstätigkeiten eingesetzt werden, wie z. B. FuE-Labors oder Fachpersonal, oder durch die Abgrenzung eines Marktes anhand einer geringen, aber signifikanten, nicht transitorischen Verringerung der Innovationsanstrengungen erfolgen. Stehen diese Methoden nicht zur Verfügung, kann ein Blick auf die historischen "Forschungspipelines" der Unternehmen, ihre Forschungsziele oder ihre Position in anderen Märkten aufschlussreich sein.

Geografische Marktdefinition

Angewendeter Standard

Die europäische Rechtsprechung wendet ähnliche Standards in ihren Richtlinien und Verfahren auf nationaler Ebene an. Die Rechtsprechung auf nationaler Ebene im EWR bestätigt in der Tat, dass "hinreichend homogene Wettbewerbsbedingungen" der am weitesten verbreitete Standard für die Definition des räumlichen Marktes zu sein scheint, der die Konzepte der Substituierbarkeit und der Nutzbarkeit umfasst, die in einigen Fällen durch den Rahmen des SSNIP-Tests ermittelt werden. Die Nicht-EWR-Leitlinien machen im Vergleich zum MDN nicht immer deutlich, welcher materielle Standard bei ihrem Ansatz zur Definition des geografischen Marktes zugrunde gelegt wird. Die HMT und der SSNIP-Test werden von mehreren Behörden (Großbritannien, Kanada, Südkorea) als grundlegender Rahmen verwendet, unter dem relevante Märkte definiert werden. Andere Behörden außerhalb des EWR geben an, dass die geografischen Märkte auf der Grundlage der räumlichen Überschneidung der von den fusionierenden Parteien bedienten Gebiete zu definieren sind (Australien und Japan). Die Definition des geografischen Marktes in den US-Leitlinien für horizontale Fusionen basiert auf der Substituierbarkeit auf der Nachfrageseite, ohne dass homogene Wettbewerbsbedingungen erwähnt werden. In einigen Leitlinien, u. a. in den USA und

im EWR, wird weiter ausgeführt, dass sich der Ansatz zur Definition des räumlichen Marktes danach richtet, ob eine Preisdiskriminierung durch Anbieter aufgrund des Kundenstandorts in einem bestimmten Markt möglich ist. Wenn eine Preisdiskriminierung auf der Grundlage des Kundenstandorts nicht möglich ist, liegt der Schwerpunkt des geografischen Marktes auf dem Standort der Anbieter. Wenn es möglich ist, kann der geografische Markt mit dem Standort der Verbraucher verknüpft werden. Solche Unterscheidungen sind im MDN nicht zu finden.

Wichtigste Faktoren

In der MDN werden die Faktoren beschrieben, die nach Ansicht der Europäischen Kommission für eine Definition des geografischen Marktes von Bedeutung sein können. Auch in den nationalen Leitlinien in Staaten innerhalb und außerhalb des EWRs werden verschiedene Faktoren genannt, die für die Abgrenzung des räumlichen Marktes von Bedeutung sein können. In keinem der Fälle gibt es eine klare Hierarchie zwischen den einzelnen Faktoren. In allen Leitlinien wird darauf hingewiesen, dass es im Allgemeinen nicht notwendig oder durchführbar sein wird, im Einzelfall Informationen zu jedem Element einzuholen.

Kunden-/Verbraucherpräferenzen, Merkmale der gekauften Produkte/Charakteristika der Kaufprozesse und Preisunterschiede/Effektivität der Preisarbitrage sind die am häufigsten genannten Faktoren in den EWR-Leitlinien. In den Nicht-EWR-Leitlinien sind Faktoren im Zusammenhang mit dem Transport, Preisunterschieden und Handelshemmnissen die am häufigsten genannten Faktoren. Preisunterschiede und Importe sind auch im EWR häufig genannte Faktoren. Insbesondere deutet ein hoher Anteil an Einfuhren auf einem Markt nicht automatisch auf einen größeren räumlichen Markt hin. Wenn die Handelsströme nicht durch Preisunterschiede angetrieben werden, kann es sein, dass eine Erhöhung des Inlandspreises nicht mit einer Erhöhung des Angebots durch Importe einhergeht. Schließlich spielen bei der Abgrenzung des räumlichen Marktes noch andere Faktoren eine Rolle, die mit dem Transport zusammenhängen: So kann die Entfernung eines ausländischen Lieferanten nicht nur die Kosten des importierten Produkts erhöhen, sondern auch die Verfügbarkeit des Angebots selbst und damit die räumliche Ausdehnung des Marktes einschränken.

Beispiele aus EWR- und Nicht-EWR-Fällen legen einige sektorspezifische Überlegungen nahe. Einige Sektoren sind durch einen breiteren Markt gekennzeichnet (z. B. haben einige Technologieprodukte globale Märkte), während andere durch einen engeren geografischen Markt, d. h. auf nationaler oder sogar auf lokaler Ebene, gekennzeichnet sind (z. B. Krankenhäuser und einige freiberufliche Tätigkeiten sowie Märkte, auf denen die Transportkosten im Verhältnis zum Transaktionswert eine wichtige Rolle spielen).

Arten von Beweismitteln

Die MDN nennt die Arten von Beweismitteln, die für die Definition räumlicher Märkte relevant sind. Darüber hinaus erwähnen einige Behörden bestimmte Arten von Beweismitteln, insbesondere zur Ermittlung von Kunden- und Verbraucherpräferenzen. Konkret geben vier nationale Wettbewerbsbehörden innerhalb des EWR und fast alle nationale Wettbewerbsbehörden außerhalb des EWRs in ihren Leitlinien an, dass sie Verbraucher befragen. Nationale Wettbewerbsbehörden sowohl innerhalb als auch außerhalb des EWRs verweisen in ihren Leitlinien und Entscheidungen auch auf die Analyse von Daten zu Handelsströmen, Lieferantendaten und Kaufmustern. Dennoch sind sich die nationalen Wettbewerbsbehörden im Allgemeinen darüber im Klaren, dass Nachweise über Handelsströme allein nicht als Grundlage für die Definition des geografischen Marktes herangezogen werden können. Insbesondere können Lieferanten, indem sie Preisdiskriminierung betreiben, ihre Produkte über mehrere geografische Gebiete hinweg verkaufen und dabei den Kunden in jedem Gebiet deutlich unterschiedliche Konditionen anbieten. Die Beobachtung großer Handelsströme kann daher wenig aussagekräftig sein, was die Ähnlichkeit der Wettbewerbsbedingungen in zwei Gebieten betrifft.

Datenanforderungen und der Zugang zu Daten werden von den nationalen Wettbewerbsbehörden s als relevante Themen anerkannt, da die nationalen Wettbewerbsbehörden möglicherweise nicht die Befugnis haben, Informationen über nationale Grenzen/Gerichtsbarkeiten hinaus anzufordern. Um dieses Problem anzugehen, werden neue Methoden für die geografische Marktdefinition entwickelt, um den Bedarf an Daten anzugehen oder zu begrenzen, wie z. B. die Verwendung von natürlichen Experimenten oder Ereignisstudien.

Die Rolle der angebotsseitigen Substituierbarkeit

Die MDN legt großes Gewicht auf die nachfrageseitige Substitution. Allerdings kann die Angebotssubstitution unter bestimmten Bedingungen auch eine marktinterne Beschränkung darstellen, die sich auf die Definition des geografischen Marktes auswirkt. Um sich auf die Marktdefinition auszuwirken, muss die Substitution auf der Angebotsseite unverzüglich auf Preiserhöhungen reagieren, einen "ungebundenen Markteintritt" beinhalten (d. h. einen Markteintritt zu geringen Kosten und ohne irreversible Investitionen), und so beschaffen sein, dass der dadurch entstehende Wettbewerbsdruck eindeutige und erhebliche Auswirkungen auf die Preise vor dem Markteintritt hat.

Die Rechtsprechung innerhalb des EWRs tendiert dazu, die Substituierbarkeit auf der Nachfrageseite als primären Faktor bei der Abgrenzung eines räumlichen Marktes zu verwenden, berücksichtigt aber auch die Substituierbarkeit auf der Angebotsseite, wenn nachgewiesen werden kann, dass die Auswirkungen auf der Angebotsseite einen wirksamen Wettbewerbsdruck auf das Verhalten der Anbieter im Schwerpunktgebiet ausüben. Die USA und Kanada berücksichtigen die Substituierbarkeit auf der Angebotsseite nicht in der Phase der Definition des räumlichen Marktes; solche Faktoren sind stattdessen in der Phase der Bewertung der Auswirkungen auf den Wettbewerb zu berücksichtigen. Ähnlich wie die MDN berücksichtigen Japan und das Vereinigte Königreich stattdessen die Substituierbarkeit auf der Angebotsseite in der Phase der Marktdefinition (allerdings nur unter bestimmten Bedingungen), während die südkoreanischen und australischen Wettbewerbsbehörden gemäß ihren Leitlinien die Auswirkungen auf der Angebotsseite in der Phase der Marktdefinition zusammen mit der Nachfragesubstituierbarkeit berücksichtigen. Die Relevanz von angebotsseitigen Beschränkungen für die Marktdefinition ist umstritten: Einige Kommentatoren argumentieren, dass die zweitrangige Bedeutung, die der angebotsseitigen Substituierbarkeit beigemessen wird, zu übermäßig engen Märkten führt. Andere schlagen vor, dass die Substituierbarkeit auf der Angebotsseite bei der wettbewerbsrechtlichen Würdigung als Wettbewerbsbeschränkung berücksichtigt werden sollte, während eine engere räumliche Marktabgrenzung vorgenommen werden sollte.

Quantitative Techniken

Hypothetischer Monopolistentest (HMT) / SSNIP

Der HMT wird weithin als geeigneter Ansatz für die Berücksichtigung der Nachfragesubstitution und als Hilfe bei der Abgrenzung des relevanten Marktes angesehen. Dieser Ansatz ist bei den nationalen Wettbewerbsbehörden für die Abgrenzung der relevanten Märkte gut etabliert. Er wird häufig durch den SSNIP-Test formalisiert. Die anfängliche Marktdefinition im SSNIP-Test basiert häufig auf dem Hauptprodukt des vorliegenden Falles, während die Gruppe der engsten Substitute für das Hauptprodukt bzw. die Hauptprodukte anhand der Eigen- und Kreuzpreiselastizitäten der Nachfrage bewertet wird. Häufig wird ein SSNIP von 5-10 % angesetzt; dies kann jedoch je nach der genauen Beschaffenheit des Marktes variieren (in diesem Punkt besteht zwischen den verschiedenen Leitlinien Übereinstimmung).

Wenn Unternehmen in der Lage sind, Preisdiskriminierung zu betreiben, kann es notwendig sein, jede Kundengruppe separat zu behandeln und den SSNIP-Test auf jede einzelne anzuwenden. Wenn der hypothetische Monopolist Produkte außerhalb des Kandidatenmarktes verkauft und wenn die Nachfrage nach diesen und dem Fokusprodukt korreliert (entweder Substitute oder Komplemente), kann es notwendig sein, diese Interaktion zu berücksichtigen.

Kritische Verlustanalyse

CLA ist eine Methode zur Formalisierung des SSNIP-Tests. Sie beinhaltet die Bewertung des maximalen Umsatzverlustes nach einer Preiserhöhung, damit eine solche Preiserhöhung profitabel bleibt (der kritische Verlust), und vergleicht ihn mit einer Schätzung des "tatsächlichen Verlustes", der sich wahrscheinlich aus dieser Preiserhöhung ergibt. Wenn der kritische Verlust größer ist als der tatsächliche Verlust, wäre ein SSNIP gewinnbringend, so dass der Markt nicht breiter ist als die derzeit einbezogenen Produkte.

Dieser Ansatz wird von den nationalen Wettbewerbsbehörden sehr häufig verwendet und auch in der Literatur sehr breit diskutiert. Einige nationale Wettbewerbsbehörden erwähnen diese Methode und bieten eine Anleitung zu ihrer Anwendung, wobei sie insbesondere auf mögliche Fallstricke hinweisen. In der MDN wird die Methode nicht explizit erwähnt. In der frühen Literatur wurde eine potenzielle Inkonsistenz in der Art und Weise festgestellt, wie insbesondere fusionierende Parteien den CLA-Test nutzen, indem sie gleichzeitig einen kleinen kritischen Verlust und einen großen geschätzten Verlust geltend machen und so zu breiten relevanten Märkten kommen. Die Inkonsistenz ergibt sich daraus, dass die beiden Seiten des CLA-Tests nicht unabhängig voneinander sind: Ein niedriger kritischer Verlust impliziert hohe Gewinnspannen, während ein hoher tatsächlicher Verlust eine hohe Nachfrageelastizität impliziert. Die Anerkennung dieser Unstimmigkeit führte zu verfeinerten Ansätzen für den CLA, die manchmal als "moderner CLA" bezeichnet werden. Ein neues Element in diesen Ansätzen ist die Berechnung von aggregierten Umleitungsquoten. Die in der Literatur vorgestellten Standardformeln neigen jedoch dazu, strenge Annahmen bezüglich der Linearität der Nachfrage und konstanter Grenzkosten zu treffen und sollten nicht verwendet werden, wenn diese Annahmen in einem bestimmten Fall wahrscheinlich nicht zutreffen. Schließlich ist es zwar klar, dass fixe und variable Kosten korrekt zugewiesen werden müssen, aber es gibt nur wenig Anleitung zu diesem Punkt in den Richtlinien der nationalen Wettbewerbsbehörden oder dem MDN.

Natürliche Experimente

Wenn ein Schock mit geeigneten Eigenschaften (plötzlich, exogen, gut identifiziert) aufgetreten ist und Daten über seine Auswirkungen gesammelt werden können, kann dessen Analyse aussagekräftige direkte Beweise für die Elastizität der Nachfrage und die Substituierbarkeit auf der Nachfrageseite liefern. In der Praxis gibt es relativ wenige Beispiele für die Verwendung von natürlichen Experimenten, da es keine beobachteten Schocks gibt und keine Daten über solche Schocks vorliegen. In der MDN wird die Verwendung von natürlichen Experimenten erwähnt: Dieser Hinweis steht im Einklang mit der begrenzten Konzentration auf technische Details in den nationalen Leitlinien. Die MDN beschreibt "eine zeitlich zurückliegende Einführung neuer Produkte" als geeigneten Schock für die Analyse. Es existieren auch mehrere andere Schocks, die in der Praxis verwendet und in nationalen Leitlinien erwähnt wurden.

Verbraucherumfragen

Verbraucherumfragen werden von den nationalen Wettbewerbsbehörden häufig verwendet, um Fragen der Nachfragesubstituierbarkeit bei der Definition der relevanten Märkte zu bewerten (insbesondere im Rahmen des HMT/SSNIP), um eine SSNIP-Frage zu evaluieren sowie allgemein als Möglichkeit zur Schätzung von Eigen- und Kreuzpreis-

Nachfrageelastizitäten. Verbraucherumfragen können auch zur Durchführung des CLA-Tests verwendet werden, z. B. zur Schätzung der aggregierten Umleitungsquoten.

Die Schwierigkeiten bei der Durchführung einer repräsentativen Verbraucherumfrage unter den engen Fristen eines Fusionskontrollverfahrens sind allgemein bekannt. Eine ausreichend große Stichprobe ist erforderlich, um sicherzustellen, dass die Umfrageergebnisse robust und statistisch aussagekräftig sind. Insbesondere bei den Stichprobenmethoden sollte darauf geachtet werden, dass sie repräsentativ für die Randgruppen der Verbraucher sind – also für diejenigen, die am ehesten auf ein SSNIP reagieren würden. In der Praxis ist es üblich, in Umfragen nach der Reaktion der Verbraucher auf die Nichtverfügbarkeit des Produkts zu fragen und nicht nach ihrer Reaktion auf einen 5-10%igen SSNIP. Erhebungen werden im MDN als Beweismittel für die Marktdefinition genannt, ohne dass die Methodik genau beschrieben wird.

Techniken zur Bedarfsermittlung

Ökonometrische Methoden der Nachfrageschätzung können verwendet werden, um die Eigen- und Kreuzpreiselastizität der Nachfrage zu schätzen. Diese Schätzungen können als direkter Hinweis auf die Substituierbarkeit oder bei der Durchführung eines SSNIP-Tests oder bei der Analyse kritischer Verluste verwendet werden. Die Schätzung der Nachfrage ist eine Herausforderung und es ist häufig notwendig, ökonometrische Techniken, wie z. B. Instrumentalvariablen, einzusetzen, um zwischen angebots- und nachfrageseitigen Faktoren zu unterscheiden. Für eine robuste Analyse sind daher ausreichend Daten, Ressourcen und Zeit erforderlich. Infolgedessen werden ökonometrische Techniken der Nachfrageschätzung zur Marktdefinition in den für diese Studie untersuchten Fällen der nationalen Wettbewerbsbehörden -Fällen nicht häufig verwendet.

Spezifische Hinweise zur Verwendung dieser Techniken werden in den nationalen Leitlinien nicht ausdrücklich erwähnt. Dies mag die Komplexität solcher Modelle widerspiegeln, die zeitaufwendig zu schätzen sind, eine große Menge an Daten erfordern und für Nicht-Ökonometriker möglicherweise nicht einfach zu verstehen sind. Die MDN stellt fest, dass es verschiedene Tests ökonometrischer und statistischer Art zur Schätzung der Elastizitäten und Preiskreuzelastizitäten gibt, ähnlich wie der der begrenzten Erwähnung desselben Punktes in den nationalen Leitlinien.

Preisreihenanalyse

Eine eigene Klasse von quantitativen Methoden konzentriert sich auf die Analyse von Preiszeitreihendaten. Diese Techniken (wie z. B. Preiskorrelation, Stationaritätstests, Ko-Integrationstests, Granger-Kausalität) stützen sich nicht auf die Schätzung von Eigen- und Kreuzpreiselastizitäten, sondern gruppieren Produkte in relevante Märkte in dem Maße, in dem sich ihre Preise in einem wohldefinierten Sinne "gemeinsam bewegen". Preis-Zeitreihen-Analysen sind üblich, weil sie eine begrenzte Menge an Daten erfordern und sich auf Preisdaten konzentrieren, die typischerweise die am ehesten beobachtbare Variable in einem bestimmten Markt sind.

Es ist allgemein bekannt, dass die Preise verschiedener Produkte eine signifikante Ko-Entwicklung aufweisen können, selbst wenn die Produkte nicht demselben Markt angehören, z. B. aufgrund gemeinsamer Kostenelemente oder weil sie in ähnlicher Weise von Makroschocks betroffen sind. In diesem Sinne sind Preiskorrelationstests zuverlässiger, um auszuschließen, dass zwei Produkte demselben Markt angehören, als um zu bestätigen, dass sie es tun. Preiskorrelationstests leiden auch darunter, dass sie von der Wahl eines willkürlichen kritischen Korrelationsniveaus abhängig sind, oberhalb dessen ein Produkt als demselben relevanten Markt zugehörig betrachtet würde.

Die Literatur zur Zeitreihenanalyse von Preisen zur Marktabgrenzung ist umfangreich. Als Reaktion auf die Kritik an vereinfachenden Korrelationsstudien hat die ökonometrische Literatur eine Reihe von alternativen Zeitreihenverfahren entwickelt, die bessere statistische Eigenschaften erzielen. Insbesondere Studien über langfristige

Gleichgewichtsbeziehungen zwischen Variablen haben in der Marktabgrenzungsliteratur große Beachtung gefunden, wobei Preistests zur Untersuchung der Preiskonvergenz im Mittelpunkt stehen.

Preis-Ko-Bewegungs-Techniken werden in den Leitlinien der nationalen Wettbewerbsbehörden in unterschiedlichem Ausmaß erwähnt. Die MDN verweist auf "Tests, die auf der Ähnlichkeit von Preisbewegungen im Zeitverlauf, der Analyse der Kausalität zwischen Preisreihen und der Ähnlichkeit von Preisniveaus und/oder deren Konvergenz beruhen", ohne weiteren Kommentar außer der Feststellung, dass solche Methoden einer "strengen Prüfung" standhalten müssen. Einige wenige nationale Wettbewerbsbehörden erörtern die Methoden in ihren jeweiligen Leitlinien ausführlicher, aber nur sehr wenige nationale Wettbewerbsbehörden gehen dabei ins Detail.

Einzugsgebiete

Die Verwendung von Einzugsgebieten zur räumlichen Marktabgrenzung wurde in den untersuchten Fällen der nationalen Wettbewerbsbehörden häufig beobachtet. Einzugsgebiete sind besonders in Wettbewerbsfällen, die den stationären Einzelhandel betreffen, von Bedeutung, da hier der Standort und die Transportkosten eine wichtige Rolle für das Verbraucherverhalten spielen. Isochronen (fahrzeitbasierte Einzugsgebiete) sollten anstelle von entfernungsbasierten Maßen zur Abgrenzung von Einzugsgebieten verwendet werden, wenn geografische und Straßennetzmerkmale des Untersuchungsgebiets wahrscheinlich zu einer erheblichen Diskrepanz zwischen den beiden Maßen führen.

Selbst wenn lokale Einzugsgebiete abgegrenzt werden können, folgt daraus nicht zwangsläufig, dass die relevanten Märkte eher lokal als regional oder national sind. Die Abgrenzung lokaler Märkte auf der Grundlage von Einzugsgebieten setzt voraus, dass wesentliche Elemente des Wettbewerbs auf lokaler Ebene angesiedelt sind und dass die Anbieter einen Anreiz hätten, ihr Einzelhandelsangebot als Reaktion auf die lokalen Wettbewerbsbedingungen anzupassen. Lokale Märkte können auch dann angemessen sein, wenn die Preise auf nationaler Ebene festgelegt werden, da es neben dem Preis noch andere Aspekte gibt, die den Wettbewerb und die Ergebnisse für die Verbraucher auf lokaler Ebene beeinflussen können.

In den letzten Jahren haben einige nationale Wettbewerbsbehörden aufgrund der besseren Verfügbarkeit von Verbraucherdaten eine Verfeinerung des Einzugsgebietsansatzes auf der Grundlage des tatsächlichen Herkunftsortes der Kunden, die bei den einzelnen Anbietern kaufen, vorgenommen. Einige wenige nationale Wettbewerbsbehörden geben methodische Hinweise zur Verwendung von Einzugsgebieten für die Marktdefinition, während in der MDN Einzugsgebiete nicht erwähnt werden. Einzugsgebiete werden zwar als praktische Methode zur Umsetzung einer geografischen Marktdefinition anerkannt, sind aber auch Gegenstand von Kritik, insbesondere weil ein Schwellenwert von 80 % "nächstgelegener" Kunden keine theoretische Grundlage hat und insbesondere nicht der Umsetzung eines SSNIP-Tests entspricht.

Résumé exécutif

Introduction et méthodologie

Le présent document contient le rapport final de « l'Etude sur la Communication de la Commission sur la définition du marché en cause aux fins du droit Communautaire de la concurrence », commandée par la Commission européenne - Direction générale de la concurrence.

L'objectif principal de cette étude est d'identifier les principes et meilleures pratiques relatifs à la définition des marchés pertinents, afin d'informer la révision de la communication sur la définition du marché (« MDN ») menée par la Commission européenne. L'étude qui identifie et décrit ces principes et meilleures pratiques est

structurée selon quatre thèmes: **la digitalisation, l'innovation, la définition du marché géographique et les techniques quantitatives.** Pour ce rapport, une équipe d'experts a préparé une analyse narrative par thème à partir de l'ensemble de la littérature économique et juridique pertinente en se concentrant sur les questions clés énumérées dans les termes de référence, y compris les points de convergence, de divergence et les écarts avec les orientations fournies dans la MDN. L'équipe de recherche a analysé et examiné une série de lignes directrices relatives à l'application des règles de concurrence, d'affaires traitées par les autorités nationales de concurrence et de jugements rendus par les juridications nationales à l'intérieur et à l'extérieur de l'EEE[3].

Digitalisation

Définition des marchés pertinents pour les marchés multifaces

Les plateformes en ligne fonctionnent généralement comme des marchés multifaces, dont la nature et la dimension doivent être prises en compte dans le cadre de l'application du droit de la concurrence. Cependant, il n'existe pas de critère universellement accepté ou valable pour procéder à la définition du marché des plateformes bifaces ou multifaces, et la pratique décisionnelle n'a pas retenu de typologie de plateforme comme critère décisif pour la définition du marché. Au cœur de l'interdépendance entre les différentes faces du marché, il existe des effets de réseau directs et indirects. Les effets de réseau directs sont présents lorsque la valeur d'un produit/service reçu par un utilisateur fluctue (directement ou inversement) avec la variation du nombre d'utilisateurs du produit/service. Les effets de réseau indirects se produisent lorsqu'une plateforme ou un service dépend de l'interaction entre deux groupes d'utilisateurs ou plus, tels que les producteurs et les consommateurs, ou les acheteurs et les vendeurs, ou les utilisateurs et les développeurs. Les effets de réseau directs sont moins abordés dans la pratique décisionnelle et relèvent généralement de l'étape de l'évaluation concurrentielle. En ce qui concerne les effets de réseau indirects, il n'existe pas d'approche unique, cohérente et commune en ce qui concerne leur impact sur la définition du marché dans les différentes juridictions. Certaines ANC n'ont pris en compte les effets de réseau indirects qu'au niveau de l'évaluation concurrentielle et d'autres les considèrent comme pertinents pour la définition du marché.

Dans la définition du marché pertinent des platesformes multifaces, l'utilisation du test SSNIP ("small but significant and non-transitory increase in price", augmentation faible mais significative et non transitoire des prix) peut s'avérer difficile en raison des caractéristiques des plateformes multifaces. Certains auteurs considèrent que le test SSNIP est un outil inexact pour saisir la complexité des marchés multifaces. Toutefois, la pratique décisionnelle montre que ce concept est utilisé par les ANC parallèlement à d'autres types de preuves qualitatives telles que des enquêtes auprès des concurrents et des consommateurs.

Les ANC sont prêtes à reconnaître l'existence de marchés pertinents dans un contexte de prix bas ou nuls. Certains auteurs soulignent la nécessité de ne pas accorder trop d'importance à la définition du marché dans ces contextes. Lorsque cela n'est pas possible et que l'ANC doit procéder à une analyse de la définition du marché, il est possible d'envisager de s'appuyer sur des outils qualitatifs au lieu du test SSNIP.

Il y a "multi-hébergement" ("multihoming") lorsqu'un groupe d'utilisateurs consomme, simultanément au moins deux produits ou deux services comparables; si les utilisateurs (des deux côtés de la plateforme) ne consomment que le service ou le produit de la plateforme considérée, on dit qu'ils sont en situation de "single homing". Dans la littérature, on constate que le comportement de single homing ou multihoming de

[3] Les juridictions de l'EEE analysées sont les 27 juridictions de l'UE, ainsi que l'Islande, le Liechtenstein et la Norvège. En outre, les pays suivants, situés en dehors de l'EEE, ont été inclus : États-Unis, Royaume-Uni, Canada, Australie, Corée du Sud, Afrique du Sud, Brésil et Japon.

l'utilisateur dépend du schéma de tarification des alternatives et du degré d'hétérogénéité des services ou des produits. Dans les cas examinés, l'identification d'un cadre de "multihoming" ou de "single homing" n'a pas toujours été considérée comme un facteur décisif pour la définition du marché.

Définir les marchés pertinents pour les écosystèmes numériques

Les écosystèmes numériques sont définis comme un certain nombre d'entreprises qui travaillent ensemble pour créer un nouveau marché et produire des biens et des services de valeur pour le consommateur. Les systèmes ouverts sont dotés d'une interface accessible aux fabricants de composants ou aux développeurs de systèmes autres que le propriétaire du système lui-même ; tandis que dans un système fermé, chaque composant ne peut fonctionner qu'avec des composants sélectionnés. La littérature et la pratique montrent que plus un écosystème est fermé, plus il peut être approprié de définir le marché pertinent au niveau d'un seul écosystème. Au sein des écosystèmes ouverts ou intermédiaires, l'interopérabilité joue un rôle important. Une plus grande interopérabilité conduit généralement à des définitions de marché distinctes (systèmes plus ouverts), une moindre interopérabilité à une définition de marché unique au niveau de l'écosystème (systèmes plus fermés).

Un marché groupé existe lorsque les complémentarités transactionnelles sont telles que les consommateurs ne considèrent pas le dégroupage comme une alternative appropriée à l'achat des produits groupés. En termes de définition de marché, il est difficile dans ces marchés groupés de décider quels produits des écosystèmes inclure et lesquels exclure. Les marchés multiples et les marchés de systèmes sont donc les approches les plus pertinentes et les plus applicables pour définir le marché pertinent dans les écosystèmes numériques. Les marchés multiples font référence à un marché pour les produits primaires et à des marchés secondaires distincts pour chaque marché primaire, tandis que les marchés de systèmes incluent le produit primaire et les marchés secondaires dans un marché unique. Ces deux approches sont en accord avec la MDN.

Dans le contexte des écosystèmes numériques, les consommateurs sont moins susceptibles de passer à une autre plateforme ou à un autre système en raison de coûts de changement élevés. Des coûts de changement élevés du côté de l'utilisateur, ainsi que des externalités de réseau accrues au sein des services de l'écosystème, entraînent des effets de verrouillage. Peu d'ANC ont analysé les coûts de changement de fournisseur dans les écosystèmes numériques, mais lorsque cela a été fait, on a constaté qu'ils jouaient un rôle clé dans la définition du marché.

Définition du marché et accès aux données

Les marchés numériques sont occupés par des entreprises qui collectent de grandes quantités de données personnelles. La valeur essentielle des données repose sur la quantité d'informations dérivées de ces données et sur le contexte dans lequel elles sont utilisées. Le rôle essentiel des données (d'utilisateur) dans les écosystèmes numériques et les effets concurrentiels qui en résultent soulèvent la question de savoir si les données peuvent constituer un marché distinct. Lorsque les données ne sont pas échangées, la littérature reconnaît qu'un tel marché distinct ne peut être défini. La pratique décisionnelle, en revanche, ne fait pas de distinction entre les marchés où les données sont échangées et ceux où elles ne le sont pas et peut reconnaître l'existence de marchés distincts dans les deux cas.

Définition des marchés pertinents dans le domaine du commerce électronique

La croissance du commerce électronique a augmenté le nombre de fournisseurs alternatifs disponibles pour les consommateurs, qui ne sont plus limités aux détaillants ayant une présence physique à une certaine distance du consommateur. Lors de la définition des marchés pertinents, il peut être difficile de déterminer si les segments de

vente au détail en ligne et hors ligne doivent être définis séparément ou faire partie du même marché pertinent.

La croissance du commerce électronique n'a pas conduit à un modèle où le marché de produits pertinent pour les ventes en ligne en tant que marché distinct de celui des ventes hors ligne aurait été abandonné par les ANC : les modèles de prix, les différences dans l'expérience du client, la qualité du service ainsi que la nature du produit peuvent conduire à une définition étroite du marché de produits. La définition du marché peut parfois dépendre de la pondération d'un facteur particulier tel que la dimension prix. La convergence des prix est apparue dans la pratique décisionnelle comme un facteur pouvant conduire à des marchés de produits englobant à la fois le canal en ligne et le canal hors ligne.

Il n'y a aucune preuve de l'élargissement des marchés géographiques dû au commerce électronique. En effet, même les marchés de produits en ligne séparés du segment hors ligne peuvent conduire à une délimitation de marchés géographiques aussi étroits que des marchés nationaux, voire potentiellement régionaux ou locaux.

Innovation

Lorsque l'innovation joue un rôle important, on distingue une tendance croissante dans les decisions contraignantes prises par les ANC et les recommandations qu'elles formulent à prendre en compte un éventail d'efforts d'innovation des entreprises pour définir les marchés antitrust pertinents et évaluer plus précisément les effets sur la concurrence.

Définition traditionnelle du marché et de l'innovation

Ancrer la définition du marché autour des produits existants convient lorsque les efforts de R&D sont dirigés vers des produits spécifiques, que leur lien avec les produits existants est clair et que la substituabilité entre les produits innovants et les produits existants est élevée. Le facteur temps de mise sur le marché peut être propre à un secteur determiné et donc faire l'objet d'une évaluation au cas par cas. En outre, dans un contexte d'innovation incrémentale, il peut s'avérer plus facile de lier les nouveaux produits aux marchés de produits existants. Au lieu d'utiliser des tests de prix statiques, l'observation de l'évolution des attributs de performance des produits clés peut donner une meilleure idée de la substituabilité. Enfin, des experts externes peuvent aider à identifier le lien entre les produits futurs/innovants et les produits existants pour faciliter les considérations de substituabilité.

Une approche utilisant différents concepts peut toutefois être plus appropriée dans les cas où les efforts de R&D présentent des "caractéristiques d'incertitude" et où le lien entre les efforts d'innovation et les produits futurs, d'une part, et les produits existants, d'autre part, est plus faible.

Marchés futurs

Les marchés futurs peuvent convenir pour décrire les efforts de R&D observables qui visent des produits futurs spécifiques, qui sont susceptibles d'être substituables les uns aux autres, mais où ces produits sont distincts des produits existants, comme les produits de nouvelle génération ou les types de produits entièrement nouveaux. La définition de ces marchés peut dépendre d'une probabilité suffisante que l'activité de R&D réussisse à mettre de nouveaux produits sur le marché. Les concurrents éventuels sur un marché futur ne doivent pas nécessairement être en concurrence sur les marchés existants au moment de l'évaluation, même si les avantages liés à l'ancienneté, tels que l'expérience des entreprises en matière de développement historique de produits ou la possession de capacités et de savoir-faire, peuvent jouer un rôle dans la définition du marché pertinent. Bien que les paramètres des futurs produits soient incertains, il est possible de prendre en compte les caractéristiques existantes du marché, telles que l'expérience des clients avec les produits existants, l'élasticité croisée existante, les

exigences réglementaires applicables ou les indicateurs de performance passée des acteurs du marché.

Marchés technologiques

Le commerce de technologies (généralement un droit de propriété intellectuelle) permet une définition plus précise d'un marché technologique. Toutefois, il est également possible de définir un marché pour des domaines dans lesquels il est possible que la technologie soit utilisée à l'avenir et où elle est susceptible d'être commercialisée, ou pour une technologie non commercialisée pour laquelle il est indispensable d'appliquer la législation antitrust (par exemple, dans les affaires de refus de fourniture).

Les ANC abordent la définition du marché technologique comme toute autre définition de marché pertinente (identifier les substituts proches à l'aide, par exemple, le cadre SSNIP). Lorsque cela s'avère difficile, elles recherchent des technologies ou des biens de substitution raisonnables. Lorsqu'il est difficile de calculer les parts de marché des technologies, la part de marché des biens en aval produits avec chaque technologie peut être utilisée comme approximation. Lorsque l'on ne dispose pas de données sur les parts de marché ou de l'avis des acteurs du marché sur l'importance concurrentielle des parties sur les marchés de technologies, et que les technologies semblent avoir une efficacité comparable, les parties peuvent se voir attribuer la même part de marché. Structurer la définition des marchés de technologies et des marchés de produits en aval peut aider à évaluer plus précisément les restrictions anticoncurrentielles sur l'utilisation des technologies à différents niveaux de la chaîne d'approvisionnement.

Marchés de l'innovation

Les marchés de l'innovation peuvent être définis pour protéger la concurrence en matière d'innovation. Les marchés de l'innovation sont identifiés lorsque des capacités de R&D spécifiques sont requises, ou dans les industries à forte intensité de R&D où la capacité de R&D est un paramètre essentiel de la concurrence. Il peut aussi s'agir de marchés principalement animés par une concurrence permanente en matière d'innovation, et qu'au moins une des parties en cause peut être considérée comme un innovateur important, ou encore lorsqu'il existe une incertitude quant au résultat des processus d'innovation et à l'application potentielle des produits innovants, de sorte que l'affaire ne peut être évaluée sur la base des marchés de produits actuels.

Les marchés innovants ne doivent pas être traités comme des "marchés" à proprement parler, mais les effets sur la concurrence en matière d'innovation peuvent être examinés dans le cadre des "espaces d'innovation", des marchés futurs, des marchés technologiques ou des marchés de produits, ou à d'autres stades de l'analyse concurrentielle. Les "espaces d'innovation" permettent d'avoir une vision plus large de la concurrence en matière d'innovation, qui peut cibler des groupes de produits différents, peuvent aider à couvrir les efforts de R&D à un stade précoce et peuvent être utiles au vu de la désintégration verticale et de l'externalisation croissantes de la R&D. La définition du groupe de concurrents en matière de R&D peut être réalisée en identifiant les actifs spécifiques utilisés pour les activités d'innovation, tels que les laboratoires de R&D ou le personnel spécialisé, ou en définissant un marché à l'aide d'une réduction non transitoire faible mais significative des efforts d'innovation. Si ces méthodes ne sont pas disponibles, l'examen des "pipelines de recherche" historiques des entreprises, leurs cibles de recherche ou leur position sur d'autres marchés peut être instructif.

Définition du marché géographique

Norme appliquée

Dans la MDN, le marché géographique en cause est considéré comme "la zone dans laquelle les entreprises concernées sont impliquées dans l'offre et la demande de produits ou de services, dans laquelle les conditions de concurrence sont suffisamment

homogènes et qui peut être distinguée des zones voisines parce que les conditions de concurrence y sont sensiblement différentes".

Les juridictions européennes appliquent des normes similaires dans leurs lignes directrices et leurs procédures au niveau national. La jurisprudence au niveau national dans l'EEE confirme en fait que les "conditions de concurrence suffisamment homogènes" semblent être la norme la plus largement utilisée pour définir le marché géographique, en intégrant les concepts de substituabilité et d'adéquation, dans certains cas identifiés dans le cadre du test SSNIP. Les lignes directrices hors EEE, comparées à la MDN, n'indiquent pas toujours clairement quelle norme substantielle est adoptée dans leur approche de la définition du marché géographique. La MDN et le test SSNIP sont utilisés par plusieurs autorités (Royaume-Uni, Canada, Corée du Sud) comme cadre fondamental dans lequel les marchés pertinents sont définis. D'autres autorités hors EEE indiquent que les marchés géographiques doivent être définis sur la base du chevauchement géographique des zones achalandées par les parties à la concentration (Australie et Japon). La définition du marché géographique dans les lignes directrices américaines sur les concentrations horizontales est fondée sur la substituabilité du côté de la demande, sans mention de conditions de concurrence homogènes. Certaines lignes directrices, dont celles des États-Unis et certaines de l'EEE, précisent ensuite que leur approche de la définition du marché géographique s'adaptera à la possibilité ou non d'une discrimination par les prix de la part des fournisseurs en fonction de la localisation des clients sur un marché donné. Si la discrimination par les prix fondée sur la localisation des consommateurs n'est pas possible, la zone centrale du marché géographique est la localisation des fournisseurs. Si cela est possible, alors le marché géographique peut être lié à la localisation des consommateurs. De telles distinctions ne sont pas présentes dans la MDN.

Principaux facteurs

La MDN décrit les facteurs que la Commission considère comme susceptibles d'être importants pour la définition d'un marché géographique. De même, les lignes directrices EEE et hors EEE mentionnent divers facteurs susceptibles d'être pertinents pour la définition du marché géographique. Dans aucun des cas, il n'existe de hiérarchie claire entre eux. Toutes les lignes directrices notent qu'il ne sera pas, en général, nécessaire ou faisable d'obtenir des informations sur chaque élément dans un cas individuel.

Les préférences des clients/consommateurs, les caractéristiques des produits achetés/caractéristiques des processus d'achat et les différences de prix/efficacité de l'arbitrage des prix sont les facteurs les plus fréquemment cités dans les orientations de l’EEE. Dans les lignes directrices hors EEE, les facteurs liés aux différences de prix, au transport et aux barrières commerciales sont les plus cités. Les différences de prix et les importations sont également des facteurs fréquemment cités dans l'EEE. En particulier, une part importante d'importations sur un marché n'indique pas automatiquement l'existence d'un marché géographique plus large. Si les flux commerciaux ne sont pas déterminés par les écarts de prix, une augmentation du prix intérieur peut ne pas être compensée par une augmentation de l'offre provenant des importations. Enfin, d'autres facteurs jouant un rôle dans la définition du marché géographique sont ceux liés au transport : en effet, la distance d'un fournisseur étranger peut non seulement augmenter le coût du produit importé, mais aussi limiter la disponibilité de l'offre elle-même et donc l’étendue géographique du marché. Les données recueillies dans les cas traités dans l'EEE et certains pays tiers suggèrent que certaines considérations sont spécifiques au secteur concerné. Certains secteurs sont caractérisés par un marché plus large (par exemple, les marchés de certains produits technologiques sont de dimension mondiale), tandis que d'autres sont caractérisés par un marché géographique plus étroit, c'est-à-dire de dimension nationale, voire locale (par exemple, les hôpitaux et certaines activités professionnelles, ainsi que les marchés où les coûts de transport sont importants par rapport aux valeurs de transaction).

Types de preuves

Le MDN identifie le type de preuves qui sont pertinentes pour définir les marchés géographiques. En outre, certaines autorités mentionnent des types de preuves spécifiques, notamment pour établir les préférences des clients et des consommateurs. Plus précisément, quatre ANC de l'EEE et presque toutes les autorités hors EEE indiquent dans leurs lignes directrices qu'elles interrogent les consommateurs. Les ANC de l'EEE et des pays non-membres de l'EEE font également référence, dans leurs lignes directrices et décisions, à l'analyse des données relatives aux flux commerciaux, aux données des fournisseurs et aux habitudes d'achat. Néanmoins, les ANC sont généralement claires sur le fait que les données sur les flux commerciaux ne peuvent pas, à elles seules, servir de base à la définition du marché géographique. En particulier, les fournisseurs peuvent vendre dans plusieurs zones géographiques, tout en offrant des conditions sensiblement différentes aux clients de chacune d'elles, s'ils sont en mesure de pratiquer une discrimination par les prix. L'observation de flux commerciaux importants peut donc être peu révélatrice de la similitude des conditions de concurrence entre deux zones.

Les exigences en matière de données et l'accès aux données sont reconnus comme des questions pertinentes par les ANC, car elles peuvent ne pas avoir le pouvoir de demander des informations au-delà des frontières/juridictions nationales. Pour résoudre ce problème, de nouvelles méthodologies de définition des marchés géographiques sont en cours d'élaboration afin de répondre ou de limiter le besoin de données, comme l'utilisation d'expériences naturelles ou d'études d'événements.

Le rôle de la substituabilité du côté de l'offre

La MDN accorde une grande importance à la substitution du côté de la demande. Cependant, la substitution du côté de l'offre peut également être une contrainte sur le marché qui affecte la définition du marché géographique dans certaines conditions. En particulier, pour avoir un impact sur la définition du marché, la substitution du côté de l'offre doit réagir rapidement aux augmentations de prix, impliquer une "entrée non engagée", c'est-à-dire une entrée à faible coût et sans investissement irréversible, et être telle que la contrainte concurrentielle qu'elle impose ait un impact significatif clair sur les prix avant l'entrée.

Les juridictions de l'EEE ont tendance à utiliser la substituabilité du côté de la demande comme principal facteur de délimitation d'un marché géographique, mais elles prennent également en considération la substituabilité du côté de l'offre lorsqu'il peut être démontré que les effets du côté de l'offre imposent une contrainte concurrentielle effective sur le comportement des fournisseurs dans la zone focale. Les États-Unis et le Canada ne prennent pas en compte la substitution du côté de l'offre au stade de la définition du marché géographique : ces facteurs doivent être examinés au stade de l'évaluation des effets sur la concurrence. Comme la MDN, le Japon et le Royaume-Uni prennent plutôt en compte la substitution du côté de l'offre au stade de la définition du marché (mais seulement sous certaines conditions), tandis que les ANC sud-coréennes et australiennes, selon leurs lignes directrices, sont susceptibles de considérer les effets du côté de l'offre au stade de la définition du marché en même temps que la substituabilité de la demande. La pertinence des contraintes du côté de l'offre pour la définition du marché fait l'objet d'un débat : certains commentateurs affirment que l'importance secondaire attribuée à la substituabilité du côté de l'offre conduit à définir des marchés trop étroits. D'autres suggèrent que la substituabilité du côté de l'offre devrait être considérée comme une contrainte concurrentielle dans le cadre de l'évaluation de la concurrence tout en adoptant une définition plus étroite du marché géographique.

Techniques quantitatives

Test du monopoleur hypothétique / SSNIP

Le test du monopoleur hypothétique (TMH) est largement considéré comme un cadre approprié pour prendre en compte la substitution de la demande et pour aider à délimiter le marché pertinent. Ce cadre est bien établi parmi les ANC pour délimiter les marchés pertinents. Il est souvent formalisé par le test SSNIP. La définition initiale du marché dans le cadre du test SSNIP est souvent basée sur le produit phare de l'affaire en question, tandis que l'ensemble des substituts les plus proches du ou des produits phares est évalué par le biais des élasticités de la demande par rapport au prix propre et au prix croisé. Un SSNIP de 5 à 10% est souvent appliqué, mais il peut varier en fonction de la nature exacte du marché (il y a convergence sur ce point dans les lignes directrices). Si les entreprises sont en mesure de pratiquer une discrimination par les prix, il peut être nécessaire de traiter chaque groupe de clients séparément et d'appliquer le test SSNIP à chacun d'entre eux. Si le monopoleur hypothétique vend des produits en dehors du marché candidat et si la demande de ces produits et celle du produit central sont corrélées (qu'il s'agisse de substituts ou de compléments), il peut être nécessaire d'examiner cette interaction.

Analyse critique des pertes

La CLA (Critical Loss Analysis) est une méthode permettant de formaliser le test SSNIP. Elle consiste à évaluer la perte maximale de ventes, à la suite d'une augmentation de prix, pour qu'une telle augmentation de prix reste rentable (la "perte critique"), et à la comparer à une estimation de la "perte réelle" de ventes susceptible de résulter de ladite augmentation de prix. Si la perte critique est supérieure à la perte réelle, un SSNIP serait rentable et le marché n'est donc pas plus large que les produits actuellement inclus.

Cette approche est très couramment utilisée par les ANC et également très largement discutée dans la littérature spécialisée. Certaines ANC mentionnent cette méthode et offrent des conseils sur son utilisation, en notant en particulier les pièges potentiels. La méthode n'est pas explicitement mentionnée dans la MDN. Les premières publications ont relevé une incohérence potentielle dans la manière dont, en particulier, les parties à la concentration ont utilisé le test CLA en faisant valoir, simultanément, une petite perte critique et une grande perte estimée, et en arrivant ainsi à des marchés pertinents larges. L'incohérence découle du fait que les deux aspects du test CLA ne sont pas indépendants : une faible perte critique implique des marges bénéficiaires élevées, tandis qu'une perte réelle élevée implique une forte élasticité de la demande. La reconnaissance de cette incohérence a donné lieu à des approches affinées de la CLA, parfois qualifiées de " CLA moderne". Un nouvel élément de ces approches est le calcul des ratios de détournement agrégés. Cependant, les formules standard présentées dans la littérature ont tendance à faire des hypothèses strictes concernant la linéarité de la demande et les coûts marginaux constants et ne devraient pas être utilisées si ces hypothèses ne sont pas susceptibles de se vérifier dans un cas particulier. Enfin, s'il est clair que les coûts fixes et variables doivent être correctement attribués, les lignes directrices de l'ANC ou la MDN ne donnent que peu d'indications sur les meilleures pratiques à suivre sur ce point.

Expériences naturelles

Lorsqu'un choc présentant les bonnes caractéristiques (soudain, exogène, bien identifié) s'est produit et que des données sur ses impacts peuvent être recueillies, son analyse peut fournir des preuves directes de l'élasticité de la demande et de la substituabilité du côté de la demande. Dans la pratique, il existe relativement peu d'exemples d'utilisation d'expériences naturelles en raison du manque de chocs observés et du manque de données sur ces chocs. La MDN mentionne l'utilisation d'expériences naturelles : cette référence est cohérente avec l'accent limité mis sur les

détails techniques dans les lignes directrices nationales. L'avis décrit les "lancements de nouveaux produits dans le passé" comme un choc approprié pour l'analyse : il existe également plusieurs autres chocs qui ont été utilisés dans la pratique et mentionnés dans les lignes directrices nationales.

Enquêtes auprès des consommateurs

Les enquêtes auprès des consommateurs sont couramment utilisées par les ANC pour évaluer les questions de substituabilité de la demande dans la définition des marchés pertinents, en particulier dans le cadre du TMH/SSNIP, pour évaluer une question SSNIP, ainsi que, en général, comme moyen d'estimer l'élasticité de la demande par rapport au prix propre et au prix croisé. Les enquêtes auprès des consommateurs peuvent également être utilisées pour mettre en œuvre le test CLA, par exemple pour l'estimation des ratios de détournement agrégés. Les difficultés liées à la réalisation d'une enquête représentative auprès des consommateurs dans les délais contraints d'une procédure de contrôle des concentrations sont bien connues. Un échantillon suffisamment grand est nécessaire pour garantir que les résultats de l'enquête sont solides et statistiquement significatifs. Les méthodes d'échantillonnage, en particulier, doivent veiller à être représentatives des consommateurs marginaux - ceux qui sont les plus susceptibles de réagir à un SSNIP. Il est courant, dans la pratique, que les enquêtes demandent la réaction des consommateurs à l'indisponibilité du produit plutôt que leur réaction à un SSNIP de 5-10%. Les enquêtes sont mentionnées comme un outil de preuve pour la définition du marché dans la MDN, sans toutefois fournir d'orientation spécifique sur la méthodologie applicable.

Techniques d'estimation de la demande

Les méthodes économétriques d'estimation de la demande peuvent être utilisées pour estimer l'élasticité de la demande par rapport au prix propre et au prix croisé. Ces estimations peuvent être utilisées comme une indication directe de la substituabilité ou dans la réalisation d'un test SSNIP, ou dans l'analyse des pertes critiques. L'estimation de la demande est difficile et il est souvent nécessaire d'utiliser des techniques économétriques, telles que les variables instrumentales, pour discerner les facteurs liés à l'offre et ceux liés à la demande. Ainsi, pour une analyse solide, il faut disposer de données, de ressources et de temps suffisants. Par conséquent, les techniques économétriques d'estimation de la demande pour la définition du marché ne sont pas souvent utilisées dans les cas d'ANC examinés pour cette étude. Des conseils spécifiques quant à l'utilisation de ces techniques ne sont pas explicitement mentionnés dans les lignes directrices nationales. Cela peut refléter la complexité de ces modèles qui prennent du temps à estimer, nécessitent une grande quantité de données et peuvent ne pas être bien compris par les non-économètres. Le MDN note bien qu'il existe "diverses approches économétriques et statistiques pour estimer les élasticités et les élasticités croisées des prix", à l'instar de la mention limitée du même point dans les lignes directrices nationales.

Analyse des séries de prix

Une catégorie distincte de méthodes quantitatives se concentre sur l'analyse des séries chronologiques de prix. Ces techniques (telles que la corrélation des prix, les tests de stationnarité, les tests de cointégration, la causalité de Granger) ne reposent pas sur l'estimation des élasticités-prix propres et croisées, mais regroupent les produits sur des marchés pertinents dans la mesure où leurs prix "évoluent ensemble" dans un sens bien défini. Les analyses de séries chronologiques de prix sont courantes parce qu'elles nécessitent une quantité limitée de données et se concentrent sur les données relatives aux prix, qui sont généralement la variable la plus susceptible d'être observée sur un marché donné.

Il est bien connu que les prix de différents produits peuvent avoir un co-mouvement important même s'ils n'appartiennent pas au même marché, par exemple en raison

d'éléments de coût communs ou en étant affectés de la même manière par des chocs macroéconomiques. En ce sens, les tests de co-mouvement des prix sont plus fiables pour exclure que deux produits appartiennent au même marché que pour confirmer qu'ils en font partie. Les tests de corrélation des prix souffrent également de leur dépendance à l'égard du choix d'un niveau de corrélation critique arbitraire, au-delà duquel on considère que les produits appartiennent au même marché pertinent. La littérature sur l'analyse des séries chronologiques de prix pour la délimitation des marchés est vaste. En réponse aux critiques formulées à l'encontre des études de corrélation simplistes, la littérature économétrique a développé une série de techniques alternatives de séries chronologiques qui permettent d'obtenir de meilleures propriétés statistiques. En particulier, les études des relations d'équilibre à long terme entre les variables ont fait l'objet d'une attention significative dans la littérature sur la définition des marchés, et concentrent les tests de prix pour étudier la convergence des prix. Les techniques de co-mouvement des prix sont mentionnées de manière plus ou moins détaillée dans les lignes directrices de l'ANC. La MDN fait référence aux "tests basés sur la similarité des mouvements de prix dans le temps, l'analyse de la causalité entre les séries de prix et la similarité des niveaux de prix et/ou leur convergence", sans autre commentaire que de dire que ces méthodes doivent résister à un "examen rigoureux". Quelques ANC abordent ces méthodes de manière plus approfondie dans leurs lignes directrices respectives. Toutefois, très peu d'ANC fournissent davantage de détails.

Zones de chalandise

L'utilisation de zones de chalandise pour la définition du marché géographique a été fréquemment observée dans les affaires examinées par les ANC. Les zones de chalandise sont particulièrement importantes dans les affaires de concurrence concernant des détaillants disposant de point de vente physique, où la localisation et les coûts de transport sont un facteur important dans le comportement des consommateurs. Les isochrones (zones de chalandise basées sur le temps de conduite) devraient être utilisées plutôt que des mesures basées sur la distance pour délimiter les zones de chalandise lorsque les caractéristiques géographiques et le réseau routier de la zone étudiée sont susceptibles d'entraîner un écart important entre les deux mesures. Même lorsque des zones de chalandise locales peuvent être délimitées, il ne s'ensuit pas nécessairement que les marchés pertinents sont locaux plutôt que régionaux ou nationaux. Définir des marchés locaux sur la base des zones de chalandise suppose que des éléments importants de la concurrence soient fixés au niveau local et que les fournisseurs soient incités à adapter leur offre de détail en fonction des conditions de concurrence locales. Les marchés locaux peuvent être appropriés même si les prix sont fixés au niveau national, car des aspects autres que le prix, peuvent affecter la concurrence et les résultats pour les consommateurs au niveau local.

Au cours des dernières années, grâce à une plus grande disponibilité des données sur les consommateurs, certaines ANC ont réalisé un ajustement de l'approche des zones de chalandise basée sur le lieu d'origine réel des clients qui achètent auprès de chacun des fournisseurs. Un nombre limité d'ANC fournissent des orientations méthodologiques concernant l'utilisation des zones de chalandise pour la définition du marché, tandis que la MDN ne fait aucune mention des zones de chalandise. Bien qu'elles soient reconnues comme une méthode pratique pour mettre en œuvre une définition de marché géographique, les zones de chalandise font également l'objet de critiques, notamment parce que tout seuil, de 80% de clients "les plus proches" ou autre, n'a pas de fondement théorique et ne correspond pas, notamment, à la mise en œuvre d'un test SSNIP.

1 Introduction and objectives

This document contains the final report (the 'report') of the 'Support study accompanying the evaluation of the Commission Notice on the definition of relevant market for the purposes of Community competition law' (hereinafter the 'study') contracted by the European Commission, Directorate General for Competition (DG COMP) to the team of experts (the 'team') proposed by the Consortium of VVA, Grimaldi Studio Legale and London Economics and led by VVA.

The main objective of the study is to distil principles and best practices for the definition of relevant markets that can inform the review of the Market Definition Notice (hereinafter 'MDN') that the Commission is currently undertaking and, possibly, contribute to the elaboration of an updated version of the MDN. To do this, the study identifies points of convergence, points of divergence and gaps between legal and economic literature, the national decisions and guidelines reviewed on the one hand and the MDN on the other hand. The above-mentioned principles and best practices were identified through desk research - including the analysis of relevant literature and practices by National Competition Authorities (NCAs) - and organised under the four topics on which the study focuses (hereinafter 'topics'): digitalisation, innovation, geographic market definition, and quantitative techniques.

First, in relation to digitalisation, the study analyses multi-sided markets including relevant factors and tools, digital ecosystems, the relationship between data and market definition and, finally, the e-commerce sector.

Second, the study provides an analysis of the link between innovation and market definition for current product markets, future markets and technology markets.

Third, the study presents an overview of how geographic markets are defined, the factors and the evidence that drive the definition of geographic markets, and the role of supply-side substitutability in defining the geographic market.

Finally, the study provides an overview of the quantitative methods used to define relevant markets. The main quantitative frameworks covered in the study are the hypothetical monopolist test, demand estimation techniques, price co-movement analysis and catchment areas.

The Report is structured as follows:

- **Chapter 2 -** Methodology
- **Chapter 3 -** Digitalisation
- **Chapter 4 -** Innovation
- **Chapter 5 -** Geographic Market Definition
- **Chapter 6 -** Quantitative Techniques
- **Annex - List of sources**

2 Methodology

This chapter describes the methodology used to deliver the study. The work for this report was split into two main tasks: Task 1 (review of decisions by NCAs, judgments by national courts and guidelines) and Task 2 (literature review). Task 1 was further subdivided into Task 1a which covered all EEA countries and Task 1b which focused on selected countries outside the EEA.

2.1 Task 1a: review of decisions by NCAs, judgments by national courts and guidelines issued by national authorities within the EEA

In the implementation of Task 1a, the scope of the research covered the 27 jurisdictions of the EU Member States, Iceland, Liechtenstein and Norway (the EEA).

As a preliminary activity, for each of these jurisdictions, the team analysed NCA decisions, judgments and guidelines provided by DG COMP, on the basis of data collected in the EEA countries through a stakeholder consultation (the 'NCA consultation'), with a cut-off date up to 2010.

In the implementation of the study, the team focussed on the topics and jurisdictions identified by the Commission in the Tender Specifications. Below we provide a more granular overview of the desk research on each topic, beyond the information provided by the NCAs:

Topic 1 – Digitalisation: the jurisdictions selected for additional desk research were Belgium, France, Germany, Italy, the Netherlands and Spain. No guidelines from the NCAs were issued in these jurisdictions. The Dutch NCA has adopted several studies that prompted it to launch individual investigations[4]. The most active NCAs were the German Competition Authority (*Bundeskartellamt*, hereinafter 'German NCA') and the French *Autorité de la Concurrence* (hereinafter 'French NCA'). This latter has co-published studies with the German NCA, as well as with the UK's Competition and Markets Authority (CMA, hereinafter 'UK CMA')[5]. The decisional practice reviewed was selected by the team experts in Member States based on a list of cases drawn from the preliminary research carried out by the team. With respect to some sub-topics[6], for the sake of completeness, although not expressly requested by the Commission, the team also analysed reports submitted to the OECD by EEA States, which were not covered by the additional desk research[7].

Topic 2 – Innovation: The jurisdiction selected for additional desk research was Germany. The National legal expert of the team carried out both doctrinal and case law research and also engaged in communication with the German NCA, in order to obtain clarifications on the topics researched.

Topic 3 – Geographic Markets: This was the broadest topic to undergo additional desk research. The following jurisdictions were analysed: Belgium, France, Germany, Hungary, Poland, Romania and Spain. Most of the evidence came from additional NCA case practice, and Guidelines also played an important role in this topic area, beyond those referenced by the NCAs to the Commission.[8]

[4] See Chapter 3.

[5] See Chapter 3.

[6] One such sub-topic is e-commerce (see Chapter 3).

[7] One such country was Sweden.

[8] Chapter 5.

Topic 4 – Quantitative techniques: The jurisdiction selected for additional desk research was France. Two types of documents were analysed: NCA Guidelines[9] and relevant case practice, particularly from recent years[10].

Furthermore, three types of documents were identified and analysed as part of the additional desk research:

- Guidelines beyond those indicated to the Commission by the NCAs who answered the Survey;
- Studies carried out by NCAs (individually or jointly with other NCAs); and
- Decisional practice and case law not referred to by the NCAs in the Survey replies.[11]

The task of the team was to review and analyse how the topics were addressed in the practice of national jurisdictions (mostly focussed on NCA decisions and further research based on a list of priorities agreed with the Commission) with the aim of distilling principles and, where appropriate, best practices for the definition of relevant markets which may assist DG COMP in the review and update of the MDN.

The activities were carried out in the following steps:

1. The team agreed on a methodological tool, consisting of tables across each topic, both containing an analysis of the case practice reported in the NCA consultation and additional research by the team. This was done with the aim of allowing experts across jurisdictions to consistently and coherently report the main findings from the NCA case practice, based on an analysis of the primary sources in the national languages of the EEA.
2. The team researched gaps in the NCA consultation across the topics, in order to complement the research based on the preliminary findings of potential developments not reported by NCAs.
3. Based on the list of agreed priorities and in line with the terms of reference of this study, the team expanded the research to 15 topic/country pairs selected with the agreement of DG COMP.
4. Under the supervision of Dr Philip Marsden, Dr Ezio Perillo, Dr Peter Picht (in particular, on Topic 2 – Innovation), where possible, the team identified principles and best practices that could be helpful in the context of the review of the MDN, based on the review, research and in-depth analysis of the cases reported in the abovementioned methodological tool.

The exhaustive list of guidelines published by NCAs in EEA and non-EEA jurisdictions is provided in the Annex to this report.

2.2 Task 1b: review of selected decisions by NCAs, judgments by national courts and guidelines issued by national authorities outside the EEA

The team reviewed a range of competition enforcement guidelines produced by NCAs, and cases and court judgments in the following jurisdictions outside the EEA: Australia, Brazil, Canada, Japan, South Africa, South Korea, the United Kingdom (UK) and the

[9] Chapter 6.

[10] For more detail, see Chapter 6.

[11] Three caveats must be borne in mind for the additional desk research into the four topics: (i) additional researched material covered the time span between 2010 and January 2021 (ii) the study focuses mostly on decisional case practice rather than court cases, since there is better availability of that material compared to researching court databases (which are not publicly available in certain Member States). The analysis was done in the original language of the case, and (iii) it may well be that the EEA-wide decisional practice covered in this study is not exhaustive on every development that has occurred in the last decade, due to budget and time constraints in the study. While the team tried to address this by also proactively analysing OECD resources, the study should be considered illustrative rather than exhaustive.

United States (US), both in the context of the NCA consultation and in the context of the additional desk research. The desk research encompassed, besides relevant NCA practice covering the period between end of 2010 and end of 2020, the analysis of the NCA guidelines over the same time period, which are listed in the Annex.

Australia

The Australian Competition and Consumer Commission (ACCC, hereinafter 'Australian NCA') does not publish the results of its antitrust investigations, so details on these are only available if the case goes to court. We carried out desk research using the tools available on the NCA's website, the OECD website and other antitrust websites such as australiancompetitionlaw.info to identify guidelines, reports, papers, inquiries and relevant cases (including summaries and analysis). The team's analysis also included an interim report on digital advertising adopted by the NCA in January 2021.

Brazil

The team carried out an analysis of primary sources in the original language, namely: decisions by the NCA (Brazil's Administrative Council for Economic Defense, hereinafter 'Brazilian NCA'); the NCA's guidelines, and all public documents published by the NCA pertaining to the issues analysed in this study. All the clarifications, summaries and conclusions provided for the Brazilian decisions are based on public final merit decisions available on the NCA's official website. The analysis of the Brazilian decisions does not include first instance decisions issued by the competent courts (except when final), dissident votes or any other clarifications provided by other agents in the cases analysed (e.g. parties directly involved in the case, third parties, other regulatory agencies or government bodies, etc.). In light of this, any references to the NCA's understanding in a specific case refers to the NCA's final understanding as a whole (with no further segmentation by instances, areas or relevant persons).

Canada

The team developed its desk research on the basis of an analysis of primary sources, namely: the NCA's (Canadian Competition Bureau, hereinafter 'Canadian NCA') decisions and case law; the NCA's guidelines and studies; the documents published by the NCA pertaining to the Topics analysed in this study. In addition, relevant articles and past OECD submissions were analysed.

Japan

A Japanese professor, Mr Koki Arai, carried out the research in the absence of sources in the languages for the desk research (English, French and German). As a general rule, the supporting reference used is to the Japan Fair Trade Commission's (JFTC, hereinafter 'Japanese NCA') announcements or press releases on the Japanese NCA website. Other references are taken from Mr Koki Arai's *Law and Economics in Japanese Competition Policy* (Springer Nature, 2019) as well as from other papers or electronic resources quoted in the analytical sections below.

South Africa

The following sources were used for South Africa: publicly available reports and draft guidelines. A review of all public documents available via the websites of the South African NCA (South Africa Competition Commission, hereinafter 'South African NCA') and the South Africa Competition Tribunal search tools[12] was carried out.

South Korea

To carry out the desk research for South Korea, the following sources were used: publicly available reports (mainly in the area of e-commerce, such as the South Korean

[12] Tools facilitating access to the Competition Tribunal's decisions.

Note for the OECD on the *Implications of E-commerce for Competition Policy*), the Korean Fair Trade Commission (hereinafter, 'South Korean NCA') website search tools and guidelines, literature on multi-sided platforms and case law cited in that literature, and general search tools. Primary material, such as several relevant Guidelines were not accessible, as they are not published in English.

UK

To carry out the research for the UK, the following sources were used: publicly available reports (mainly in the area of digital markets and innovation, such as the Furman[13], Cremer[14], Lear[15], Stigler reports[16] and Franck and Peitz[17], the OECD Market Definition Roundtable document, etc.), academic articles, UK Competition and Markets Authority (hereinafter 'CMA') guidance (including former guidance by the UK Office of Fair Trade OFT and the UK Competition Commission CC), UK CMA website search tools, general search tools.

US

The team carried out desk research on the NCAs' decisions as well as material submitted to the OECD by the US in the course of the last decade. General search tools available on the Federal Trade Commission (hereinafter 'FTC') and the Department of Justice (hereinafter 'DOJ') websites were used. In addition, the team made use of academic articles from different sources, as well as American Bar Association material.

2.3 Task 2: review of the legal and economic literature

The team collected and analysed a large number of sources: the main aim was to include any relevant publication and report on the topics both at European and at Member State level. While the focus was on evidence provided in the English language the team also covered literature in other languages where this was of value.

The list of sources collected is available in Annex. Each of the sources was selected based on quality and relevance criteria.

Information extraction followed a systematic approach based on an in-depth review of the selected documents with the aim of providing an analytical literature review that covers all the topics described in the terms of reference.

For this report, a team of legal and economic topic experts prepared a narrative analysis by topic, based on all relevant literature contributions, that focuses on the key questions listed in the Terms of Reference including points of convergence, points of divergence and gaps with the guidance provided in the MDN.

[13] Furman, J., (2019). Unlocking digital competition. Report of the Digital Competition Expert Panel, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf.

[14] Crémer, J., de Montjoye, Y. A., & Schweitzer, H. (2019). Competition policy for the digital era. Report for the European Commission, available at: https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf.

[15] Argentesi, E., Buccirossi, P., Calvano, E., Duso, T., Marrazzo, A., Nava, S.(2019). Ex-Post Assessment of Merger Control Decisions in Digital Markets, published by Lear, available at: https://www.learlab.com/publication/ex-post-assessment-of-merger-control-decisions-in-digital-markets/.

[16] Stigler Center News. (2019). Stigler Committee on Digital Platforms: Final Report. Available at: https://www.chicagobooth.edu/research/stigler/news-and-media/committee-on-digital-platforms-final-report

[17] Franck, J. U. and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe). Available at: https://www.cerre.eu/sites/cerre/files/2019_cerre_market_definition_market_power_platform_economy.pdf

Main findings by Topic

3 Digitalisation

This chapter provides an overview of how the legal and economic literature, the Guidelines, as well as NCA decisions in EEA and selected non-EEA jurisdictions, define relevant markets in the context of digitalisation.

Section 3.1 focuses on the particular case of multi-sided platforms, and how the NCAs define these markets across cases and guidelines. While the NCA case practice abounds, the fragmentation in how multi-sided platforms are defined is apparent both in the literature and the reviewed and researched decisional precedents. In this respect, the MDN is silent on how these markets can be defined. Section 3.2 analyses the specificities of market definition in the context of digital ecosystems, including understanding to what extent the principles enshrined in the MDN concerning aftermarkets find application given the uptake of these business models over the last years. Section 3.3 attempts to answer the question of how the literature and NCAs address how access to data plays a significant role in the market definition analysis. For Section 3.2 and 3.3 most of the conclusions on the principles and best practices stem from an analysis of NCA studies and literature, since decisional case practice is still scarce, though it is emerging. Section 3.4 analyses how the literature and the NCAs tackle market definition given the growth of the e-commerce phenomenon.

3.1 Defining relevant markets for multi-sided markets

A variety of products and services are nowadays supplied via online platforms. These platforms typically operate as multi-sided markets, whose nature and dimension must be taken into account when applying competition law. In recent years, this has been a highly debated topic in academic fora and NCA practice[18]. While a large part of the debate focuses on internet platforms and the digital economy, multi-sidedness is not only a phenomenon of the digital world. Several traditional 'offline' markets (e.g. markets for newspapers or magazines, as well as payment card markets) are also considered multi-sided markets.

There are many **definitions of multi-sided or two-sided markets**[19]. Multi-sided markets involve several user sides of a platform interacting. Interdependence between the users on the various sides of the market characterises multi-sided markets. Two-sided markets, the simplest type of multi-sided markets, only involve the interaction between two agents on each side of the platform. Broadly speaking, a two-sided market is one in which: 1) two sets of agents interact through an intermediary or platform, and 2) the decisions of each set of agents affect the outcomes of the other set of agents, typically through an externality[20].

At the heart of the interdependence between the various market sides are direct and indirect network effects. **Direct network effects** are present when the value of a product or service received by a user fluctuates (either directly or inversely) with the variation of the number of the product/service's users[21]. **Indirect network effects**

[18] See for instance Evans, D., and Schmalensee, R. (2015). The Antitrust Analysis of Multi-Sided Platform Businesses in Blair and Sokol (eds), The Oxford Handbook of International Antitrust Economics, vol. 1 (New York, Oxford University Press); OECD. (2018). A Roundtable on Multi-sided Markets; OECD. (2009). Two-Sided Markets – Best Practice Roundtables on Competition Policy; and German NCA. (2016). Working Paper Market Power of Platforms and Networks, available at: https://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Berichte/Think-Tank-Bericht.pdf?__blob=publicationFile&v=2.

[19] Rochet, J.C. and Tirole, J. (2004), Defining Two-Sided Markets

[20] Rysman, M. (2009), The Economics of Two-Sided Markets, Journal of Economic Perspectives, Vol. 23, Issue 3, pp. 125-43.

[21] Concretely, a telephone service or a social network (Facebook, Twitter, Instagram) or communication service (e.g. Skype or WhatsApp) is all the more valuable for the individual user, the more users make use of this service. Organic

occur when a platform or service depends on the interaction of two or more user groups, such as producers and consumers, or buyers and sellers, or users and developers. This would be the case, for example, where if more people from one group join the platform, the other group receives a greater value amount[22]. The presence of indirect network effects characterises multi-sided platforms and only markets with two or more 'sides can achieve indirect network effects.

Both types of effects can be **unidirectional**, as is the case, for example, with online newspapers, or **bi-directional** (i.e. running on both sides of the platform), as is the case for online dating sites, and can be either **positive** or **negative.** Another distinction is that of **within-group network effects** (more usage within the group directly affects each group member) as opposed to **cross-group network effects** (e.g. BlaBlaCar's value for drivers increases when more passengers use the platform, and vice versa). For instance, matching platforms (e.g. dating sites, or job platforms, or hotel booking platforms) display positive direct effects on both user groups. By contrast, attention platforms do not display positive indirect network effects for all the various user sides: e.g. for Facebook or Google's Youtube, there may be positive indirect network effects for advertisers the more users there are, but not for users (who may instead suffer from the presence of many advertisers on the platform). These network effects on the side of the users are called negative indirect network effects or negative 'feedback loops'. In some instances, both direct and indirect network effects are present: Franck and Peitz[23] refer to the example of e-commerce websites with rating systems used by different types of users, such as Amazon.

Positive indirect network effects are those related to the increase of the value of the service for one user group when additional users in a different user group (on a different side' of the market) join the network[24]: a typical example is the case of e-commerce. However, Filistrucchi *et al* [25] consider that 'a crucial feature of two-sided markets is that the two customer groups are not able to incorporate these indirect network effects, which are therefore often referred to as externalities, i.e. external to or not accounted for in the individual decisions of the customers. For example, when a reader buys a newspaper she/he does not take into account that by buying the newspaper she/he will make the newspaper itself more attractive to advertisers and does not care about the price of an ad in that newspaper'[26].

A further characteristic of two or multi-sided markets, aside from the abovementioned interdependence, is that **pricing strategies** in these markets are not akin to those of single markets. Understanding the potential pricing strategies of digital platform providers is key to grasping how two-sided or multi-sided markets compete among themselves and with one-sided markets. This is because a fundamental aspect of the business model for multi-sided market industries is the optimal pricing structure which must be set so that the division of revenues brings both parties on board. Katz and

search in Google or recommendations in Amazon are types of direct network effects. These are all examples of positive network effects.

[22] Stobierski T. (2020). What are network effects, Harvard Business School Online, available at: https://online.hbs.edu/blog/post/what-are-network-effects.

[23] Franck, J. U., Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[24] The more people use an iPad/iPhone or in general the iOS-system, for example, the more attractive this platform becomes for app developers, which in turn benefits the Apple products' users.

[25] Filistrucchi, L. Geradin, D. and Van Damme, E. (2012). Identifying Two-Sided Markets, TILEC Discussion Paper DP 2012-008, S. 5.

[26] Ibid.

Shapiro[27] point out that in two-sided markets the product may not exist at all if the business does not get the pricing structure right. Parker and Van Alstyne[28] and Rochet and Tirole[29] argue that in two-sided platforms the price structure to get both sides on board and to optimise usage of the platform is usually asymmetrical, with prices on one side substantially above those on the other side (e.g. Facebook charges users zero, while it charges advertisers). Pricing structures vary depending on cross-side demand elasticities and the relative extent of the network effects, with the intuition being that the existence of inter-group network effects frequently implies that, in order to attract a group of users, the platform needs to subsidise the other group of users totally or in part. Internalising the two-sided inter-group externalities allows a platform owner serving the two sides to price more efficiently, in the presence of demand curves which shift outward with positive cross-side network effects. At one end of the spectrum, one platform side is charged low or zero prices. The other side pays. This cross-subsidisation is an optimal strategy from the viewpoint of the multi-sided platform. For instance, Adobe's portable document format (PDF) did not succeed until Adobe priced the PDF reader at zero, substantially increasing the sales of PDF writers. As will be better seen below, these particular pricing patterns – alongside consumer behaviour on both sides of the platform – also impact market definition.

Further categories were introduced by Filistrucchi[30], who uses a classification mainly distinguishing between trading platforms (**transaction markets**) and advertising platforms (**non-transaction markets**) in line with one of the major academic classifications between digital platforms. Non-transaction platforms '*mediate a different kind of interaction and do not necessarily exhibit bilateral positive network effects. Enabling interactions is not always an integral part of their service*'[31]. Search engines, social networks and, in general, most media platforms are all examples of non-transaction platforms. Transaction platforms can be defined as '*intermediaries whose aim is to enable direct (observable) transactions between two distinct customer groups*'[32] (e.g. Amazon Marketplace). Online dating services are a good example of multi-sided platforms where two user groups interact. Together with property platforms and payment card systems, online dating sites constitute so-called '**matching platforms**', which Evans [33] also calls market-makers. Matching platforms are those where positive externalities from the presence of the other user group accrue to each of the two groups, i.e. there are bilateral indirect network effects. In the case of a video game system, e.g. Playstation, the console producer – Sony – is the intermediary, while game developers and consumers are the two sets of agents: here neither consumers nor game developers are interested in being on the platform if the other side is not.

Advertising-based media are another type of business model in the context of the broader category of multi-sided markets according to the same Evans[34] classification. Unlike matching platforms, where the intermediaries match a group of buyers with a

[27] Katz & Shapiro. (1985). Network Externalities, Competition, and Compatibility. The American Economic Review, 75 (3), 424–440.

[28] Parker, G., and Van Alstyne, M. (2000). Information Complements, Substitutes, and Strategic Product Design.

[29] Rochet, J.C., and Tirole, J. (2004). Defining Two-Sided Markets; Rochet, J.C. and Tirole, J. (2006). Two Sided Markets: A Progress Report. RAND Journal of Economics, 37(3).

[30] Filistrucchi, L. (2008). A SSNIP Test for Two-sided Markets: The Case of Media, NET Institute Working Paper No. 08-34, 2008, S. 1-45, available at: http://www.netinst.org/Filistrucchi_08-34.pdf.

[31] Wismer, S. and Rasek, A. (2017). Market definition in multi-sided markets, part of OECD (2018): Rethinking Antitrust Tools for Multi-Sided Platforms.

[32] Ibid.

[33] Evans, D. S. (2003). The Antitrust Economics of Multi-Sided Platform Markets. Yale Journal of Regulation, 20(2).

[34] Ibid.

group of sellers, advertising-based media, such as newspapers, TV channels and social media, intermediate an audience of subscribers or users for the advertisers. They are thus referred to as audience-providing platforms. In the case of audience-providing platforms, cross-side network effects are unidirectional: these effects materialise on the advertisers' side, but not on the users' side. Take, for example, online newspapers: the more users there are on the platform, the more the advertisers benefit, while users do not benefit from the presence of the advertiser group.

The challenges associated with market definition in multi-sided markets, the relevant methodological approaches, and potential recommendations and best practices are the focus of Sections 3.1.1 to 3.1.5 of this Sub-chapter 3.1.

Section 3.1.1 addresses the question of whether it is possible to extrapolate some operational guidance on when separate relevant markets should be defined on each user side of the platform and when the relevant market should encompass all sides of the platform.

Section 3.1.2 addresses how direct and indirect network effects impact market definition.

Section 3.1.3 addresses the appropriateness of the recourse to the traditional Small but Significant and Non-transitory Increase in Price (SSNIP) test as guidance in the definition of multi-sided markets along with additional tools.

Section 3.1.4 looks in particular into market definition concerns in the context of zero-price markets, and how the asymmetry of pricing patterns further complicates market definition

Section 3.1.5 provides an overview of cases analysed concerning the role of the consumer usage and behavioural patterns (single- versus multi-homing) and their impact on market definition.

3.1.1 Platform level versus side-level market definition

There is broad disagreement on when it is best or more appropriate to adopt a single market approach versus a separate market approach depending on how multi-sided markets are classified based on platform typology.

Filistrucchi *et al*[35] consider that transaction platforms should lead to the definition of one single market, whereas non-transaction platforms should lead to the delineation of two or more separate relevant markets for each side. As explained in Filistrucchi [36] '*in a two-sided transaction market the product offered is the possibility to transact through the platform. It takes the form of two distinct products, one for each side of the transaction, because such possibility needs to be offered to both sides'*. [However] *'none of these two products is sufficient without the other. A customer on one side can consume his product only if the corresponding customer on the other side consumes his product too. In other words, the two products need to be consumed in a fixed 1:1 proportion, as perfect complements, but by two different consumers'.* Filistrucchi[37] refers to payment cards as the example of such single market approach and argues

[35] Filistrucchi, L. (2008). A SSNIP Test for Two-sided Markets: The Case of Media, NET Institute Work-ing Paper No. 08-34, 2008, S. 1-45, available at: http://www.netinst.org/Filistrucchi_08-34.pdf); Filistrucchi, L., Geradin, D., van Damme, E., and Affeldt, P. (2014). Identifying two-sided markets, Journal of Competition Law and Economics 10 (2), 293-339; Filistrucchi, L. (2018): Market definition in multi-sided markets, part of OECD (2018): Rethinking Antitrust Tools for Multi-Sided Platforms.

[36] Filistrucchi, L. (2018). Market definition in multi-sided markets, note submitted to the OECD. (2018). Rethinking Antitrust Tools for Multi-Sided Platforms.

[37] Filistrucchi, L., Geradin, D., van Damme, E. und Affeldt, P. (2014). Identifying two-sided markets. Journal of Competition Law and Economics 10 (2), 293-339.

that '*Everyone would probably agree that a payment card company such as American Express is either in the relevant market on both sides or on neither side, for the reason that either the transaction between the buyer and the merchant takes place using American Express services on both sides, or it does not take place through American Express*'.

A single market approach has been endorsed by the US Supreme Court in its majority opinion in *Amex v Ohio (Amex)*[38]. In this case, platform typology was determinative in defining a relevant market: the US Supreme Court considered the relevant market to be credit cards, encompassing both the merchant and the user side, following the Filistrucchi[39] reasoning on platform typology (transaction platform) being determinative of a single market encompassing both user sides. The court considered that this approach captures the importance of both direct and indirect network effects for transaction platforms.

Some literature points to drawbacks in the single market approach. For example, according to Niels[40] and Katz and Sallet[41], when markets are defined separately, authorities/courts can capture the competitive constraints more accurately on each market side, where relevant substitutes may differ (including geographically). Defining the market in this way also makes a competition assessment of both sides possible (at the later stage of the effects' analysis).

Furthermore, Carlon and Winter[42], by contrast to Filistrucchi *et al*[43], consider that a one-sided market approach does not yield optimal results. They criticise the outcome of the *Amex case* because in their opinion it affirms '*a different antitrust standard for examining vertical restraints in one-sided versus two-sided markets*' and '*that no economic justification exists for this difference in antitrust rules*'. The authors argue that applying a multi-market approach (separate markets on each user side), regardless of whether at stake is a transaction platform, can avoid such a conflict. Likewise, Franck and Peitz[44], criticise Filistrucchi *et al*[45] sweeping conclusion that there

[38] Ohio v. American express co. 585 U.S. (2018).

[39] Filistrucchi, L., Geradin, D., van Damme, E. und Affeldt, P. (2014). Identifying two-sided markets. Journal of Competition Law and Economics 10 (2), 293-339.

[40] Niels, G. (2019). Transaction versus Non-Transaction Platforms: A False Dichotomy in Two-Sided Market Definition, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3438913.

Niels opines that there are grounds for questioning to what extent the platform typology distinction makes sense in the context of the hypothetical monopolist test. He argues that taking all sides of the platform into account is paramount and that the hypothetical monopolist test does this when setting profit-maximising prices on all sides simultaneously, regardless of whether the platform is a transaction platform or not.

[41] Franck, J.U., and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe). Niels, G., (2019). Transaction versus Non-Transaction Platforms: A False Dichotomy in Two-Sided Market Definition, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3438913.

Also see Katz, M., Sallet, J., (2018). Multisided Platforms and Antitrust Enforcement, The Yale Law Journal, pp. 2153–2158, available at https://core.ac.uk/download/pdf/215570484.pdf, according to whom 'platforms are better viewed as operating in multiple separate, yet deeply interrelated, markets'.

[42] Carlton, D.W., and Winter, R.A. (2018). Vertical MFN's and the Credit Card No-Surcharge Rule, unpublished manuscript.

[43] Filistrucchi, L., Geradin, D., van Damme, E. und Affeldt, P. (2014). Identifying two-sided markets. Journal of Competition Law and Economics 10 (2), 293-339.

[44] Franck, J.U. and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[45] Filistrucchi, L., Geradin, D., van Damme, E. und Affeldt, P. (2014). Identifying two-sided markets. Journal of Competition Law and Economics 10 (2), 293-339.

is a type of two- or multi-sided platform which should be analysed using a single market approach lens: according to them, a multi-market approach remains preferable. They are also of the opinion that the relevant cross-group effects should be taken into account for market definition[46].

Hence, it may be concluded that while there is a recognition in the literature that platform typology is a relevant criterion for market definition, the literature has not settled on whether to favour a single- versus a multi-market approach on each user side.

On the other hand, markets with an advertising side are usually defined separately from the user side. According to Wismer and Rasek[47], '*this seems reasonable since newspapers and magazines usually do not enable a direct transaction between readers and advertisers, as they do not necessarily need to get advertisers 'on board' to serve readers, and as the products considered as substitutes usually differ between readers and advertisers'*[48]. However, this does not lead to concluding that in the event of non-transaction markets authorities always define the two sides of the platform as separate product markets. It is rather the category of advertising-based media where narrower markets have been observed. This is also confirmed by case practice[49].

The decisional practice discussed below confirms the finding that the platform typology emerges as a relevant criterion for the analysis.

However, there is no evidence in NCA decisions for the Filistrucchi *et al*[50] criterion being determinative of what the scope of the market should be, or reference to the Franck and Peitz[51] view that a multi-market approach should be preferable. In addition, much like the literature, NCAs are split on what approach should be followed (single versus multi-market approach) and what the determinative elements should be.

Finally, there is ample evidence in the decisional practice, boosting the agreement in the literature, that the relevant cross-group effects should be taken into account for market definition, regardless of whether the relevant market is defined more broadly encompassing all user sides or not. This issue is addressed in section 3.1.2 which deals with network effects.

The following relevant elements have been identified during the review of the NCA case practice:

- **Platform typology as a relevant criterion:** Broadly speaking, decisional practice follows **two different approaches** when it comes to the market definition: i) one approach is to define a market for each side, where each of the two markets can be analysed separately while considering that they are

[46] On the other hand, market with an advertisem

[47] Wismer, S. and Rasek, A. (2017). Market definition in multi-sided markets, note submitted to the OECD (2018). Rethinking Antitrust Tools for Multi-Sided Platforms.

[48] Wismer, S. and Rasek, A. (2017). Market definition in multi-sided markets, note submitted to the OECD (2018). Rethinking Antitrust Tools for Multi-Sided Platforms.

[49] Zap S.A. Internet - 'Zap', RBS – Zero Hora Editora Jornalística S.A. – 'RBS' and Pense Imóveis Serviços de Internet Ltda. – 'Pense', Case No. 08700.009234/2014-40 (2014) (Brazil); South African NCA Decision No. A524, (2020) (Italy); MIH eCommence/WeBuyCars, Case No: LM183Sep18/DSC065Jul19, (2019) (South Africa); Merger TMC and NT1 by the TF1 group, Decision No. 10-DCC-11, (2010) (France); Gibmedia, Decision No. 19-D-26, (2020) (France); Priceline.com/Kayak Software Corporation, Decision No. ME/5882-12, (2013) (UK); Google/Looker, Decision No. ME/6839/19, (2019) (UK).

[50] Filistrucchi, L., Geradin, D., van Damme, E. und Affeldt, P. (2014). Identifying two-sided markets. Journal of Competition Law and Economics 10 (2), 293-339.

[51] Franck, J.U. and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

linked through cross-group effects ('multi-market approach'); ii) in the alternative, NCAs define a single market for an intermediation service offered to both sides of the market ('single market approach'). Various EEA NCAs and courts, e.g. in Austria[52], Belgium[53], France[54], Germany[55], the Netherlands[56] and Portugal[57] do consider platform typology to be a relevant criterion in market definition. Within this broader pattern, the practice is split on the point of whether the Filistrucchi *et al*[58] distinction between transaction and non-transaction platforms should be used. In the decisional practice surveyed in the study, some NCAs, e.g. the Netherlands[59], Australia[60], Canada[61], the UK in its merger precedent[62] and the US[63] Supreme Court have followed the Filistrucchi *et al*[64] suggestion. As for the UK CMA, indeed, we note that the Merger Assessment Guidelines set out various factors to be taken into account[65]. Broader antitrust markets, encompassing all user sides, were identified by all these NCAs in cases involving transaction platforms. By contrast, some EEA and

[52] Decision of the Cartel Court, 6 December 2017, Case No. 27 Kt 13/16p, Travel Agencies; Appeal Decision of the Supreme Court acting as Appellate Cartel Court, 12 July 2018, Case No. 16 Ok 1/18k, Travel Agencies.

[53] Affaire MEDE-I/O-15/0002 – Immoweb, Decision No. ABC-2016-I/O-31-AUD, (2016), where the German Immonet/Immowelt case is referred to. The Belgian NCA said that in its decision Immonet/Immowelt, the German NCA keeps the product market open. However, it does express a clear preference for a single market for online real estate portals. The German NCA justifies this position on the grounds that the intermediation service offered by an online real estate portal is essential for both user groups and that, therefore, a distinction between these two groups would not adequately reflect the economic process and the pronounced interdependencies between them', something that the Belgian NCA shares.

[54] Decision of the French NCA of April 21, 2015, No. 15-D-06, concerning making binding commitments upon Booking.com.

[55] German NCA, Immowelt/Immonet, Decision No. B6-39/15; CTS Eventim/FKP Scorpio, Case B6-53/16; German NCA, Parship/EliteMedianet [ElitePartner], Decision B6-57/15, (2016); German NCA, Parship/Lovoo, Decision No. B6-29/20, (2020).

[56] Dutch NCA. (2017). A closer look at online video platforms: 'The multi-sidedness of their business model and the fact that online video platforms do not facilitate transactions between participants on different sides of the platform mean that it is possible to define separate relevant markets on different sides of the platforms in which the platforms compete with each other and with other participants'.

[57] Ccent 2006/15 Banco BCP / Banco BP, (2015).

[58] Filistrucchi, L., Geradin, D., van Damme, E. und Affeldt, P. (2014). Identifying two-sided markets. Journal of Competition Law and Economics 10 (2), 293-339.

[59] Dutch NCA. (2017). A closer look at online video platforms.

[60] ACCC v Flight Centre Ltd, Case No. QUD 150/204, (2015).

[61] Paypal/Hyperwallet, Commissioner of Competition v Visa (2013).

[62] Just Eat/Hungryhouse, Decision No. ME/6659-16, (2017). Previous cases including a single two-sided platform market definition were provided in Viagogo/StubHub, Decision No. ME/6868/19 (2020) and in Experian/ClearScore, Decision No. ME/6743/18 (2018). In Sabre/Farelogix, Decision No. ME/6806/19 (2019) the UK CMA considered sides of a multi-sided platform separately.

[63] Ohio v. American express co. 585 U.S. (2018), where the Supreme Court defined a relevant single market for intermediation services, encompassing both sides (merchants and final customers). Carlton and Winter (2018, p. 4) consider that 'there is now a different antitrust standard for examining vertical restraints in one-sided versus two-sided markets. We explain that no economic justification exists for this difference in antitrust rules.': Carlton, D.W., and Winter, R.A. (2018). Vertical MFN's and the Credit Card No-Surcharge Rule, unpublished manuscript. Seealso Franck, J.U. and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[64] Filistrucchi, L., Geradin, D., van Damme, E. und Affeldt, P. (2014). Identifying two-sided markets. Journal of Competition Law and Economics 10 (2), 293-339.

[65] For example, whether platform operators target each side separately, whether competition is focused on aspects of the platform that affect both sides, whether competitive conditions on each side differ, etc. See CMA Merger Assessment Guidelines (2021)

non-EEA NCAs, e.g. Austria[66], Belgium[67], Germany[68], Portugal[69], Brazil[70], Canada[71] and the US (lower courts)[72] have not considered the Filistrucchi *et al*[73]'s distinction to be a determinative criterion. For example, in Austria[74] and Portugal[75], when transaction platform markets (e.g. payment card systems) were at stake, the issuing and the acquirer sides were defined as distinct relevant markets and no reference was made to a single market encompassing all sides of the platform. In Brazil, in the context of the financial sector[76], the approach was the same. A multi-sided market approach in the context of the credit cards sector has also been chosen by the Canadian NCA[77] and the US lower courts[78].

- **Substitution possibilities on each user side as a relevant criterion:** Additional considerations that have played a role in the cases reviewed, in relation to single versus multiple markets approach, were substitution possibilities for the various user groups compared to alternative sources of the services or products offered by a platform. NCAs which have looked at the difference in substitution possibilities between different sides of the platform and

[66] Decision of the Cartel Court, SIX/PayLife,, Case No. 27 Kt 48, 49/13 (2013).

[67] Immoweb, Decision No. ABC-2016-I/O-31-AUD (2016), 19-CC-16 Talenet Group BVBA/De Vijver Media NV, 20 – CC – 41 S.A. IPM/Group/S.A. Editions de l'Avenir.

[68] In German NCA, Immowelt/Immonet, Decision No. B6-39/15, the concept of transaction platforms was referred to; also see German NCA, CTS Eventim, Decision No. B 6 – 132/14-2, (2017) (in view of the transactional structure of the matching platform, the two platform user groups, event oganisers and advance booking offices, belong to two distinct markets); also see German NCA, Facebook, Decision No. B 6-22/16, (2019), OLG Düsseldorf, appeal Decision No. Kart 1/19 (V) (2019), Bundesgerichtshof, last instance Decision No. KVR 69/19 (2020) (where the NCA defined the relevant product market as the market for private social network for private users, thus not also encompassing the ad side of the platform).

[69] Ccent 2006/15 Banco BCP / Banco BPI, (2015).

[70] For example, Bradesco, BB, Santander, Caixa and Itaú**,** Case No. 08700.002792/2016-47, (2016), where separate markets were identified even when at stake was a transaction platform. There is no specific reference to the Filistrucchi et al approach in the market definitions provided in this case.

[71] The Commissioner of Competition v. Visa Canada Corporation and MasterCard International Incorporated, Decision No. CACT 10 (CanLII), available at: https://www.canlii.org/en/ca/cact/doc/2013/2013cact10/2013cact10.html.

[72] United States v. Am. Exp. Co., 88 F. Supp. 3d 143, 162-63 (E.D.N.Y. 2015).

[73] Filistrucchi, L., Geradin, D., van Damme, E. und Affeldt, P. (2014). Identifying two-sided markets. Journal of Competition Law and Economics 10 (2), 293-339.

[74] Decision of the Cartel Court, SIX/PayLife, Case No. 27 Kt 48, 49/13 (2013).

[75] Ccent 2006/15 Banco BCP / Banco BP, (2015).

[76] In its Cahier on The Market for Means of Payment (2019), CADE summarises two different approaches it has followed for market definition in the financial sector: an approach based on baskets of products (clusters), which group together a range of products offered by financial institutions; and one based on each specific product sold by financial institutions as a relevant market. It justifies the former (one-sided) approach based on potential competition, i.e. to reflect the industry's profound transformation with the interruption of exclusivity agreements between payment institutions and acquirers, which has unleashed interoperability and competition between different payment methods, available at: https://cdn.cade.gov.br/Portal/centrais-de-conteudo/publicacoes/estudos-economicos/cadernos-do-cade/mercado-de-instrumentos-de-pagamento-2019.pdf.

[77] The Commissioner of Competition v. Visa Canada Corporation and MasterCard International Incorporated, Decision No. CACT 10 (CanLII), available at: https://www.canlii.org/en/ca/cact/doc/2013/2013cact10/2013cact10.html.

[78] United States v. Am. Exp. Co., 88 F. Supp. 3d 143, 162-63 (E.D.N.Y. 2015).

have consequently defined separate relevant markets include Czechia[79] and Germany[80].

- *Czechia*: substitution possibilities on one user side played a role in the Czech *Booking.com* case[81]. In its appellate decision, the NCA assessed substitutability from the perspective of accommodation service providers, including consideration of product characteristics, different customer focus, functionality, and different business models of players in the accommodation sector. The NCA considered that the booking platform's economic model was different from the models of other players, such as travel agencies, and took this into account in the substitutability assessment. Online travel agencies only intermediate the booking of accommodation between providers and consumers, standard travel agencies buy up accommodation capacity and then provide that service directly to the consumer. Similar reasoning was applied to marketing/advertising websites (such as horizontal search engines) that worked on a pay-per-click model. Hence, a multi-sided approach was followed. Two markets were identified, the market for the provision of short-term accommodation services as a market downstream from the 'market for the intermediation of online booking of short-term accommodation including search, compare and immediate accommodation booking for final customers.' The NCA considered the 'final customers' of Booking.com to be both accommodation service providers (hotels etc.) and accommodation-seeking customer (guests).
- *Germany*: In its decision practice, but also in its 2016 working paper on the market power of platforms and networks[82], the German NCA broadly suggests that, with the exception of a matching platform[83], separate markets should be defined for each side. Even in the case of matching platforms, it considers that a multi-market approach should be followed if demand-side substitutability is not homogeneous on each user side. Furthermore, as a matter of practice, the German NCA takes additional factors into consideration, such as e.g. the initial presence of both user groups as a condition for the platform to come into existence. Thus, it looks[84] not only at whether the platform is a matching platform or not (i.e. platform typology), but also at other factors, in particular as to whether user group demand is homogeneous and whether, hence, substitutability analysis yields parallel outcomes for user groups.

[79] UOHS decision, Case No. S0664/2015/KD, (2018), and appellate UOHS decision, Case No. R0219/2018/HS, (2019).

[80] Parship/EliteMedianet [ElitePartner], Decision B6-57/15, (2016); German NCA, Immowelt/Immonet, Decision No. B6-39/15Immonet/Immowelt, and BKart Decision No. B6-29/20, (2020)Parship/ElitePartner, German NCA Facebook, Decision No. B 6-22/16, (2019), and OLG Düsseldorf, appeal Decision No. Kart 1/19 (V) (2019), and Bundesgerichtshof, last instance Decision No. KVR 69/19 (2020).

[81] UOHS decision, Case No. S0664/2015/KD, (2018), and appellate UOHS decision, Case No. R0219/2018/HS, (2019) finding an infringement by Booking.com B.V. of Article 101 TFEU and the national equivalent by concluding restrictive agreements with short-term accommodation services providers that included prohibited price and availability parity clauses (MFN type clauses).

[82] German NCA. (2016). Working Paper Market Power of Platforms and Networks

[83] Ibid: a matching platform is one which enables intermediation between members of two or more user groups, tailored to their individual preferences, with the matching platform facilitating direct interaction between the users liaised. Thus this term encompasses both transaction platforms but also platforms that encompass facilitating a match between users, such as online dating platforms.

[84] Parship/EliteMedianet [ElitePartner], Decision B6-57/15, (2016).

- *Austria, Hungary:* In the Hungarian insurance brokerage sector,[85] the Hungarian NCA defined the relevant market as encompassing both sides of the platform. Only the substitution possibilities on one side of the platform were considered, i.e. customers of the service, without elaborating on how two-sidedness played a role. A similar approach was taken in a case in Austria[86] in a case concerning the financial sector.
- Outside the EEA, in *South Korea*[87] and the *UK*[88], substitution possibilities on both sides of the platform have been factors influencing market definition, regardless of whether the outcome has been a preference for a single relevant market encompassing both sides or not. The UK CMA's decision in *Priceline.com / Kayak Software Corporation*, left open the product market definition and considered substitution possibilities when looking at the impact of the merger on the market for the supply of online travel search services to UK customers, separate from the supply of advertising services to travel service providers. In particular, the UK CMA looked at whether the online and offline channels were part of the same market. In addition, the 2021 Merger Assessment Guidelines set out various factors to be taken into account, including whether platform operators target each side separately, whether competition is focused on aspects of the platform that affect both sides, whether competitive conditions on each side differ, etc[89]. In *eBay/Gmarket*, the South Korean NCA 'suggested the solution of one single relevant market, encompassing both sides, on the condition that other platforms substitute the two-sided platform'[90]. However, it considered that, 'if other platforms cannot substitute all services of a two-sided platform in question, the relevant market should be defined separately by customer group based on the idea that each market should be considered reflecting its feature thoroughly'[91].

- **Competition with single-sided traditional players as a relevant criterion:** in one Member State, Czechia[92], and two non-EEA jurisdictions, the US[93] and the UK[94], consideration of how multi-sided platforms compete with single-sided platforms played a role in the substitutability assessment, and, accordingly, in how narrowly markets should be defined.

[85] Decision No. VJ-12/2019, (2019).

[86] Decision of the Cartel Court, SIX/PayLife, Case No. 27 Kt 48, 49/13, (2013).

[87] eBay/Gmarket, (2009).

[88] Priceline.com / Kayak Software Corporation, Decision No. ME/5882-12, (2013). International Journal of Trade, Economics and Finance, Vol. 9, No. 4, August 2018.

[89] CMA Merger Assessment Guidelines (2021).

[90] Yang, Y.S., Rethinking Modes of Market Definition for multi-Sided Platforms.

[91] Ibid.

[92] Booking, UOHS Case No. S0664/2015/KD, (2018), and appellate UOHS decision, Case No. R0219/2018/HS, (2019).

[93] United States v. Sabre Corporation, Sabre GLBL Inc., Farelogix Inc., Sandler Capital Partners VLP, Complaint Case 1:99-mc-09999, (2019).

[94] Sabre/Farelogix, Decision No. ME/6806/19, (2019).

- *Czechia*: as seen above, in Booking.com, the NCA considered that the difference between the booking platform's economic model and the models of other players such as travel agencies mattered.
- *US:* in *Sabre/Farelogix*[95] the DOJ defined the relevant markets as the markets for 'booking services for airline tickets sold through traditional travel agencies and booking services for airline tickets sold through online travel agencies'. This analysis was fairly traditional, but what matters here is the ability (acknowledged elsewhere in the decision) of Farelogix, a disruptor with a new technology, to exercise a competitive constraint upon Sabre. Sabre had traditionally dominated the markets for booking services for airline tickets sold through travel agencies and online travel agencies using GDS (Global Distribution System), a computerised system that allows travel agencies to search for and book flights across multiple airlines. Unlike Sabre, Farelogix offers a 'direct connect' solution that allows airlines to directly reach travel agents without the intermediary (Sabre). The DOJ, in its complaint to the US District Court on the acquisition by Sabre of Farelogix (a maverick and competitive threat for Sabre, as acknowledged by Sabre's internal documents), considered Sabre and Farelogix to be competitors. It prohibited the acquisition under the Clayton Act[96]. The US District Court for the District of Delaware[97] disagreed: it considered that Sabre and Farelogix did not compete, providing its own interpretation of the US Supreme Court in *Amex*[98] as supporting the position that, as a matter of law, two-sided platforms compete only with two-sided platforms.
- *UK:* the CMA' Merger Assessment Guidelines acknowledged that: '*Where competition primarily involves platform operators improving aspects of their offer that affect one side of the platform (for example, charges applied or service levels offered to users on one side), the CMA may assess each side separately … Where competitive conditions (such as the number and strength of alternatives available) are different on the two sides of the platform, a platform operator may have different incentives as regards what it offers to users on either side, and the CMA may therefore assess each side separately*.'[99] Hence, they acknowledged competition from one-sided firms as a relevant criterion in understanding how two-sided platforms compete. The UK NCA also considered the proposed Sabre/Farelogix acquisition[100] and assessed the impact of the merger on the market for the supply of merchandising solutions to airlines on a worldwide basis. It found that merchandising modules (a

[95]Complaint of the DOJ in U.S. v. Sabre Corp., et al, before the US District Court for the District of Delaware (2019), available at: https://www.justice.gov/atr/case-document/file/1196836/download.

[96] 15 U.S. Code § 12.

[97] Complaint of the DOJ in U.S. v. Sabre Corp., et al, before the US District Court for the District of Delaware (2019), available at: https://www.justice.gov/atr/case-document/file/1196836/download.

[98] Ohio v. American Express Co., 585 U.S. (2018).

[99] CMA Merger Assessment Guidelines (2021). Also see UK CMA decision on anticipated acquisition by Web Reservations International (websites including Hostelworld.com and a portfolio company of Hellman & Friedman LLC) of Hostelbookers.com Limited ME/6062/13 (2013).

[100] Anticipated acquisition by Sabre Corporation of Farelogix Inc. Decision on relevant merger situation and substantial lessening of competition, ME/6806/19 (2019), available at: https://assets.publishing.service.gov.uk/media/5d8cd7d4e5274a2fb83b92d4/----_Decision_-_For_publication_pdf.pdf

subset of non-core passenger service system (PSS) modules[101]) and non-merchandising modules[102] were not demand-side substitutes, as they served distinct purposes. It defined the market as narrowly as the supply of merchandising solutions to airlines on a worldwide basis. Another separate market was the market for the supply of distribution solutions to airlines: in this market it considered that: i) GDSs, provided by Sabre, competed with distribution solutions that enable GDS bypass (such as those based on the NDC[103] API provided by Farelogix) in the same product market[104]; and ii) both direct and indirect channels belonged to the same relevant market.

- Typically, **the direction of network effects** has played a role in decisions by NCAs as regards the definition of separate relevant markets for each user side in cases involving platforms with an advertising side.
    - *Czechia:* The investigated undertaking (*CHAPS*[105]) argued that the NCA should have considered the relevant market for automatic search of transport connections as a multi-sided market (consumers searching connections on one side, advertisers on the other side) and that the NCA should have defined at least a market for online advertising, in which CHAPS was not dominant. The NCA did not uphold this reasoning, however, considering that the search engine was not a multi-sided platform, because it lacked the mutual positive externalities stemming from the existence of the other side, i.e. that the sides did not mutually need each other (no cross-group network effects). The NCA defined a separate relevant market for automatic search for nationwide public transport connections, i.e. encompassing only one user side.
    - *Brazil:* In *Zap/RBS/Pense*[106], online classified advertising markets and virtual selling advertising space were considered by the Brazilian NCA as distinct markets precisely for similar reasons to the abovementioned Czech CHAPS case, namely the fact that indirect network effects ran in one direction, rather than both directions.
- Fragmentation across NCAs prevails and no main finding can be drawn in part of the decisional practice **on hotel booking platforms on** why the product market has been defined separately on each user side or not.
    - *France and Sweden:* In France, in the Booking.com[107] case, while the French NCA did not expressly address why such approach should prevail,

[101] Merchandising modules (or merchandising solutions) allow airlines to create offers with ancillary services such as extra luggage allowance, the option for passengers to upgrade their seat, in-flight purchases, airport parking or meal options.

[102] They are not defined in the decision, but they are also presumably a subset of non-core PSS modules.

[103] A set of standard XML messages that allow the airline back-office to communicate with partners.

[104]Anticipated acquisition by Sabre Corporation of Farelogix Inc. Decision on relevant merger situation and substantial lessening of competition, ME/6806/19 (2019), available at: https://assets.publishing.service.gov.uk/media/5d8cd7d4e5274a2fb83b92d4/----_Decision_-_For_publication_pdf.pdf.

[105] CHAPS, UOHS decision, Case No. S669/2013/DP, (2015), and appellate UOHS decision No. R12/2016/HS, 2018.

[106] Zap S.A. Internet - 'Zap', RBS – Zero Hora Editora Jornalística S.A. – 'RBS' and Pense Imóveis Serviços de Internet Ltda. – 'Pense', Case No. 08700.009234/2014-40 (2014).

[107] Booking.com, Decision No. 15-D-06 (2015). The French NCA only looked at the side of the market concerning the relationship between the platforms and the hotels, and it acknowledged its two-sidedness. It also acknowledged

two separate markets were defined: one market encompassing the intermediation services by the platform to the hotels, and another market encompassing the platform's service to hotel customers looking to book a room. In Sweden, in *Booking.com*[108], the NCA defined the relevant market as 'the market for the provision of online travel agency services with respect to hotels in Sweden', and in the Swedish *Expedia.com*[109] it refers to 'the market for the provision of online travel agency services to hotels in Sweden', thus implicitly adopting a multi-markets approach. In other words, two separate markets were defined. Neither the Swedish nor the French NCA make explicit their reasoning on the market definition approach they followed. Neither of those decisions explicitly discuss the two alternatives (single vs multiple markets) or name the reasons why one option was chosen over the other.

- *Czechia:* In the *Czech Booking.com*[110] case, separate product markets were defined on each user side. The relevant product market was defined as the intermediation of online booking of short-term accommodation, thus taking into account only the consumer side. The reasoning why that was the case was not made explicit.
- *Germany:* In *HRS*[111], the relevant market was instead defined by the NCA as the market for the brokerage of hotel rooms via hotel portals, i.e. a single market, implicitly. The Higher Regional Court of Dusseldorf upheld this, but it considered the hotels as the customers. In the German Booking.com case[112], the relevant product market was considered to be the 'hotel portal market'.
- *Italy*: unlike in Germany, in the Italian case concerning investigations against Booking.com and Expedia,[113] the relevant market was defined as the market for the booking of hotels online, separate from offline agencies. From the viewpoint of the customer, it was mentioned that the platform only intermediates between the customer and the hotel, whereas the hotel pays a commission to the platform; but it is unclear whether this was a decisive factor.

Box 1: Single versus separate sides of the market – main findings

(i) Platform typology may be insufficient, as a single criterion, to define relevant markets, in particular in that it ignores the nature and strength of network effects. Thus, whilst being a factor that some NCAs have put significant weight on, platform type is not universally accepted as a single valid criterion on the basis of which to define a single or multiple relevant markets in multi-sided platforms.

that it would take into account the other side of the platform, concerning relationships between platform and hotel customers.

[108] Konkurrensverket 15 April 2015, 596/2013, Booking.com. In Judgment of 9 May 2019 by the Swedish Patent and Market Court of Appeal, the NCA's decision was rejected but not on market definition grounds.

[109] Expedia.com Sweden, Decision No. 595/2013, (2015).

[110] Booking, UOHS Case No. S0664/2015/KD, (2018), and appellate UOHS decision, Case No. R0219/2018/HS, (2019).

[111] HRS, Decision No. B 9 – 66/10, (2013); OLG Düsseldorf, Decision No. VI – Kart 1/14 (V), (2015).

[112] German NCA, Booking.com, B 9-121/13.

[113] I779 – Mercato dei servizi turistici-prenotazioni alberghiere on line, Decision n. 25940 (2016).

(ii) It is appropriate to look at both market sides regardless of whether a single market or a multi-market approach is chosen. The case practice confirms that usually, regardless of whether markets are defined as a whole or separately for each side of the market, the NCAs' analysis appropriately accounts for interdependencies – such as indirect network effects – and for all competitive forces on each 'side' of the market, such as substitution possibilities.

(iii) Factors taken into account by NCAs, aside from platform typology, include the substitution possibilities available to customers on each side of the market (for some NCAs, the homogeneity of demand for each user side plays a role in this respect). Additional factors that NCAs look at are the specific business model, i.e. how the platform interrelates with users on each side. The extent of competition between the platforms and their one-sided competitors matters too.

3.1.2 The role of direct and indirect network effects in market definition

As mentioned above at the heart of the interdependence between the various market sides are direct and indirect network effects. Here below is provided an overview of the main findings on how these effects have an impact on market definition.

Direct network effects appear to be discussed less in the decisional practice than indirect effects. Direct network effects do not have the same prominence for market definition, since users within the same group are usually part of the same market.

- Relevance **of direct network effects in the surveyed decisional practice:** Frequently, direct network effects are merely dealt with in the context of market power analysis, as cases in Bulgaria[114], Spain[115], and Brazil[116] show.
    - *Bulgaria*: In *BMG / Microsoft Ireland Operations Limited / Microsoft*[117], the NCA considered direct network effects as inherent to software markets, since the benefit of the software to the user increases the more users use the product. It did not tackle direct effects in the context of market definition.
    - *Spain:* In *Schibsted / Milanuncios*[118], direct effects were deemed to matter in terms of raising barriers to entry and expansion.
    - *Brazil:* In *XP / Itaú*[119] and *E-Commerce Group / Google*[120], the role of direct network effects was discussed in the context of market power analysis (as conferring the platform market power) but this did not specifically relate to the market definition.

As *Evans (2003)*[121] points out, most if not all industries which display indirect network effects are two or multi-sided markets. In these situations, value arises from the

[114] BMG / Microsoft Ireland Operations Limited / Microsoft Bulgaria, Case No CPC - 1280/2012, (2012).

[115] Schibsted / Milanuncios, Just Eat/Canary, MIH Food Delivery Holdings/Just Eat, Case No. C/0573/14, (2014).

[116] XP / Itaú, Case No. 08700.004431/2017-16, (2017); Administrative Proceeding No. 08012.010483/2011-94 (E-Commerce Group vs. Google).

[117] BMG / Microsoft Ireland Operations Limited / Microsoft Bulgaria, Case No CPC - 1280/2012, (2012).

[118] Schibsted / Milanuncios Case No. C/0573/14, (2014).

[119] XP / Itaú, Case No. 08700.004431/2017-16, (2017).

[120] Administrative Proceeding No. 08012.010483/2011-94 (E-Commerce Group vs. Google).

[121] Evans, D. S. (2003). The Antitrust Economics of Multi-Sided Platform Markets, Yale Journal of Regulation, 20(2).

interaction of various different user groups, which takes place via an intermediary that brings the various groups in contact with each other. Indirect network effects impact pricing structure: importantly, the profitability of a price increase on one market side also depends on user reactions on the other market side and the induced feedback effects, because of the indirect network effects. The specific case of zero price markets is analysed below. The strength of indirect network effects is affected both by the level of participation or usage, but also by the ability of the intermediary to facilitate interaction among the various sides.

Relevant cross-group network effects (not simply their mere presence, but their strength, which direction they go in, i.e. whether they are unidirectional or not) are often discussed in decisional case practice. The below paragraphs provide more information in this respect.

- **Nature, strength and direction of indirect network effects as a relevant criterion:** In some EEA jurisdictions (in Czechia[122], Germany[123] and the Netherlands[124]), relevant cross-group network effects have been considered to matter in the context of market definition analysis as follows:
    - *Czechia:* in the Czech Booking.com[125] case the strength of indirect network effects did not lead to a finding that the relevant market ought to have been more broadly defined than the intermediation of online booking of short-term accommodation, thus taking into account only the consumer side. In the *CHAPS case*,[126] the parties had argued that a single market approach should be taken given the multi-sided nature of the market – on the one side were consumers looking for transport connections and on the other advertisers. This was rejected by the NCA since it said that consumers would continue to use the search engine irrespective of the number of advertisers as advertising provides no added value to the platform. Hence, it was the direction of network effects that mattered here. Since they did not go both ways, the market was defined as encompassing only one side of the platform.
    - *Germany:* German practice illustrates how both direction and strength of network effects impact whether the market should be defined separately on each user side or following a single market approach. The direction of those indirect network effects has played a role in the German NCA's market definition analysis regardless of the outcome of the analysis (whether single or separate markets on each user side ought to be defined). In *Immonet/Immowelt*[127], the NCA referred to the constellation of 'transaction platforms' observing that '*there is a typical two-sided market with pronounced positive indirect network effects between the two user groups.' As opposed to advertising-based two-sided markets, in these instances the NCA considered it 'possible not to separate the two*

[122] CHAPS, UOHS decision, Case No. S669/2013/DP, (2015), and appellate UOHS decision No. R12/2016/HS, 2018; Booking, UOHS Case No. S0664/2015/KD, (2018), and appellate UOHS decision, Case No. R0219/2018/HS, (2019).

[123] German NCA, Immowelt/Immonet, Decision No. B6-39/15.

[124] Dutch NCA, A closer look at online video platforms, (2017), available at: https://www.acm.nl/sites/default/files/documents/2017-10/acm-a-closer-look-at-online-video-platforms-2017-10-16.pdf.

[125] UOHS decision of 12 December 2018 (case no. S0664/2015/KD) and appellate UOHS decision of 1 November 2019 (case no. R0219/2018/HS).

[126] CHAPS, UOHS decision, Case No. S669/2013/DP, (2015), and appellate UOHS decision No. R12/2016/HS, 2018.

[127] German NCA, Immowelt/Immonet, Decision No. B6-39/15.

different market sides'. It thus defined one single market because of the presence of bilateral positive indirect network effects which led to uniform demand[128]. In contrast, in the *CTS Eventim case*[129], despite positive indirect network effects between the groups of event organisers and advance booking offices[130], the multi-sided matching platform market was found to encompass two separate markets for these user sides. In *Parship/Elite Partner*, the 'reciprocal, positive, indirect network effects between the user groups do not warrant the definition of separate markets but they lead, on the contrary, to their largely uniform demand.' This approach, thus, has overcome the question, presented in the abovementioned Working Paper of 2016, where the German NCA held that 'the question of whether one should define one or two markets […] needs to be decided on a case-by-case basis'[131] since it provides guidance suggesting that the direction of indirect network effects matters as to how narrowly or broadly relevant markets should be defined.

- *Netherlands:* In its study on video platforms[132,] the Dutch NCA, similarly to the German NCA distinguished between the advertising-based business model and the subscription/premium-based business model. It explains that 'indirect network effects are not equally strong on all platforms. For example, in the case of platforms using a subscription/payment model, indirect network effects will generally play a less important role or will even be absent.' The Dutch NCA tackles the role of indirect network effects when it discusses the advertising side of the competition on the platform. The Dutch NCA observes that '*it is clear that the competitive behaviour on one side of the platform is partly influenced by the competition situation on other sides. These interactions are caused by indirect network effects.*' This is relevant as it acknowledges how indirect effects are not alike for all advertising-based media. Yet, it does not clarify how they impact market definition when indirect effects are not present.

In non-EEA jurisdictions (Canada[133], the UK[134], the US[135]), the strength and direction of network effects have also been part of the market definition analysis as follows:

- *Canada*: in *Paypal/Hyperwallet*[136], one key factor the Canadian NCA assessed was the level of cross-platform interdependence. That meant assessing the 'feedback effects' between the pay-in and pay-out sides of the PayPal E-Wallet.

[128] Ibid.

[129] German NCA, CTS Eventim, Decision No. B 6 – 132/14-2, (2017).

[130] Ticketing systems, like the one run by CTS Eventim, said the NCA, constitute a multi-sided market (§ 18(3)(a) ARC) in the form of a matching platform: they encompass (i) the national market for ticketing system services for event organisers, especially the matchmaking with advance booking offices; and (ii) the national market for ticketing system services for advance booking offices, especially the matchmaking with event organisers.

[131] German NCA Working Paper. (2016). The Market Power of Platforms and Networks, Executive Summary, page 6.

[132] Dutch NCA. (2017). A closer look at online video platforms, available at: https://www.acm.nl/sites/default/files/documents/2017-10/acm-a-closer-look-at-online-video-platforms-2017-10-16.pdf.

[133] Paypal/Hyperwallet, Commissioner of Competition v Visa (2013).

[134] CMA, ATG Media's potential infringement/abuse in auction services (2017).

[135] Ohio v. American express co. 585 U.S. (2018).

[136] Paypal/Hyperwallet, Commissioner of Competition v Visa, (2013).

The NCA considered how changes on one side of the transaction affect demand on the other side of the platform. When estimating effects on competition from the PayPal transaction, the NCA focused on the pay-out side, but included estimates of the 'multiplier' from its interdependence on the pay-in side.

- *UK:* In *ATG Media's*[137] potential infringement/abuse in auction services (2017), the direction of network effects mattered to a finding by the UK CMA of a relevant market which encompasses only one user side.
- *US*: in *Amex*[138] the US Supreme Court acknowledged that the strength and direction of indirect network effects mattered for the market definition[139] in terms of whether the market should be defined as a one sided-market or differently by looking at multi-sided market specificities. According to the Supreme Court, when indirect network effects are weak, the two-sided market must be analysed as separate markets on the different sides[140]. When there are strong network effects, as happens on a transaction platform such as Amex, a multi-sided market for transactions encompassing all sides of the platform ought to be identified.

Indirect network effects can also be taken into account at the stage of the **competitive analysis**, as is the case under practice in Austria[141], in the Netherlands (study on app ecosystems and one merger precedent)[142], France[143], Portugal[144], Spain[145], Australia[146] and Brazil[147], where such effects have instead been typically referred to not at the stage of market definition analysis. One particular element is further worth elaborating on how **indirect effects are tackled with respect to barriers to entry.** The NCAs discuss such effects in the context of the assessment of market power and find that indirect network effects can raise barriers to entry and expansion and impede effective

[137] ATG Media's potential infringement/abuse in auction services, Case No. 50408, (2017). We note that the case was concluded with formal acceptance of commitments by the UK CMA (hence no decision made as to whether or not Chapter II of the Competition Act 1998 and Art 102 TFEU had been infringed).

[138] Ohio v. American express co. 585 U.S. (2018).

[139] Ibid.

[140] 'To be sure, it is not always necessary to consider both sides of a two-sided platform. A market should be treated as one-sided when the impacts of indirect network effects (and relative pricing in that market are minor). See Filistrucchi 321–322 (Filistrucchi, Geradin, Van Damme, & Affeldt, Market Definition in Two-Sided Markets: Theory and Practice, 10 J. Competition L. & Econ. 293, 297 (2014)). Newspapers that sell advertisements, for example, arguably operate a two-sided platform because the value of an advertisement increases as more people read the newspaper. Id., at 297, 315; Klein 579. But in the newspaper-advertisement market, the indirect networks effects operate in only one direction; newspaper readers are largely indifferent to the amount of advertising that a newspaper contains. See Filistrucchi 321, 323, and n. 99; Klein 583. Because of these weak indirect network effects, the market for newspaper advertising behaves much like a one-sided market and should be analysed as such. See Filistrucchi 321; Times-Picayune Publishing Co. v. United States, 345 U. S. 594, 610 (1953)'.

[141] Decision of the Cartel Court, 6 December 2017, Case No. 27 Kt 13/16p, Travel Agencies; Appeal Decision of the Supreme Court acting as Appellate Cartel Court, 12 July 2018, Case No. 16 Ok 1/18k, Travel Agencies.

[142] Pon Netherlands/NS Groep N.V./JV, Case 20/038614, (2020). Dutch NCA. (2017). A closer look at online video platforms, available at: https://www.acm.nl/sites/default/files/documents/2017-10/acm-a-closer-look-at-online-video-platforms-2017-10-16.pdf.

[143] SeLoger (Groupe Axel Springer) / Logic-Immo, Case No. 17-048, Decision No. 18-DCC-18, (2018).

[144] AdC's Guidelines regarding economic analysis for horizontal mergers.

[145] Schibsted / Milanuncios,Just Eat/Canary, MIH Food Delivery Holdings/Just Eat, Case No. C/0573/14, (2014).

[146] Australian NCA. (2019). Digital Platforms Inquiry. Available at: https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report.

[147] Bradesco, BB, Santander, Caixa and Itaú, Case No. 08700.002792/2016-47, (2016); XP / Itaú, Case No. 08700.004431/2017-16, (2017); E-Commerce Group vs. Google, Administrative Proceeding No. 08012.010483/2011-94.

competition from developing. Below are some examples of NCAs discussing these effects in the context of the assessment of market power.

- *Netherlands*[148]: In its recent study on app ecosystems, the Dutch NCA concludes that the successful activation of indirect network effects can make platforms grow exponentially, and that is how Google and Apple are today 'winners' in the app ecosystem.
- *Australia*: In the 2019 Digital Platforms Inquiry[149], the Australian NCA discussed in depth the cross-side network effects that characterise Google's and Facebook's multi-sided platform business models. In the case of Google, the NCA reached the view that Google is insulated from dynamic competition by barriers to entry and expansion for search platforms due to indirect network effects.
- *Brazil:* In the *Bradesco, BB, Santander, Caixa and Itaú merger*,[150] Brazil's NCA focused on the significance of network effects primarily to assess the possible effects of the merger. Likewise, in *XP and Itaú*[151], the NCA mentions the presence of indirect network effects on both sides of the affected market: (i) investors tend to attribute greater value to the platform as the number of investment product providers increases, and (ii) investment product providers tend to find the platform more attractive as the number of investors increases. However, the NCA based its conclusions not on the direction of these network effects but on demand-side substitutability with other products than those offered by the platform (substitutability between open platforms and banks) and thus concluded that the relevant product market was the market for the distribution of investment products for retail as a whole. In an abuse case[152] (*E-Commerce Group vs. Google*), the Brazilian NCA pointed out the presence of indirect network effects merely in descriptive terms, but this was not the reason why the markets were defined as separate on each user side: instead, the presence of unidirectional indirect network effects (on the advertisers' side) appeared to play a role[153] in the assessment of Google's competitive position in the relevant markets (for general search and thematic search).

[148] Dutch NCA. (2017). A closer look at online video platforms, available at: https://www.acm.nl/sites/default/files/documents/2017-10/acm-a-closer-look-at-online-video-platforms-2017-10-16.pdf.

[149] Australian NCA. (2019). Digital Platforms Inquiry. Available at: https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report.

[150] Bradesco, BB, Santander, Caixa and Itaú, Case No. 08700.002792/2016-47, (2016).

[151] XP / Itaú, Case No. 08700.004431/2017-16, (2017).

[152] E-Commerce Group vs. Google, Administrative Proceeding No. 08012.010483/2011-94 (2013).

[153] According to CADE, the great relevance of Google for search service users ends up enhancing Google's market power on the advertisers' side due to the indirect network externality. Such externality generates a positive feedback among users, and between users and the platform.

Box 2: Direct and indirect network effects – main findings

(i) Direct network effects in multi-sided market are less discussed in the decisional practice and, if discussed, the discussion is focused at the competitive assessment stage.

(ii) NCAs approaches are fragmented on how indirect network effects impact on market definition. In cases when indirect network effects are discussed for market definition purposes, two elements matter: (i) their strength; and (ii) whether they are unidirectional, or bi-directional. Few examples have been observed where both the strength and the bi-directional characteristic of the indirect effects justified the finding of a single market encompassing both sides of the platform.

(iii) A number of NCAs have taken into account indirect network effects only at the level of the competitive assessment, rather than at market definition level.

3.1.3 Tools for assessing demand-side substitutability in the context of two-sided / multi-sided markets

Since platforms act as intermediaries, the traditional instruments for market definition, such as the SSNIP test, seem to apply with difficulties to platform activities. The literature is split as to whether the SSNIP test serves a purpose in this area, but a consensus emerges that feedback effects must be taken into account when they are present

Doctrine[154] points out that the standard test does not sit well with the pricing structure of multi-sided platforms for the following reasons: i) the SSNIP test - a tool under which the relevant market is defined by determining whether customers would switch to other products if product prices increase (by a small but significant non-transitory amount) - is hardly applicable to circumstances where a product or service is offered free of charge; ii) when undertakings with different business models offer substitute services, the application of the logic of the SSNIP test becomes particularly challenging for obvious reasons, i.e. how to apply it without overlooking such differences.

Some authors[155] consider that the SSNIP test should be applied on each side of the platform and that, if an increase in price on one side of the platform is likely to cause an adjustment on the other side, this requires an assessment of how the respective platforms optimally adjust their price structure. Pike [156] also considers that while it is difficult to implement the test empirically in the context of two-sided platforms, the test is a useful instrument for competition practice even if only applied as a thought experiment.

[154] The literature on the complexities of the SSNIP test abounds. Among others, Crémer, J., de Montjoye, Y. A., & Schweitzer, H. (2019). Competition policy for the digital era. Report for the European Commission. https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf; Filistrucchi, L. (2008). A SSNIP Test for Two-sided Markets: The Case of Media, NET Institute Work-ing Paper No. 08-34, 2008, S. 1-45 (download available at: http://www.netinst.org/Filistrucchi_08-34.pdf); Newman, J. (2015). 'Antitrust in zero-price markets: Applications'. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2681304; Wismer, S. and Rasek, A. (2018). Market definition in multi-sided markets, part of OECD (2018): Rethinking Antitrust Tools for Multi-Sided Platforms.

[155] Filistrucchi, L. (2018). Market definition in multi-sided markets, part of OECD (2018): Rethinking Antitrust Tools for Multi-Sided Platforms. See also Katz, M., Sallet, J., Multisided Platforms and Antitrust Enforcement, The Yale Law Journal, (2018), pp. 2153–2158, available at https://core.ac.uk/download/pdf/215570484.pdf; and Franck, J. - U. and Peitz, M. (2019): Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[156] Pike, C., (2018). Introduction and Key Findings, in: OECD, Rethinking Antitrust Tools for Multi-Sided Platforms, (2018), p.15, available at: www.oecd.org/competition/rethinking-antitrust-tools-for-multi-sided-platforms.htm.

In particular, Crémer *et al* [157] point at the complexity of applying the SSNIP test in the context of multi-sided markets.

Niels[158] considers, to the contrary, that the '*SSNIP test serves conceptual clarity in the application of demand-side substitutability*' in the context of two-sided platforms as well, and suggests tweaking it to their peculiarities. More in detail, Franck and Peitz[159] and Katz and Sallet[160] suggest '*consider[ing] price changes on one side of the platform while holding prices on the other side constant and examining whether there are significant, plausible feedback effects. If there are no such effects, then focusing on a single side manifestly will give a clear overall picture. But if there are feedback effects, then they must be taken into account to avoid reaching misleading conclusions.*' Similarly, Filistrucchi [161] notes that, when there are mutual positive cross-group external effects, '*the risk of applying a one-sided SSNIP test, which does not account for these feedback effects, is that in such cases the two markets may be defined too narrowly*'[162].

For further clarifications on the literature, see the considerations under section 3.1.4 on zero-price markets.

In terms of practice, NCA guidelines, both inside and outside the EEA, highlight the issues involved in applying the SSNIP test to multi-sided markets.

- The *Portuguese Guidelines*[163] highlight that there is a problem where the specificity of the price structure of such markets is at stake: '*In these types of markets, the prices (or other supply conditions) applied to the two sides of the platform are interdependent, with the possibility of subsidizing a side to attract consumers on the other side. This subsidy can, for example, translate into zero price for one side of the platform (e.g., free-to-air radio and television)*[164]*.'* The Portuguese NCA in its guidelines also acknowledges that indirect effects should be incorporated in the application of the SSNIP test since a market delimitation exercise that focuses only on one side of the platform ignores competitive restraints exercised by the other side. Its view is that a SSNIP test that is applied only to one side of the platform, may lead to an overly narrow market. Under section 1.6.19 of the guidelines, the NCA then goes on to argue that '*in the implementation of the SSNIP test, the optimization of the price strategy of the hypothetical monopolist implies that it can adjust the price structure, taking into account the externality between the two sides. When indirect effects are not bilateral, but they occur only on one sense, the analysis of incentives*

[157] Crémer, J., de Montjoye, Y. A., & Schweitzer, H. (2019). Competition policy for the digital era. Report for the European Commission. https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf, who observe that:'Suffice it to say that increasing one price without modifying the price on the other side does not make much sense, and there is no clear theoretical guide to know which way price changes on both sides should be balanced.'

[158] Niels, G. (2019). Transaction versus Non-Transaction Platforms: A False Dichotomy in Two-Sided Market Definition, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3438913.

[159] Franck, J. U. and Peitz, M. (2019): Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[160] Katz, M., Sallet, J., Multisided Platforms and Antitrust Enforcement, The Yale Law Journal, (2018), pp. 2153–2158, available at https://core.ac.uk/download/pdf/215570484.pdf.

[161] Filistrucchi, L. (2018). Market definition in multi-sided markets, part of OECD (2018): Rethinking Antitrust Tools for Multi-Sided Platforms.

[162] Ibid.

[163] Guidelines for the Economic Analysis of Mergers, Portuguese NCA.

[164] Ibid.

incorporates the indirect effect to only one side.'[165] The NCA hence downplays the importance of market definition[166], on the one hand, but also suggests dealing with indirect network effects and how prices are set in these markets to obtain an accurate picture of market delimitation.

- The SSNIP test is not referred to under the *Brazilian* 2016 Horizontal Merger Guidelines[167] in terms of being adjusted to the specificities of multi-sided markets, although the guidelines do refer, alongside other tools, to the analysis of qualitative information[168]. The lack of suitability of traditional microeconomic tools to deal with cases involving multi-sided platforms was acknowledged in the Note to the OECD on Digital Disruption in Financial Markets[169].
- In terms of dealing with the SSNIP test, the *Canadian* Guidelines on Abuse of Dominance note the importance of accounting for '*the interdependence of demand, feedback effects and changes in profit on all sides of the platform*.'[170] For the Canadian NCA, special considerations arise when applying the hypothetical monopolist test to 'multi-sided' platforms. Depending on the facts of a given case, the Canadian NCA may define a product market as one side of a multi-sided platform (i.e. consider the effects of a price increase on one side of the platform). However, when considering if a hypothetical monopolist would find a price increase profitable, the Canadian NCA argues that it may be necessary to account for the interdependence of demand, feedback effects, and changes in profit on all sides of the platform. In other cases, the Canadian NCA may view it as appropriate to define a market to include multiple sides of the platform.
- The *Japanese* NCA's Guidelines on the Application of the Antimonopoly Act Concerning Review of Business Combination [171] state that the NCA will define relevant markets for multi-sided markets based on 'each user segment', which may be overlapping. The Report of Study Group on Data and Competition Policy (2017) mentions that some argue the issue of defining a SSNIP in multi-sided markets can potentially be overcome by assuming that a monopolist uses an optimal pricing structure applying 'brokerage commissions on each side of the market'. However, the report highlights that this does not overcome the issue of zero-price in multi-sided markets.
- The new CMA Merger Assessment Guidelines[172] do not refer to applying the SSNIP test in the context of two-sided markets. Instead, the Guidelines say that the UK CMA's approach will focus on:

[165] Ibid.

[166] Section 1.6.21: 'these limitations (...) in terms of the relevance of structural indicators can reduce the importance of delimiting relevant markets... In this sense, the focus should be analysis of the effects of the merger.'

[167] Brazil Administrative Council of Economic Defence (CADE), Guide to Analysis of Horizontal Concentration Acts, 2016, https://cdn.cade.gov.br/Portal/acesso-a-informacao/participacao-social/contribuicoes-da-sociedade/guia-de-ac-horizontal.pdf?_ga=2.180165474.713176596.1612267687-254558138.1612267687.

[168] The relevant market can be defined considering the following, either cumulatively or alternatively: (a) analysis of qualitative information; (b) the use of price information; (c) the analysis of flows of products and consumers. (d) the definition of radius; and (e) where possible, quantitative methods such as critical loss (or critical elasticity).

[169] Available at: https://one.oecd.org/document/DAF/COMP/WD(2019)34/en/pdf.

[170] Competition Bureau, Abuse of Dominance: Enforcement Guidelines, 2019, https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/CB-ADEG-Eng.pdf/$file/CB-ADEG-Eng.pdf.

[171] Japan Fair Trade Commission, Guidelines to Application of the Antimonopoly Act Concerning Review of Business Combination' (published on May 31, 2004).

[172] CMA Merger Assessment Guidelines (2021).

- (i) How competition works: Where competition primarily involves platform operators improving aspects of their offer that affect one side of the platform (for example, charges applied or service levels offered to users on one side), the CMA may assess each side separately. Where competition is focused on aspects of the platform that affect both sides (for example, improvements to technology that benefit the overall efficiency of the platform), the CMA may assess both sides together.
- (ii) Competitive conditions: Where competitive conditions (such as the number and strength of alternatives available) are different on the two sides of the platform, a platform operator may have different incentives as regards what it offers to users on either side, and the CMA may therefore assess each side separately.
- (iii) Network effects: Where indirect network effects are strong, the platform operator's incentive to compete for users on each side of the platform is more likely to be influenced by competitive conditions on the other side of the platform. When they are strong in both directions, the assessment of the two sides may be sufficiently closely linked that a single assessment would be appropriate.

- In the *US*, the unsuitability of the SSNIP test in cases of multi-sided platforms was acknowledged in the 2019 Congressional report on antitrust and big tech[173]. This is not a report adopted by a competent US NCA, but rather an advisory report to Congress. By contrast, the US, in its OECD Market Definition Policy Roundtable [174], suggested that the hypothetical monopolist test could also be applied in the context of two-sided markets.

In practice, **the SSNIP test is rarely used by NCAs** in the context of defining multi-sided markets, with most NCAs recognising the difficulties of using the SSNIP test in the context of two-sided markets.

- In *CTS Eventim*[175], the German NCA expressly recognised the unsuitability of the application of the SSNIP test. On appeal and in a decision by the Regional High Court of Düsseldorf, the German NCA market definition was upheld. In 2016, in its working paper 'Market Power of Platform and Networks', the German NCA opined that, '*[w]hat would be conceivable are surveys on the switching behaviour of platform users under certain modified overall conditions based on the SSNIP test's fundamental idea.'* In the *Facebook* decision[176], no exercise of a full-fledged SSNIP or similar test was carried out. On the contrary, the German NCA stated that the SSNIP is not practicable for zero-price markets. In paragraph 360 it does, however, refer to the impact of price increases for search advertising, which – according to investigations by the NCA did not cause a shift of advertising budgets from search- to non-search-related advertising.

[173] Freeman, W.C., and Skyes, J.B. (2019), Antitrust and 'Big Tech', published by Congressional Research Service, available at: https://fas.org/sgp/crs/misc/R45910.pdf.

[174] OECD (2012). Roundtable: Market Definition. Available at http://www.oecd.org/daf/competition/Marketdefinition2012.pdf.

[175] German NCA, CTS Eventim, Decision No. B 6 – 132/14-2, (2017).

[176] German NCA, Facebook, Decision No. B 6-22/16, (2019), and OLG Düsseldorf, appeal Decision No. Kart 1/19 (V) (2019), and Bundesgerichtshof, last instance Decision No. KVR 69/19 (2020).

- The Brazilian NCA uses qualitative evidence (and not the SSNIP test) in the surveyed cases[177].

Difficulties arise with metrics, in particular: (i) whether market shares are calculated at platform level, or on distinct sides of the market; (ii) whether market shares are indicative of market power.

- On (i), market shares were calculated in the German *CTS Eventim*[178] case separately for each market (side), with the market volume consisting of the fees paid for ticketing platform services by the respective customer group (this was upheld by the appeal decision). Moreover, in the Brazilian *XP/Itaú* case[179], they were calculated based on the two different sides of the market.
- On (ii), in the context of multi-sided markets, market shares are less informative of market power. The literature points out hurdles with market shares[180], as do the Portuguese Guidelines, where the NCA concludes that such structural measures of market power fail to take into account the implication of competitive constraints due to indirect network effects at the level of the other side of the platform. An interesting analysis of the unsuitability of market shares as measures of market power was also carried out by the Germany NCA in *Facebook*[181]. The NCA made clear, similarly to the Portuguese NCA, that market shares for Internet services and platforms can at best establish a limited presumption of market dominance. This was due in particular to the market concentration dynamics resulting from network effects. With regard to online platform markets, the relative market share, i.e. the market share gap between a leading company and its competitors, is more meaningful than an absolute value in assessing the market position of a leading company on the market. Moreover, the dynamics of market share development are important for the sustainability of a company's market position, and especially tipping risks. A high market share gap developing over a longer period of time with competitors who may already be slowly exiting the market can be an initial indication of a tipping process. Given that network effects depend, in particular, on the number of users, use intensity and user identity, the number of users is of greater determinative meaning for market shares than sales or turnover figures.
- In the Brazilian *Google Shopping* case[182], the Rapporteur Commissioner's vote mentions quality (through the verification of optimal search results) as a possible way of measuring market power in the search engines markets, even though this would be a subjective metric since it is more difficult to measure than quantitative parameters[183].

[177] Example of cases that refer to qualitative evidence in the assessment of demand side substitutability: (i) XP and Itaú, Case No. 08700.004431/2017-16; (ii) Bradesco, BB, Santander, Caixa and Itaú, Case No. 08700.002792/2016-47; and (iii) E-Commerce Group vs. Google, Administrative Proceeding No. 08012.010483/2011-94.

[178] German NCA, CTS Eventim, Decision No. B 6 – 132/14-2, (2017).

[179] XP/Itaú, Case No. 08700.004431/2017-16.

[180] Franck, J. U. and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[181] German NCA, Facebook, Decision No. B 6-22/16, (2019), and OLG Düsseldorf, appeal Decision No. Kart 1/19 (V) (2019), and Bundesgerichtshof, last instance Decision No. KVR 69/19 (2020).

[182] Administrative Proceeding No. 08012.010483/2011-94 (E-Commerce Group vs. Google).

[183] Popularity was also mentioned as a possible variable to measure Google's market power.

- Likewise, the UK CMA report on online advertising[184] considers that market shares are not necessarily indicative of market power.

Box 3: The role of demand-side substitutability for market definition in multi-sided markets – main findings

(i) The analysis of demand-side substitutability remains a foundational approach to market definition in multi-sided markets.

(ii) There is no clear consensus in the literature as to whether the SSNIP test is an appropriate market definition tool in this context. Some authors consider that the SSNIP test is an inaccurate tool to capture the complexity of multi-sided markets. Decisional practice analysed shows that the SSNIP test is not used by NCAs in multi-sided markets, but other types of qualitative and quantitative evidence to assess demand substitutability.

(iii) There is fragmentation in the case practice as to how market shares are calculated (whether at platform level or not). In addition, the approaches of the NCAs diverge as to the suitability of market shares to indicate that companies possess market power, when multi-sided platforms are at stake. Some NCAs highlight they remain a subjective metric in such context.

3.1.4 Implications of zero prices for market definition

As the German NCA[185] recognises, business models shaped around zero prices are not novel: zero prices existed even before the emergence of the digital economy since media companies have long offered radio, TV or newspaper content funded by advertising revenue to consumers free of charge. However, their prominence has increased with the rise of digital platforms. This prominence means that NCAs are faced with assessing parameters of non-price competition[186] more often, such as quality or privacy protection. The first issue that arises in this respect deals with the lack of a paradigm for consumers to engage in price comparability, with the result that their decisions are driven by other factors.

The scope of relevant markets in the context of zero-price markets is discussed in the literature. In this regard, a question that arises is whether, in the presence of zero-price markets, a separate market for the various platform sides or a market comprising both sides of the platform ought to be defined. The presence of zero prices is not informative of the scope of the relevant market (separate or holistic definition). This is because a price level of zero does not hold much explanatory power for the substitutability options of different user groups. It is therefore neither a sufficient condition for a separate definition of market sides nor for a holistic interpretation comprising the whole platform. The practice appears split on these points. Yet, several emerging common patterns arise from both the literature review and the cases analysed and researched. Two aspects that emerge are (i) the relevance of network effects, and how this pattern factors into market definition analysis, and (ii) the assessment of quality features in terms of market definition. The particular features in the context of zero-price markets show that tools such as the SSNIP test are hardly applied, and quality considerations assume a prominent role in terms of evidence used.

Defining a relevant market in these cases, where on the one side of the market the service or product is offered free of charge, comes with its particular set of difficulties and the conceptual tools available do not account for how to deal with most challenges.

[184] CMA (2019). Online Platforms and Digital Advertising. Available at: https://assets.publishing.service.gov.uk/media/5fa557668fa8f5788db46efc/Final_report_Digital_ALT_TEXT.pdf.

[185] OECD (2018). Rethinking Antitrust Tools for Multi-Sided Platforms, Publication OECD, Available at: https://www.oecd.org/daf/competition/rethinking-antitrust-tools-for-multi-sided-platforms.htm.

[186] German NCA/French NCA (2016). Joint paper on data and its implications for Competition Law.

According to the MDN, two or more products or services belong to the same relevant market as long as they are seen as interchangeable or substitutable by consumers with regard to their characteristics, their prices and their intended use. Demand substitutability plays therefore a central role in the determination of the relevant market. However, in the context of multi-sided markets with zero prices on one side of the platform, demand-side substitutability focused on price runs into practical difficulties in application. Not all zero-price markets are the same, as users may pay by sharing hefty quantities of data by their attention to ads, or by their mere presence and the network effects they thereby provide. None of these non-price dimensions, of which privacy is one, is captured by the current MDN.

The literature highlights[187] that market definition in the context of zero prices is fraught with a set of challenges. First, do relevant markets exist where there are zero prices on one user side? Second, if they do exist, how are they to be defined? Third, what are the tools to do so? There is no agreement in the literature as to how to solve these challenges.

A common trend that can be observed by analysing the literature is that qualitative considerations become important given that there are no cost comparators for consumers, and hence the SSNIP test, unadjusted to account for these specificities, does not work well in these markets.

In two-sided markets, the price structure to get both sides on board and optimise usage of the platform is usually asymmetrical, with prices on one side substantially above prices on the other side[188], and not necessarily reflective of costs on the respective side. Often, one user side pays no monetary fee for access to or consumption on the platform product while the other user group does. Consider for example, YouTube or Facebook. Consumers are subsidised while advertisers pay to be on the platform. The opposite occurs for operating systems where content developers receive subsidies and consumers pay to join the network. Parker and Alystine[189] observe that the optimal pricing structure depends on the cross-price elasticities of demand on each side of the platform and the relative strength and characteristics of the indirect network effects between the two sides. The level of competition from other platforms and substitute products on both sides (including the extent of multi-homing and platform differentiation, which will be discussed below) matters in terms of pricing structure. From a static standpoint, asymmetric price structures occur where there are close substitutes on one side since the platform has to worry more about participation on the former than on the latter. As a result, the preferred price structure may feature a negative price on one side and a high positive price on the other. If negative prices are not feasible, the situation is one in which the platform sets a price of 'zero'[190]. As Gal

[187] The literature abounds: See generally, e.g. Gal, M. and Rubinfeld, Daniel. L. (2016). The Hidden Costs of Free Goods: Implications for Antitrust Enforcement. Antitrust Law Journal, Vol. 80, No. 401, 2016, UC Berkeley Public Law Research Paper No. 2529425, NYU Law and Economics Research Paper No. 14-44, Available at SSRN: https://ssrn.com/abstract=2529425 or http://dx.doi.org/10.2139/ssrn.2529425; John M. Newman, Antitrust in Zero-Price Markets: Applications, 94 Wash. U. L. Rev. 49 (2016); John M. Newman, Antitrust in Zero-Price Markets: Foundations, 164 U. Pa. L. Rev. 149 (2015); Chris Jay Hoofnagle & Jay Whittington, Free: Accounting for the Costs of the Internet's Most Popular Price, 61 U.C.L.A. L. Rev. 606 (2014); David S. Evans, The Antitrust Economics of Free, 7 Competition Policy Int'l 71 (2011).

[188] OECD (2009). Roundtable on Two-Sided Markets. Available at https://www.oecd.org/daf/competition/44445730.pdf.

[189] Parker, G., Van Alstyne, M, (2005). Two-Sided Network Effects: A Theory of Information Product Design, in Management Science, 51(10), pp. 1494-1504,.

[190] Franck, J. U. and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

and Rubinfeld[191] observe, the price-centred approach to market definition in the context of multi-sided platforms may risk overlooking how competitive constraints materialise, namely that there are other ways to compete in ways that display market power that are of particular relevance, such as reduced quality and variety or diminished innovation. Their work is very important in attempting to understand such factors.

'Zero' prices are also often a feature of platforms on which one side exerts a 'positive' cross-group effect and the other a 'negative' effect. Zero prices can characterise various business models, including matching platforms but also advertising-based platforms. In advertising-based business models, for example, Google or Facebook, consumers 'pay' with their data. The platform then uses these data to improve services, such as targeted advertising, to the side that pays, i.e. advertisers or offer alternative services that lead to monetisation of this data (possibly with different consumers). Asymmetric pricing is the optimal strategy here since users of the free offer make participation for paying users more attractive. In addition, a zero price may be the result of technological constraints or excessive costs in monitoring the activity of users on one side (e.g. analogue television and not premium TV), but also the result of regulation, such as net neutrality. Finally, a zero-price strategy can also be the optimal outcome from a dynamic standpoint.

There are difficulties with the SSNIP test in the context of zero-price markets: As Evans (2011)[192] recognises, when the free product is related to a paid product, the boundaries of the markets are not always easy to define. This is because the SSNIP test is an easy concept in a single-sided market but not in the context of multi-sided platforms where there are free products or services subsidised by the other side of a two-sided market. First, a test of a price increase such as the SSNIP cannot simply be computed as long as the starting price (in money) is zero. Second, the profitability of a price increase on one market side also depends on user reactions on the other market side and the induced feedback effects. While this is not unique to zero-price markets, it shows that in this case price considerations, by themselves, without taking into account network effects, may risk skewing the boundaries of markets. This market structure also gives rise to other related issues: Which price should hypothetically be increased in a market definition exercise using the SSNIP test? Should only the price on one side of the market be increased, or all prices on all market sides be increased simultaneously? How can this occur if prices in one side of the market are zero?

Considering the interdependence of the market sides in the context of market definition while overlooking pricing structures may mean that false positives or negatives may occur. False positives occur when market definition underlines the absence of competitive constraints for the paid product, whilst these are present when considering the free product, or the reverse. False negatives can occur when the SSNIP test is run only while looking at the paid product without taking into account the specificities of two- or multi-sided markets.

The literature hence shows that the SSNIP test is not suitable to the peculiarities of zero-price markets. Several authors, such as Filistrucchi *et al'*s [193], argue that the SSNIP test should be revised to account for the specificities of two-sided platforms, but may

[191] Gal, M. and Rubinfeld, Daniel. L. (2016). The Hidden Costs of Free Goods: Implications for Antitrust Enforcement. Antitrust Law Journal, Vol. 80, No. 401, 2016, UC Berkeley Public Law Research Paper No. 2529425, NYU Law and Economics Research Paper No. 14-44. Available at SSRN: https://ssrn.com/abstract=2529425 or http://dx.doi.org/10.2139/ssrn.2529425.

[192] Evans, D. (2011). The Antitrust Economics of Free, John M. Olin Program in Law and Economics Working Paper, No. 555,. Available at https://chicagounbound.uchicago.edu/law_and_economics/484/.

[193] Filistrucchi, L. (2018). Market definition in multi-sided markets, part of OECD (2018): Rethinking Antitrust Tools for Multi-Sided Platforms.

be difficult to apply in practice in terms of capturing the quantification of indirect network effects and price interdependencies between the two sides. The fact that consumers on one side of the platform access a good or service free of charge (zero-prices) renders the measurement of a percentage price increase, which characterises the SSNIP test, impossible. The literature suggests two ways to deal with this: (i) replace the SSNIP test with a Small but Significant Non-transitory Decrease in Quality test (SSNDQ)[194], or (ii) modify the SSNIP into a cost-oriented test[195] (SSNIC or Small but Significant and Non-transitory Increase in Costs), as Newman proposes[196]. This latter method concentrates on the various dimensions of quality that are, to a certain degree, quantifiable such as 'attention costs' (i.e. consumers' attention to advertisements) and 'information costs' (i.e. consumers' personal information) that affect competition in zero-price markets. In analysing a merger between search providers, for example, Newman suggests that an NCA could assess whether an increase in the amount of advertisements would lead consumers to switch their demand for search queries to other providers. Yet, this test ignores consumers' preferences, which are also quite heterogeneous with regard to privacy and attention to advertisements, and the evaluation of the disutility coming from these two parameters is far more subjective than a monetary expense. Even when consumers are able to correctly detect quality degradation, they may experience status quo bias[197].

While the SSNIC and SNNDQ are interesting theoretical constructs, it would appear difficult to apply them in practice, and indeed they do not seem to have been applied by NCAs[198]. Mandrescu[199] concludes that '*a conversion of the SSNIP into a SSNIC cannot be recommended as it will require making highly complex decisions and adaptations with no real prospect of being as reliable as the SSNIP in non-zero-priced markets*.' Pike[200], proposes applying the hypothetical monopolist test based on the SSNIP test merely as a thought experiment when the definition of a relevant market is unavoidable and the SSNIP test is not operational. The estimates obtained in this way would need to be supplemented by qualitative evidence. In cases where the price-based tests – such as the SSNIP – cannot be implemented, it is far more unlikely that SSNIC and SNNDQ could be used. Indeed, qualitative and quantitative evidence is used instead. Wismer and Rasek[201] indicate that in this context NCAs often rely on qualitative evidence when developing their decisions on relevant markets. These, for example, can be derived from market studies, user and competitor perspectives, companies' internal documents, etc. The collection of specific quantitative data can then be used in a complementary way to obtain a holistic view of the market. In addition, all sides must be looked at. As Franck and Peitz point[202] out '*the possibility of an abuse of dominance*

[194] Ibid.: the SSNDQ test represents more 'a conceptual guide than a precise tool to apply'.

[195] Newman, J. (2015). 'Antitrust in zero-price markets: Applications'. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2681304.

[196] Ibid.

[197] Stucke, M.E. and A.P.Grunnes (2016). Big Data and Competition Policy, Oxford University Press.

[198] Wismer, S. and Rasek, A. (2018). Market definition in multi-sided markets, part of OECD (2018): Rethinking Antitrust Tools for Multi-Sided Platforms.

[199] Mandrescu, D., (2018). 'The SSNIP Test and Zero-Pricing Strategies'. Eur. Competition & Reg. L. Rev., 2.

[200] Pike, Chris (2018). p.15 Introduction and Key Findings, in: OECD, Rethinking Antitrust Tools for Multi-Sided Platforms www.oecd.org/competition/rethinking-antitrust-tools-for-multi-sided-platforms.htm.

[201] Wismer, S., and Rasek, A. (2018). Market definition in multi-sided markets, part of OECD (2018): Rethinking Antitrust Tools for Multi-Sided Platforms, p. 63.

[202] Franck, J.U., and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

on a 'zero-price' market by way of unfair terms and conditions pursuant to Article 102(a) TFEU or corresponding national legislation such as, for example, section 19(1) and (2) No. 2 of the German Competition Act, is a clear illustration of why it is not true that the interests of consumers could be sufficiently taken care of incidentally by focusing on the paid 'side' of a platform. CTS Eventim and Facebook are good examples of this. Irrespective of whether one considers the German NCA's findings of an abuse in the Facebook case convincing, it would contradict the consumer welfare-oriented purpose of the prohibition of exploitative conduct by dominant firms if Facebook were to have escaped any investigation into the quality of the terms and conditions it offers to the private users of its network simply by denying the existence of a social network market'[203].

To conclude, as a matter of principle, it is worth acknowledging that there can be 'markets' for products offered free of charge, i.e. without monetary consideration by those who receive the product. To find otherwise would risk creating a gap in enforcement policy. This is especially important when the non-monetary currency through which one side 'pays' is data or attention, as it happens in the case of advertising-based business models (e.g. search engines, social networks, online video platforms)[204]. The acknowledgement of a relevant market for competition law purposes when a product is offered free of charge on one user side is compatible with the current case law of the European Court of Justice on the notion of undertaking as involving an economic activity[205], as long as there is one paying side of the platform. Yet, there are authors that point to this case law as not being useful since it does seem to imply that the existence of an 'economic activity' is a prerequisite for the application of competition rules[206]. In *Ceci n'est pas un Marché: Gratuity and Competition Law* by Miguel Sousa Ferro,[207] a key point is whether the economic activity needs to be 'inseparable' from the free side: as we will see below, practice points to inconsistency in this respect.

As a second conclusion, there are authors who take the view, like Evans[208] that interdependence between the zero-price market and the non-zero-price market could be considered at the heart of the analysis. In addition, in order to deal with the challenges, some literature considers that less emphasis could be put on market definition in favour of an increased importance attributed to the theories of harm. The Crémer *et al* Report (2019 *Competition Policy for the digital era*)[209], commissioned by DG Competition, advocates less emphasis on (or even doing away with) market definition. The UK Merger Guidelines, cited above, downplay the prominence of market

[203] Franck, J. U. and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[204] Furman, J., (2019), Unlocking digital competition. Report of the Digital Competition Expert Panel, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf: 'Digital advertising has a particularly important role in several key digital markets. It provides the revenue-generating side of platform services frequently offered at zero price to consumers, e.g. including general and specialised search markets, social networks, and online video'.

[205] ECJ, Pavlov, Case No. C-180/98, (2000).

[206] Franck, J. U. and Peitz, M. (2019), Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[207] Ferro, M. (2015). Ceci n'est pas un Marché': Gratuity and Competition Law, Concurrences, Issue 2015(1).

[208] Evans, D. (2011). The Antitrust Economics of Free, John M. Olin Program in Law and Economics Working Paper, No. 555. Available at https://chicagounbound.uchicago.edu/law_and_economics/484/

[209] Crémer, J., de Montjoye, Y. A., & Schweitzer, H. (2019), Competition policy for the digital era. Report for the European Commission. Available at https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf.

definition. Kaplow[210] and Crane[211] also advocate less emphasis on structural market definition.

Zero-price markets are relevant antitrust markets in decisional practice: Zero-price markets can be regarded as relevant markets for the purposes of the application of competition law. Although consumers 'pay' only with their data or with their attention on one user side, and the product is offered 'free of charge', the NCAs are prepared to acknowledge the existence of a market. Various NCAs, e.g. in France[212], Germany[213] or the US[214], accept the existence of a relevant market in cases involving zero-price markets. A good example of this recognition, with some twists and turns, is Germany.

- German NCA cases initially regarded remuneration as an essential characteristic of a 'market', denying the existence of a viewer market for free (advertising-financed) television[215].
- In a subsequent merger case involving cable network operators[216], the German NCA also considered that 'there was no market-based relationship between an operator of a satellite responder and the customers who receive the satellite broadcasting signal free of charge'[217] in their homes.
- Yet, the Düsseldorf Higher Regional Court took an opposite position in the context of market definition of an Internet transaction platform (*HRS Ruling*)[218], denying the recognition of a zero-price market, as the German NCA had defined the hotel portal market as the market for the brokerage of hotel rooms via hotel portals. In a discussion paper on the digital economy and online platforms published in 2015[219], the NCA questioned the assumption that zero-price markets cannot be defined for the purposes of competition law[220]. It considered instead that 'it 'might' be possible to assume a '*market' even in regard to the relationship between a platform and the group of customers not charged for the use of the platform, because and insofar as this user group is linked with another group of users which has to pay*'.
- In Google/VG Media[221], the German NCA acknowledged, without taking a stance, that there are strong arguments for accepting the existence of a search market

[210] Kaplow, L., (2011). Why (Ever) Defining Market, Harvard Law and Economics Discussion Paper No. 666.

[211] Crane, D.A. (2014). Market Power Without Market Definition, 90 Notre Dame L. Rev. 31.

[212] Booking.com/France, Decision No. 15-D-06, (2015).

[213] German NCA Facebook, Decision No. B 6-22/16, (2019), and OLG Düsseldorf, appeal Decision No. Kart 1/19 (V) (2019), and Bundesgerichtshof, last instance Decision No. KVR 69/19 (2020).

[214] For mergers, e.g., United States v. H & R Block, Inc., 833 F. Supp.2d 36 (D.D.C. 2011); United States v. Bazaarvoice, Inc., 2014 WL 203966 (N.D. Cal.).

[215] German NCA, Springer/ProSiebenSat.1., (2006).

[216] German NCA, Kabel Deutschland/Orion, (2008).

[217] Krämer, J., Schurr, D. & Broughton Micova, S. (2020). The Role of Data for Digital Markets Contestability: Case Studies and Data Access Remedies, CERRE Report, Available at: https://cerre.eu/publications/data-digital-markets-contestability-case-studies-and-data-access-remedies/.

[218] OLG Düsseldorf 9 January 2015, VI-Kart 1/14(V), HRS.

[219] German NCA. (2015). Digitale Ökonomie – Internetplattformen zwischen Wettbewerbsrecht, Privatsphäre und Verbraucherschutz.

[220] Id., p. 16.

[221] Google/VG Media, Case No. C-299/17, (2019).

even though Google does not monetise its search services through a fee charged to users.

- In *Parship/Elitepartner*[222], the German NCA explicitly acknowledged that free-of-charge business models must be included in a competition law analysis and dealt with under the definition of relevant market. It was prepared to acknowledge that users on one or both sides might not make a monetary payment, but they could 'pay'[223] with their attention or the opportunity cost by being exposed to advertising.
- In its follow-up decision in *Booking.com*[224], the NCA expressly left open whether a 'market' necessarily requires a price to be paid.
- With the introduction of § 18 (2a) of the German Competition Act (ARC) in 2017, the legislator has recognised the existence of zero-price markets, settling the issue, while leaving open the conditions for this classification. '*In the view of the German NCA (which refers to the explanatory memorandum of the 9th ARC amendment and EU case law in this regard), the existence of a user group that has to pay the platform, a sufficiently close link between this user group and the zero-price user group, as well as an overall for-profit strategy of the platform are key criteria for assuming a zero-price market*.'[225]
- Later in the *Facebook case*[226] the German NCA acknowledged that the fact users do not have to pay for their Facebook accounts did not prevent the definition of a market for such private use. With the introduction of § 18 (2a) of the German Competition Act (ARC) in 2017, the legislator noted that zero-price services offered in the absence of a profit strategy – at least one that is indirect or long-term – lack the competitive relevance for constituting a market: however, we cannot extrapolate a rigid paradigm from this[227].

The position of NCAs in other jurisdictions is as follows:

- In Belgium, in *IPM Group/S.A. Editions de l'Avenir* case[228], the Belgian NCA considered the distinction between free and paid press. The auditor noted that a distinction between the free press and the paid press was acknowledged by most of the respondents, in particular because of the different mode of distribution and the different way of dealing with news. While confirming that the free press was a distinct market in terms of volume of content (free papers offer less content) and type of content (free papers offer fewer feature articles), it emerged that some of the readers consider the free and paid versions to be substitutable as long as they are not looking for a specific journalistic work. In addition, the 'free daily newspaper 'Metro' was distinguished by the targeting of its readership (commuters and public transport users). The auditor noted that

[222] Parship/EliteMedianet [ElitePartner], Decision B6-57/15, (2016).

[223] Franck, J. U. and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[224] German NCA, Booking.com, Decision No. B9-121/13, (2015).

[225] Franck, J. U., and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[226] German NCA, Facebook, Decision No. B 6-22/16, (2019), and OLG Düsseldorf, appeal Decision No. Kart 1/19 (V) (2019), and Bundesgerichtshof, last instance Decision No. KVR 69/19 (2020).

[227] Gesetzesbegrundung der Bundesregierung zum Entwurf der 9. GWB – Novelle, BT – Drs. 18/10207, page 48. Available at: http://dipbt.bundestag.de/doc/btd/18/102/1810207.pdf.

[228] S.A. IPM Group / S.A. Editions de l'Avenir, Decision No. 20-CC-41, (2020).

there are strong indications that these were two distinct markets in that the volume of content, the importance of feature articles and the accessibility for the reader were not comparable. However, the auditor proposed to leave the exact market definition open since, regardless of the definition chosen, the results of the competitive analysis were identical. The possible inclusion of the free daily press only reduced the market shares of the new entity. The Belgian NCA, in the end, aligned with the auditor's view, and considered the national market for French-language paid daily newspapers, including online versions, but excluding business dailies (financial and economic).

- In France, the French NCA acknowledged in its *Booking.com*[229] decision the existence of a 'downstream market', where online travel agencies offer consumers search, comparison and reservation services free of charge.
- The South Korean NCA in *NHN/KFTC*[230], considered the free Internet portal services ('FIPS') – excluding Google's search service – as the relevant market in which NHN possesses market power and concluded that NHN had abused its market power in the FIPS market to restrict competition in the free video content (FVC) market and the paid online advertisement (POA) market. By contrast, the Seoul High Court defined the relevant market as free video content search (FVCS) – including Google's search service. It considered that the NCA had failed to prove both (a) the existence of NHN's market power in the FVCS market and (b) the anticompetitive effect in the FVC, FVCS, and POA markets. The Korean Supreme Court pronounced itself on the case in 2014: '*According to jurisprudence of the Supreme Court, only POA can be defined as the relevant market. Other three free services – FIPS, FVC, and FVCS – cannot be the relevant market because they are not compatible with the concept of market power*'[231].
- In the *US,* in a February 2019 speech[232], Makan Delrahim – the head of the DOJ Antitrust Division – acknowledged that antitrust law applies 'in full' to zero-price markets because firms offering 'free' products and services compete on a variety of dimensions other than price. The pending Google[233] investigation is a good example of this.

Interdependence between user sides as part of the analysis: Regardless of how narrowly or broadly the market has been defined, when a zero-price product or service is supplied over multi-sided platforms, all sides are looked at. This means that network effects patterns are captured in the analysis. It is important to caution against a focus on the zero-price side of the platform alone, overlooking the other side.

The interdependence between the zero-price market and the non-zero-price market could be considered at the heart of the analysis. An example of good practice is the US submission to the OECD (2018)[234] where it is considered necessary to take into account

[229] Booking.com, Decision No. 15-D-06.

[230] Naver's v KFTC, (2008).

[231] Ju, J. (2020). Market Definition, Antitrust Error and Digital Platforms in Korean Competition Law and Policy. Pusan National University Law Review, Vol. 61 No. 3

[232] M.Delrahim, 'I'm free: platforms and antitrust enforcement in the zero-price economy', Speech at Silicon Flatirons Annual Technology Policy Conference at the University of Colorado Law School, 11 February 2019.

[233] United States v. Google LLC, Complaint by the Department of Justice, (2020), available at: https://www.justice.gov/opa/press-release/file/1328941/download.

[234] OECD. (2018). Quality considerations in the zero-price economy – Note by the United States. Available at: https://www.justice.gov/atr/page/file/1313096/download.

how competition occurs on both sides of the platform to reach a conclusion which is informative in terms of market definition. Consumer behaviour patterns (consumer bias, and single versus multi-homing patterns) must be looked at in order to grasp how competition occurs.

Relevance of tools and evidence other than the SSNIP test in decisional practice: The SSNIP test is not suitable for the peculiarities of zero-price markets. Qualitative and quantitative evidence is used as a complementary tool, as we discuss below. However, care needs to be exercised not to over-rely on qualitative evidence and, as the literature points out, probably a combination of both qualitative and quantitative evidence yields more robust results.

- Evidence was found of the use of qualitative methods, or a combination of both qualitative and quantitative methods, in decisional practice, in Germany[235], Hungary[236], Brazil[237] and the US[238]. In practice outside the EEA, the difficulty of applying the SSNIP test in these circumstances has been pointed out by NCAs in Canada[239], Japan[240]and the US[241].
    - Japan's merger guidelines and *Report of Study Group on Data and Competition Policy*[242] both highlight the difficulty of using SSNIP and point out the possibility of using SSNDQ or of analysing the effect of increased costs while acknowledging the practical difficulties of implementing an alternative to SSNIP. Japan[243] still makes reference to the SSNIP test.
- Getting around the SSNIP-related difficulties through reliance on qualitative evidence and tools for market definition, such as surveys (or a combination of quantitative tools, such as empirical evidence and qualitative tools) is a best practice, endorsed, for instance, by *Czechia, Germany and Hungary*. In the Czech *CHAPS* case,[244] where one side exhibited free of charge prices applied by the platform, the Czech NCA based its market definition assessment on the characteristics of the products in question (the search engines), the nature of the platform and the data, the regulatory framework and on hypothetical

[235] German NCA, CTS Eventim, Decision No. B 6 – 132/14-2, (2017).

[236] Guidelines on market definition. The relevant aspects of the definition of the market affected by the concentration, published by the Hungarian NCA (2010).

[237] Example of cases that refer to qualitative evidence in the assessment of demand side substitutability: (i) XP and Itaú, Case No. 08700.004431/2017-16; (ii) Bradesco, BB, Santander, Caixa and Itaú, Case No. 08700.002792/2016-47; and (iii) E-Commerce Group vs. Google, Administrative Proceeding No. 08012.010483/2011-94.

[238] Competition Bureau, Abuse of Dominance Enforcement Guidelines, (2019), available at: https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04420.html.

[239] Competition Bureau, Abuse of Dominance Enforcement Guidelines, (2019), available at: https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04420.html.

[240] Japan Fair Trade Commission, Guidelines to Application of the Antimonopoly Act Concerning Review of Business Combination' (published on May 31, 2004).

[241] Freeman, W.C., and Skyes, J.B. (2019). Antitrust and 'Big Tech', published by Congressional Research Service, available at: https://fas.org/sgp/crs/misc/R45910.pdf.

[242] Yamada, H., and Takeda, M. (2019). Report of study Group on Data and Competition Policy. International Data Privacy Law, Volume 9, Issue 4, pp. 299–301. Available at: https://academic.oup.com/idpl/article-abstract/9/4/299/5599856?redirectedFrom=fulltext.

[243] Fair Trade Commission, Guidelines to Application of the Antimonopoly Act concerning Review of Business Combination, 2004 (revised 2019), https://www.jftc.go.jp/en/legislation_gls/imonopoly_guidelines_files/191217GL.pdf.

[244] CHAPS, UOHS decision, Case No. S669/2013/DP, (2015), and appellate UOHS decision No. R12/2016/HS, 2018.

competitor and consumer behavioural patterns without relying on the SSNIP test.

- The Hungarian Guidelines[245] expressly suggest, in a footnote, where zero prices are mentioned once as part of an example from a previous case[246], that in these cases it may be worth carrying out surveys rather than engaging in quantitative methods.
- In the *CTS Eventim*[247] decision, the German NCA held that ticketing system platforms which do not charge advance booking offices, but only event organisers, were considered to be in the same market as CTS Eventim since the connection between the zero-price side of the platform and its for-payment side are closely connected, thus explicitly recognising the interdependence as the core of the analysis. It carried out surveys to reach this result.
- Other jurisdictions outside the EEA highlight the importance of quality considerations. In Brazil, the NCA's Horizontal Merger Guidelines[248] spell out that the relevant market (including in the context of these markets) can be defined considering an analysis of qualitative information.
- The Canadian NCA's Abuse of Dominance Enforcement Guidelines[249] focus on using qualitative measures as an alternative to SSNIP.
- In the US, when discussing quality as a parameter of competition in these markets, the FTC has acknowledged that '*because quality is difficult to define and assess, it may be more feasible to assess competitive effects under zero prices by examining output effects. Output effects do not depend on the existence of positive prices*'[250]. The 2019 Report prepared by Freeman and Sykes for Members and Committees of Congress on 'Antitrust and Big Tech' (*Investigation of Competition in Digital Markets*)[251] highlights the inoperability of the SSNIP test in free of charge technology markets and goes on to discuss the endorsement of the qualitative approach by antitrust practice and doctrine[252]. It also points to the US 2010 Horizontal Merger Guidelines[253] where quality is referred to in the application of the hypothetical monopolist test ('*or a corresponding non-price change such as a reduction in product quality or*

[245] DOJ & FTC Horizontal Merger Guidelines (2010)

[246] VJ/155/2008, available at: https://www.gvh.hu/pfile/file?path=/dontesek/versenyhivatali_dontesek/versenyhivatali_dontesek/dontesek_2008/vj155-2008_v.pdf&inline=true. In that precedent cited in the Guidelines the process of comparing as substitutes online and offline media was difficult based on data from the market, because one of them is free.

[247] German NCA, CTS Eventim, Decision No. B 6 – 132/14-2, (2017).

[248] Available at: https://cdn.cade.gov.br/Portal/centrais-de-conteudo/publicacoes/guias-do-cade/guia-para-analise-de-atos-de-concentracao-horizontal.pdf.

[249] Competition Bureau, Abuse of Dominance Enforcement Guidelines, (2019), available at: https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04420.html.

[250] OECD (2013). 'Roundtable: The Role and Measurement of Quality in Competition Analysis'. Available at http://www.oecd.org/competition/Quality-in-competition-analysis-2013.pdf: Note by the United States, DAF/COMP(2013)17, 119.

[251] Freeman, W.C., and Skyes, J.B., Antitrust and 'Big Tech', published by Congressional Research Service, (2019), available at: https://fas.org/sgp/crs/misc/R45910.pdf.

[252] FTC v. Sysco Corp., 113 F. Supp. 3d 1, 27 n.2 (D.D.C. 2015), based on the old qualitative Brown Shoe criteria. However, for a criticism of qualitative methods, Niels, G., (2019) Transaction versus Non-Transaction Platforms: A False Dichotomy in Two-Sided Market Definition, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3438913.

[253] DOJ & FTC Horizontal Merger Guidelines (2010).

service', Sect. 1). The report pointed out that in *'a 2019 European Commission report on digital competition, a group of commentators proposed a 'characteristics-based' approach to market definition for zero-price industries under which regulators would compare the functions of relevant digital services*[254]*. This type of qualitative method for defining relevant product markets has some support in U.S. antitrust doctrine. As discussed, under Brown Shoe's*[255] *'practical indicia' approach, a product's 'peculiar characteristics and uses' are relevant factors in determining the appropriate scope of an antitrust market. While lower courts have described such informal methods as 'old school' in light of the sophisticated econometric evidence typically produced in contemporary antitrust litigation, they have also recognised that Brown Shoe remains good law and have employed its 'practical indicia' approach despite its somewhat anachronistic status. As a result*, regulators may *engage in qualitative comparisons of the functions of various digital services in assessing the scope of certain zero-price markets. Regulators could plausibly supplement such inquiries with surveys or other empirical evidence evaluating which products consumers regard as 'reasonably interchangeable' with the product at issue in a given case. Finally, a number of courts employing the Brown Shoe criteria have emphasised 'industry recognition' of the scope of certain markets. Specifically, these courts have relied on corporate conduct, internal strategy documents, and expert testimony to determine the types of companies that a defendant regards as competitors*[256]*. Accordingly, courts and regulators may be able to rely on these types of qualitative evidence to determine the scope of certain zero-price digital markets.'*[257]. Having said that, it needs to be noted that courts may at times find it difficult to process and accept surveys as evidence, partly in relation to a number of defects in the methodology and wording of the survey[258].

Zero pricing and market power assessment. There are no conclusive answers as to how an analysis of market power must be evaluated in zero-price markets. In single markets, prices above marginal cost may be indicative of market power. An overall view of all sides of a platform displaying a zero-price pattern, can give a more informative insight into dominance. Here, matters become complicated since zero-price patterns on one user side may be inherent in the business model to maximise profits overall for the platform.

- The German NCA, has started to '*take an overall view of all sides of a platform when evaluating the market power of a certain provider*', as shown in its practice

[254] Crémer, J., de Montjoye, Y. A., & Schweitzer, H. (2019). Competition policy for the digital era. Report for the European Commission. https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf.

[255] Brown Shoe v United States 370 US 294 (1962): the indicia were, industry or public recognition of the submarket as a separate economic entity, peculiar characteristics and uses of the product, uniqueness of production facilities, existence of distinct customers, existence of specialised vendors. It also pointed at the existence of distinct prices and consumer sensitivity to price changes, but this latter does not apply here.

[256] Newcal Indus., Inc. v. Ikon Office Solution, 513 F.3d 1038, 1045 (9th Cir. 2008); Rothery Storage & Van Co. v.

Atlas Van Lines, Inc., 792 F.2d 210, 218 n.4 (D.C. Cir. 1986) (Bork, J.); United States v. H&R Block, Inc., 833 F.

Supp. 2d 36, 51 (D.D.C. 2011); FTC v. Cardinal Health, Inc., 12 F. Supp. 2d 34, 46-49 (D.D.C. 1998); FTC v. Staples, Inc., 970 F. Supp. 1066, 1075-80 (D.D.C. 1997).

[257] Freeman, W.C., Skyes, J.B. (2019). Antitrust and 'Big Tech', published by Congressional Research Service, available at: https://fas.org/sgp/crs/misc/R45910.pdf.

[258] United States v H&R Block, Inc., 833 F. Supp. 2d 36, 51 (D.D.C. 2011).

in *CTS Eventim*[259], as well as in the dating platform cases[260]. In *Facebook*[261], the German NCA pointed out that the data shared with and the attention reserved for the platform by its private users could also be considered a compensation for Facebook's services, though not a monetary one. In this decision, the NCA also discussed in detail why the zero-price nature of a market does not prevent the application of established tests and rules on dominance. The zero-price nature of the market for private users was, furthermore, a reason why the NCA based market share calculation on the number of active users, given that turnover-based market shares would not have sufficiently reflected the size of a platform's non-paying user base. Yet, because privacy or attention, can be considered 'remuneration', albeit not a monetary one, these parameters help understand market power better in these markets, as the *Facebook* decision suggests. The question remains whether this infuses market definition with subjective considerations, which gain prominence under these circumstances.

- The U.S. Supreme Court emphasised in its *Ohio v. American Express*[262] decision in relation to credit card networks: *'[T]he fact that two-sided platforms charge one side a price that is below or above cost reflects differences in the two sides' demand elasticity, not market power or anticompetitive pricing […]'.*

Box 4: Implications of zero prices – main findings

(i) The decisional practice confirms the recognition of the existence of relevant markets in the context of low or zero prices.
(ii) A common trend in NCA's practice is that, under the decisional practice, all sides of the platform are looked at.
(iii) The view in the literature is that the SSNIP test should be revised to account for the specificities of two-sided platforms where zero prices are involved; it is split on what solutions to adopt in order to overcome the limitations of the traditional use of the SSNIP test. The practice confirms this finding. Various quantitative tools (for example, the SSNDQ and the SSNIC) and qualitative tools (e.g. surveys) are used.
(iv) Reliance on qualitative tools as a complement to quantitative tools is appropriate. In terms of qualitative tools, the practice has often relied on surveys, both of competitors and customers.
(v) An analysis which takes into account the relationship between the free product and companion paid products or markets, and the reactions of consumers to changes in dimensions of competition other than price is appropriate.
(vi) Some authors advise not to place too much emphasis on market definition in these contexts.
(vii) NCAs are ready to accept that zero-price markets can be markets for the purposes of competition law. The MDN could offer further guidance on approaches to market definition, and factors to take into account, in such context.

[259] German NCA, CTS Eventim, Decision No. B 6 – 132/14-2, (2017).

[260] Decision of 22 October 2015, B6-57/15 – Dating platforms, paras 71 ff., 129 ff.; decision of 23 November 2017, B6-35/17 – German NCA, CTS Eventim, Decision No. B 6 – 132/14-2, (2017).; also Monopolies Commission, XXII. Biennial Report, Wettbewerb 2018 (Biennial Report XXII: Competition 2018) 1st edition 2018, paras 605 ff.

[261] German NCA, Facebook, Decision No. B 6-22/16, (2019), and OLG Düsseldorf, appeal Decision No. Kart 1/19 (V) (2019), and Bundesgerichtshof, last instance Decision No. KVR 69/19 (2020).

[262] Ohio v. American express Co. 585 U.S. (2018).

3.1.5 Implications of single - or multi-homing

In this section, we address the impact of single- versus multi-homing on market definition together with other behaviour-related aspects, notably consumer biases. Users' consumption behaviour is informative for capturing substitutability of services in two or multi-sided markets, since prices in these markets are not a suitable benchmark for gauging competitive constraints for the reasons seen above in section 3.1.4.

Multi-homing occurs where a user group consumes, in addition to the given platform product or service, at least a comparable second product or service simultaneously; if users (on both sides of the platform) only consume the service or product of the platform under consideration, they are said to be single-homing. For example, if a traveller who has installed Uber takes Uber as the starting point of their transport decision and checks for available rides on Uber but does not check for alternative transport possibilities unless dissatisfied with the offers available, the user is single homing. If consumers looking for accommodation use several travel search platforms (e.g. Booking.com, Expedia, HRS) before making a decision, this is an example of multi-homing. If an advertising firm (say a luxury company) uses several platforms to launch its advertising campaigns, this points to multi-homing behaviour. Multi-homing can be present on both sides. A store (seller) accepts several credit cards while the end-customer (buyer) uses several credit cards. By contrast, there can also be a mix of multi- and single-homing behaviour on each user side. For example, an app is created for several mobile operating systems (Android and iOS). Thus, developers may typically multi-home. On the other hand, the users of a mobile device often use only one operating system through their choice of mobile device, thus being single home users.

In the context of two-sided platforms, homing decisions on one side depend on homing decisions on the other side. Thus, as homing patterns change on the two sides, market definitions may also change[263].

Users' decision to single- or multi-home is mainly driven by costs associated with the available services (pricing schemes) and the benefits the user derives from consumption, that is, the degree of heterogeneity between the products. When prices (including inherent costs, such as switching costs) are not high, multi-homing is more likely. Similarly, where the associated additional benefits of that simultaneous use compared to the exclusive use of only one service is high, multi-homing is more likely.

Yet, in some cases single-homing may not be the consumer's decision but rather that of the operating system or another third party (e.g. inability to install more than one app store when using iOS). Other times, multi-homing may not be possible because of contractual clauses imposed by platforms.

The lower the pricing of the alternative services and the less the pricing schemes consist of fixed components, the more attractive multi-homing becomes. For instance, a consumer looking for accommodation can visit any travel search platform free of charge, or even use a meta-search platform that aggregates offers from different providers. Given that they incur no significant fixed costs, it is also useful for hoteliers to be present on as many platforms as possible. If, however, the price level is high, especially in the form of transactional- or usage-independent fixed fees, the probability of users engaging in multi-homing is low, irrespective of the market side.

The literature is divided on how product differentiation and thus the heterogeneity or homogeneity between the available alternatives impacts consumers' single- or multi-

[263] Franck, J. U. and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

homing decisions. Evans and Schmalensee[264] argue that strong (horizontal) product differentiation favours multi-homing on the demand market side, since users on this side of the market would be accessing several services with different performance characteristics. By contrast, Armstrong and Wright[265] argue that in such a case of strong heterogeneity, only the product that best meets consumers' preferences is consumed, and thus single-homing occurs. Following their line of reasoning, strong homogeneity would analogously facilitate simultaneous consumption and, therefore, lead to multi-homing[266].

The Franck and Peitz report [267] discusses the implications of homing decisions on market definition. They consider that the decision to multi-home on one side depends on the degree of multi-homing on the other side: this has implications for substitutability. If the homing pattern is asymmetric (multi-homes on one side and single-home on the other) it may be relevant to define a market on the multi-homing side only. This is so because the platform is the unique access provider to the single homing user on this other side, i.e. a gatekeeper.

In the literature, thus, there is no consistent conclusion to be drawn from consumers' single- or multi-homing decisions in terms of appropriate market definition, except that the presence of single-homing may point to the existence of entry barriers. In addition, it is important to consider both sides of the platform when attempting to understand consumer behaviour in this respect, as the Franck and Peitz report[268] points out. Homing decisions on one side of the platform can influence homing behaviour and market definition on the other side of the platform: '*suppose that one side single-homes. Since users on this side make a discrete choice between the services provided by different platforms, these platform services are substitutes belonging to the same market (if sufficiently strong substitutes). If users on the other side multi-home, each platform provides monopoly access to its set of users on the single-homing side. Thus, for given user behaviour on the single-homing side, each platform acts as a monopolist vis-à-vis users on the multi-homing side. This suggests that there is a market for each platform regarding the service provided to the multi-homing side*'[269].

In the **NCAs' decisions**, there is also no consistent conclusion to be drawn up in terms of appropriate market definition.

In Czechia, Germany, the Netherlands, the UK and the US, single- and multi-homing behaviour impacts how markets' boundaries are defined.

- In the Czech *Booking.com*[270] case, the Czech NCA concluded that the lack of indirect network effects led to a finding of a narrower market definition than the investigated party had argued. It also considered the possible users' multi-homing pattern between the automatic transport connection search engine and

[264] Evans, D.S. und R. Schmalensee. (2007). The Industrial Organization of Markets with Two-Sided Platforms, Competition Policy International, Vol. 3, No. 1., 2007, S. 151 -179.

[265] Armstrong, Mark. und J. Wright. (2007). Two-sided markets, competitive bottlenecks and exclusive contracts, Economic Theory 2007, Vol. 32, p. 353 – 380.

[266] Blaschczok, M. (2015). Kartellrecht in zweiseitigen Wirtschaftszweigen, Wirtschaftsrecht und Wirtschaftspolitik 276 p. 36.

[267] Franck, J. U. and Peitz, M. (2019). Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).

[268] Ibid.

[269] Ibid.

[270] Booking.com, UOHS decision, Case No. S0664/2015/KD, (2016), and appellate UOHS decision, Case no. R0219/2018/HS), (2019).

the connection search websites / engines of single transport service providers. However, it felt that the presence of multi-homing did not mean that these services were fully substitutable, and it upheld a multiple-markets approach in the market definition.

- In *CTS Eventim*[271], where the market was separately defined for each user side, the German NCA found that advance booking offices engaged in 'sequential multi-homing', in the sense that they prioritised CTS Eventim and used additional ticketing platforms only occasionally when this appeared profitable. While contemplating whether this established a stand-alone market for the CTS Eventim platform (to the exclusion of other ticketing platforms), the German NCA, ultimately, left this issue undecided.
- The role of multi-homing and single-homing decisions of users was investigated by the Dutch NCA in the app stores study[272], in the context of assessing lock-in effects. In this case, the Dutch NCA's view was that Apple's and Google's markets for app stores were separate from one another (thus the iOS app ecosystem was a separate market from Google's Google Play store app ecosystem). When discussing business models, the NCA established that there are many reasons why users are locked in and cannot multi-home between app stores. This is discussed further in depth under digital ecosystems (section 3.2 of this chapter). It is worth mentioning that the Dutch NCA started an investigation into a possible abuse by Apple in its Apple App Store as a direct result of the above-mentioned market study on the mobile app stores[273]. This investigation was still ongoing at the date of drafting this report. In the pending investigation, the NCA, insofar as it preliminarily investigates, among other aspects, whether Apple acted in violation of the prohibition of abuse of dominance, for example, by giving preferential treatment to its own apps, appears to hold the preliminary view that Google's app store constitutes a separate market from Google's.
- In its 2020 Report on online advertising[274], the UK CMA looked at the lack of multi-homing on the side of users for social media (due to factors such as limited interoperability as well as the time cost for consumers to set up an account on another platform). The lack of multi-homing on the side of advertisers as a factor (evidenced by a qualitative survey of advertisers) was also pointed out by the NCA: as a result, advertisers did not see competitors of Google and Facebook as alternatives.
- Similarly, in the US, the market definition underlying the plaintiffs' assertion in the pending Apple litigation (*Epic v Apple*)[275] followed the European Commission's decision in *Google Android*[276]: this assertion rested on the assumption that consumers are single-homers, as they make a discrete choice of either using a device based on Apple's or Android's mobile operating system.

[271] German NCA, CTS Eventim, Decision No. B 6 – 132/14-2, (2017).

[272] Dutch NCA, Market study into mobile app stores, (2019).

[273] Dutch NCA, ACM launches investigation into abuse of dominance by Apple in its App Store, available at: https://www.acm.nl/en/publications/acm-launches-investigation-abuse-dominance-apple-its-app-store.

[274] CMA, Online platforms and digital advertising market study,(2020) available at: https://assets.publishing.service.gov.uk/media/5fa557668fa8f5788db46efc/Final_report_Digital_ALT_TEXT.pdf

[275] Epic v. Apple, Case No. 1377/5/7/20 (2020).

[276] Google Android, Case No. AT.40099, (2018).

As such, the Apple and Android app stores cannot be used interchangeably, much as the abovementioned Dutch study[277] on app stores found.

When single- and multi-homing patterns play a role, NCAs decisions consider that typically there is a need to look at **users' behavioural patterns** on all sides of the platform.

- An analysis of the Brazilian NCA's final decision on the *Google Shopping* case[278] and of the UK CMA's 2020 report on online advertising[279] highlight that it is at first relevant to analyse all sides of a platform market (especially the advertiser's side, in cases of advertising based-business models), prior to reaching any conclusions as to what type of competitive constraints a platform could face.

Consumer bias is mentioned in terms of consumer pattern to single-home in Brazil and in the US.

- In the Brazilian *Google Shopping* case[280], Google had an important differentiator relative to other forms of online advertising. The NCA found that users who perform a product search on Google are more likely to purchase based on advertising than users of other platforms such as social networks. The Brazilian NCA mentions that Google's differential was called a 'qualified click', which reflected the significant increase in the conversion rate for the purchase of advertising made on that platform. The 'qualified click' was deemed to be a competitive advantage which, among other elements, puts Google in a position of not having substitutes on the advertising side of the platform. Hence, it impacts how market is defined on the advertising side.
- The 2019 US Congressional Report[281], when discussing switching costs and single-homing patterns, states that 'some consumers may exhibit behavioural biases that render their initial choice of a platform 'sticky,' making them unlikely to switch platforms even when presented with superior alternatives'. It also cites the Stigler Committee on Digital Platforms Final Report[282] to this end.

Multi-homing versus single-homing plays also a role in the context of the assessment of market power. The multi-homing/single-homing framework is at times taken into account not at the stage of market definition but (only) when considering the actual or potential effects a merger or any other relevant market conduct by the platform may have on competition, and in particular when looking into whether market power exists.

- In the Brazilian *Google Shopping* case[283], the Rapporteur Commissioner's vote mentions that the presence of multi-homing on one side of the platform was not sufficient to remove Google's competitive advantage, considering that there were no effective substitutes on the advertisers' side.

[277] Dutch NCA, Market study into mobile app stores, (2019).

[278] E-Commerce Group vs. Google, Administrative Proceeding No. 08012.010483/2011-94 (2013).

[279] CMA, Online platforms and digital advertising market study,(2020) available at: https://assets.publishing.service.gov.uk/media/5fa557668fa8f5788db46efc/Final_report_Digital_ALT_TEXT.pdf

[280] E-Commerce Group vs. Google, Administrative Proceeding No. 08012.010483/2011-94 (2013).

[281] Freeman, W.C., Skyes, J.B., Antitrust and 'Big Tech', published by Congressional Research Service, (2019), available at: https://fas.org/sgp/crs/misc/R45910.pdf.

[282] Stigler Center News, (2019). Stigler Committee on Digital Platforms: Final Report.

[283] E-Commerce Group vs. Google, Administrative Proceeding No. 08012.010483/2011-94 (2013).

- The same conclusion was drawn by the German NCA in *Facebook*.[284]

Box 5: Implications of multi- or single-homing – main findings

(i) The presence of single- and multi-homing has not in practice been conclusive for defining relevant markets (whether a single market should be defined or not). This is because there is a need to also look at other factors such as the pricing scheme of alternatives and the degree of heterogeneity among services or products. Having said that, homing decisions in one side of the platform may have an impact on homing behaviour on the other side of the platform. As a result the boundaries of the market may change.

(ii) Sometimes, multi-homing is addressed at the stage of the assessment of market power rather than of market definition. In several instances, we found evidence of a link between multi-homing as a consumer pattern and lower barriers to entry. Yet, the presence of multi-homing on one side of the platform does not mean that there are no competition issues (especially when there is single-homing on the other side). Both sides need to be looked at.

3.2 Defining relevant markets for digital ecosystems

In this section we discuss how digital ecosystems impact market definition, including by looking at points of convergence, divergence and gaps with the MDN. Literature on the subject is developing and decisions of the NCAs are very few.

3.2.1 Definitions

In this sub-section, we first look into the definitions of ecosystems, digital ecosystems and platform ecosystems.

Ecosystems: Jacobides *et al*[285] define ecosystems as '*groups of firms that must deal with either unique or super-modular complementarities that are non-generic, requiring the creation of a specific structure of relationships and alignment to create value*'[286].

Later on, Jacobides and Lianos[287] note that the concept of 'ecosystem' refers to multi-actor ecosystems and to multi-product ecosystems[288], defined as follows:

- Multi-actor ecosystems consist of groups of firms that collaborate to create value that no single firm could have created alone[289]. Much of the academic work in the context of business strategy studies on ecosystems refer to this interpretation.

[284] German NCA, Facebook, Decision No. B 6-22/16, (2019), and OLG Düsseldorf, appeal Decision No. Kart 1/19 (V) (2019), and Bundesgerichtshof, last instance Decision No. KVR 69/19 (2020).

[285] Jacobides, M.G., Cennamo C., Gawer A. 2018. Towards a theory of ecosystems. Strategic Management Journal 39(8): 2255–2276.

[286] Ibid.

[287] Ibid. Also see Jacobides, M. G. and Lianos, I. (2021),Ecosystems and competition law in theory and practice. Available at SSRN: https://ssrn.com/abstract=3772366 or http://dx.doi.org/10.2139/ssrn.3772366.

[288] Jacobides, M. G. and Lianos, I. (2021).,Ecosystems and competition law in theory and practice. Available at SSRN: https://ssrn.com/abstract=3772366 or http://dx.doi.org/10.2139/ssrn.3772366. For a theoretical discussion, see Jacobides, M.G., Cennamo C., Gawer A. 2018. Towards a theory of ecosystems. Strategic Management Journal 39(8): 2255–2276.

[289] OECD, Digital competition policy: Are ecosystems different? – Note by Amelia Fletcher; Jacobides, M. G. and Lianos, I.,Ecosystems and competition law in theory and practice (2021). Available at SSRN: https://ssrn.com/abstract=3772366 or http://dx.doi.org/10.2139/ssrn.3772366.

- Multi-product ecosystems refer to the collection of different types of products and services offered by a single firm, often through separate divisions[290].

Ecosystems are not merely an online phenomenon. Examples of offline ecosystems comprising primary and secondary product (after)markets include cars and auto parts/repair services, printers and ink cartridges, or computers and software[291].

Digital **ecosystems** can be singled out because of some unique characteristics. There are many interpretations of what a digital ecosystem consists of[292]. One definition is also provided by Hazlett *et al*[293], defining the digital ecosystem as '*a number of firms – competitors and complementors - that work together to create a new market and produce goods and services of value to customers'*. This definition was adopted by the UK CMA and the French NCA in their joint paper[294][295].

Various components of a digital ecosystem can include:

- an interface enabling the various components of a system to be compatible, such as an operating system (e.g. Apple's iOS);
- hardware, which generally consists of durable goods, such as computers or electronic devices or connected goods, e.g. a smartphone, tablet or multimedia console;
- software, which consists of applications bought in or downloaded from application stores or preinstalled on the hardware;
- content: music, audio-visual, newspapers, e-books, etc. that can be listened to or read on the system's hardware or software and bought or accessed from electronic stores that may belong to the system owner.

Crémer *et al*[296] suggest that digital ecosystems evolve from successful digital platforms. The digital ecosystem is typically characterised by a primary core product and (complementary) secondary products[297]. A platform is developed to deliver these products which intermediate between multiple market sides, such as between consumers, producers, advertisers or developers. From that perspective, digital ecosystems may also behave as multi-sided markets (see section 3.1.1).

[290] Jacobides, Michael G. and Lianos, Ioannis, Ecosystems and competition law in theory and practice (January 24, 2021). Available at SSRN: https://ssrn.com/abstract=3772366 or http://dx.doi.org/10.2139/ssrn.3772366.

[291] OECD background paper Competition Issues in Aftermarkets (2017).

[292] For example, OECD paper: Competition Economics of Digital Ecosystems – Note by Georgios Petropoulos (2020), where he writes that:'Digital ecosystems can be described as digital resources that enable efficient interactions between producers, content providers, developers, consumers and other users that lead to value creation from (online or even offline) trade.' See OECD paper: Taking Ecosystems Competition Seriously in the Digital Economy– Note by Nicolas Petit and David J. Teece (2020), where they specify that: 'A digital ecosystem is typically reliant on the technological leadership of one or more firms that provide a 'platform' around which other system members called 'complementors', i.e. supply chain actors providing inputs and complementary goods, align their investments and strategies'.

[293] Hazlett, T, Teece, D and Wavermann, L (2011): Walled Garden Rivalry: The Creation of Mobile Network Ecosystems. George Mason University Law and Economics Research Paper Series, 11 (50).

[294] CMA / Autorité de la concurrence joint paper: The economics of open and closed systems (2014).

[295] Jacobides, M. G. and Lianos, I.,Ecosystems and competition law in theory and practice (2021). Available at SSRN: https://ssrn.com/abstract=3772366 or http://dx.doi.org/10.2139/ssrn.3772366.

[296] Crémer, J., de Montjoye, Y. A., & Schweitzer, H. (2019). Competition policy for the digital era. Report for the European Commission. https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf.

[297] Eaton, B., Elaluf-Calderwood, S., Sørensen, C., & Yoo, Y. (2011): Dynamic structures of control and generativity in digital ecosystem service innovation: the cases of the Apple and Google mobile app stores. London School of Economics and Political Science, 44(0), 1-25.

The OECD[298] considers digital platforms to be '*almost inherently multi-actor ecosystems, in that they create value by allowing communities of actors to engage in some way via the platform'*. Typically, the biggest digital players also offer multi-product ecosystems. Further, a platform-ecosystem is defined as an ecosystem that supports a collection of complementary assets, with one platform as central controller of the underlying architecture that functions as a hub within the technology-based business system[299].

The last decade has seen the growth of business ecosystems, namely, groups of connected firms, drawing on (digital) platforms which may leverage their complementors and may lock-in their customers, thus exploiting the 'bottlenecks' that emerge in new industry architectures. As a result of this phenomenon, asymmetries of power have emerged in the competition landscape among various industry players. In such new landscape – Jacobides and Lianos argue[300] – the 'field' of competition is less about individual products or services, but rather the broader ecosystem of various complementary products and associated complementor players.

3.2.2 Challenges for market definition

The main characteristic of ecosystems is that they introduce complementarities between products, possibly also inducing complementarities that may not be naturally present, thus generating and extending network effects into new markets. The nature of ecosystems poses a challenge in defining the relevant market, as it raises the question of whether one or more than one ecosystem should comprise the relevant market, and which products/services it should encompass.

The MDN considers that the definition of a relevant market is a tool aiming to determine 'in a systematic way the competitive constraints that the undertakings involved face'. Yet, in the MDN, market definition focuses on substitutability and on the metric used to measure market power — market share[301]. These concepts do not account well for the issues raised by intra-ecosystem competition, where the relevant issue is not substitutability through horizontal rivalry, but competition for the rents emerging from complementarities[302].

A particular challenge for market definition, then arises in the context of multisided and multi-actor ecosystems. While the '*standard relevant market approach explicitly focuses on the average behaviour in one of the system's components (i.e., firms producing neatly separable, substitutable products) and the deviations of individual components from this average (e.g., higher prices, lower quality, and reduced*

[298] OECD, Digital competition policy: Are ecosystems different? – Note by Amelia Fletcher (2020).

[299] Thomas, L.D.W, Autio, E, Gann, D.M., Architectural leverage: putting platforms in context The Academy of Management Perspectives 28 (2), 198-219, 2014. See also, more recently, Thomas, Llewellyn and Autio, Erkko, Innovation Ecosystems (October 28, 2019). Available at SSRN: https://ssrn.com/abstract=3476925 or http://dx.doi.org/10.2139/ssrn.3476925: 'Platform ecosystems are innovation ecosystems that emphasize the role of technological dependencies in the ecosystem and mostly focuses on a specific class of technologies—namely, a shared connectivity interface broadly referred to as a 'platform''.

[300] Jacobides, Michael G. and Lianos, Ioannis, Ecosystems and competition law in theory and practice (January 24, 2021). Available at SSRN: https://ssrn.com/abstract=3772366 or http://dx.doi.org/10.2139/ssrn.3772366.

[301] In particular, under the MDN, the boundaries of the relevant market depend on the existence of cross-price elasticities of demand and supply, and the degree to which two products may be substitutable for each other.

[302] Jacobides, M. G. and Lianos, I.,Ecosystems and competition law in theory and practice (2021). Available at SSRN: https://ssrn.com/abstract=3772366 or http://dx.doi.org/10.2139/ssrn.3772366; Crane, D. 2019. Ecosystem Competition and the Antitrust Laws, 98 Nebraska L. Review, 412 and Lianos, I., Competition Law for the Digital Era: A Complex Systems' Perspective, available at: papers.ssrn.com.

innovation)', this approach fails to '*appreciate the dynamics of multi-product and multi-actor ecosystems*'[303].

In consideration of the above, relevant market definition in the context of digital ecosystems must take into account different factors as follows:

- The **characteristics of the ecosystem's business model**, especially with regard to their open or closed nature. The literature[304] on this is relatively scarce, so as for the NCAs decisional practice or their sectorial studies.
- The **level of interoperability** between components of different ecosystems: interoperability, especially between mobile operating systems, is a key element taken into consideration by NCAs' decisional practice when defining the relevant market. The lack of interoperability is a factor which further contributes to high switching costs and lock-in effects for consumers**.**

3.2.3 Closed, open, and interoperable ecosystems

The implications of interoperability and the open or closed nature of digital ecosystems for market definition are addressed in this sub-section.

Armstrong[305] distinguishes the following ecosystem business models:

- Closed business model: for instance, a firm may focus on selling many components directly to the users of its systems, especially own devices (mobile devices, computers, etc.) and have its own exclusive application store. This business model is more focused on the sale of electronic devices than on monetising an intermediary position.
- Open business model: Alternatively, a firm may focus on acting more as an intermediary between users of its services and sellers of complementary products and services. In this business model, the aim of attracting as many users as possible to its own services is more pronounced.

In practice, there are seldom pure examples of large open or closed ecosystems. Apple may be a good example of a relatively closed ecosystem in that third party products are not usually compatible with Apple products. Amazon may be another example as it closed off a branch of its ecosystem with the Kindle e-book reader. In contrast, Symbian, a discontinued mobile operating system and computing platform designed for smartphones, which operated open source, may be an example of an open ecosystem[306]. An example of open ecosystem is Apache, which operates based on open source[307]. Lately, even Apple iOS has gradually opened up to the extent external app developers may sell their apps via App Store, and Apple's revenue share from services has been increasing at a faster pace than its revenues from the sale of devices[308].

- The French and the UK CMA, in their joint paper, provide the following definitions of open and closed digital ecosystems: a digital ecosystem is called an 'open

[303] Jacobides, Michael G. and Lianos, Ioannis, Ecosystems and competition law in theory and practice (January 24,2021). Available at SSRN: https://ssrn.com/abstract=3772366 or http://dx.doi.org/10.2139/ssrn.3772366.

[304] OECD (2020), Jacobides et al (2018, 2020, 2021), Crane (2019).

[305] Armstrong, M. (2006): Competition in two-sided markets. RAND Journal of Economics, 37 (3), 668–691 for the case of a monopoly platform.

[306] West, J., Wood, D. (2014), Evolving an Open Ecosystem: The Rise and Fall of the Symbian Platform.

[307] Apache Hadoop, for example, is a collection of open-source software utilities facilitating using a network of many computers to solve problems involving massive amounts of data and computation.

[308] https://www.forbes.com/sites/greatspeculations/2020/02/25/apples-services-to-top-50-billion-profits-by-2025--beating-iphone/?sh=87d34be53dbf.

system' if it is equipped with an interface that is accessible to component makers or system developers other than the system owner itself. It thus can work with a relatively wide variety of other components available on the market. On the other hand, under a 'closed system', each component can work only with selected components[309].

- Implicit in the joint NCAs' definition of an open digital ecosystem is that there is a 'market' where secondary products are transacted, which is not necessarily limited to transactions within the ecosystem. This implies that these secondary products can be used outside the ecosystem. However, if secondary products are to work with a range of primary products, interoperability between them and the primary products is required. Consequently, this definition goes beyond Armstrong[310]'s definition of openness to also require interoperability. From the joint French and UK CMA s[311] perspective, it can be inferred, absent interoperability, complementors are limited to supplying their products only inside the ecosystem, and there is a risk that the ecosystem can, by controlling the transactions within it, capture the benefits of complementor competition, rather than pass them on to users.

The more open or more closed nature of ecosystems has implications for market definition.

At one end of the spectrum, in a **fully closed system**, only the system owner develops compatible complements. In this case, the 'product' over which market power might be exercised is the combination of 'core system' and 'complements'. A market with these characteristics can be competitive if consumers anticipate the lock-in and can choose over a range of alternative core-system/complements units. The market may therefore need to be defined at the level of the 'ecosystems'.[312] If more than one ecosystem offer substitutable products or services to users, whether open or closed, they would be included within the same relevant market.

At the other end of the spectrum, in a **fully open and interoperable system**, there are multiple competing suppliers of compatible complements, and these complements are compatible, or interoperable, for use across a range of core-systems. In this case, there are two separate levels at which competition can operate – at the level of the supply of complements and at the level of the system owner[313]. It may therefore be adequate to define separate markets – one where complementary products' suppliers compete, and one where the system owner competes with owners of alternative systems.

There is an **intermediate case** where the ecosystem is open in relation to complementors developing and selling their products within the ecosystem, but there is limited or no interoperability between complementary products of different ecosystems. In this case, there is competition among multiple suppliers within the ecosystem, but their products have little or no value outside the ecosystem. In this

[309] CMA / Autorité de la concurrence (2014), Joint paper: The economics of open and closed systems.

[310] Armstrong, M. (2006): Competition in two-sided markets. RAND Journal of Economics, 37 (3), 668–691 for the case of a monopoly platform.

[311] Ibid.

[312] In this case, it could be argued that the 'aftermarket' of this ecosystem is a relevant market, where the ecosystem owner can overcharge locked-in users for complementary products. However, given the dynamic nature of these markets, it is unlikely that customers are unable to anticipate this at the time of selecting an ecosystem.

[313] A fully open system is an oxymoron because systems are, by definition, different from their environment and must therefore be closed in some respects. Similarly, it is hard to come up with an example of a fully closed system, because even the most locked-down, tethered appliance must at least connect with the power grid.' (see Kaiser, H F (2011): Are 'Closed Systems' an Antitrust Problem? Competition Policy International, 7 (1), 91–113).

case, competition among complementary products' suppliers may be unable to counteract the effects of market power at the level of the ecosystem owner. For example, the ecosystem owner can charge very high access fees to the component suppliers. This would in turn lead to high prices on the components market even if competition among component suppliers is very strong.

The more closed an ecosystem is, the more appropriate a market definition at ecosystem-level may be. By contrast, if the system is sufficiently open, there should be no reason to define a separate market for the complementary products of a particular ecosystem, separate from interoperable components from outside the ecosystem.

In the abovementioned intermediate case, where competing secondary product suppliers exist, but their products have value only inside the ecosystem (e.g. because there is no interoperability across systems), the question of defining a separate market for secondary products is more nuanced. In these cases, the question of market definition needs also to take into account the focus of a particular case. If the focus is related to concerns of weak competition at the core-system level, then defining separate markets for secondary products, which cannot be sold outside the system, may be unhelpful. A single market, at the ecosystem level, would better allow an analysis of the competitive effects in question. On the other hand, if in a particular case there is a concern about certain secondary product suppliers developing market power, then defining a separate market for those secondary products, even if they are only transacted within the ecosystem, may be adequate[314].

- There is only one instance of NCA practice[315] where interoperability of mobile operating systems plays a decisive role on how the relevant product market is defined. In Epic v Google, the US District Court Northern District of California found that there is a relevant product market for the distribution of apps compatible with the Android OS to users of mobile devices (the Android App Distribution Market). This market is comprised of all the channels by which mobile apps may be distributed to the hundreds of millions of users of mobile devices running the Android OS. The market primarily includes Google's dominant Google Play Store, with smaller stores, such as Samsung's Galaxy Store and Aptoide, trailing far behind. Nominally only, the direct downloading of apps without using an app store (which Google pejoratively describes as 'sideloading') is also within this market'[316]. The case further explains that consumers may not substitute an Android app store with other app stores, such as Apple Store, because app stores are OS-specific, i.e. they distribute only apps that are compatible with the specific mobile OS on which the app store is used[317]. As such, non-Android mobile app stores cannot substitute for Android-specific app stores and therefore, they are not part of the Android App Distribution Market defined in this case.
- Another NCA study[318], without explicitly defining the boundaries of relevant markets for the purposes of competition law, suggests that interoperability of product between various ecosystems impacts how market players complete. In

[314] Crémer, J., de Montjoye, Y. A., & Schweitzer, H. (2019). Competition policy for the digital era. Report for the European Commission. https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf. p. 4 suggest similar arguments in relation to the circumstances when ecosystem-specific aftermarkets may need to be defined.

[315] Epic Games v Google, Complaint for injunctive relief, Case No. 3:20-cv-05671, (2020), available at: https://www.courthousenews.com/wp-content/uploads/2020/10/epic-v.-google.pdf.

[316] Ibid.

[317] Id., para 64.

[318] Dutch NCA, ACM (2019), Market study into mobile app stores.

the app stores study, the Dutch NCA notes that the lack of interoperability between the two app-ecosystems (iOS and Android) also causes high switching barriers for consumers and makes it costly for developers to offer their app in both app-ecosystems[319]. This is yet another factor which adds to the NCA's view that Android users and iOS users are different, leading to the NCA's opinion that the two app-ecosystems could be viewed as separate markets[320]. The NCA indicated that if app providers offer their app only for a single app-ecosystem, iOS or Android, they '*miss out on a whole market since Android users are different from iOS users, they could be viewed as separate markets'*[321]. The NCA further specifies that '*the lack of interoperability and high switching costs leading to path dependency also cause a lack of competition between both app-ecosystems over consumers*.' According to the NCA, the competition between Apple and Google is about becoming the default gateway for consumers to reach online content, rather than becoming dominant on a market for apps or mobile OSs[322]. On January 19, 2021, the 10th Amendment of the German Competition Act ('ACR') entered into force, also known as 'GWB Digitalisation Act' (the 'Amendment'). Among others, the Amendment introduces a completely new category of market power, targeted at companies with *'paramount significance for competition across markets'*. The rationale of this is that, while '*large digital players may not have significant market shares in all affected markets, they may nevertheless have significant influence on these markets due to their key position for competition and their conglomerate structures (also referred to as gatekeepers)*'[323].

- It is possible to read the CMA new Merger Guidelines[324] as suggesting to move away from market definition.

Two diverging approaches from the MDN's traditional approach of relevant market definition can be observed, in the forthcoming framework on ecosystems in Greece and the UK, with both proposals doing away with market definition altogether. Below a brief reference to each of these examples.

- The UK CMA, in the UK new digital markets regime[325] lays down a regulatory proposal '*on a code of conduct adapted to each firm's business and to the industry architecture overall'*[326]. According to it, each firm that meets the threshold of 'Significant Market Status' would have to adhere to a specific code of conduct that delimits its conduct. It constrains the configuration of the ecosystem's architecture by setting out clear upfront rules.
- In Greece[327], the Law Commission suggested the addition of a new provision to the current competition law act (when its application cannot remedy the

[319] Dutch NCA, ACM (2019), Market study into mobile app stores, p. 67.

[320] Id., p. 52.

[321] Ibid.

[322] Dutch NCA, ACM (2019), Market study into mobile app stores, p. 67.

[323] Gibson Dunn, 'Digitalisation Act': significant changes to German competition rules, January 2021.

[324] CMA Merger Assessment Guidelines. (2021).

[325] CMA, A New Pro-Competition Regime for Digital Markets, Advice of the Digital Markets Taskforce, December, 2020.

[326] Jacobides, Michael G. and Lianos, Ioannis, Ecosystems and competition law in theory and practice (January 24, 2021). Available at SSRN: https://ssrn.com/abstract=3772366 or http://dx.doi.org/10.2139/ssrn.3772366

[327] Ibid.

competition issue at hand), whereby an undertaking holding a dominant position in an *ecosystem* of paramount importance with regards to competition in Greece would be prohibited from abusing its dominance. An ecosystem would be defined as '*a web of interconnected and largely interdependent economic activities carried out by different undertakings with the intention of supplying products, services or a nexus of products and/or services that impact the same set of users, or a platform of economic activities carried out by different undertakings with the intention of supplying products, services or nexuses of products and/or services that impact the same users or different categories of users*.' This definition would encompass both multi-product and multi-actor ecosystems. The amended law would also focus on both business models and on the architecture of ecosystems. It would state that the Greek NCA, in considering ecosystem issues '*shall take into account in particular the business model of the ecosystem, the rules governing the relations of the parties involved in it and the objective justification of the observed commercial practices.'*

Box 6: Closed, open, and interoperable ecosystems – main findings

(i) The more closed an ecosystem is, the more appropriate a market definition at ecosystem-level may be. By contrast, if the system is sufficiently open, there should be no reason to define a separate market for the complementary products of a particular ecosystem, separate from interoperable components from outside the ecosystem.

(ii) Most evidence on how interoperability impacts market definition comes from the literature. When digital companies compete by offering products or services which are interoperable with the rest of the ecosystem, but not other ecosystems, an ecosystem aftermarkets approach may be appropriate. In this case, if the focus is competition at the core-system level, a single market, at the ecosystem level, would better allow an analysis of the competitive effects in question. On the other hand, if the concern is about certain secondary product suppliers developing market power, then defining a separate market for those secondary products may be adequate.

(iii) There is no sufficient evidence from the NCA approaches on how interoperability of products within an ecosystem with other ecosystems play a decisive role on market definition.

3.2.4 Ecosystem interoperability, cluster markets and aftermarkets

3.2.4.1 Cluster markets

Ecosystems can be interpreted as clusters or bundles of products and services. This interpretation also provides some insights for market definition, such as the role of substitutability between ecosystems and other forms of transacting the products or services that the ecosystem offers. In 1963, the Supreme Court in *The United States v. Philadelphia National Bank* addressed the question of whether certain bundles of products and/or services form a relevant market distinct from the markets where individual components of the bundle are transacted[328]. The Court introduced the term 'cluster markets' which is defined as a market where competition revolves around the joint supply of economically distinct, but complementary, products.

A cluster market may exist if the transactional complementarities are such that consumers do not consider 'unbundling' a suitable alternative to the purchase of the bundled or clustered products. The feasibility of unbundling in relation to cluster

[328] United States v. Philadelphia Nat'l Bank, 374 U.S. 321 (1963).

markets has a parallel with the concept of interoperability in the context of ecosystems, especially interoperability with products or services offered by undertakings outside the ecosystem. Therefore, low levels of interoperability could indicate the recognition of the ecosystem-level as a relevant market separate from the supply of individual products or services outside the ecosystem. However, a challenge in defining an ecosystem as a relevant market is deciding which products of the ecosystems to include and which to exclude, given that different products within a particular ecosystem may have varying degrees of substitutability with outside products.

Cluster markets have been dealt with by the **Dutch NCA**, which defined the relevant market in the context of integrated mobility at an ecosystem-level. In the case *Netherlands/NS Groep N.V./JV* (2020)[329], the Dutch NCA looked at mobility-as-a-service (MaaS) services. MaaS is a digital platform (usually an app) which displays different modes of transport and under which a traveller can plan, book and pay for a complete journey, based on personal preferences and real-time travel information. MaaS meets the criteria of a typical multi-product ecosystem, as it collects and provides different mobility services (from travel options to booking, payment and real-time travel schedules) and is offered by a single specific MaaS provider. The NCA addressed the question whether MaaS services would form a relevant market distinct from the markets where individual components of the bundle are transacted, in this case individual transport services. The Dutch NCA's definition of what the market for an integrated provision of transport and mobility services via an app should include was narrower than that from the Commission, who had referred the case to the NCA. The Commission indicated in its referral decision that the market includes both (i) mobility and transport service providers that make their own services available to travellers (usually via apps), and (ii) MaaS service providers that offer a bundle of mobility and transport services (together with support services and payment options). The Dutch NCA was of the view that mobility and transport service providers that make their own services available to travellers do not belong to the same market as MaaS service providers. The Dutch NCA noted that MaaS services will develop into a market in which providers of MaaS services are in competition with each other in the foreseeable future. Thus, the Dutch NCA considers that the provision of MaaS services should be considered as a separate market, or could be considered as a separate market in the foreseeable future. In this context, the NCA points out that 'companies active in the field of MaaS have the same goal: to continuously expand the 'bundle' of mobility services and support services they offer, in order to create one complete and integrated mobility offer for travellers.

3.2.4.2 Aftermarkets[330]

There are parallels between the analysis of relevant markets in non-interoperable ecosystems (including closed ecosystems but also open ecosystems with limited interoperability) and aftermarkets.

In aftermarkets, the question is whether lock-in effects are so extreme that the aftermarket ought to be defined as a separate product market.

The MDN provides some specific guidance on aftermarkets at para 56, stating that a '*narrow definition of market for secondary products, for instance spare parts, may result when compatibility with the primary product is important. Problems of finding compatible secondary products together with the existence of high prices and a long*

[329] Pon Netherlands/NS Groep N.V./JV, Case 20/038614, (2020).

[330] Aftermarkets are markets for the supply of products or services needed for or in connection with the use of a relatively long-lasting piece of equipment that has already been acquired. Typical examples include cars and auto parts/repair services, printers and ink cartridges, and computers and software (see OECD, Competition issues in aftermarkets, Background Note by the Secretariat, (2017), available at https://www.oecd.org/competition/aftermarkets-competition-issues.htm).

lifetime of the primary products may render relative price increases of secondary products profitable.' The MDN also goes on to indicate conditions under which such a market definition might be too narrow: *'A different market definition may result if significant substitution between secondary products is possible or if the characteristics of the primary products make quick and direct consumer responses to relative price increases of the secondary products feasible'*.

Market definition in digital ecosystems reveals some parallels with the context of primary products and their aftermarket or secondary products. In its earlier work, the OECD [331] addresses three distinct approaches to defining relevant markets: (i) multiple markets; (ii) system markets; and (ii) dual markets. In the below paragraphs, these concepts are briefly described and contextualised in the framework of the MDN's approach to aftermarkets.

First, *multiple markets* occur when there is one market for the primary products on the one hand and separate aftermarkets for the secondary products that correspond to each one of the primary products on the other. According to OECD[332], this approach is more suitable where customers can only choose between a restricted number of secondary, complementary products that are compatible with the primary product[333].

A market for secondary products (specific to a given primary product) separate from the primary product can be defined if consumers are locked in to using a secondary product compatible with the primary product and the switching costs across primary products are very high. Thus, the conditions would be met where there was no interoperability between the secondary products of different systems, and if users face high costs in switching at the core product level[334]. The multiple markets approach, insofar as it considers interoperability important, is in line with the MDN which states that '*a narrow definition of market for secondary products may result when compatibility with the primary product is important'*[335].

Second, in *system markets* each primary product and its complements form a system and such systems compete with each other in a systems market. This approach is more suitable where either (i) customers consider the whole life-cycle cost of such systems when purchasing the primary product[336], or (ii) the primary goods supplier does not charge a supra-competitive price for the secondary product due to possible negative recoil effects[337]. This is also in line with the MDN's approach to aftermarkets, under which '*a different market definition – than a narrower multiple markets approach - may result if the characteristics of the primary products make quick and direct consumer responses to relative price increases of the secondary products feasible'*[338].

In the case of system markets, the aspect of whether customers assess their engagement with an ecosystem in life-cycle terms is a particularly important condition

[331] OECD, Competition issues in aftermarkets, Background Note by the Secretariat, (2017), available at: https://www.oecd.org/competition/aftermarkets-competition-issues.htm.

[332] OECD (2017): Competition issues in aftermarkets – Background note by the OECD Competition Division, DAF/COMP (2017)2 published on April 28, 2017.

[333] Id., para 6.4 and p. 21.

[334] OECD (2017): Competition issues in aftermarkets – Background note by the OECD Competition Division, DAF/COMP (2017)2 published on April 28, 2017.

[335] Market Definition Notice para. 56.

[336] Id., para 91.

[337] OFT Market definition: Understanding competition law (2004).

[338] Market Definition Notice para. 56

for a market definition at system level. It is challenging to determine whether the second condition is met in a digital ecosystem, i.e. whether the primary goods supplier charges a supra-competitive price, given that prices for individual complementary products or services are driven by network effects, relative demand elasticities, the presence of switching costs and possibly competition in other business areas of the ecosystem. Thus, it is often difficult to assess the absence of supra-competitive prices for secondary or complementary products.

Lastly, *dual markets* refer to markets for the primary product and an aggregated distinct market for all available secondary products[339].

According to the OECD[340], where neither a market for systems nor multiple markets can be identified, the relevant markets may consist of a market for the primary products and a distinct market for the secondary products (so called dual market approach). In the case of printers and ink cartridges, for example, this would mean defining one market for all printers and a separate, common aftermarket for all ink cartridges. The UK CC, in its 2004 old MDN Guidelines, considered that dual markets exist '*where secondary products are compatible with all primary products (and perceived to be so by customers)*'[341]. This is in line with the MDN, too, insofar as in it the Commission states that '*A different market definition – than a narrower multiple markets approach - may result if significant substitution between secondary products is possible or if 'the characteristics of the primary products make quick and direct consumer responses to relative prices increases of the secondary products feasible[342]'.*

3.2.4.3 Switching costs and degree of lock-in to the ecosystem as relevant criterion in market definition

In the literature, Amelia Fletcher, in a note to the OECD[343] further discusses the current economic theory on the competition issues of digital ecosystems, and carries out some interesting observations that also touch upon market boundaries, including in the context of the multiple markets competition phenomenon. According to her, in many (non-digital) markets robust competition between corporations which are active across multiple markets can be observed: indeed, multiple markets can arguably also sharpen firms' incentives to offer consumers good value for money, since a consumer that chooses to switch away to a new provider in any one product market, may end up switching away across all markets[344]. According to her, in the digital context, matters complicate further: there may be barriers to switching across multiple markets, insofar as once '*a customer is using a range of different services from an ecosystem provider, it can become harder to switch away if that customer needs to switch away for all of its activities. This means that barriers to switching in one part of ecosystem can potentially limit switching more widely (For example, I am wedded to the whole Apple ecosystem partly by the fact that I don't want to think about how to shift my photo storage over from the iCloud)*'[345].

[339] OECD (2017), Competition Issues in Aftermarkets, DAF/COMP(2017)2, page 22: 'Namely, where neither a market for systems nor multiple markets can be identified, the relevant markets may consist of a market for the primary products and a distinct market for the secondary products (so called dual market approach)'.

[340] Ibid.

[341] OFT Market definition: Understanding competition law (2004).

[342] Market Definition Notice para. 56.

[343] OECD, Digital competition policy: Are ecosystems different? – Note by Amelia Fletcher, (2020).

[344] Ibid.

[345] Id., p. 6.

3.2.4.4 Can an aftermarkets approach inform market definition in the context of digital ecosystems?

Whether an aftermarket approach can be helpful in the context of ecosystems depends on the complexity of the governance of the ecosystem's architecture. According to Jacobides and Lianos[346], only *'simple ecosystems may be captured with an aftermarkets approach. Inasmuch as ecosystems impose limits to competition based on compatibility (which can be a form of non-generic complementarity) lock-in'*, the aftermarkets approach may be informative as to the effects on the primary market and/or the aftermarket affected the same category of users.

However, according to Jacobides and Lianos[347], the aftermarket perspective does not cover all the types of lock-in engendered by multi-sided platforms, which feature different market sides and therefore different categories of users that may be affected. As Alstyne *et al*[348] observe, multi-actor ecosystems require some sort of coordinating ecosystem architecture if they are to enable multiple, dispersed and ex ante uncoordinated actors to interact smoothly, which is even more the case when the ecosystem extends over multiple markets.

Box 7: Digital Ecosystems: 'Cluster markets' and Aftermarkets

(i) A cluster market exists when transactional complementarities are such that consumers do not consider unbundling a suitable alternative to purchase of the bundled products. It is possible that some ecosystems services can be consumed as 'unbundled' and thus, potentially, remain outside an ecosystem-level market definition.

(ii) Multiple markets and system markets are the most relevant and applicable approaches to defining the relevant market in digital ecosystems. In line with the MDN, multiple markets refer to a market for the primary products and system markets encompass primary products and the aftermarkets in one single market. Both these approaches are in line with the MDN.

(iii) Literature suggests the dual markets approach with separate markets for primary products and all secondary products would be appropriate only if very high levels of interoperability ensured that secondary products from all ecosystems competed with each other.

(iv) The NCAs' practice shows that lack of interoperability in digital ecosystems is a key factor in market definition, in parallel to aftermarket lock-in, potentially leading to separate markets being defined for some of the products or services offered within a given ecosystem.

3.3 Market definition and access to data

With the emergence of (user) data as an asset for market players operating in the digital economy, questions have arisen about the relevance of data for competition law enforcement. In particular: how data play a role under traditionally-defined product or service markets; whether data could constitute a separate input market; and, whether

[346] Jacobides, Michael G. and Lianos, Ioannis, Ecosystems and competition law in theory and practice (January 24, 2021). Available at SSRN: https://ssrn.com/abstract=3772366 or http://dx.doi.org/10.2139/ssrn.3772366.

[347] Ibid.

[348] Parker, G., and Van Alstyne, M. (2000). Information Complements, Substitutes, and Strategic Product Design.

defining markets for data is, or could be, useful to support the NCAs' competitive analysis, capturing more accurately how competition occurs in these markets.

The practice is almost inexistent on when the access to data plays a significant role in market definition. Access to data is often taken into account in the context of the assessment of competitive effects, rather than at the stage of market definition analysis. The scope of collection of user data is, in fact, typically considered as conferring to a platform a competitive advantage, since the possession of vast amounts of data creates barriers to entry, depending on specific circumstances. Several studies and cases, thus, discuss the factors which play a role in access to data creating barriers to entry[349]. Common pattern of the analysis is more relevant when it comes to the assessment of market power rather than in terms of market definition[350]. In the context of assessing market power, data is considered as an input (to a multi-sided platform) especially regarding the scale and scope of data collection in certain types of business models.

The literature is split on the elements and circumstances which could lead to relevant data markets being defined, but it appears that whether data is traded or not plays a role[351]. Yet, with minor exceptions[352], not much has been written on how data impacts market definition.

Because there is little practical information available, it is unclear to what extent NCAs are prepared to adapt their thinking and approach to product markets where data plays a role. The most relevant finding identified is that, according to their characteristics and conditions of usage, it may be appropriate to define a market for data separate from the markets for services to which the data serves as an input. In addition it has been analysed the possibility to identify a separate market for data when data is not traded.

3.3.1 Relevant types of data and their characteristics

'*Personal data is the new oil of the internet and the new currency of the digital market'*[353]. In fact, the evolution of technology has made it possible for companies, both small and big, to collect, store, and use large amounts of data. Data is '*not only one of the key ingredients of Artificial Intelligence but also a crucial input to many online services, production processes, and logistics'*[354]. Hence, to understand the nature of

[349] Graef, I. (2015). Market definition and market power in data: The case of online platforms. World Competition, 38(4), 473-505; Bourreau, M., de Streel A., and Graef I. (2017). Big Data and Competition Policy: Market power, personalised pricing and advertising. Available at http://www.cerre.eu/publications/big-data-and-competition-policy; Gal, M. and Rubinfeld, Daniel. L. (2016). The Hidden Costs of Free Goods: Implications for Antitrust Enforcement. Antitrust Law Journal,Vol. 80, No. 401, 2016, UC Berkeley Public Law Research Paper No. 2529425, NYU Law and Economics Research Paper No. 14-44, Available at SSRN: https://ssrn.com/abstract=2529425 or http://dx.doi.org/10.2139/ssrn.2529425.

[350] German NCA, Facebook, Decision No. B6-22/16, (2019). UK Competition Authority, Google / Looker (2020), ACM, Report A closer look at online vídeo platforms (2017). Portuguese NCA, Digital Ecosystems, Big Data and Algorithms (2019), http://www.concorrencia.pt/vPT/Estudos_e_Publicacoes/Estudos_Economicos/Outros/Documents/Digital%20Ecosystems,%20Big%20Data%20and%20Algorithms%20-%20Issues%20Paper.pdf, Australian NCA, Digital advertising services inquiry: interim report (2021), chapter 2. joint German NCA / French NCA study on Competition Law and Data (2016).

[351] Tucker, D. S., and Wellford, H.B. (2014). Big Mistakes Regarding Big Data. Available at SSRN: Scholarly Paper No. ID 2549044.

[352] One such exception is the work of Graef, I. (2015). Market definition and market power in data: The case of online platforms. World Competition, 38(4), 473-505.

[353] Speech by Meglena Kuneva – European Consumer Commissioner, Brussels 31 March 2009. Available at http://europa.eu/rapid/press-release_SPEECH-09-156_en.htm.

[354] Crémer, J., de Montjoye, Y. A., & Schweitzer, H. (2019). Competition policy for the digital era. Report for the European Commission. https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf.

data and their main features represent the first step to assess whether a separate market for data can be identified.

Actually, data may '*come in different forms, that include raw data; data analytics (processed data, focusing on meaningful indicators) and insights (for example, suggestions on a specific pricing strategy, marketing approach). In all these categories, data can also be personal or non-personal*'[355].

Regardless of the various typologies of data, their core value rests upon the amount of information that can be derived from it and the context in which it is used. Most business models in the digital economy are focused on the accuracy of predictions stemming from making use of data, in order to be more attractive for users and to drive more conversions on their platform[356]. Hence, '*in nowadays economy the ability to use data to develop new, innovative services and products is a competitive parameter whose relevance will continue to increase*'[357].

To verify whether a potential separate market for data can be identified, an important element is the so-called 'non-rivalry', meaning that data can be re-used and it can be collected by more than one party[358]. Although consumers may, through multi-homing in similar services, share their data and while certain data is also available for purchase, the tendency for a few big digital platforms to have exclusive access to some valuable data[359], including in B2B transactions, characterises today's digital economy[360].

This is especially true in multi-product ecosystems, given that one platform can track individual users across multiple services and/or devices of its own, significantly increasing the user database and the predictability of what information can be extrapolated from such data.

On the one hand, the dynamics of data-driven markets create effective entry barriers for smaller businesses, given that large entities have significant incumbency advantages in gathering data, analysing it properly and further improving algorithms. On the other hand, this could, in turn, entrench big digital platforms' market positions.

Indeed, in the reviewed decisional practice data is considered an important factor for competition and market power but has not been explicitly taken into account at the market definition stage. Notwithstanding this, below we provide main findings on the potential identification of separate market for data.

3.3.2 Defining a separate market for data

The existence of separate data markets is acknowledged by few NCAs. In France, the NCA[361] identified a specific market for data related to consumption of audio-visual

[355] Ibid.

[356] Calvano, E., and Polo, M., (2020). Market Power, Competition and Innovation in digital markets: A survey. Information Economics and Policy, 100853.

[357] Ibid.

[358] Lambrecht, A. and Tucker, C., Can Big Data Protect a Firm from Competition? (2015). Available at: http://dx.doi.org/10.2139/ssrn.2705530

[359] Digital platform markets of general search engines (https://gs.statcounter.com/search-engine-market-share), social networks (https://gs.statcounter.com/social-media-stats), mobile operating systems (https://gs.statcounter.com/os-market-share/mobile/worldwide) and internet browsers (https://gs.statcounter.com/) all exhibit strong concentrations on which one firm accumulated at least over 65% of the market share in terms of page visits.

[360] Vaida Gineikytė, Egidijus Barcevičius, Guoda Cibaitė, Business user and third-party access to online platform data, paper on study on 'Support to the Observatory for the Online Platform Economy' (2020).

[361] French NCA, France Télévisions, TF1 et Métropole Télévision.

content, including data collected by various types of sellers (distributors of TV channels, SVOD services, social network publishers or websites broadcasting audiovisual content). However, it left open the question of whether this market existed since the competitive analysis would have remained unchanged. There seems to be no analysis in this decision of data being traded.

The literature shows that it is possible to envisage a separate market for data where data is traded. According to Graef[362], current competition law standards only allow for the definition of a market for data where the information is actually traded[363]. In this respect, the Canadian NCA addresses key competition policy and enforcement themes relating to big data in a discussion paper and notes that when data is traded '*the closeness of competition between two firms selling data will depend on the extent to which customers view their data products as substitutable'*[364]. This suggests that a traditional analysis looking at demand-side substitutability being an important element in the product market definition is warranted. This analysis is in line with the MDN, which does not refer to data markets separate from product markets, but which puts demand-side substitutability at the core of the product market definition analysis.

A debate, however, is ongoing as to whether a separate market for data can be identified when data are not traded. We set out below the main findings of the study in this respect.

The challenge in identifying separate data market when data is not traded stands in the fact that no demand and supply can be detected because it is hard to establish some kind of economic exchange, calling into question the ability to define a 'market' for competition law purposes. That question shares certain similarities with the question of whether it is possible to define relevant markets in innovation activities independently from whether they do not lead to traded innovation results, which is discussed in chapter 4. While there is almost no decisional case practice in the issues analysed, we provide herewith some insights from literature and NCA studies.

Gebicka and Heinemann argue that, when data is not traded, there is no separate market for data since '*no demand and supply exists as a result of which the substitutability of the data cannot be assessed, and no relevant market can be identified'*[365]. Of course, a question that arises is, whether in the context of non-traded data, some form of economic exchange exists. Graef[366] thinks that '*one can doubt whether the interaction from users to providers of online platforms has to be considered an economic exchange*'[367]. The author specifies that '*under prevailing competition law principles, the relevant market for online services such as search engines, social networks and e-commerce platforms thus cannot take data as object as long as there is no economic transaction between the respective providers and users for data, and the providers of these online platforms do not sell or trade data to third parties*'[368]. She

[362] Graef, I. (2015). Market definition and market power in data: The case of online platforms. World Competition, 38(4), 473-505.

[363] Graef, I. (2015). Market definition and market power in data: The case of online platforms. World Competition, 38(4), 473-505.

[364] Canada Competition Bureau (2018), Big data and innovation – Implications for competition policy in Canada, available at: https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/Big-Data-e.pdf/$file/Big-Data-e.pdf.

[365] Gebicka & A. Heinemann, Social Media & Competition Law, 37 World Competition 149.156 (Kluwer L. Intl. 2014).

[366] Graef, I. (2015). Market definition and market power in data: The case of online platforms. World Competition, 38(4), 473-505.

[367] Ibid.

[368] Ibid.

also considers that '*in order to allow for an analysis of competitive constraints in a potential market for data even if no supply and demand for data in the strict sense exists, regard could be had to the concept of 'competition in innovation' introduced in the 2011 Guidelines on the Applicability of Article 101 TFEU to Horizontal Co-operation Agreements (EU Horizontal Guidelines)*'. Another argument against the notion of a market for user data is: '*Competitive pressure* – or its absence – *could not adequately be taken into consideration if the kind of services offered to the consumer is modified or disappears entirely behind the general commercial interest underlying any business activity'*[369].

In *PeopleBrowsr v. Twitter*[370], PeopleBrowsr argued that it needed access to the full stream of tweets to be able to deliver its services to customers and stated in a court document that Twitter data is a unique and essential input because tweets are '*contemporaneous reports on users*' experiences that provide unique feedback regarding consumers' reactions to products and brands[371]. Graef[372] considers that the PeopleBrowsr v. Twitter case indicates that within a potential market for online data, separate relevant markets may even have to be identified for search data, social network data and e-commerce data and, more specifically '*with regard to social network data a distinction may even be made between information collected with microblogging services such as Twitter and general social networking sites including Facebook*'.

As Graef[373] reports, the discussion on the definition of data-related relevant markets was launched by former US Federal Trade Commissioner Pamela Jones Harbour. In her dissenting statement in response to the decision of the FTC to clear the *Google/DoubleClick* merger in 2007, she expressed concerns about the combination of the datasets of the two companies. In order to enable a proper competition analysis of the data issues, she suggested to define '*a putative relevant product market comprising data that may be useful to advertisers and publishers who wish to engage in behavioral targeting'*[374]. Pamela Jones clearly indicated that the post-merger intentions of combining the two companies' valuable datasets, should be a cause for concern and an important element in the antitrust analysis as well, rather than relegated in the consumer protection context. In her opinion, the antitrust investigation relied on the companies' representations about what they intend to do with their combined datasets, even though their choices about data integration are as relevant to the antitrust analysis as they are to the consumer protection one.

The case practice of the German NCA[375] acknowledges that the disclosure of data while using digital services can indeed amount to 'some form of exchange'. More specifically, it states that '*private users giving away their data can be considered part of an exchange relationship'*[376]. German NCA' findings are based on the Google Shopping case

[369] Id., pp. 149–172.

[370] PeopleBrowsr, Inc. v. Twitter, Inc., Case No. C-12-6120 EMC (2013).

[371] Graef, I. (2015). Market definition and market power in data: The case of online platforms. World Competition, 38(4), 473-505.

[372] Graef, I. (2015). Market definition and market power in data: The case of online platforms. World Competition, 38(4), 473-505.

[373] Graef, I. (2015). Market definition and market power in data: The case of online platforms. World Competition, 38(4), 473-505.

[374] Dissenting Statement of Commissioner Pamela Jones Harbour, Google/DoubleClick, FTC FileNo. 071-0170, 20 Dec. 2007, p. 9.

[375] German NCA (2019). B6-22/16, Facebook, para. 244.

[376] Ibid.

where the Commission notes that '*even though users do not pay a monetary consideration for the use of general search services, they contribute to the monetisation of the service by providing data with each query*'[377]. It does not go as far as defining a separate data market.

In the Czech *CHAPS* (2018) case[378], the NCA defined three relevant product markets as follows: (1) market for updated transport connections timetable data shared by regulated undertakings in a centralised system, (2) market for information about existing variants of transport connections in the Czech Republic (downstream to market (1)), and (3) market for automatic search for nation-wide public transport connections (downstream to market (2))[379]. Of relevance here are markets (1) and (2). The NCA defined two separate (related) markets for data: Market (1) consisted of only one product, i.e. a database of updated transport connection timetables of regulated transport service providers. These providers shared the data in the requisite format with *CHAPS* pursuant to a statutory (public law) obligation. This data was considered an indispensable input for market (2) and, by extension, market (3). With regard to market (2), even though raw data is not traded, the NCA defined a hypothetical market for such data, to show that if traded, competitors might be able to develop rival apps/services. The NCA considered that should competitors have access to the source data on market (1), they might develop their own innovative or competing products on market (2), which could be used as inputs in the downstream market (3). We must indeed note that this is an example of a separate market being defined for a specific category of information, i.e. not an example of data produced by the firms that then use it to gain a competitive advantage. In other terms, this data is produced outside the firms that use it and thus it is more clearly an input. The NCA defined a market for data that served as a clear (and indeed indispensable) input for downstream products/services.

Maier[380] has addressed the closeness of substitution between big datasets that are not traded in defining a separate market for big data, arguing that substitutability of datasets can be a basis for carrying out a market definition analysis.

A suggested approach to market definition in Maier[381] keeps a close focus on demand side substitutability from the perspective of those with an interest on the '*insights'* that various datasets allow. As a platform or ecosystem adds more functionalities, the datasets that it collects from its users are richer and allow a specific type of 'insights'. The idea is then to take as starting point a reasonably common set of data. This simpler data would not be a substitute to the richer data (and therefore the richer data would be in a separate antitrust market) if the insights that matter, for users of these datasets, which can be derived from the richer dataset, cannot be derived from the starting point dataset[382]. For example, the big data collected by Google (focusing on user search) can be viewed as being a close substitute of the big data collected by Facebook (focusing on social networking activity) for a specific group of advertisers only if these advertisers

[377] European Commission, decision of 27 June 2017, ref. AT.39740, para. 158.

[378] CHAPS, UOHS decision, Case No. S669/2013/DP, (2015), and appellate UOHS decision No. R12/2016/HS, 2018.

[379] Ibid.

[380] Maier, Norbert (2018), Closeness of Substitution for 'Big Data' in Merger Control. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3270243.

[381] Maier, Norbert (2018), Closeness of Substitution for 'Big Data' in Merger Control. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3270243.

[382] Maier, Norbert (2018), Closeness of Substitution for 'Big Data' in Merger Control. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3270243.

view the generated customer profiles from those two big datasets as close substitutes[383].

It should be noted that the insights derived through the processing of a certain big dataset also depend on the usage objective of the insights. If a large fraction of customers were to view the insights derived from two datasets as close substitutes, by taking into account the usage objective of the insights, that could be evidence of the two datasets being close substitutes and as such part of the same relevant 'data market'. Thus, the insights derived after processing big datasets and their substitutability are two core elements when assessing the closeness of substitution of the underlying big datasets. The concept of closeness of substitution between big datasets when defining the relevant market is broadly in line with the demand substitution as explained in the MDN.

Box 8: Separate markets for data – main findings

(i) In the decisional practice reviewed, data is considered an important factor for competition and market power but has not been explicitly taken into account at the market definition stage.
(ii) The existence of separate data markets is acknowledged by a few NCAs.
(iii) When data is not traded, the trend in the literature is to acknowledge that no such separate market can be defined. However, both decisional practice and the literature recognise 'non-traded data' as some form of 'economic exchange'.
(iv) The decisional practice does not distinguish between markets where data is traded and data is not traded, and is prepared to acknowledge the existence of separate markets in both cases.
(v) The closeness of substitution between big datasets that are not traded has been looked at by the literature, with one author opining that substitutability of datasets can be a basis for carrying out a market definition analysis.

3.4 Defining relevant markets in e-commerce

E-commerce (electronic commerce) is the activity of electronically buying or selling of products on online services or over the Internet. E-commerce covers a wide range of product areas and it has grown in importance as different strategies for taking advantage of e-commerce have taken hold[384]. Indeed, we can distinguish pure-click, brick-and-click and click-to-brick companies defined as follows:

- Pure-click or pure-play companies are those that have launched a website without any previous existence as a firm.
- Brick-and-click companies are existing companies that have added an online site for e-commerce.
- Click-to-brick online retailers are online companies that later open physical locations to supplement their online efforts[385].

E-commerce may take place on retailers' own websites or mobile apps, or those of e-commerce marketplaces, such as on Amazon[386], eBay or Etsy (which, unlike Amazon, do merely connect sellers with buyers and do not operate as the seller of records). E-

[383] Ibid.

[384] A brief history of e-commerce is provided by DotEcon (2015), p. 4ff.

[385] Business week. 'Click-to-Brick: Why Online Retailers Want Stores in Real Life'. 10 July 2013.

[386] E-commerce by Amazon is best presented on their web sites: www.amazon.com or www.amazon.de.

commerce facilitates features such as personalised pricing or other customised terms of service and customised customer experience.

According to Friederiszick and Glowicka[387] '*The competition dynamics at play in such markets and the consequences, both negative and positive, for consumers, are notably different from more traditional brick-and-mortar retail competition'*. Most notably, the growth of e-commerce leads to increased consumer choice, since consumers are no longer limited to retailers located within a convenient geographic reach, but may instead source from any online retailer, whether national or international, whose delivery network extends to their location.

In addition to consumer choice, Khan [388] points out that e-commerce offers many other benefits, including lower prices, the provision of comparison shopping, increased availability of information, the introduction of new products and services, faster buying/selling procedures due to more efficient distribution. As Friederiszick and Glowicka[389] observe, the increased availability of information and transparency of e-commerce markets also reduces search costs, thus expanding consumer choice and buying power.

At the same time, Khan[390] and the OECD[391] point out that e-commerce has the potential to lead to competition harm, such as an increase in the likelihood of collusion (due to greater price transparency), including algorithmic collusion, price obfuscation, and vertical restraints. NCAs need to define the relevant market to investigate such harms. This is the case, in particular, in the context of merger assessments or in dealing with potential anti-competitive behaviour by both dominant e-commerce firms and brick-and-mortar retailers (or in other types of anticompetitive behaviour such as vertical restraints). Among the issues on which NCAs have sometimes had to make a judgement is the question of whether two modes of distribution, i.e. online on the one hand and brick-and-mortar on the other, can be considered as two relevant markets or whether they are a part of the same relevant market. In deciding whether online or brick-and-mortar stores are part of the same relevant market, the question of whether products/services offered in both types of channel are substitutable from a customer standpoint is critical. Thus, in addition to looking at switching costs, the assessment of a suitable market definition needs to reflect the degree of heterogeneity of these services from a consumers' perspective.

The growth of purely online retailers and the increasing impact of online channels on traditional brick and mortar channels plays an important role in the competition approach to product market definition. With brick-and-mortar shops affected by the COVID-19 restrictions, there have been changes in consumers' e-commerce habits and preferences[392] that may have consequences also in relation to the market definition[393].

[387] Friederiszick, H. W., and Glowicka, E., (2016), Competition policy in modern retail markets, 4 Journal of Antitrust Enforcement 42.

[388] See https://www.corporatelivewire.com/top-story.html?id=competition-law-and-e-commerce.

[389] Friederiszick, H. W., and Glowicka, E., (2016), Competition policy in modern retail markets, 4 Journal of Antitrust Enforcement 42.

[390] Khan, S., Competition Law And E-Commerce, available at: https://www.corporatelivewire.com/top-story.html?id=competition-law-and-e-commerce.

[391] OECD (2018), Implications of E-commerce for Competition Policy, Background Note at the 129th Meeting of the Competition Committee on 6-8 June 2018, 6 June 2018.

[392] Eurostat (2020), Online shopping ever more popular in 2020, 17/02/2021. Available at: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210217-1.

[393] This also in the retail of luxury goods online Forbes, 'The Benefits Of Augmented Reality In Retail And E-Commerce', 7 August 2020. Available at: https://www.forbes.com/sites/forbesagencycouncil/2020/08/07/the-benefits-of-augmented-reality-in-retail-and-e-commerce/?sh=43faef251e01.

Below are the main findings on factors that impact the product market and geographic market definition.

3.4.1 Factors that impact product market definition

The growth of e-commerce has increased the number of suppliers available to consumers, who are no longer limited to the retailers with a physical presence within a certain distance of them. Even though the conceptual relevance of demand- and supply-side substitutability remains unchanged, what remains a challenge in the process of defining relevant markets is the competitive relationship between online platforms and the offline brick and mortar alternatives (Madrescu 2017).

In particular, both demand-side and supply-side considerations matter to a finding of whether online and offline retail segments should be separately defined or be part of the same relevant market.

The main factors considered are:

- the **price dimension** (i.e., online prices are regularly lower than those of brick-and-mortar stores[394] or non-comparability of prices between the two channels[395] versus price convergence[396]);
- a better assessment of the **product's quality / personal fit** (i.e., better haptic inspection possibilities in brick-and-mortar settings)[397];
- **customer service quality** (i.e., deemed superior in stores since personnel can be consulted directly during the purchasing decision) and brand trust[398];
- **delivery times** (i.e., goods bought at brick-and-mortar stores are immediately available or time savings in shopping online)[399] and logistic costs of online purchases[400];
- **consumer habits**, comparability of the offer and convenience of the online shopping experience[401]; and
- **strategy of the players**[402].

[394] Czech Republic, Netretail Holding B.V./Rockaway Capital SE, case no. -S0223/2016/KS, (2016); CMA Amazon.com/The Book Depository, OFT decision no. 5085/11, (2011).

[395] Boulanger/HTM – Krëfel, decision no. ABC-2019-C/C-40, (2019).

[396] Slovakia, Nay/Electro World, case no. 2014/FH/3/1/019, (2014); France, Fnac/Darty, decision 16-DCC-111, (2016); Greece, Olympia Group Ltd./Media Saturn E.H.C.A.H. SA and Media Saturn G.B. GmbH, decision no 695/2019, (2019).

[397] Slovakia, XLCEE-Holding GmbH/Kika Nábytok Slovensko s.r.o. et. Al., case no. 2019/KOH/SKO/3/37, (2019).

[398] Poland: Office of Competition and Consumer Protection, Clarifications regarding the assessment of the reported concentrations

[399] Czechia Netretail Holding B.V./Rockaway Capital SE, case no. -S0223/2016/KS), (2016); CMA Amazon.com/The Book Depository, OFT decision no. 5085/11, (2011); CMA, Sainsbury/Asda, case no. ME/6752-18, (2019).

[400] Czechia Netretail Holding B.V./Rockaway Capital SE, case no. -S0223/2016/KS), (2016).

[401] Sweden, Komplett/Webhallen, decision no 270/2013, (2013); CMA, Thomas Cook/Co-operative Group Ltd/Midlands Co-operative Society Ltd (2011); CMA, Amazon.com/The Book Depository, OFT decision no. 5085/11, (2011); Belgium, Boulanger/HTM – Krëfel, decision no. ABC-2019-C/C-40, (2019).

[402] Belgium Boulanger/HTM – Krëfel, Ibid; Czechia Netretail Holding B.V./Rockaway Capital SE, case no. -S0223/2016/KS), (2016); Greece, Olympia Group Ltd./Media Saturn E.H.C.A.H. SA and Media Saturn G.B. GmbH, decision no 695/2019, (2019); Norway, Netherland College van Beroep voor het bedrijfsleven, Decision 3.9.2018, cases Nos. 17/1385, 17/1387, 17/1389 e 17/1390.

Below we expand on how each of the factors above has mattered in the product market definition across NCAs' decisional practice.

The **price dimension** as a criterion may lead either to a finding of separate product markets or a single product market.

Price differences have been mentioned as elements that justify considering them as still separate markets by the Polish Guidelines[403], and UK and Belgian decisions[404].

- The Polish Guidelines[405] underline that in online transactions the price of the product is not, as in the case of traditional brick-and-mortar retail prices, equal to the cost of the goods, because delivery costs have to be added. The reasoning behind this approach is the fact of a much higher average value of one completed order/purchase in case of online sales from the average order/purchase in case of offline sales. In particular, different behaviour of consumers using particular retail channels was taken into account. This, in turn, was mainly due to the fact that in online transactions the price of the product is not, as in traditional brick-and-mortar retail, equal to the cost of the goods, as one also has to take into account the cost of delivery, which subsequently encourages consumers to place larger orders to spread the cost of shipping for more products purchased;

- The 2017 UK CMA retail mergers commentary[406] underlines price differentiation as a factor that leads to a finding of separate product markets for each channel since the constraint from online retailers implies that brick-and-mortar retailers cannot segment their customers and charge different prices to those who are likely to buy online and those that are not. The UK CMA, in its retail mergers commentary, mentions that, whilst in most retail sectors customers are anonymous and retailers have little information on their shopping habits in other sectors, retailers operating across both channels might be able to identify those brick-and-mortar customers who also shop online and offer them cheaper prices in store without extending these offers to other customers. Such personalised prices play a role in defining separate markets. In the *Ladbrokes/Coral*[407] merger decision, the UK CMA looked at the extent to which retailers charged different prices and earned different margins for their products depending on whether they are sold online or in physical stores. The UK CMA assessed whether a sufficient share of brick-and-mortar customers would respond to a small, but significant change in relative prices by switching to online providers. It concluded that the fact that some bricks-and-mortar customers regularly migrate online irrespective of changes in quality, or price, did not allow any strong inferences about how substitutable the two channels were for the remaining retail customers. In *Amazon.com/The Book Depository*[408], the UK OFT concluded that online retailing of books is a product market separate from books retailed through other channels. This view was supported by comparing indicative critical loss thresholds assessing gross margin data from the OFT investigation against

[403] Poland: Office of Competition and Consumer Protection, Clarifications regarding the assessment of the reported concentrations

[404] CMA, Ladbrokes plc/Gala Coral Group limited, decision no. ME/6556-15, (2016).

[405] Polish merger guidelines, available at: https://www.uokik.gov.pl/download.php?plik=11899.

[406] CMA, Retail mergers commentary, (2017), available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/607524/retail-mergers-commentary.pdf.

[407] CMA, Ladbrokes plc/Gala Coral Group limited, decision no. ME/6556-15, (2016).

[408] Amazon.com/The Book Depository, OFT decision no. 5085/11, (2011).

what consumers said they would do in the event of a price rise. Several third parties suggested that there was an asymmetric constraint between online and physical stores, with online retailing constraining physical stores, but not the other way around. Third party responses, in particular, pointed out that, in terms of the price differences between the online and offline, third parties would not expect to see much switching to brick-and-mortar in the case of a 5% price rise of online books. The UK OFT recalled its older precedents, which found that while online retailers constrain traditional bricks and mortar retailers on price and range, the constraint may not be strong on other competitive dimensions.

- In the Belgian *Boulanger Group case*[409], the online brown, grey and white goods retail market (8 sub-product categories) was considered separately from the offline channel as most of respondents to the investigation carried out by the NCA felt that the pricing policies of online retailers and offline retailers were not comparable.

Differently from the above, in France, Greece and Slovakia, we found evidence of price convergence as being a factor that may lead to product markets encompassing both the online and the offline channel.

- In the *French Fnac/Darty case*[410], the NCA analysis reveals that shops decreased their prices toward pure players prices aiming to adapt their pricing policies; and, from the consumer standpoint, although there is not yet full price harmonisation, it is indeed spreading among the overall range of the electronic products;
- In the *Greek Media Saturn/Olimpia* case[411], the ability to compare prices through online platforms was considered as one of the elements for assuming demand-side substitutability between the two channels as it tends to create uniform pricing[412].
- In the *Slovak Nay/Electro World case*[413], competitors to the merging parties argued that there are minimum price differences between the channels or when online prices are lower there is a tendency to match brick and mortar prices;

Product quality / personal fit

The Slovakian NCA has mentioned the product's quality and personal fit as factors leading to different separate markets for online and offline trading.

- In *XLCEE/Kika nabytok*[414], in defining separate relevant markets for online and offline channels for retail sale of furniture and home accessories, the NCA rejected the argument that an analogy should have been drawn between the furniture retail and the consumer electronics retail markets. It considered that furniture is a product that the consumer wants to see and try in person in a brick-and-mortar establishment - unlike electronic devices.

[409] Belgium, Boulanger/HTM – Krëfel, decision no. ABC-2019-C/C-40, (2019).

[410] France, Fnac/Darty, decision 16-DCC-111, (2016).

[411] Olympia Group Ltd./Media Saturn E.H.C.A.H. SA and Media Saturn G.B. GmbH, decision no 695/2019, (2019).

[412] In the decision it is mentioned that 'a factor which mattered was the existence of the ability to compare prices through online platforms, which intensifies competition between physical and online stores, and tends to create uniform pricing between the two channels of distribution'.

[413] Nay/Electro World, case no. 2014/FH/3/1/019, (2014

[414] XLCEE-Holding GmbH/Kika Nábytok Slovensko s.r.o. et. Al., case no. 2019/KOH/SKO/3/37, (2019).

Customer service quality and brand trust

The quality of customer service is among the factors that the Polish NCA[415], Slovakian NCA and the UK CMA look at. In addition, the Polish guidelines also mention brand trust as an element worth considering for online retail[416]. Situations in which these have been considered are described below.

- The Polish guidelines state that personal contact with the vendor and the product, i.e. customer service quality, is considered of particular importance in the case of traditional brick-and-mortar retail, as the consumer is willing to buy the product 'in-hand' regardless of the potential trust in the seller. In such situations, the risk of not fulfilling the order properly (which is significant in the online sale), is sufficiently mitigated in an offline sale. Furthermore, brand trust plays a role. When shopping online consumers tend to choose brands that are widely recognised and can be trusted, in order to reduce the risk of a failed transaction and obtain a greater guarantee that the seller will provide the possibility of a complaint or a possible after-sales service. Both these factors are considered – among other qualitative elements – as significant differentiating factors in the market definition for online and offline sale of goods.
- In *XLCEE/Kika nabytok*[417]*,* the Slovak NCA defined separate relevant markets for online and offline channels for retail sale of furniture and home accessories considering the need for consumers to see and try furniture in person in a brick-and-mortar establishment.
- In *Amazon/The Book Depository*[418], the UK OFT assessed the merger on the basis of the retail of physical books online within the UK for best seller and 'long tail' titles (both separately and together). The UK OFT decided that the online and the offline markets were separate. The UK OFT recalled its older precedents, which found that while online retailers constrain traditional bricks and mortar retailers on price and range, the constraint may not be strong on other competitive dimensions (for example, service). Numerous factors were considered, including the quality of the service having regards, in particular, to the difference in availability of titles, and the convenience and the functionality of online shopping (for example, the prevalence of buyer reviews). The fact that the merging parties were both online retailers played a role, leading the UK OFT's to choose to conduct its market investigation via online questionnaires.

Delivery times and logistics costs have led to the conclusion that online and offline sales lead to distinct product markets in Czechia and the UK based on the considerations described below.

- In *Rockaway/Netretail*[419], the Czech NCA defined a separate market for online retail channel of consumer products, which further divided into online retail channels for product segments along with the purpose for which consumers purchase these products (e.g., electronics (and sub-segments of electronics such as mobile phones, black or white electronics), apparel and shoes, toys, etc.). Among the factors considered against the definition of a single market,

[415] Poland: Office of Competition and Consumer Protection, Clarifications regarding the assessment of the reported concentrations

[416] Ibid.

[417] XLCEE-Holding GmbH/Kika Nábytok Slovensko s.r.o. et. Al., case no. 2019/KOH/SKO/3/37, (2019).

[418] Amazon.com/The Book Depository, OFT decision no. 5085/11, (2011).

[419] Netretail Holding B.V./Rockaway Capital SE, case no. -S0223/2016/KS), (2016).

was the fact that shopping online was found to be time saving[420]. Another factor that was considered against the definition of a single market was linked to the logistics costs, and in particular the NCA took into account that the distribution costs of brick-and-mortar shops were higher.

- In *Asda Sainsbury*[421], the UK CMA defined a separate relevant market for groceries delivered online. It did so in the light of the fact that many customers who ordered online delivered groceries had done so for specific reasons related to the service provided by online delivered groceries. These '*shopping missions'* factors included time savings. In addition, the convenience of the in-store and online offerings was different; in-store provided the ability to purchase groceries immediately, while online-ordered groceries avoided the trip to a store. The NCA also considered that in-store shopping restricted the ability to shop at a convenient time.

Consumer habits, comparability of the offer and convenience of the online shopping experience have been seen as factors affecting the product market definition in Belgium and Sweden in the following cases.

- In the *Belgian Boulanger*[422] case, it appeared from the investigation that offline retailers were more likely to consider their offer comparable to that of the pure players, while the latter had a more nuanced position. The market test showed that a majority of offline operators (with or without a merchant website) considered that the pure players offered a range of products comparable to their own. A slightly larger majority believed that there was a certain analogy between the services available online and in shops. Certain elements such as the comparability of the offline and online offer were in favour of the substitutability of online and in-store sales. However, the NCA concluded that not all the evidence was consistent. Indeed, the penetration of online sales remained relatively low. Their geographical distribution was not yet homogeneous, and the pricing policy of pure players was not comparable to that of physical shops. It followed from the above considerations made by the NCA that it was premature to include online sales and offline sales in the relevant markets.
- In the *Komplett/Webhallen*[423] case, the Swedish NCA found that the relevant product market included both online sales and offline sales of computer components having regards to consumer habits. In this market, offline sales were often regarded as a complement to the online sales. Therefore, both distribution channels were included in the relevant product market. More specifically, considering that the same components are used in computers globally. The NCA concluded that a single market could be identified because, from the consumer point of view, brick-and-mortar shops were often seen as a complement to online sales as customers see online retailers from the whole world who offer identical products as alternative suppliers.

The **strategy of the players** plays a role, both whether players in one channel constrain the strategy of the other[424], and in relation to the distribution channels. Indeed, the opening of brick-and-mortar stores by online retailers (with their business

[420] The NCA used competitor survey and relied on a third party e-commerce study.

[421] Sainsabury/Asda, case no. ME/6752-18, (2019).

[422] Boulanger/HTM – Krëfel, decision no. ABC-2019-C/C-40, (2019).

[423] Komplett/Webhallen, decision no 270/2013, (2013).

[424] This was the case in the French decision Fnac/Darty, decision 16-DCC-111, (2016), where the online and offline channels were found to be part of the same relevant market.

models evolving from pure players to hybrids), which exert pressure on traditional offline players, have been considered as elements that point at the convergence between the two channels[425]. There are several examples in Belgium, Czechia, Greece and Netherlands.

- In the *Boulanger* case[426], the Belgian NCA follows the analysis of the French NCA in *Fnac/Darty*[427] case and analyses the following points raised by the latter to conclude whether online sales should be included in the market or not.
    - Penetration of online sales (through turnover, penetration rate and growth rate data) - regarding online sales, the majority of respondents to the NCA survey considered online sales to be geographically heterogeneously distributed. There is a difference in penetration of online sales by regions, among other things, because of the language variable, with a higher penetration rate in the Dutch-speaking region. For instance, certain online retailers entered the Belgian market in stages: they started with a website in Dutch and only later added the French version, while another online retailer mainly served Dutch speakers. This is also confirmed by the individual situation of operators, since the majority of traditional retailers have a heterogeneous distribution of their online sales, with activity in the Dutch-speaking region generally being higher.
    - The strategy of traditional operators - online sales are to a significant extent integrated into the strategic choices of traditional operators.
    - Development of an omni-channel distribution model – this refers to a model that is based on the integration of all distribution channels: stores plus websites, so offline and online sales. Almost all operators follow this.
- In the Czech *Rockaway/ Netretail* case[428], in the non-food retail, most of the competitors argued in favour of a single market definition encompassing both online and offline sales. Initially, the Czech NCA noted that those competitors were active both online and offline. However, at the end of the analysis, the NCA rejected the merging parties' argument for a single market, based on the consideration that, unlike the competitors, both merging parties were active only on online channels and thus, recognised the existence of separate markets (along with the difference in the logistic costs and the fact that shopping online was found to be time saving).
- In the *Media Saturn/Olympia*[429] case, the Greek NCA considered that many undertakings operated through both distribution channels and certain businesses had closed down their physical stores to operate only through their online stores. The Greek NCA concluded for the single relevant market, encompassing both online and offline, also based on this strategy of distribution.
- In the decision, relating to the bulk mail sector, the Dutch administrative court of last instance in matters of trade[430] acknowledged, in reviewing the Dutch NCA

[425] Slovakia, Nay/Electro World, case no. 2014/FH/3/1/019, (2014); France, Fnac/Darty, decision 16-DCC-111, (2016).

[426] Boulanger/HTM – Krëfel, decision no. ABC-2019-C/C-40, (2019).

[427] France, Fnac/Darty, decision 16-DCC-111, (2016).

[428] Czechia, Netretail Holding B.V./Rockaway Capital SE, case no. -S0223/2016/KS), (2016)

[429] Olympia Group Ltd./Media Saturn E.H.C.A.H. SA and Media Saturn G.B. GmbH, decision no 695/2019, (2019).

[430] Dutch Antillian Dairy Industry Inc. and Verenigde Douane-Agenten BV v Rijksdienst voor de keuring van Vee en Vlees, Case No. C-106/97, (2019).

decision that had found an abuse of dominant position by PostNL, that electronic communication tools are increasingly replacing paper mail and the possibility that digital mailings exert effective competitive pressure on traditional postal operators[431].

Box 9: E- Commerce – Impact on product market definition: main findings

(i) The MDN does not provide guidance on the impact of e-commerce on product market definition and at this stage there is no best practice across NCA's decisional practice.

(ii) The growth of e-commerce has not led to a pattern where NCAs have abandoned the relevant product market for online sales as a distinct market from the one for offline sales: pricing patterns, differences in customer experience, quality of the service as well as the nature of the product may drive a narrow product market definition. Market definition may at times hinge on the balance of one particular factor such as the price dimension.

(iii) The asymmetry of the constraint (from online sales to brick-and-mortar but not vice versa) has also impacted the NCAs' market definition exercise in finding separate markets.

(iv) When markets were considered as broader and encompassing both channels, the following factors were decisive to such a finding: price convergences, as well as the convergence of experiences and quality in the offline channel.

3.4.2 Impact of product market definition on geographic market definition

Following on from the analysis of how product markets have been defined in NCA's decisional practice, this section aims to answer the question of how the relevant product market definition for online sales, in turn, influences the geographic markets, for example by broadening them compared to an offline world scenario. This section only tackles the sub-set of the decisional practice from which we were able to extrapolate how the analysis of the e-commerce phenomenon impacted NCA's views on geographic markets.

This section does not aim to tackle the specificities of how geographic markets have been defined across the digital sections of the economy, which is discussed under chapter 5, nor does it try to second–guess how NCAs might modify their approach as a result of the COVID-19 pandemic, notwithstanding its impact on consumers shopping habits.

As pointed out in the previous section, e-commerce gives consumers a larger number of suppliers to choose from, as they can now shop beyond the geographic limits of where they live or work[432]. This is especially true of the retail consumer goods sector.

From a supplier standpoint, e-commerce also impacts competition between players in ways that would not occur otherwise. As the previous section demonstrates, pricing patterns and strategies also impact market definition. This is also true of the scope of geographic markets and raises the issue of whether the existence of an online competitor in a given product market broadens the scope of the geographic market. The evidence for this is not clear-cut as we have not come across broader online geographic markets compared to an offline world. On the contrary, online product

[431] In the same decision the Court highlighted that the NCA had not adequately considered the results of a market survey commissioned by itself, from which significant replacement rates between offline (traditional mail) and online (digital mail) emerged.

[432] Submission of Sweden to the OECD (2016).

markets separate from the offline segment can lead to markets that are as narrow as national markets or are even potentially regional or local.

It might, for example, be thought that stores price-matching with internet retailers can make price competition independent of the geographic location of the store. This was argued by suppliers active in the US office supplies market, where Office Supply Superstores thought the bricks-and-mortar business had to match prices of online retailers like Amazon[433]. However, while there can be price pressure online at the national level, price differences within the offline channel may remain: as is observed by Cavallo[434], there still is offline price dispersion between geographical areas.

Against the above background, the first important question that arises is whether the growth of e-commerce and the uptake of digitalisation has the potential to widen the definition of the relevant geographic market in competition cases. This question boils down to a two-fold analysis:

i. whether geographic markets for the online product or service should be defined more broadly than the geographic market for offline sales when online and offline channels are defined as separate product markets; and

ii. whether geographic markets can be broadened when product markets should be defined as encompassing both channels.

Two main findings have emerged in the cases surveyed:

1. The decisional practice analysed shows that the emergence of e-commerce has not led to broader online geographic markets, compared to an 'offline world'. Typically, when parties argued in favour of the existence of broader geographic markets, such arguments were generally not upheld by the NCAs. However, few NCAs were prepared to consider the constraints from international competitors. The few exceptions where this was the case were reported in the OECD prior submissions: although they were not part of the pairs explored through additional desk research, we will analyse them for the purpose of completeness. Nevertheless, it is not possible from these isolated instances to observe a pattern that the presence of e-commerce leads NCAs to uphold a definition of broader geographic relevant markets.

2. The decisional practice shows that even when product markets should be defined as encompassing both channels, the geographic markets were not broadened. One exception comes from Sweden and is discussed further below.

We focus on both those points separately and describe the most salient cases we have come across in our investigation which provide evidence in support of these two main findings.

3.4.2.1 Geographic market definition when NCAs have deemed online and offline channels to be separate relevant product markets

We did not find evidence that the market would have been more broadly defined geographically for the online segment than would have been the case for the separate offline markets. Contrary, one of our main findings is that even online product markets separate from the offline segment can lead to markets which are as narrow as national markets or are even potentially regional[435].

[433] Friederiszick, Hans W. and Ela Glowicka (2016). 'Competition policy in modern retail markets,' 4 Journal of Antitrust Enforcement 42.

[434] Cavallo, Alberto. (2017). 'Are Online and Offline Prices Similar? Evidence from Large Multi-channel Retailers.' American Economic Review, 107 (1): 283-303.

[435] Case No. 08700.009234/2014-40 Zap, RBS and Pense (Brazil), Decision 19-CC-40 Boulanger Group SAS - High Tech Multicanal Group SA / Krëfel NV - Assureka SA – Hifi International SA - Tones BVBA (Brazil).

The main factors addressed in the NCAs' cases reviewed in which geographic markets were not broadened in the presence of online competitors were the price differentials across countries, the potential different promotional campaigns which sometimes target specific countries or regions, the language barriers, the distribution channels, or even the consumer preferences[436].

- In *Zap, RBS and Pense* case[437], with respect to the online classified ads market, distinct from the offline segment, the Brazilian NCA considered that the geographic scope was at least regional (if not by State) mainly for the following reasons: (i) immobility is an intrinsic characteristic of the advertised product (i.e. for the majority of the Brazilian population, the purchase or rental of real estate implies a move with a more definitive intention, so the mobility of a potential purchaser to other regions is unlikely to happen) and (ii) a website's brand has an important role in the market under analysis (i.e. purchasers search for the product in acknowledged websites that hold the largest number of ads in a specific region). The Brazilian NCA did not specify whether the market would be defined as broader than regional had offline sales been considered as part of the same relevant product market.
- In *Yoox/Net-à-porter*[438], the UK CMA defined a separate product market for retail of personal luxury goods through online multi-brand stores. The parties had argued in favour of a broader geographic market definition for this online segment, holding that the geographic scope of such a market is broader than national, since from a demand-side perspective, customers switch purchasing between retailers located in various countries, and, from a supply-side perspective, the majority of significant retailers have a global footprint. The UK CMA rejected this view based on evidence from both the parties' websites and internal documents, as well as from third party customers and competitors, who indicated that the market was national in scope[439]. The analysis of the parties' websites and internal documents showed that there are price differentials across countries and that promotional campaigns sometimes target specific countries or regions.
- In the *Boulanger Group*[440] case, concerning the retail sale of household appliances, markets were separately defined for the online and the offline channel. As seen above, the distribution channels, analysed in terms of product market, also had an impact on geographic market. In particular, language barriers could have pointed at geographic markets being narrower than national, but along language lines (with Flanders being a separate geographic market). According to the Belgian NCA, the distribution channel elements show that a significant proportion of companies in this sector take into account local competition factors when defining their commercial and pricing strategies. Hence, the NCA concluded that '*the markets for the retail sale of household appliances have both national and local aspects and the position of the parties will be analysed on these two levels*'.

[436] SCA's decision of 2 August 2013 in case 270/2013 – Komplett/Webhallen.

[437] Case No. 08700.009234/2014-40 Zap, RBS and Pense (Brazil).

[438] UK, Financière Richemont S.A., YOOX S.p.A and The Net-A-Porter Group Limited, Decision No. ME/6538-15, (2015).

[439] Interestingly, for a separate product market, consisting of the supply of e-commerce services to third parties, the geographic scope was at least EEA-wide because of the global customers and the fact that suppliers offered such services at global level.

[440] Belgian Boulanger/HTM – Krëfel, decision no. ABC-2019-C/C-40, (2019).

Nevertheless, there are some decisions where even if no broader online geographic markets were identified for the online channel compared to an offline scenario, the NCA has appeared open to taking international competition into account.

- In *Mapil Bidco/Chain Reaction Cycles* case[441], the parties argued that the four separate product markets identified were at least EEA-wide, if not global, because companies incorporated in the UK had a worldwide offer, price differences were insignificant, and transportation costs were similar, accounting for a small portion of the total costs. However, for the UK CMA, the evidence supported a UK-wide dimension for the relevant geographic market, since the majority of sales in the UK was made by domestic firms, while it acknowledged the existence of overseas competitors. It did not conclude whether the relevant geographic market for each of the four product markets was broader than UK-wide, but, importantly, it did take into account international competitors in the competitive assessment.
- In case *VJ-14/2019*[442], the Hungarian NCA considered whether the online activity of international competitors (e.g. AliExpress) would widen the geographic scope. However, the NCA observed that these international competitors were specialised in cheaper products without warranties, and as a result, the online activity of such international competitors did not put them in a strong enough position to influence geographic market definition.
- In *Rockaway/Netretail* case[443], after having found that there was no single relevant product market for both channels (online and offline sales of consumer good products) the Czech NCA looked at a potential relevant geographic market for the online channel as wider than national, and it argued that this dimension was due to developments in international logistics. Nevertheless, it ultimately left the geographic market definition open. Regardless of this, the NCA carried out an analysis which looked at how the online retail developments impacted the geographic market dimension. In particular, it recalled some factors that were used in Commission precedent and its own precedents against a widening of the relevant geographic market for the online segment beyond national boundaries. Such factors were: (i) the fact that prices, product selection and services related to sales, quality control or marketing were set at a national level, (ii) issues with enforcement of potential consumer liability claims abroad, and (iii) the fact that Czech online shops made only a very small part of their sales abroad.

In some instances, for example, both in the context of consumer goods, or delivery of groceries, a catchment areas analysis, typical of local markets, has been used.

- In *XLCEE/Kika nabytok* case[444], the merging parties had argued that a broader product market definition encompassing both online and offline sales, rejected by the Slovakian NCA, would have rendered it necessary to define a broader geographic market for such single market, including the offline channel. Hence, they argued that an analysis based on catchment areas (of brick-and-mortar shops) was inappropriate to the specific fact circumstances. The NCA rejected this argument and used a catchment areas analysis for the offline channels: taking account customer preferences data based on a competitor survey, the

[441] UK, Mapil Bidco/Chain Reaction Cycles, Decision No. ME/6595-16, (2016).

[442] Hungary, Decision No. VJ-14/2019, (2019).

[443] Czechia, Netretail Holding B.V./Rockaway Capital SE, case no. -S0223/2016/KS), (2016).

[444] XLCEE-Holding GmbH and Kika Nábytok Slovensko s.r.o. et. Al., case no. 2019/KOH/SKO/3/37, (2019).

NCA defined the relevant geographic market as isodistance/isochrone radius within 60km/60 minute driving from the furniture retailers' brick and mortar shops. The isodistance applied even if the isochrone was exceeded, and vice-versa. The NCA did not pronounce itself on the geographic dimension of the online segment.

- In *Just/Eat Canary* case[445], the Spanish NCA, while ultimately leaving the market definition open, distinguished between the local and national dimension of, respectively, the relevant product market for home food delivery services (where consumers ask for the services), on the one hand, and the market for online home food delivery platforms (where the suppliers are the platforms and the customers are the restaurants), on the other hand. It also separately distinguished a market for online home delivery management platforms, a three-sided market. In terms of geographic market analysis, it held that: 1) the market for online home food delivery platforms is considered as a national market. The NCA explains that through a single IT platform, intermediaries usually offer their food delivery management services to restaurants operating all over Spain. The advertising campaigns of these platforms have an important national component, and, normally, their commercial policies towards restaurants are mainly national; 2) the market for food delivery services, where the suppliers are the platforms and the restaurants through self-provision (with their own or subcontracted logistics service) and the customers are the end consumers is considered a local market. The NCA explains that the final customer chooses the food from all those restaurants that are close to his/her home, as this directly affects the speed of delivery of the order; and 3) the market for online home delivery management platforms, in which the suppliers are the platforms and it has two parties on the demand side, on the one hand, the restaurants and on the other the end consumers, is considered also a local market based on the same considerations as those under 2. The Spanish NCA did not tackle whether considering also the physical restaurants' competitive constraints would impact such geographic market definition, broadening it.

The Swedish NCA has been an exception to other NCAs' decisional practice by accepting the existence of broader markets in the presence of online competition according to its submission to the OECD[446].

- In the *Akademibokhandeln/Bokia* case[447], the Swedish NCA defined the relevant geographic market for offline sales of books as local from a consumer perspective. Nevertheless, in the effects' analysis, the pricing strategies of the parties were found to be national with low incentives to abandon the national pricing strategy after the merger. It did not define the precise scope of the geographic market for the online segment, albeit it considered whether it could be broader.
- In *Konkurrensverket/Nasdaq OMX*[448] case, relating to trading in stock (which is an extreme example of e-commerce, since most trading is done online) the Swedish NCA has defined the relevant product markets as services for trading in Swedish, Danish and Finnish stocks, respectively. Trading venues that want to offer trading in Swedish, Danish and Finnish stocks could be located anywhere

[445] EXPEDIENTE C/1046/19 JUST EAT/ CANARY.

[446] This case is reported in OECD: https://one.oecd.org/document/DAF/COMP/WP3/WD(2016)48/en/pdf. The case citation number is not found in this document.

[447] SCA, case No. 452/2012, Akademiebokhandeln/Bokia.

[448] Patent and Market Court, case T 7000-15 – Konkurrensverket v Nasdaq OMX.

in the EEA where the same regulatory framework applies. As trading is done electronically, a trading venue could place its matching engine in any data centre that is connected to electronic communications networks used for financial services. It is a significant disadvantage for a trading venue to have its matching engine located far away from its customers' computers. For some trading strategies, even the milliseconds it takes for a computer signal to travel a few kilometres can make a difference. The vast majority of trading in these stocks took place in Sweden and the UK because that was where most of the banks and brokers were located. The NCA investigation found out that there was also a flow of orders from London to Stockholm. This indicated that trading in Stockholm to some extent could be substituted with trading in London and other locations where trading in Swedish, Danish and Finnish stock took place. The replies to the NCA's survey to Nasdaq OMX's members also indicated that trading venues in London were on the same geographic market as trading venues in Stockholm. Due to differences in the regulatory frameworks and different time zones, the NCA excluded other parts of the world from the relevant geographic market. For the purpose of the case, the NCA defined the relevant geographic market as the EEA[449].

3.4.2.2 Geographic market definition where NCAs have deemed online and offline channels as parts of a single product market

In the context of markets being defined as encompassing both online and offline sales, the NCAs are still prepared to define markets as national or narrower than national, and to do so, use the catchment areas analysis. Hence, this supports the finding that NCAs were not prepared to uphold parties' argument in favour of broader than local markets due to e-commerce.

- in the *Fnac/Darty*[450] case, the French NCA concluded that there was a convergence of the distribution channels and integration of online sales. With reference to the geographic market definition, the NCA's position was that competition conditions between in-store and online retail are similar on the French territory considering that online sales could have impacted the geographic definition of the market, making it national rather than local. However, the NCA considered that a local analysis was also required, given that more than 7 out of 10 French consumers still preferred in-store purchases. In addition, it also noted that one specific characteristic of the retail market is the retailers' ability to locally adjust their pricing strategy. Consequently, the analysis of the takeover's effects was conducted both nationally and locally. In the end, a catchment areas analysis was carried out from the local geographic standpoint. The same type of analysis was carried out in case *Luderix/Jellej Jouets*[451].
- in *MediaSaturn/Olimpia*[452] case, the Greek NCA determined a single relevant market for online and offline sales and, with reference to geographic market definition, it defined as relevant geographic market the territory of Greece, encompassing the product market where the two channels, online and offline, both belonged. The NCA pointed out that the inclusion of undertakings based in foreign countries, who operate only through online sales (e.g., Amazon, eBay) cannot affect the evaluation of the merger. Consequently, the issue of expanding

[449] https://one.oecd.org/document/DAF/COMP/WP3/WD(2016)48/en/pdf

[450] Fnac/Darty, decision 16-DCC-111, (2016).

[451] Luderix International and Jellej Jouets, Decision no. 19-DCC-65, Apr. 17th, (2019).

[452] Olympia Group Ltd./Media Saturn E.H.C.A.H. SA and Media Saturn G.B. GmbH, decision no 695/2019, (2019).

the relevant geographic market to include online sales carried out by undertakings abroad was left open.

- in *Komplet/Webhallen*[453] case**,** where the merging retailers offered computer components to consumers, the Swedish NCA found that the relevant product market included both sales through brick-and-mortar shops and online channels. From the geographic standpoint, the market was not broadened. The NCA pointed out that considering the same components are used in computers globally, one may have expected that the customers would consider online retailers from the whole world, who offer identical products, as alternative suppliers. Nevertheless, the cross–border trade was limited due to higher freight costs and uncertainty regarding consumer rights protection. Therefore, the geographical market was considered to be national. Indeed, the NCA found, based on a customer survey, that the Swedish consumers had a strong preference for Swedish retailers. Cross-border trade at the retail level was limited. The reasons for this were: (i) faster delivery; (ii) lower shipping products and uncertainty over consumer protection when purchasing from non-offline retailers.

We came across an example of a case where considering the online dimension led to a broadening of a relevant market. This was the Swedish *Volvo* case[454] where the NCA considered how the development of the internet might have expanded the geographic market dimension. In particular, in this case, concerning a cartel among car dealers, the Swedish NCA found the relevant geographic market to be Sweden's three southern counties for the sale of both new and used cars. The OECD submission does not specify how product markets were defined but it considered how the development of the Internet could have expanded the geographic market dimension. Sales data showed that a majority of the dealers' sales of new and used cars was within each dealer's territory that was assigned under a selective distribution system. Southern Sweden is close to Denmark where prices for several models of new cars were lower, but the import of both new and used cars by private persons was limited. The reasons for this included higher administrative costs for the registration of an imported car, time consuming paperwork, costs for adjustments to fulfil insurance companies' criteria and the difficulty to make a complaint. In addition, cars made for sale in another EU member state did not always have all the equipment that is standard in cars made for the Swedish market. The defendants argued that the geographic market was wider than regional, and in particular, they argued that for used cars the internet was an important source of information for customers and a marketing channel for the dealers[455]. However, the NCA's investigation had shown that the car dealers' physical outlets were, at the time of the infringement, a more important marketing channel than the internet. In its judgment on appeal to this case, the competent court sided with the Swedish NCA's conclusion, but it importantly noted that there were indications that the geographic market for used cars, thanks to internet sales, might have been somewhat wider, although not national. The court did not come to a conclusion on the precise definition of the geographic market as it did not find it necessary to find an appreciable constraint of competition. This case shows that while the internet facilitates searches and price comparisons and may lead to a wider geographic market, there can be a limit to how far away consumers are willing to go look for alternative suppliers.

To conclude, in the context of our surveyed cases, there is fragmentation in the analysis of the NCAs whether a broadening of the product market to encompass a single market

[453] SCA's decision of 2 August 2013 in case 270/2013 – Komplett/Webhallen.

[454] This case is reported in OECD: https://one.oecd.org/document/DAF/COMP/WP3/WD(2016)48/en/pdf. The case citation number is not found in this document.

[455] Id.

for both channels also leads to a broadening of the geographic markets, compared to a counterfactual scenario where both channels belong to separate markets. In most cases, the geographic markets are defined as narrowly as they would be for brick-and-mortar. In very few exceptional circumstances, like in the Swedish Volvo case, was the geographic market expanded after the online channel was included in the relevant product market.

Box 10: E- Commerce – Impact on geographic market definition: main findings

(i) The MDN does not provide guidance on the impact of e-commerce on geographic market definition and at this stage there is no best practice across NCAs' decisional practice. We have observed no systematic pattern of the emergence of e-commerce resulting in broader geographic markets than would have been the case in an offline world.

(ii) Even where product markets are separately defined for the online and offline channels, we have identified examples of relevant markets defined as narrow as national or even potentially regional, or local.

(iii) There are some examples where international competitors' constraints on the behaviour of the parties have been analysed by the NCAs.

4 Innovation

Where innovation plays a significant role, there is an increasing tendency in NCA decisional practice and soft law to take a spectrum of undertakings' innovation efforts into account in defining relevant antitrust markets and assessing competitive effects more accurately.

Literature in this area has endorsed[456] or further conceptualised these approaches but has also given rise to criticism. This criticism has mainly been directed at the strong prognostic component and non-obvious nature of intra-company research and development activities (R&D activities), the fact of such R&D activity being prone to error, and the increasing legal uncertainty for businesses in innovation-heavy industries[457].

The practice and literature surveyed suggest that where innovation makes some incremental improvements the market definition should be based on current products. In contrast, when innovation plays a significant role leading to disruptive improvements, the basic market definition framework can be expanded to look beyond existing products and shift the focus (to a varying degree) to future products, or more broadly speaking innovation efforts.

Examples of these innovation-heavy settings include circumstances where innovative activities are essential for the industry, or where there is continuous competition for innovation and at least one of the parties to the case at hand can be considered a significant innovator in the area. Other such settings may involve basic research, or paid-for, or commissioned R&D. That said, the examples discussed below show that the innovation factor may play a role for the relevant market definition even in cases where improvements to existing products or services are only rather incremental.

Approaches across jurisdictions differ in various aspects. Among EEA jurisdictions, we have not identified relevant examples of guidelines that deal in great detail with innovation in the context of market definition. This is broadly in line with the MDN, which does not address the issue of innovation directly, either by suggesting alternatives to the relevant market definition concept or by proposing some kind of forward-looking approach to the substitutability analysis. We have, however, found such approaches in the non-EEA jurisdictions surveyed, particularly the more recently published guidelines in South Korea, the United States and the United Kingdom.

To the extent that it makes sense to distinguish between R&D activity, innovation resulting from the R&D activity, and innovation-based products actually brought to the market, we have identified three distinct approaches in the literature and decisional practice depending on the stage of product development and the form and structure of the innovation in question: **technology markets**, **future markets**, and **innovation markets**. In contrast to these approaches that attempt to capture innovation by defining 'markets', the alternative concept of **innovation spaces** developed in the Commission's practice has not been detected in other NCAs' case law, but it has been reflected in the literature. In general, the literature argues that coherent terminology

[456] The approach to considering competition in innovation, even if such competition does not take place in traditional market structures, is in principle broadly supported in German academic literature (see, e.g., Monopolkommission, XXII. Hauptgutachten 2018, in particular Rn. 718, 721 et seq., contending i.a. that the 'more economic approach' has a tendency to disregard innovation effects; Haucap, DICE Discussion Paper No 268, September 2017, 1; Drexl, MPI Research Paper No. 12-08, July 2012, 2, 5, 8; MünchKomm WettbewerbsR/Kerber/Schwalbe, 1. Teil, Grundlagen, Rn. 252; Wirtz/Schultz, NZKart 2019, 20).

[457] e.g. (Monopolkommission, XXII. Hauptgutachten 2018, in particular Rn. 724; Drexl, MPI Research Paper No. 12-08, July 2012, 17, but the literature has also praised the flexibility of alternative approaches, e.g. Wirtz/Schultz, NZKart 2019, 20, 22, 28; Spangler/Heppner, PharmR 2018, 520, 522).

has not yet been developed in this area[458], and to the extent alternative market definition concepts are deemed useful in antitrust enforcement and merger control, there is a need to explain the underlying theory[459]. It is not this study's ambition to do so exhaustively, but instead it seeks to provide relevant examples from the literature, guidelines and case law selected from the jurisdictions surveyed and derive takeaways that the Commission can use for its evaluation of the MDN.

The box below provides an overview of alternative market definition concepts. Before exploring alternative market definition concepts in more detail in sections 4.3, 4.4 and 4.5, section 4.1 discusses the impact of innovation on traditional market definition methods and section 4.2 the guidance and cases which consider existing relevant markets sufficient to address certain forms of innovation activity. A *postscript* is dedicated to a brief overview of selected jurisdictions' approach to potential competition/entry in the presence of innovation activity.

[458] e.g. Wirtz/Schultz, NZKart 2019, 20, 22; and Kern 37(2) World Competition 173, 199 et seq. have criticised the Commission's decision in Dow / Du Pont for the lack of clarity on these issues. See also Katz and Shelanski, Mergers and Innovation, 2007.

[459] The literature notes in this respect that, as there is no generally accepted economic theory regarding the impact of mergers on innovation, competition authorities are supposed – as far as possible – to apply a combination of economic theories and models which are appropriate to the circumstances at issue (Hasselborn, NZKart 2019, 546, 547, reporting critique of the Commission decision in Case M.7932 Dow / DuPont).

Box 11: Exploring the innovation taxonomy – main findings

Technology markets: these are relatively well-established in decisional practice and soft law[460], even though they are not addressed by the MDN. These markets consider technology as a traded intermediary product resulting from successful innovation, and so the technology itself is regarded as the result of innovation that can then be sold in the marketplace as a stand-alone traded technology, e.g. a licensable IP right. Technology markets can also be defined for areas where only the potential for technology to be used in the future exists and where it would in that case be likely to be traded, and in cases where the technology is not in fact traded but where the failure to trade constitutes an abuse (e.g. refusal to supply cases).

Technology markets are further discussed in *section 4.3*.

Future markets: this concept aims to capture possible competition in a future product or services market (for instance in constellations where R&D activities are observable and predictable to a reasonable extent, but where future products cannot be associated with existing product markets because of some uncertainties as to the R&D results, unclear substitutability with existing products, or a longer time-to-market frame). This means that there are no incumbent firms but only potential entrants for a market that may develop in the future. Future markets are not a phenomenon much conceptualised in guidelines and they appear only sporadically in case law, but have been developed by the literature as an alternative to address the drawbacks of the innovation markets concept that we discuss next in this Box.

Future markets are further discussed in *section 4.4*.

Innovation markets: this is a broader category in which we include approaches that focus more on R&D capabilities and efforts rather than on specific future or new products. Decisional practice shows that antitrust concerns may arise with regard to early stages of the innovation processes, when few reliable predictions can be made about future products, future competition or future prices, but where firms invest in strong R&D capabilities in a similar field and therefore may exert competitive pressure on one another. Even if such firms do not currently compete in the same market, their merger could, for example, eliminate important competitive constraints. The literature, guidance and case law use various terms to describe this competition in innovation efforts. These terms include **innovation markets** or **R&D markets**[461], **innovation activity**, **innovation rivalry** or **innovation / R&D efforts**, **R&D poles** or **innovation competition**. The related term of '**innovation space**' is used to describe a broader area or field (but at least in the Commission's view, a concept explicitly short of a 'market'[462]) in which undertakings have been innovation competitors in the past and are likely to continue to be so in the future.

Innovation markets are further discussed in *section 4.5.* That section also touches on innovation spaces to the extent that the sources surveyed made relevant contributions.

[460] e.g., US DoJ and FTC Antitrust Guidelines for the Licensing of Intellectual Property (2017), KFTC Review Guidelines on Unfair Exercise of Intellectual Property Rights (2016), Section 3(A)(2), or EU Guidelines on horizontal co-operation agreements (2011)

[461] A term the Commission explicitly takes from the US DoJ and FTC Antitrust Guidelines for the Licensing of Intellectual Property (2017) when discussing innovation competition in Dow / Du Pont (paragraph 346), although the term (and concept) of 'R&D market' was used by the Commission as far as 20 years ago in Case M.1846 – Glaxo Wellcome / Smithkline Beecham (2000), paragraph 174.

[462] Commission decision in Case M.8084 Bayer / Monsanto, paragraph 1023, for example, states that 'the Commission considered that innovation should not be understood as a market in its own right, but as an input

4.1 Impact on traditional methods of market definition

We have identified several features of innovative industries that various sources[463] argue make the traditional methods of market definition more difficult to apply:

- unclear link between innovation efforts and existing products or services;
- difficulty in defining a market while the product development is ongoing;
- uncertain results of innovation;
- fast or disruptive (leapfrog) market structure changes;
- high entry barriers (e.g. substantial investment costs and length of innovation activities in the pharmaceutical industry, network effects in the digital industry);
- lack of geographical and entry barriers (e.g. low costs or trade restrictions in fast-moving industries[464], human capital as the key asset and no major additional investments in software development);
- impact on the use of static price tests (such as the SSNIP test): difficulty in selecting substitute products/services due to a rapidly changing competitive landscape or, conversely, static price tests may incorrectly identify products/services that may no longer be substitutes once innovation comes to the market, i.e. the issue of non-price competition parameters;
- volatile prices in innovative markets, zero-price strategies, innovation can reduce prices of products that are currently too expensive to be considered as substitutes[465]; and
- highly differentiated products.

In looking at the question of the extent to which traditional market definition methods can be applied, the link (or lack of a link) between innovation and existing product markets appears key. In that context, the literature, case practice and case law have observed the following 'uncertainty features' in innovation processes:

- in the early research discovery phase, innovation may be not product-specific[466];
- innovation may be stochastic or uncertain (R&D players are uncertain of the impact of their discovery efforts when they initiate such efforts)[467];
- not all incumbent firms in a given product market may compete for innovation, e.g. by investing in R&D, and there could be firms outside the product market competing with incumbent firms on the same innovation[468];

activity for downstream product markets. While innovation eventually results in products competing on these markets, the assessment of innovation competition cannot be directly conflated with the relevant downstream product markets.'

[463] In general, see, e.g. Hruska, A Broad Market Approach to Antitrust Product Market Definition and Innovative Industries, 1992; Wright, Antitrust, Multi-Dimensional Competition, and Innovation: Do We Have an Antitrust-Relevant Theory of Competition Now? 2009; OECD, Merger Review in Emerging High Innovation Markets, 2002, and further literature cited in this reference.

[464] Leading in practice to wide geographical market definitions, see e.g. discussion on South Korea's approach to technology markets below.

[465] e.g. Katz and Shelanski, 'Mergers and Innovation', 2007.

[466] e.g. as observed by the Commission in Bayer / Monsanto, paragraph 1017.

[467] e.g. as observed by the Commission in respect of the crop industry (Dow / Du Pont, paragraph 2067).

[468] e.g. Kerber, Competition, innovation, and competition law: dissecting the interplay, 2017, but see also the Postscript on how these scenarios are dealt with as a source of potential competition.

- R&D players may not innovate simultaneously for all the product markets making up a sector, but they may also not innovate randomly within that sector but instead have specific research targets[469];
- innovation efforts may target groups of different products that may be commercialised and thus have many possible applications in multiple downstream markets; and
- the value of technology or innovation is not easy to measure and quantify.

To tackle such uncertainty factors, Regibeau and Rockett[470] suggest a distinction between **directed and undirected research**. Directed research is research that addresses a specific issue in an existing product market, such as the search for a vaccine or advances in car engines. In such cases, the link between innovation efforts and current product markets is typically well-defined and traditional market definition methods may continue to be applicable. Conversely, undirected research refers to situations where the applicability of innovation efforts is not necessarily known ex-ante, and the nature of such research activity may indicate the use of alternative market definition methods.

For cases of volatile or zero prices, or for other settings where the price dimension may not accurately capture the substitutability between products, Jorde and Teece suggest a **performance-induced substitutability approach[471]**. Such attribute-based methods of market definition involve a hypothetical variation in products' key performance attributes other than price. Jorde and Teece admit that the selection of such attributes can be case-specific. They suggest that market experts be consulted to identify the right performance attributes. Instead of using the 5-10% increase benchmark of the standard hypothetical monopolist test, Jorde and Teece suggest a 25% change criterion, arguing that a 25% increase in a single attribute would more accurately correspond to an overall product performance increase of less than 25%. They also acknowledge that, while it is always possible to increase price, it is not always feasible to increase performance, and so the attribute-based method of defining markets may have less applicability in a setting where progress follows a leapfrog model of quantum jumps than in one in which innovation proceeds continuously along a relatively clear trajectory (this is noted also by the OECD Application of Competition Policy to High Tech Markets report[472]).

Measures of innovation can focus on (i) inputs into the innovation process, (ii) the use of intermediate outputs, or can be (iii) direct measurement of innovation outputs.

(i) Input measurements, such as the percentage of firms' capital invested in innovation, may be easy to obtain and quantify. However, because the results of innovation processes are uncertain, they may not fully capture the economic value of the investment. Other examples include dedicated employee or contractor counts or percentages.[473]

(ii) Intermediate outputs, such as patents, may be suitable, as they reflect successful, developed or applied innovation processes. However, not all successful innovations that affect the market definition process are patented /

[469] e.g. as observed by the Commission in Dow / Du Pont, paragraph 350.

[470] Regibeau and Rockett, Mergers and Innovation, 2019.

[471] Jorde and Teece, Harmonizing competition policy in regimes of rapid technological change, 1996

[472] Page 11.

[473] Muller, Valikangas and Merlyn, Metrics for innovation: guidelines for developing a customized site of innovation metrics, 2005.

patentable and the economic impact may differ substantially between patents.[474]

(iii) Outcome metrics may include the level and number of observable new competencies acquired as a result of R&D investment. If products under development are sufficiently predictable and observable, they themselves may be a valid measure of innovation[475] and may indicate the usefulness of future markets as an alternative market definition method (see section 4.4). At lower levels of uncertainty about the innovation process, even the traditional methods to delineate markets may be useful or sufficient.

According to economic research, market shares and the standard analytical frameworks used for calculating them should be given less weight in the analysis of dynamic and innovative industries[476]. Because competition for the market can be as significant as the competition within a market, large market shares today may say little about the firm's competitive position in the near future as there may be numerous potential entrants that traditional methods do not capture.[477] Sidak and Teece suggest that using firms' capabilities as a proxy/measurement means that a firm's competitive standing is not based on a highly volatile product landscape but rather on more enduring abilities.[478]

The next box discusses how we consider that different approaches to market definition can be more suitable for the assessment of different innovation settings, taking into account whether the R&D is directed, the stage of product development and the form of innovation, with regard also to the '*uncertainty features'* identified above.

Box 12: Taking account of the product development stage, form of innovation and uncertainties– main findings

(i) Market definition based on existing products may be used to consider the impact of innovative products in the relevant markets where the R&D efforts are 'directed' towards such specific new products, marketing of the products is certain to occur in the shorter term (or a foreseeable future), and at the same time the link to existing products is strong and substitutability between existing and innovative products is likely to be high.

(ii) An approach using different concepts (future markets, innovation markets) may be more appropriate in cases of R&D efforts that demonstrate one or more of the 'uncertainty features' and where the link between innovation efforts and future products on the one hand, and existing products on the other, is weaker.

(iii) 'Directed' R&D efforts may also allow identification of future markets that concern specific (future) products or product types[479] (*section 4.4* below),

[474] Acs, Anselin and Varga, Patents and innovation counts as measures of regional production of new knowledge, 2002.

[475] Muller, Valikangas and Merlyn, Metrics for innovation: guidelines for developing a customized site of innovation metrics, 2005.

[476] Wårell and Nilsson, Antitrust Analysis in Markets Characterized by Rapid Innovation: The Market for Mobile Phone, 2003, and Jorde and Teece, Harmonizing competition policy in regimes of rapid technological change, 1996.

[477] Sidak and Teece, Dynamic competition in antitrust law, 2009.

[478] Sidak and Teece, Dynamic competition in antitrust law, 2009.

[479] The US DoJ and FTC Antitrust Guidelines for the Licensing of Intellectual Property (2017) do consider these cases as falling within the concept of 'research and development markets': ('When research and development is directed to particular new or improved goods or processes, the close substitutes may include research and development efforts, technologies, or goods […]')(paragraph 3.2.3).

whereas 'undirected', early stage R&D efforts or research targets may point to a broader concept of innovation market or even innovation spaces, in which it is the R&D capabilities (such as access to specialised assets) that become more relevant – and easier to observe – than specificities of future products (section 4.5 below).

(iv) As regards the impact of innovation on the usefulness of price tests (such as the SSNIP), the literature suggests attribute-based or performance-induced substitutability tests (e.g. using a 25% rule for a change in any key products' performance attributes), even though such methods may yield better results in settings of incremental innovation rather than in a setting where innovation follows a leapfrog model of quantum jumps.

(v) Measures of innovation can either rely on inputs (R&D investments, employee counts), intermediary outputs (patents) or directly measure innovation outputs (acquired competencies, final innovative products). However, market shares may change rapidly and unpredictably and may understate or overstate undertakings' true competitive position.

4.2 Anchoring market definition in current product markets

The closer innovative activities are to a marketed product and the more research activities are 'directed' to specific product enhancements or a specific new product development, the easier it may be to use existing products as a basis to delineate a relevant market. By contrast, if the R&D efforts are not 'directed', the innovation is at a very early stage, or the products under development are not close substitutes for existing products (for example, entirely new products), it may prove more difficult to use traditional market definition methods.

There seems to be only limited experience in the NCAs' market definition practice in the context of innovation and a reluctance to adopt any alternative approaches:

- The **German** NCA's practice has, for example, not yet defined separate innovation markets to capture innovation competition but has sought to consider it in the framework of (future) product markets. In *Tokyo Electron / Applied Materials,* the NCA acknowledged the merging parties' role as important R&D poles across the markets but did not define specific innovation markets even though the sector was R&D-intensive. Instead, it defined a range of product markets based on the traditional market definition methods (assessing the demand-side substitutability of innovative products) and considered the effects on innovation activities as cross-market effects at the competitive assessment stage[480]. In *Magna Car / Karmann,* the NCA defined an 'overall' market for the development and production of convertible car tops instead of partitioning the upstream activity into separate R&D markets or licensing technology markets, even though there were market transactions for commissioned R&D only, i.e. for the development of innovative product solutions which were not tied to a contract for subsequent mass production. The three main reasons for doing so were: (i) a close connection between the later-stage development and the serial production; (ii) the absence of companies engaging in R&D only; and (iii) the car top producers' business model that involved R&D not so much as a stand-alone market activity but rather as a necessary upstream step for the acquisition of production contracts[481].

[480] Case B5-138/13 – Tokyo Electron/Applied Materials.

[481] Case B9-29320 Fa-13/10 – Magna Car/Karmann.

- In the context of incremental innovation, the **Luxembourg** NCA adopted a forward-looking definition of an existing mobile phone market to include 4G network services that were then 'in the process of being deployed'; their substitutability with 3G network services being extrapolated from the substitutability between 3G and 2G technologies[482].
- EEA jurisdictions' guidelines do not deal with innovation in much detail, and relevant examples include only marginal notes such as the **Finnish** NCA *Guidelines on merger control* suggesting that substitutability be assessed as well with regard to the recent launch of a new product. The **Bulgarian** NCA's *Methodology on market definition and investigation* considers barriers to entry related to innovation as a factor relevant to the market definition instead of being assessed at the stage of market power or competitive effects analysis, but it does not comment on the possibility for innovation itself being defined as a relevant market.

More relevant examples can be found in non-EEA jurisdictions:

- The **UK** OFT Market Definition Guidelines (2004*)* give a sense of how the timing of production and purchasing can affect current markets: '*Customers may defer expenditure on present products because they believe innovation will soon produce better products ['innovation/inter-generational products'] or because they own an earlier version of the product, which they consider to be a close substitute for the current generation.*' The UK OFT – the predecessor of the UK CMA – considered this to be a market's temporal aspect, rather than a potential entry[483] which would thus impact the definition of the current relevant market.
- Similarly, the **Australian** NCA's forward-looking product market definition approach in the media sector takes into account market growth, innovation, product differentiation and technological changes in the foreseeable future[484].
- The **Canadian** NCA takes into account likely future developments in the industry[485].
- In *Johnson & Johnson's (J&J) acquisition of Pfizer's Consumer Healthcare business (2017)*, the **United States'** FTC defined four relevant markets for the research, development, manufacture, and sale of over-the-counter (OTC) products in four therapeutic areas, thus including the R&D element within the definition of the current relevant market. In *FTC v Qualcomm* (which is also relevant to technology markets – see section 4.3 below)*,* the US district court upheld the FTC's finding that the relevant market consisted of a particular standard technology (Code Division Multiple Access (CDMA) Modem Chip) based on a test of 'r*easonable interchangeability of use*' and recalled an older ruling in *Microsoft[486],* in which the court held that '*the test of reasonable interchangeability... require[s] the District Court to consider only substitutes that constrain pricing in the reasonably foreseeable future, and only products that can enter the market in a relatively short time can perform this function*.' These cases illustrate how the US agencies may anchor innovation market definition in existing products even though the Antitrust Guidelines for the

[482] Decision n. 02014-FO-07.

[483] OFT Market definition: Understanding competition law (2004). Compare paragraph 5.1. with paragraph 3.18.

[484] ACCC Media Merger Guidelines (2017), paragraphs 45-46.

[485] Canada Competition Bureau, Merger Enforcement Guidelines, 2011, paragraph 4.13.

[486] Microsoft, 253 F.3d.

Licensing of Intellectual Property[487] provide for a separate concept of '*research and development markets'* (see section 4.5 below).

As the link between innovation and existing products may be key to the market definition, the literature has suggested that experts may help NCAs identify such a connection[488]. NCA practice also reproduces this view. For example, in *Actavis UK / Auden Mckenzie*[489], the **UK** CMA sought professional clinicians' views about the substitutability between pipeline and current pharmaceuticals that were based on (i) the same molecule, strength and galenic form; and (ii) the same molecule, but different strengths and/or galenic forms. Similarly, courts have relied on experts' views on the substitutability between pharmaceutical products in the Australian *ACCC v Pfizer* case[490].

In cases of incremental innovation, it may be easier to link new products with existing product markets: the **Canadian** NCA's Merger Enforcement Guidelines[491] suggest that where price tests may not be feasible in practice, it may define markets based on qualitative indicators of substitutability; functional interchangeability between two products is generally a necessary but not sufficient condition to include two products in the same relevant market. In *Bayer Animal Health / Elanco*, the Canadian NCA preliminarily looked at the spectrum of application of parties' innovative products to identify relevant overlaps[492].

Innovative and traditional products were also considered part of the same relevant market by Brazilian NCA in *XP / Itaú*[493]: Brazilian NCA considered XP's disruptive business model (deemed as maverick[494] and by the time of the transaction already a functioning business – i.e. open platform distribution), and the traditional banks' model (closed distribution structure) in the same broad relevant market (i.e. distribution of investment products) mainly taking into account investors' views on substitutability between both distribution models, especially on the types and variety of the product portfolios offered in each channel. Nevertheless, Brazilian NCA also considered the investment product suppliers' view on the lack of substitutability between traditional and disruptive models and analysed XP's market power in a separate scenario considering only open platforms.

As the guidance and cases above illustrate, the time-to-market factor appears to be important, but estimating (and evaluating it by the NCA) will typically be co-determined by the nature of R&D processes and the information and evidence available, which in

[487] US Antitrust Guidelines for the Licensing of Intellectual Property (2017)

[488] e.g. Jorde and Teece suggest that market experts can help identify a list of key performance attributes of the product under consideration or can be asked to predict substitution effects given significant changes in such performance attributes (Jorde and Teece, Harmonizing competition policy in regimes of rapid technological change, 1996).

[489] CMA decision of 21 May 2015, ME/6513/15.

[490] ACCC v Pfizer Australia Pty Ltd [2015] FCA 113 (25 February 2015) and [2018] FCAFC 78 (25 May 2018).

[491] Canada Competition Bureau, Merger Enforcement Guidelines, 2011

[492] Competition Bureau statement regarding the acquisition by Elanco of Bayer Animal Health, 14 July 2020.

[493] Merger Case No. 08700.004431/2017-16.

[494] According to item 4.3.1. of CADE's Horizontal Merger Guidelines (2016), mavericks are described as those with a low production cost and low pricing that force market prices down or companies that are characterised by their inventiveness and that encourage permanent innovation in the segment in which they operate. In this sense, their independent presence in the market could discipline the prices of companies that have greater market share. In addition, the Guidelines encourage CADE to analyse the reduction of current or potential competition, rivalry and innovation, regardless of the HHI, in mergers involving a company with a leadership cost strategy, innovation or niche, for example.

turn may be highly industry- or sector-specific. In the pharmaceutical industry, for example, R&D may take years, but the process involves steps that are predictable thanks to industry regulation (Phase I, II and III clinical trials). Given such a relatively pre-determined structure, NCAs can estimate the time-to-market which can be used to define relevant markets and compare firms' innovation efforts. However, there seem to be no bright lines. The literature posits that, if, for example, most of the development costs related to the pipeline product have already been incurred, it can be assumed that the time-to-market is relatively short[495]. Drawing also on the literature's suggestion of looking at firms' past R&D pipelines for defining innovation markets (see section 4.5 below), it may be helpful to look at the timeline of previous R&D cycles/product generations to get a clearer view on the time-to-market factor.

Box 13: **Traditional market definition and innovation – main findings**

(i) According to the literature surveyed, guidelines and practice, anchoring market definition in existing products appears suitable where R&D efforts are directed towards specific products, their link to existing products is clear, and substitutability between innovative and existing products is likely high.

(ii) The time-to-market factor may be industry-specific and thus prone to a case-by-case basis assessment, but:

a. where most of the development costs related to the pipeline product have already been incurred, it can be assumed that the time-to-market is relatively short;

b. past R&D cycles/product generations may help determine the relevant time-to-market factor;

c. R&D processes in regulated industries (e.g. pharmaceuticals) may be more predictable.

(iii) In an incremental innovation setting, it may be easier to link new products with existing product markets.

(iv) Instead of using static price tests (such as the SSNIP framework), observing the change in key products' performance attributes may give a better view of substitutability in cases of incremental innovation.

(v) External experts can help identify the link between future / innovative products and existing products to facilitate consideration of substitutability.

4.3 Technology markets

The concept of technology markets is one that we found to be well-established in the non-EEA jurisdictions' guidelines and case law surveyed. We were also provided with two examples of NCAs' practice (Germany and Slovakia). Nevertheless, approaches may differ between jurisdictions in their treatment of particular factors, such as whether the technology is traded or non-traded. Given the lack of other examples from the EEA, we group the discussion below thematically rather than EEA vs. non-EEA.

[495] Federico, Morton and Shapiro (2019), Antitrust and Innovation; welcoming and protecting disruption.

The concept of technology markets is not discussed by the MDN. Several jurisdictions, such as the **United States**[496] and **South Korea**[497], however, do define technology markets around technology/IP rights that are traded, i.e. broadly in line with the EU approach spelt out in other guidance: Horizontal co-operation agreements guidelines [498] and Guidelines on technology transfer agreements[499]. South Korea is, however, ready to define a technology market as well for areas where there is a possibility of technology being used in the future and where it is likely to be traded[500].

A market definition may be indispensable for a non-traded technology in cases of abuse of dominance, where the fact that a competitor refuses to grant access to the technology (e.g. by offering it for in-licensing) constitutes precisely the nature of the abuse. The **UK** High Court has found that the relevant market in a refusal to supply case was a market for licences under the standard-essential patents (SEPs), i.e. a market in which the SEP owner had a 100% market share[501]. In **Australia's** *ACCC v Pfizer* case[502], the Australian NCA sought to define the product market as consisting of both a specific original and generic cholesterol treatment drug made by Pfizer at the time. The drug was found to be unique and Pfizer had a valid patent over the molecules, which it did not offer for licensing to other competitors. The court accepted the Australian NCA's market definition but annulled the decision on other grounds.

Some decisional practice examples include the definition of technology markets as a 'one-product' market for a particular IP right or technology. There have been cases of this type in the **United States**[503] and the **UK**[504]. In **Slovakia**, the NCA considered that a purely IP-based market definition was possible if the IP right was separate from the technology or product which uses that IP right (as an input)[505]. In other cases, the technology market did not result in a 'one-product' market based on a particular IP right: in *Montedison and Royal Dutch Shell*, the **United States** FTC defined a market for technology underlying polypropylene production, on which the firms represented (only) over 80% of all production capacity based on a technology licence they held[506].

[496] US DoJ and FTC Antitrust Guidelines for the Licensing of Intellectual Property (2017), paragraph 3.2.2 ('Technology markets consist of the intellectual property that is licensed (the 'licensed technology') and its close substitutes—that is, the technologies or goods that are close enough substitutes to constrain significantly the exercise of market power with respect to the intellectual property that is licensed.'). Similarly, DoJ and FTC Antitrust Guidelines for Collaborations Among Competitors (2000), paragraph 3.32(b).

[497] KFTC Review Guidelines on Unfair Exercise of Intellectual Property Rights (2016), Section 3(A)(2).

[498] EU Horizontal co-operation agreements guidelines (2011). See: Paragraphs 116-118.

[499] EU Guidelines on technology transfer agreements (2014), Paragraphs 19-26.

[500] KFTC Review Guidelines on Unfair Exercise of Intellectual Property Rights (2016), Section 3(A)(2).

[501] Unwired Planet v. Huawei [2017] EWHC 711 (Pat).

[502] ACCC v Pfizer Australia Pty Ltd [2015] FCA 113 (25 February 2015) and [2018] FCAFC 78 (25 May 2018).

[503] F.T.C. v. QUALCOMM INC., 411 F.Supp.3d 658 (2019).

[504] Unwired Planet v. Huawei [2017] EWHC 711 (Pat).

[505] Case no. 2009/DZ/2/1/040 ENVI-PAK (2009). The NCA referred to paragraph 116 of the EU Horizontal Cooperation Guidelines and to paragraph 238 of the DG Competition Discussion Paper on the application of Article 82 of the Treaty to exclusionary abuses, noting that nothing in these documents suggested that the approach could not be applied in the context of defining relevant markets for the purposes of abuse of dominance investigations, and trademarks more specifically. The NCA also referred to US DOJ and FTC Antitrust Guidelines for the Licensing of Intellectual Property (1995), Section 3.2.; and Competition Bureau of Canada, Intellectual property enforcement guidelines (2000), Section 5.1., and to product market definitions based on IP rights in Commission decision C2/38.014 – IFPI Simulcasting (2002).

[506] Montedison S.p.A. and Royal Dutch/Shell Group of Companies, FTC File No. 941 0043.

The process of standardisation seems often to lead to narrower technology market definitions, but not always. In *Apple v. Samsung*, a **United States** judge observed that there is a distinction between a normal patent – which does not generally confer antitrust market power on the patent owner, and a patent incorporated into a standard – which may confer antitrust market power on the patent owner[507]; similarly in *FTC v Qualcomm,* the US district court upheld the FTC's finding that the relevant market consisted of a particular standard technology (CDMA Modem Chip)[508]. This has been picked up also by **South Korea**: the South Korean NCA's Review Guidelines on Unfair Exercise of Intellectual Property Rights[509] consider that a more limited trade area may be determined to be the relevant market when it is difficult to replace a given technology with another due to requirements for technical compatibility resulting from standardisation. In **Slovakia**, the NCA has defined a technology market as being as narrow as one particular trademark (the 'Green Dot' trademark), pointing out that the trademark imposed a certain standard in the waste management business[510]. However, in a case involving the market for the licensing of standard-essential patents, the **German** Supreme Court hinted at the fact that work-around technologies (i.e. technologies that make it possible to operate under the standard even though they are not entirely those defined in the standard documents) may have to be included in the relevant market as well; the licensing market was found to be distinct from the markets for standard-based products[511].

As regards the market definition methodology, many jurisdictions explicitly approach the technology market definition as they do any other antitrust market. NCAs typically seek to identify technology's close substitutes, e.g. in the **United States,** the guidelines suggest starting by identifying a group of technologies and goods over which a hypothetical monopolist of those technologies and goods would be likely to exercise market power, for example, by imposing a small but significant and non-transitory price increase[512]. This appears to be in line with EU guidance[513].

NCAs recognise several specificities in the market definition approach for technology markets: (i) Often the technology is licensed in ways that are not readily quantifiable in monetary terms. **United States** guidance suggests delineating the relevant market in such circumstances by identifying other technologies and goods that are reasonable substitutes for the licensed technology[514]. (ii) **South Korea** notes that trading of technology faces, in general, few restrictions in terms of transportation and thus is likely to have an expanded geographical market[515]. (iii) **Japan's** guidelines require a clearly structured definition of technology markets and downstream product markets in order to be able to evaluate any antitrust restrictions pertaining to the use of technology with more precision[516]. (The guidelines then provide guidance on how such markets are

[507] Apple Inc. v. Samsung Elecs. Co., Case No.: 11-CV-01846, 9 (N.D. Cal. May. 14, 2012)

[508] F.T.C. v. QUALCOMM INC., 411 F.Supp.3d 658 (2019).

[509] KFTC Review Guidelines on Unfair Exercise of Intellectual Property Rights (2016).

[510] Case no. 2009/DZ/2/1/040 ENVI-PAK (2009).

[511] BGH, 5 May 2020, KZR 36/17, para. (3) et seq.

[512] US DoJ and FTC Antitrust Guidelines for the Licensing of Intellectual Property (2017).

[513] Guidelines on technology transfer agreements (2014), paragraphs 19 and 22.

[514] US DoJ and FTC Antitrust Guidelines for the Licensing of Intellectual Property (2017).

[515] KFTC Review Guidelines on Unfair Exercise of Intellectual Property Rights (2016), Section 3(A)(2).

[516] Guidelines for the Use of Intellectual Property under the Antimonopoly Act (2007, amended 2016), Part 2(2) (principles in identifying a market): 'When evaluating any restrictions pertaining to the use of technology according to the Antimonopoly Act, it is imperative to identify the market where the technology is traded, where any product

defined, which is discussed elsewhere in this section). The specificities are also the practice in cases of data-processing technology markets: the Japanese NCA may define markets on which technology to utilise data is traded and technology markets for developing various data-related products (existing or potentially future markets). Even though the study group of the Japanese NCA asserts that the method used for defining such relevant markets is generally not different from the method used for existing products, it acknowledges that in some cases it may be difficult to foresee the existence of such products at the time technology is developed[517]. The **United States** agencies typically take all relevant evidence into account, starting with market share data (if available), evidence of buyers' and market participants' assessment of the competitive significance of technology market participants. If neither are available and it appears that competing technologies are comparably efficient[518], the agencies will assign each technology the same market share. **South Korea's** guidelines suggest that the market shares of the goods made using the technology can be used as a proxy when it is difficult to calculate the market share of the technology due to the uniqueness of the technology market[519] – a similar approach is found in the EU guidance[520].

In terms of metrics, the literature acknowledges that technology markets are not easy to delineate and the value of technology is not easy to quantify. One can at best measure R&D results through marketable and tangible outcomes, such as patents, which means that any technology used internally within an organisation is not considered.

incorporating the technology is traded and where other technology and products are traded, and to examine the impact of the restriction on competition, according to the transactions affected by the restrictions affect.'

[517] JFTC Report of Study Group on Data and Competition Policy (2017), page 29.

[518] In the US, the Agencies will regard two technologies as 'comparably efficient' if they can be used to produce close substitutes at comparable costs.

[519] KFTC Review Guidelines on Unfair Exercise of Intellectual Property Rights (2016), Section 3(A)(2).

[520] Guidelines on technology transfer agreements (2014), paragraph 25.

Box 14: Technology markets – main findings

(i) Traded technology (typically an IP right) allows for a more precise definition of a technology market (even if it amounts to a 'one-product' market). However:

a. market definition may also be possible for areas in which there is a possibility of a technology being used in the future and where it is likely to be traded;

b. market definition for a non-traded technology may be indispensable for antitrust enforcement (e.g. refusal to supply cases).

(ii) The process of standardisation may, but does not necessarily, lead to narrower technology market definitions, e.g. if work-around technologies are available.

(iii) NCAs approach the technology market definition as they approach any other relevant market definition (identify close substitutes with the help of, e.g. the SSNIP framework). Where this is difficult, they look for reasonable substitute technologies or goods.

(iv) Where it is difficult to calculate technologies' market shares, the market share of downstream goods can be used as a proxy. Where market share metrics or market participants' views on the competitive significance of the parties on the technology markets are unavailable, and the technologies appear comparably efficient, the parties may be assigned the same market share.

(v) It is not easy to quantify the value of technology. Relying on marketable and tangible outcomes, such as patents, may mean that no consideration can be given to an undertaking's captive use of a technology.

(vi) Structuring the definition of technology markets and downstream product markets clearly may help in evaluating antitrust restrictions on the use of technology more precisely at various supply chain levels.

4.4 Future Markets

The concept of future markets may be useful to capture the middle ground between the approach that relies on current product market definition on the one hand, and alternative market definition methods that seek to identify innovation markets on the other. Future markets may be found in cases where R&D efforts are 'directed' to future specific products or product types, and where R&D activities are observable and predictable to a reasonable extent[521], but where future products cannot be associated with existing product markets because of some uncertainties as to the R&D results, unclear substitutability with existing products (e.g. leapfrog innovation or entirely new products), or a longer time-to-market frame.

The concept of future markets has not appeared in the guidelines from jurisdictions surveyed for this study (EEA and non-EEA alike), but examples of various approaches that could fall into this category may be found in both EEA and non-EEA practice. The primary source of conceptual thinking is the literature, which has identified two main uses for the concept: (i) to protect competition in a market that is non-existent at

[521] Conversely, where R&D activities are not observable to a reasonable extent or if future products are too uncertain at the point of the assessment, the literature argues that a definition of an innovation market may be indicated. (Kern, Innovation markets, future markets, or potential competition: How should competition authorities account for innovation competition in merger reviews?, 2014).

present[522], or (ii) to protect the emergence of a particular product market in the future[523]. Neither scenario seems to require consideration of current firms' role in any existing product markets, even though incumbency advantages, such as firms' experience in historic product development, ownership of capabilities and know-how may play a role in the relevant market definition (as shown by the NCA practice examples discussed subsequently in this section). Future markets may be instances of the new superior product causing long-term demand churn rather than short-term switching between products caused by incremental innovation or changing customer preferences[524].

The exact term 'future market' is only rarely used by case-law[525].

Among the EEA jurisdictions, the **German NCA**, in its study titled Innovations – challenges for competition law practice[526] distinguishes between innovation by actual or potential competitors for existing markets and innovation activity with regard to future yet discernible markets, e.g. R&D into a new product generation which will constitute a distinct market. It notes that the definition of such markets depends on a sufficient likelihood that the R&D activity will be successful in bringing new products to the market[527]. As mentioned in section 4.2, the German NCA has not yet applied any alternative market definition concept in practice.

In a case on the emerging Mobility-as-a-Service (MaaS) business, the **Dutch** NCA defined a retail market for the provision of multimodal mobility services even though such services were only in a start-up phase; it also defined a wholesale market for MaaS platform development that was only at a conceptual stage. The main reason why the Dutch NCA sought to define a future market separate from existing markets for software development was that the development of a MaaS platform seemed to require specialist knowledge not available to generic software developers. (This was considered a supply-side substitution issue). The Dutch NCA observed that there will be an increasing number of MaaS providers on the market in the foreseeable future[528]. To inform its market definition, the Dutch NCA looked at features such as service interchangeability, customer preferences/experience with existing products (unimodal mobility services, as against the emerging multimodal services) and various regulatory requirements such as the need for a driving licence. It also considered local regulations as a high entry barrier to the business. The Dutch NCA identified the group of competitors in the future

[522] Kern (2014), Innovation markets, future markets, or potential competition: How should competition authorities account for innovation competition in merger reviews?.

[523] Lang (1997), European Community Antitrust Law: Innovation Markets and High Technology Industries,.

[524] An application of this concept in all but name can be found in the Commission's Novartis / GlaxoSmithKline Oncology Business merger decision (Case M.7275 — Novartis / GlaxoSmithKline Oncology Business), paragraph 89 ('[the concentration] concerns entities currently developing new products or technologies which either may one day replace existing ones or which are being developed for a new intended use and will therefore not replace existing products but create a completely new demand. In principle, the effects of a concentration on competition in innovation in this type of situation may not be sufficiently assessed by restricting the assessment to actual or potential competition in existing product markets.') This is language used also in EU Horizontal Co-operation Agreements Guidelines (2011), paragraph 119 et seq.

[525] The few examples we know of can be found in Commission decisions in Case No IV/M.737 - Ciba-Geigy / Sandoz (1996), paragraphs 42 et seq.; and Case M.6278 – Takeda / Nycomed (2011), paragraph 10.

[526] Bundeskartellamt (2017), Innovations – challenges for competition law practice, November 2017. Available at : https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Schriftenreihe_Digitales_II.pdf?__blob=publicationFile&v=3

[527] Ibid. 18 et seq., 26 et seq. For the concept and treatment of future markets, the NCA refers to the Commission's approach in Case No IV/M.737 - Ciba-Geigy /Sandoz.

[528] Case 20/038614 Pon Netherlands / NS Groep N.V. / JV (2020).

market by reference to the concession contracts that they had been awarded throughout the Netherlands in the past.

In the non-EEA jurisdiction examples, other terms have been used to describe R&D efforts 'directed' towards a certain new product or technology, such as 'research poles' (e.g. in **Brazil**, in Brazilian NCA's Horizontal Merger Guidelines[529]) this may be similar to the term 'R&D poles' (used in the EU Guidelines on horizontal co-operation agreements [530] but not conceptualised by the MDN). Similarly, the **United States** concept of 'research and development markets' could, given its focus on 'directed' R&D for new or improved goods, be considered as one aiming at future markets[531]; in *Watson Pharmaceuticals / Actavis*, the FTC sought to define a number of markets for generic drugs that did not yet exist at the time of assessment, but where it considered that the merging parties were potentially among future suppliers[532]. However, because the future markets concept is rather fuzzy, the US approach might well fall within the 'innovation market' bucket given its focus on the capabilities of firms' R&D to access specialised assets (see section 4.5 below). While 'research poles' may generate future markets by developing new products/services, the decisional practice surveyed has not provided examples in which such poles would actually be defined as relevant markets in their own right.

Box 15: Future markets – main findings

(i) Future markets may be suitable for describing observable R&D efforts that are directed to specific future products (or product types), which (the products/types) are likely to be substitutable for one another, but where these products are distinct from existing products, such as new generation products or entirely new product types.

(ii) The definition of such markets may depend on a sufficient likelihood that the R&D activity is successful in bringing new products to the market.

(iii) Possible competitors in (or for) a future market do not need to compete on any existing markets at the time of assessment, even though incumbency advantages such as firms' experience in historic product development, ownership of capabilities and know-how may play a role in the relevant market definition.

(iv) Despite the parameters of future products being uncertain, it is possible to consider existing market characteristics such as customers' experience with existing products, existing cross-elasticity, the regulatory requirements applicable, or indicators of market participants' past performance indicators to get a view on the possible future market structure.

[529] CADE Horizontal Merger Guidelines (2016). The Guidelines state that the concentration of 'research poles' in a given sector could give rise to anticompetitive concerns even in cases of future and potential competition in 'technology markets', which traditional market definition methods (such as critical loss analysis) may not be able to capture. Available at: <https://cdn.cade.gov.br/Portal/centrais-de-conteudo/publicacoes/guias-do-cade/guia-para-analise-de-atos-de-concentracao-horizontal.pdf>. Last Access on: 27 January 2021.

[530] EU Guidelines on horizontal co-operation agreements (2011), paragraph 120 ('Competing R&D poles are R&D efforts directed towards a certain new product or technology, and the substitutes for that R&D, that is to say, R&D aimed at developing substitutable products or technology for those developed by the co-operation and having similar timing.').

[531] Antitrust Guidelines for the Licensing of Intellectual Property (2017).

[532] FTC complaint in Watson Pharmaceuticals Inc. / Actavis, Inc., C-4373.

4.5 Innovation Markets

The term 'Innovation market' appeared in the US Antitrust Guidelines for the Licensing of Intellectual Property[533] and then was phased out in favour of 'research and development market' (considered in detail below). The term 'innovation market' also appeared in the EU Guidelines on technology transfer agreements along with the term 'research and development poles'[534], which it tied to the EU Guidelines on horizontal co-operation agreements[535], but which was also later phased out.

Innovation markets have been conceptualised by the literature, notably by Gilbert and Sunshine[536], but only two non-EEA jurisdictions (of those surveyed for this study) have considered innovation markets in more detail in their guidelines: the **United States**[537] and **South Korea**[538].

One of the overarching reasons for identifying separate markets for innovation rather than for products seems to be that, where market structures are changing rapidly, the firm's underlying capabilities are more likely to be a constant than products characterised by rapid innovation[539]. This is reflected by an asset- or capabilities-based approaches to innovation market definition, such as in the **United States** (see below). However, as the OECD paper on High Tech Markets[540] points out, innovation may follow a 'leapfrog model' and occur with an even higher level of uncertainty, in which it is impossible to rely on firms' specialised assets to make any prediction about future competitors[541]. Some sources argue that for competition law and policy to intervene, innovation activities should be at a sufficiently advanced stage to allow identification of relevant innovators with some level of certainty and that it should be possible to appreciate the R&D activities' impact on downstream product markets[542]. Others argue that the innovation market concept may be more applicable where R&D results are not expected to constitute a new relevant product market and that otherwise, the concept of future markets may be more suitable[543].

[533] US Antitrust Guidelines for the Licensing of Intellectual Property (2017)

[534] EU Guidelines on technology transfer agreements (2004) and EU Guidelines on horizontal co-operation agreements (2001). See: Paragraph 25.

[535] Ibid. And its paragraphs 51 et seq. A new version of these provisions, but without the term 'innovation market' appears in the EU Guidelines on horizontal co-operation agreements (2011), paragraphs 119-122.

[536] Notably: Gilbert & Sunshine (1995), Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets, 63 Antitrust L.J. 569, 1995.

[537] Antitrust Guidelines for the Licensing of Intellectual Property (2017)

[538] South Korean NCA Merger Review Guidelines (2019) and South Korean NCA Review Guidelines on Unfair Exercise of Intellectual Property Rights (2016)

[539] Sidak and Teece, Dynamic competition in antitrust law, 2009.

[540] OECD (1996), Application of Competition Policy to High Tech Markets.

[541] OECD (1996), Application of Competition Policy to High Tech Markets.

[542] Gilbert and Sunshine (1995), Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets, 1995, and OECD (1996), Application of Competition Policy to High Tech Markets, 1996.

[543] Or the concept of potential competition, but this view may be quite US-specific (see the Postscript). Kern (2014), Innovation markets, future markets, or potential competition: How should competition authorities account for innovation competition in merger reviews?.

The **United States** approach (and former **South Korean** approach) are largely focussed[544] on settings involving the exercise of IP rights that may influence innovation competition[545], but in other aspects is similar to the EU approach in that it seeks to capture settings that cannot adequately be dealt with via analysis of existing product or technology markets[546]. The US 'research and development market' concept covers two R&D market scenarios consisting of assets comprising research and development (i) related to the identification of a 'marketable product' or (ii) directed to particular new or improved goods and processes, and the close substitutes for that research and development. Prima facie, the US approach seems to aim mainly at more directed R&D (and we considered putting it in the 'future market' bucket), but the concept is also specific in that the assessment seems to be centred on firms' access to specialised assets, and the decisional practice shows that the US is able also to cover fairly early pipeline products with this concept. For example, in its complaint against Amgen Inc., the FTC identified an R&D market that considered Phase II and even Phase I trial pharmaceuticals[547].

In relation to the access to specialised assets, the **United States** Antitrust Guidelines for the Licensing of Intellectual Property seek to define an innovation market only when the capabilities for engaging in the relevant research and development can be associated with the specialised assets or characteristics of specific firms[548]. Literature suggests that access to particular assets as a requirement for pre-market innovation competition may be helpful in identifying the circle of 'innovation competitors' in cases where the observable R&D projects are insufficient for doing so and that these can also be used to define markets focusing on undertakings active in a particular innovation space[549]. Others suggest that R&D capabilities controlled by firms may constitute a significant barrier to entry and should be the focal point when defining market boundaries[550]. Basing the relevant market definition on R&D capabilities instead of rapidly changing product characteristics may help overcome the issue of the volatility and the fast-changing nature of innovative markets[551]. However, we consider that such asset-based or capability-based approaches go beyond the traditional demand-side substitutability analysis and thus diverge from the MDN.

[544] The DoJ also analyses innovation markets in connection with the review of a collaboration's effects on R&D. More information on these collaborations – which may or may not involve the creation of IP – can be found in the FTC & DOJ Antitrust Guidelines for Collaboration Among Competitors (April 2000).

[545] DoJ and FTC Antitrust Guidelines for the Licensing of Intellectual Property (2017), paragraph 3.2.3. ('Research and Development Markets') ('If a licensing arrangement may adversely affect competition to develop new or improved goods or processes, the Agencies may analyze such an impact as a competitive effect in a separate research and development market.'), and KFTC Review Guidelines On Unfair Exercise Of Intellectual Property Rights (2016), Chapter 3, section A ('When the exercise of intellectual property rights has an influence over competition surrounding development of new or improved goods or process, the innovation market may be considered apart from product market or technology market. It is because that sometimes competition for innovation brought about by exercise of intellectual property rights may not be fully considered under the analysis on the goods market or technology market.')

[546] EU Horizontal co-operation agreements guidelines (2011), paragraph 119.

[547] FTC Complaint, Amgen Inc., 134 F.T.C. 333, 337-39 (2002). However, again, in the pharmaceutical industry the predictability of R&D processes is such that it may allow identification of a stronger link between new and existing products even early on.

[548] Antitrust Guidelines for the Licensing of Intellectual Property (2017). See: paragraph 3.2.3.

[549] Kern 37(2) World Competition 173, 198 et seq., 204. Similarly, Kerber, Competition, innovation, and competition law: dissecting the interplay, 201. Other authors seem to contest the need for 'market' definition of any sort (including the delineation of innovation spaces), suggesting instead the assessment of a merger's impact on innovation incentives without such a framework (e.g. Drexl, MPI Research Paper No. 12-08, July 2012, 20).

[550] Regibeau and Rockett(2019), Mergers and Innovation.

[551] Sidak and Teece (2009), Dynamic competition in antitrust law.

South Korea's approach is not asset-centric, but rather examines the role of innovative activities and innovation competition processes. The South Korean Merger Review Guidelines[552] provide that a separate 'innovation market' can be defined if 'the relevant industry can be characterised as an R&D-intensive industry in which R&D capacity is considered as an essential parameter of competition or the relevant market is driven primarily by continuous innovation competition, and at least one of the parties to the relevant transaction can be regarded as a significant innovator.'[553] In the *Qualcomm (2017)* investigation of unfair business practices in patent licensing and modern chip sales, the South Korean NCA applied this concept ahead of the guidelines' adoption. South Korea's approach may have advantages in scenarios where competitors' R&D capabilities and specialised assets are hard to identify (e.g. where evidence cannot be obtained from third party innovators).

Uncertainty about the outcome of the innovation processes and the potential application for innovative products on the one hand, and the need to define sufficiently precise remedies on the other seems to have driven the **South African** NCA view on the need to define separate innovation markets ('*efforts'*) instead of current product markets. Its assessment of the *DowDuPont Inc and The Dow Chemical Company* (2016) case shows that the South African NCA will consider the magnitude, scope and nature of innovation in defining the market. In the NCA's view, innovation efforts may be comparable even if the intermediary stages of the development are protected by IP law. The South African NCA defined three separate markets for the innovation process in order to be able to impose a licensing remedy that ensured that competition concerns at the respective levels in the innovation chain were removed.

Because the **United States** approach mainly seems to capture 'directed' R&D activities, it may be considered divergent from the 'innovation spaces' approach developed particularly by the Commission decisions in *Dow / Du Pont* and *Bayer / Monsanto.* Those arguably make it possible to take a broader view of innovation competition targeting groups of different products. German literature has suggested that the 'innovation spaces' concept may be considered as an attempt to address innovation competition in a manner conceptually different from the traditional tools used in relevant product/service market analysis[554]. While some argue that this allows the Commission to remedy cases on grounds of harm to innovation competition at earlier stages in the product life cycle and at lower levels of probability than would be possible under the US approach[555], others consider it important to take account of the closeness of firms' R&D activity to the development of marketable products as a marker of those firms' innovation competition capabilities[556].

The 'innovation markets' as well as 'innovation spaces' concepts have attracted some criticism: literature cautions against the application of market-based tools such as closeness of competition in this area[557] (which, however, may be more a question of competitive assessment than of market definition); identification of undertakings belonging to an 'innovation space' may be unreliable as firms may try to conceal their

[552] KFTC Merger Review Guidelines (2019)

[553] Kim & Chang (2019), KFTC Introduces Standards for Reviewing Innovation Market and Big Data Mergers.

[554] Drexl (2012), MPI Research Paper No. 12-08, July 2012, 4 et seq., 9 et seq.

[555] Petit (2018), Innovation Competition, Unilateral Effects, And Merger Policy.

[556] Wirtz/Schultz, NZKart (2019), 20, 24.

[557] Immenga/Mestmäcker/Thomas, § 36 GWB Rn. 25.

true R&D activity or misjudge the activity of other companies[558] (which, however, may be more a question of discovering the right facts than a conceptual issue), and, on a more fundamental level, doubts have been expressed as to whether the definition of innovation spaces unrelated to product markets is compatible with the consumer welfare framework[559]. However, the literature has also highlighted the need to use the 'innovation spaces' framework in the light of increasing vertical disintegration and outsourcing of R&D, and the need to take into consideration the role of R&D in competition for, as opposed to in, a market[560]. Specifically, in respect of 'innovation spaces', the literature has called for the concept to be developed into a more precise, predictable and operational framework[561].

South Korean NCA Merger Review Guidelines[562], in addition to a narrow innovation market including '*all overlapping and adjacent fields of R&D'*, allows the South Korean NCA to take a broader view of an innovation market that also encompasses the relevant product markets in which the relevant parties are currently active. This concept appears closer to '*innovation spaces'*, but a South Korean NCA press release has explained that this is mainly to capture competitive effects in R&D-driven industries that extend beyond R&D pipelines and may lessen competition in the relevant product markets. It gives as examples takeovers of technology start-ups with significant patent portfolios by larger tech companies who are already active in the downstream markets. The guidelines suggest the following metrics for assessment of innovation markets' concentration: (i) size of R&D investments by the relevant parties; (ii) R&D-specific assets owned and operated by the relevant parties; (iii) the number of patent applications or citation in a relevant area, and (iv) the number of competitors who are active in the relevant R&D field.

In terms of the methodology, the initial approach suggested by Gilbert and Sunshine for defining innovation markets in mergers[563] involved the steps of (i) determining firms' innovation effort overlaps, (ii) identifying competing innovation efforts (including R&D substitution by firms with relevant R&D capacity that does not currently overlap with the R&D efforts of the merging firms), and (iii) defining a market using a small but significant non-transitory reduction in innovation efforts and determining whether the merged firm would be able to reduce overall innovation effort in the market by virtue of its position. This approach has been criticised for its subjectivity in defining innovation activities[564], or because focusing on R&D expenditure, rather than outputs, may lead to incorrect conclusions, conflating a reduction in R&D overhead and administrative costs with reductions in innovation effectiveness, for example[565]. Also, not all R&D spend leads to innovation[566]. The proposals for future and technology market concepts, which focus on the development of easily identifiable technologies or production process

[558] Haucap (2017), DICE Discussion Paper No 268, September 2017, 1; Wirtz/Schultz, NZKart 2019, 20, 24; Kern 37(2) World Competition 173, 197 et seq., 204.

[559] Immenga/Mestmäcker/Thomas, § 36 GWB Rn. 26.

[560] Drexl (2012), MPI Research Paper No. 12-08, July 2012, 4 et seq., 9 et seq.

[561] E.g., Kern 37(2) World Competition 173, 175; Wirtz/Schultz, NZKart 2019, 20, 23; Monopolkommission, XXII. Hauptgutachten 2018, in particular Rn. 722.

[562] KFTC Merger Review Guidelines (2019)

[563] Gilbert & Sunshine (1995), Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets, 63 Antitrust L.J. 569.

[564] OECD (2018), Background note: Considering non-price effects in merger control.

[565] Carlton and Gertner, Intellectual Property, Antitrust, and Strategic Behavior, 2003, cited id.

[566] Ormosi et al, European Commission, Feasibility study on the microeconomic impact of enforcement of competition policies on innovation, Final Report (Directorate-General for Competition, European Commission, 2017), s.3.2.1.

inputs (see sections 4.3 and 4.4 above), were meant to address some of that criticism[567]. In German literature, the 'innovation markets' concept has mainly encountered criticism[568], but there has also been some support, inter alia because it may be the only approach able comprehensively to address both situations in which companies compete in innovation only, and situations in which they also compete on product markets[569].

The identification of specific assets used for innovation activities, such as R&D labs and specialised staff, can be particularly helpful in establishing the key players in the relevant innovation effort. This can be achieved by analysis of rivals' internal documents or, if unavailable, background documents, such as industry analyst reports or merging firms' strategy documents[570], or with the help of consultation of industry experts[571]. However, as discussed above, defining a market with regard to specific assets or R&D capabilities may depart from the demand-side substitutability analysis and render the traditional relevant market definition tools less useful.

If neither the overlap between products nor the overlap between innovation efforts suffices in the market definition exercise, the literature suggests using assessment of research 'pipelines'. This means looking retrospectively at each firm's investments, successes and failures over a substantial time horizon. The idea is to identify patterns that can be collected and that provide insights into what the innovation process looks like in a specific firm. Ideally, a current perspective on the firm's pipeline would then give an idea of where they are in the vertical chain of innovation activities and may help in determining the characteristics of future products[572]. Taking into account firms' research targets (as the Commission did in the agrochemical cases[573]) may also be informative in this regard, as can be undertakings' position in other markets (such as in the Mobility-as-a-Service case dealt with by the Dutch NCA[574] and discussed in more detail in section 4.4).

There are three examples of jurisdictions (EEA: Germany, non-EEA: Brazil and Japan) that seem to wish to refrain from defining R&D activities as antitrust markets in their own right. In Innovations – challenges for competition law practice, the **German** NCA rejects the concept of 'innovation markets' (within the meaning in which it was conceptualised by Gilbert and Sunshine) and gives a favourable view of the EU Horizontal Merger Guidelines' treatment of innovation competition, as well as of the innovation spaces concept and the corresponding Commission practice established in *Dow / DuPont*[575]. The NCA acknowledges that some companies undertake R&D activities that are not yet clearly linked to future products and so cannot be assessed within the framework of current or future product markets but stops short of declaring its

[567] Katz and Shelanski, Mergers and Innovation, (2007), cited id.

[568] Immenga/Mestmäcker/Thomas, § 36 GWB Rn. 24, 28; Drexl, MPI Research Paper No. 12-08, July 2012, 11 et seq.; Wirtz/Schultz, NZKart 2019, 20, 23.

[569] Kern 37(2) World Competition 173, passim.

[570] OECD background note: Considering non-price effects in merger control (2018).

[571] Pleatsikas and Teece, The Analysis of Market Definition and Market Power in the Context of Rapid Innovation, 2001.

[572] Regibeau and Rockett, Mergers and Innovation, 2019; for a critical overview see also Petit Innovation Competition, Unilateral Effects, and Merger Policy, 2018.

[573] EC decisions in Dow / Du Point, and Bayer / Monsanto, cited above.

[574] Case 20/038614 Pon Netherlands/NS Groep N.V./JV (2020).

[575] Bundeskartellamt (2017), Innovations – challenges for competition law practice, November 2017. See: page 28 et seq.

readiness to apply these or some other novel concepts of innovation competition in practice. **Japan** JFTC's Report of Study Group on Data and Competition Policy illustrates that the Japanese NCA has been taking R&D competition into account in future technology or product markets[576] and indeed its Guidelines for the Use of Intellectual Property under the Antimonopoly Act provide that '*No market or trade, however, can be defined for research and development activities by themselves. Therefore the effect on competition in developing technologies should be evaluated by the effect on competition in the trade of future technologies resulting from such activities or products incorporating the technology*'[577]. The Horizontal Merger Guidelines[578] of Brazilian NCA acknowledge that concentration of 'research poles' in a given sector may raise anti-competitive concerns for future and potential competition in 'technology markets', which traditional market definition methods (such as critical loss analysis) may not be able to capture, but it recommends considering these effects at all stages of competitive analysis.

[576] JFTC (2017), Report of Study Group on Data and Competition Policy. Page 31 ('Although the possibility of defining markets for R&D activities themselves is also being discussed, in Japan, markets for such activities are not defined. Instead, the effect on R&D competition has been assessed in terms of the effect on competition in future technology markets or product markets that will arise as a result of R&D activities').

[577] Guidelines for the Use of Intellectual Property under the Antimonopoly Act (2007, amended 2016). See Part 2(3).

[578] CADE Horizontal Merger Guidelines (2016)

Box 16: Innovation markets – main findings

(i) In order to protect innovation competition, innovation markets may be defined where:

a. R&D capabilities are required to engage in the relevant research and development associated with specialised assets or characteristics of specific firms, or

b. in R&D-intensive industries where R&D capacity is an essential parameter of competition, or the relevant market is driven primarily by continuous innovation competition, and at least one of the parties to the case at hand can be regarded as a significant innovator, or

c. there is uncertainty about the outcome of the innovation processes and potential application of the innovative products, so that the case cannot be assessed on the basis of current product markets, but market definition needs to be achieved, e.g. for the purpose of designing adequate remedies.

(ii) Innovative markets need not to be treated as 'markets' strictly speaking, but effects on innovation competition can be considered within the framework of 'innovation spaces', future markets, technology markets or product markets, or at other stages of competitive analysis.

(iii) 'Innovation spaces' make it possible to take a broader view of innovation competition that may target groups of different products, can help cover early-stage R&D efforts, and may be useful in the light of increasing vertical disintegration and outsourcing of R&D, but the concept requires further clarification.

(iv) Defining the group of R&D competitors can be achieved by identification of specific assets used for innovation activities, such as R&D labs or specialised staff (this can be achieved with the help of external experts), or defining a market using a small but significant non-transitory reduction in innovation efforts. If these methods are unavailable, looking at firms' historical 'research pipelines', their research targets or their position in other markets may be informative.

(v) Metrics for assessment of innovation markets' concentration may include: (i) size of R&D investments by the relevant parties; (ii) R&D-specific assets owned and operated by the relevant parties; (iii) overall size of the relevant parties' patent portfolio and the number of significant patents based on number of citations, or portfolios of other IP rights and technologies.

4.6 Postscript: potential competition / future entry

Innovation-specific concepts of market definition should not be conflated with the assessment of 'potential' or 'future entry' or 'potential competition'. The latter looks at whether some undertakings' products that would be substitutable for existing products ought to be considered as an out-of-market constraint because they have yet to enter the market[579]. Conceptual issues may arise, however, in the context of innovation, which requires adopting a form of forward-looking approach to define the relevant market. As a result, the lines between the relevant market definition and competitive assessment may get blurred.

[579] This can be the case when a competitor possesses assets that could easily be used to enter the market without incurring significant sunk costs or would be likely to incur the necessary sunk costs to enter the market in a relatively short period of time. See, e.g., EU Horizontal Merger Guidelines (2004), paragraphs 58-60.

The following examples from non-EEA jurisdictions serve to illustrate the issue:

- Canada and Japan may be considered examples of jurisdictions that aim not to bring potential competition into the market definition assessment even in the presence of innovation: **Canada's** Merger Enforcement Guidelines suggest analysing a timely future entry by potential competitors as a key component of the competitive effects analysis, including in respect of firms that produce products with machinery or technology that is similar to that used to produce the relevant product[580] – thus apparently not seeking to define separate technology markets in this respect. **Japan**'s Guidelines to application of the Antimonopoly Act concerning review of business combination[581] note that products with a dynamic market structure[582] are subject to stronger entry pressure than products without a dynamic market structure, and the Japanese NCA notes that competitive pressures from related markets (e.g., when there is a high probability of competitive products replacing demand for goods in the near future) are taken into account as a factor stimulating competition in the particular field of trade, rather than in the definition of relevant markets.
- With the specific intent of addressing the innovation context, the **United States** courts have developed the Actual Potential Competition Doctrine. This aims to protect innovation when assessing the anticompetitive effects on existing product markets. Examples are *Astra / Zeneca* (1999) and *Hoechst / Marion Merrel Dow* (1995), which concerned mergers in markets where one firm was an incumbent active on existing product markets and the other party was engaged in R&D aiming to enter these markets. The FTC was concerned that, as a consequence of the merger, there was a reasonable risk that market entry would not take place.[583] A similar concept may be found in **Japan's** Guidelines to application of the Antimonopoly Act concerning the review of business combination: the Japanese NCA will assess effects of the merger on competition in the light of actual R&D where one party already supplies product A to the relevant market (incumbent), and the other party is engaged in R&D for product B that is found to be highly competitive with product A once it is supplied to the market[584].

However, there are examples of non-EEA jurisdictions (or individual guideline sections) where this is less clear cut:

- The **United States** Horizontal Merger Guidelines also consider as current market participants firms not currently earning revenues in the relevant market, but that have committed to entering the market in the near future or can be considered 'rapid entrants' based on other factors[585]. The guidance clarifies, however, that these considerations are more applicable in cases where suppliers' ability to compete depends predominantly on costs and capacity (i.e. 'swing

[580] Canada Competition Bureau, Merger Enforcement Guidelines, 2011. See: paragraphs 7.1 and 7.4.

[581] JFTC Guidelines to application of the Antimonopoly Act concerning review of business combination (2004, amended 2019). See: sections 2 and 4, titled 'Potential for market entry'.

[582] Such as products supplied to a growing market with a high likelihood of significant demand expansion in the future, products subject to frequent technological innovation, products with short lifecycles, and products subject to active investment in the development of new replacement technologies.

[583] These examples are cited in Kern, Innovation markets, future markets, or potential competition: How should competition authorities account for innovation competition in merger reviews?, 2014.

[584] JFTC Guidelines to application of the Antimonopoly Act concerning review of business combination (2004, amended 2019). See: Chapter F.

[585] DOJ & FTC Horizontal Merger Guidelines (2010). See: paragraph 5.1.

capacity'), and do not depend on other factors, such as experience or reputation[586]. According to the literature, the analysis of swing capacity is more relevant for the competitive assessment than for widening the market definition itself[587]. Arguably, therefore, in the context of innovation costs and R&D investments, suppliers' ability to respond would typically not be rapid enough within the meaning of this guidance for such firms to be considered 'current market participants'.

- In its Market Definition Guidelines, the **UK** OFT blurred the distinction between potential competition (an out-of-market constraint) and supply-side substitution (supplier included in the relevant market) by arguing that: '*Whether a potential competitive constraint is labelled supply side substitution (and so part of market definition) or potential entry (and so not within the market) should not matter for the overall competitive assessment*.'[588] But subsequent OFT and CC Merger Assessment Guidelines formally upheld the distinction, considering potential competition an out-of-market constraint[589]. In its revised Merger Assessment Guidelines, the UK CMA introduced concepts of 'loss of future competition' and 'loss of dynamic competition' aimed specifically at capturing various settings in which firms innovate to enter existing or future markets, but under the heading 'Potential and dynamic competition'.[590] The CMA suggests not to view market definition as an exercise separate from competitive effects analysis, and that there is no need for the assessment of competitive effects to be based on a highly specific description of any particular market definition (including, for example, descriptions of the precise boundaries of the relevant markets and bright-line determinations of whether particular products or services fall within the relevant market)[591]. In the CMA's recent decision in *Roche / Spark Therapeutics*[592]*,* it assessed the merger's effect on competition considering pipeline products (Phase II and more advanced development pharmaceuticals) as well as products already marketed, applying the framework of 'actual potential competition' (relying on the 2010 Merger Assessment Guidelines). Insofar as the CMA also grouped the pipeline and products already marketed in order to determine the parties' 'share of supply', which is a concept that serves for determining whether the CMA has jurisdiction to review a merger in the first place, the CMA took the cautious stance of adding that the '[share of supply test] was not an economic assessment of the type used in the CMA's substantive assessment and, in this case, has not been based on a relevant economic market.'[593]

[586] Id.

[587] Fletcher A. and Lyons (2016). 'Geographic Market definition in European Commission Merger Control', CCP, University of East Anglia, Publication for DG Comp, 2016, page 16.

[588] OFT Market definition: Understanding competition law (2004). See: paragraph 3.18. The OFT notes, however, that: 'this distinction may be relevant when determining whether market share thresholds have been met. It will also affect an undertaking's 'relevant turnover' for the purpose of calculating any penalty.'

[589] OFT and CC Merger Assessment Guidelines (2010). See: Paragraph 5.4.14.

[590] CMA Merger Assessment Guidelines (2021). See : Paragraphs 5.7 et seq., and 5.17 et seq.

[591] Paragraphs 9.1 and 9.5.

[592] Case ME/6831/19.

[593] Paragraph 152.

5 Geographic market definition

As outlined by the MDN, the geographic market definition contributes to the definition of the relevant market for the purposes of EU competition law, together with product market definition. This chapter provides an overview of how geographic market definition is applied in EEA and non-EEA jurisdictions, identifying the factors (e.g. imports, prices, product characteristics and consumer preferences among others) that have an impact on how narrow or broad the geographic scope of the market is.

Finally, section 5.4 focuses on the assessment of those factors suggesting the existence of a certain degree of supply-side substitutability: there is some debate on whether these factors should be taken into account in geographic market definition as opposed to being treated in the competitive assessment, with observable differences in practice between the EEA and the rest of the world.

5.1 The standard applied when assessing whether two areas fall into the same geographic market

According to the MDN the relevant geographic market '*comprises the area in which the undertakings concerned are involved in the supply and demand of products or services, in which the* ***conditions of competition*** *are sufficiently homogeneous and which can be distinguished from neighbouring areas because the conditions of competition are appreciably different in those areas'*.

The MDN thus focuses on the '**conditions of competition**' to define the geographic market and explains further that it relies on the framework of demand-side and supply-side substitutability in the assessment (Paras. 13-23 of the MDN).

There has been some discussion in the literature regarding the relationship between the concept of 'homogenous conditions of competition' and the framework of demand-side and supply-side substitutability.

Fletcher and Lyons presented a discussion of the standard applied by the MDN when assessing whether two geographic areas fall into the same geographic market. They comment that the MDN focuses on the 'conditions of competition', which they consider implies that market definition is about identifying various alternative sources of supply that could be chosen by customers of the relevant companies. They find that this is closely linked to the concepts of demand and supply-side substitution definition[594].

Commentators detail the rationale for the definition of the relevant geographic market as described in MDN, discussing why the relevant market is identified with those geographic areas characterised by '*homogeneous conditions of competition'*: '*while product markets are defined predominantly with respect to consumers' ability to switch, geographic markets are defined with respect to similarity of competitive conditions'* [595]. The same commentators observe that a relevant geographic market is de facto a particular instance of a price discrimination market, such that it is defined by the location of the buyer (as a potential price discrimination criterion) rather than the location of the seller (as a product differentiation criterion). Hence, according to this paper, the SSNIP test might not be a useful concept in the geographic market definition. The commentators conclude that the MDN is not explicit about what is meant by '*homogeneous conditions of competition'* and in particular, '*the distinction between*

[594] Fletcher A. and Lyons (2016). 'Geographic Market definition in European Commission Merger Control', CCP, University of East Anglia, Publication for DG Comp, 2016.

[595] Compass Lexecon (2020). 'Comments for the European Commission's evaluation of the 1997 Market Definition Notice', 15 May 2020.

assessment based on customer or supplier location as contingent on price discrimination possibilities has been a source of confusion'[596].

Therefore, according to these authors, the 'homogeneous conditions of competition' principle reflects the notion that there is no further scope for location-based price discrimination among buyers within a given region. However, a concrete explanation of what is then meant by 'homogeneous conditions of competition' is not provided in the MDN and, in the authors' view, there is some degree of confusion concerning geographic market definition based on customer location vs supplier location (e.g. in cases considering what import competition means for market definition and market shares).

Therefore, we find that the standard of 'homogenous conditions of competition' is a broad concept referring to all the different competitive conditions of a market: these homogeneous conditions include also demand and supply-side substitutability, but they are not the same thing. Arguably, the MDN could provide more clarity on the definition of 'homogenous conditions of competition' and on the relationship between these conditions and demand/supply substitutability.

5.1.1 The standard applied in EEA jurisdictions

Analysis of national guidelines shows that the standard applied when assessing whether two geographic areas fall into the same geographic market is very similar across all EEA jurisdictions. In fact, the vast majority of NCAs use an equivalent to the standard contained in the MDN. The EU standard is used explicitly (exact EU wording or only slightly different) in the guidelines on market definition or on other topics of Belgium, Bulgaria, Croatia, Cyprus, Finland, Hungary, Latvia, Lithuania, Poland, Romania, Sweden, and EFTA (please refer to the List of Guidelines by country in the Annex).

The following examples highlight some of the similarities but also some of the slight differences in guidelines across the EEA:

- According to the **Croatian** NCA: '*The relevant geographic market comprises the whole or part of the territory of the Republic of Croatia, the area in which the undertakings compete in the sale and/or supply or products, in which the* ***conditions of competition are equal or sufficiently homogeneous*** *and which can be distinguished from the neighbouring areas because the conditions of competition are appreciably different*.'[597] Other NCAs use the same or equivalent wording, referring to the condition of 'equal or sufficiently homogeneous conditions of competition'.
- The **Latvian** NCA also uses the standard of **similar conditions of competition** and specifies three conditions that need to be met within geographic markets: '*[T]he relevant geographic market must be defined in terms of market boundaries in order to ensure uniform conditions of competition for all market participants in the relevant geographic area. The conditions of competition are sufficiently similar if three important conditions apply to all participants in the relevant market. Firstly,* ***the competition rules are the same, secondly, natural and artificial barriers to entry are sufficiently similar, thirdly, there is an equal economic opportunity to offer and sell goods in the same territory alongside competitors***'[598].
- The **Portuguese** Guidelines adopt a slightly different wording. The geographic market is defined as the geographic area '*within which the strategy of the*

[596] Compass Lexecon (2020). 'Comments for the European Commission's evaluation of the 1997 Market Definition Notice', 15 May 2020.

[597] Croatian Competition Agency (AZTN), Regulation on the definition of relevant market, 2004.

[598] Competition Council of Latvia, Competition Council guidelines for defining the relevant market, 2016.

companies involved in the merger' is likely to be **influenced by the same competitive interaction** with remaining market participants and '*whose offer **conditions are significantly independent** of those practiced in other geographical areas*'[599].

- The standard applied by the **Irish** NCA is directly linked to the hypothetical monopolist test (see also Topic 4). According to the NCA, the geographic market consists of 'all supply locations that would have to be included for the hypothetical monopolist to find it profitable to impose a small but significant non-transitory increase in price'[600]. It is further stated that it will include all suppliers that customers consider to be **feasible substitutes**.
- Similarly, the **French** NCA says that the geographic market is defined by estimating 'the propensity of customers to turn to suppliers located in other geographic areas' and that the analytical framework applicable to assess this is that of the **hypothetical monopolist test**[601].

The analysis of individual cases equally shows that EEA jurisdictions apply similar standards to the one set out in the MDN in proceedings at the national level. With minor exceptions (see *infra* Burger King case in France), EEA case law confirms that '**sufficiently homogeneous conditions of competition**' appears to be the most widely used standard for defining the geographic market with only slight variations. Some relevant cases are listed below:

- In the **German** case *OLG Düsseldorf, 9 January 2015, VI - Kart 1/14 (V)*[602]*, HRS (appeal decision)* the standard of assessment (with explicit reference to the MDN) was that the geographic market comprises the area in which the companies concerned are involved in the supply and demand of relevant goods or services, in which the **conditions of competition are sufficiently homogeneous**, and which can be distinguished from neighbouring geographic areas with significantly different conditions of competition.
- Similarly, in the **German** decision *German NCA, 16 November 2011, B 2 – 36/11*[603], the standard used is described as follows: the geographic market covers the area in which the products in question are regularly offered and in which there is regular demand, in which the **conditions of competition are homogeneous** and which is distinct from neighbouring areas because of the existence of appreciably different conditions of competition. Market definition is thus an aid for identifying the competitive constraints to which the undertakings concerned are exposed.
- Within this framework, the **German** NCA makes use of the so-called '*Bedarfsmarktkonzept*' for the definition of the relevant product and geographic market. According to this concept, products or services belong to one market if the affected consumers consider them to be **suitable** to satisfy a certain requirement on account of their properties, purpose of use and price. For instance, in German decision *German NCA, 4 December 2017, B 6 – 132/14-2, CTS Eventim*[604], the German NCA looks at demand-side substitutability in a

[599] AdC's Guidelines for the Economic Analysis of Mergers.

[600] Irish Competition and Consumer Protection Commission, Guidelines for Merger Analysis, 2014.

[601] French Competition Authority, Guidelines on merger control, 2020.

[602] OLG Düsseldorf, HRS, Case no. VI - Kart 1/14 (V).

[603] Tönnies/Tummel, B 2 – 36/11, 16 November 2011.

[604] CTS Eventim, B 6 – 132/14-2, 4 December 2017.

geographic sense. While events and ticket distribution for a single event tend to have a regional scope, organisers frequently show a cross-/multi-regional demand for ticketing services as they want to offer their events in a multitude of regions (e.g. concert tour). Furthermore, large ticketing platforms, such as *CTS Eventim*, run online shops which offer tickets on a national level.

- In a **Polish** decision of the Polish NCA of 5 September 2011 in *case UPC/Aster, decision no. DKK-101/11* the Polish NCA[605], as in most of the occasions, tends to apply a standard equivalent to the MDN, i.e. whether **similar competition conditions** exist due to the type and characteristics of products, the existence of barriers to market access, consumer preferences, significant price differences and transport costs. The NCA merely indicated that it is necessary to indicate the area in which the conditions of competition applicable to a particular service are similar. Additionally, emphasis was put on the consumer's recognition of the geographic market, which is a market where the conditions of competition are similar in an area where customers have **identical possibilities to choose** their suppliers.
- Similarly, in a **Romanian** *decision no 32/29.07.2013* concerning the economic concentration achieved through the acquisition of sole control by *Auchan Romania SA over S.C. real, - Hypermarket Romania SRL*[606] (‘*Auchan/Real case’*), the NCA specified the standard of ‘***sufficiently homogeneous conditions of competition***’ to delineate the boundaries of the geographic market.
- In a recent merger case in **Sweden**, *Logstor*’s acquisition of *Powerpipe*,[607] in the sector of production of pre-insulated pipes for district heating, the Court on appeal considered that price levels, margins and transport costs supported the definition of an EEA-wide geographic market with modest aggregate market shares for the merging parties. The SCA and the courts generally refer initially to the concept of ‘sufficiently homogeneous conditions’ when defining the geographic market. It is however difficult to see whether this notion has actually affected the market definition in any way. It does not seem to have changed the definition or role of supply-side substitution and demand-side substitution in geographic market definition in any case. The ‘sufficiently homogenous conditions’ notion is not specifically referred to *in the actual reasoning* but only mentioned as a starting point. In the context of this case, the Court considers that geographic market definition should be based on a demand-side based analysis: the principal factor to be considered is from which suppliers the customers located in the candidate market are willing to purchase in response to a SSNIP, rather than to which customers the suppliers are willing to sell in response to a SSNIP.

5.1.2 The standard applied in non-EEA jurisdictions

The **US** Guidelines[608] consider that the arena of competition affected by a merger may be geographically bounded if geography limits some customers’ willingness or ability to substitute some products, or some suppliers’ willingness or ability to serve some customers. Both supplier and customer locations can affect this. The US Guidelines’ approach to geographic market delineation adapts to whether price discrimination by suppliers based on customer location is possible in a given market. Where it is not, the

[605] Decision of the Polish President of the Office of Competition and Consumer Protection no. DKK-101/11.

[606] Decision no 32/29.07.2013, Auchan Romania SA/S.C. Real, - Hypermarket Romania SRL. *(*Auchan/ Real Case*)*.

[607] SCA, Logstor/Powrpipe (2016).

[608] DOJ & FTC Horizontal Merger Guidelines (2010).

US DOJ and FTC normally define geographic markets based on the locations of suppliers. Where location-based price discrimination is possible, the US DOJ and FTC may define geographic markets based on the locations of customers. Commentators[609] welcome that the US Horizontal Merger Guidelines, in contrast with the EC MDN, provide a clear distinction between buyer and seller location definitions.

Other non-EEA guidelines do not always make clear what substantive standard is used in their approach to geographic market definition. The HMT and the SSNIP test are used by several NCAs as the foundational framework under which relevant markets are defined.

- The **UK** guidelines indicate that '*as with the product market, the objective is to identify substitutes which are sufficiently close that they would prevent a hypothetical monopolist of the focal product in one area from profitably sustaining prices 5 to 10 per cent above competitive levels*.'[610] The new CMA merger guidelines are substantially aligned with the approach of the previous guidelines stating that '*the CMA's focus in defining geographic markets is on demand-side factors and identifying the most important competitive alternatives to the merger firms*'. In the Revised Guidelines[611], however, it is stated: '*Where multiple geographic markets cannot be aggregated on the basis of demand-side or supply-side considerations, the CMA may aggregate them if the main parameters of competition are set uniformly across those markets*.'
- For the **Canadian** NCA[612], a relevant geographic market consists of all supply points that would have to be included for a SSNIP to be profitable, in case of no price discrimination. When price discrimination is present (and buyers and third parties are unable to arbitrage between low and high price areas), geographic markets are defined according to the location of each targeted group of buyers.
- The South Korean NCA, while not stating a hypothetical monopolist test explicitly, proposes a similar definition by stating that *'a particular business area refers to an area where a representative buyer (seller) can change the purchase (selling) in case of a significant increase (decrease) in the price for a considerable period of time in specific areas while the price in other areas is fixed*'.

Certain other non-EEA NCAs indicate that geographic markets are to be defined based on the geographic overlap of areas served by merging parties. The **Australian** NCA indicates in its guidelines that its focus is on identifying the products and geographic regions actually or potentially supplied by the merging parties. The Australian NCA focuses on defining markets in the areas of activity where competitive harm could occur such as the overlaps between the geographic regions supplied by the merging parties. The Australian NCA then considers what other geographic regions, if any, constitute relevant close substitutes in defining the market. Importantly, the Australian NCA defines geographic markets by reference to regions and not by reference to the firms that supply them.

Similarly, in the context of merger analysis, the **Japanese** NCA considers that a particular field of trade denotes the scope for determining whether the effect of the business combination may be to restrain competition. This scope is determined, in

[609] See Compass Lexecon (2020). 'Comments for the European Commission's evaluation of the 1997 Market Definition Notice', 15 May 2020.

[610] UK Competition Commission and the Office of Fair Trading, Merger Assessment Guidelines, 2010.

[611] See 9.12 and 9.15. CMA (2021), Merger Assessment Guidelines, March 2021.

[612] Canada Competition Bureau, Merger Enforcement Guidelines, 2011.

principle, in terms of substitutability for users, such as the product range that is the subject of a particular trade and the range of trading areas. Geographic markets are therefore determined 'in terms of **substitutability for users** between different products supplied in a region'.

As observed by the OECD Secretariat in a 2016 background paper[613], it is noteworthy that the concept of market definition is, in NCAs' proceedings, presented as distinct from the assessment of market competition. However, the factors playing a role in geographic market definition (Section 5.2) are often overlapping and duplicated in the assessment of market competition and the distinction between these two parts of a competition proceeding is not always clear: as noted by the OECD, NCAs tend to make a judgment regarding whether to consider a certain type of evidence in geographic market definition, in the competitive assessment or both. This blurred line between market definition and assessment of competition has been highlighted by the OECD as one of the potential future challenges in this area: the gaps and the variations in guidelines for geographic market definition could lead to significantly different conclusions across jurisdictions regarding the same geographic or product market but may not necessarily lead to different conclusions in the competitive analysis.

The US tackle the distinction between market definition and assessment of competition clarifying what should be the treatment of supply-side substitutability. In the US Merger Guidelines, as under the MDN, the definition of the relevant market is based primarily on demand substitution, i.e. possible consumer responses[614]; however, contrary to the MDN, the US Merger Guidelines explicitly mention that market definition focuses solely on demand substitution. In the US Merger Guidelines, supply substitution factors are considered in another section related to the identification of firms that participate in the relevant market and the analysis of entry[615]. This discussion is treated in detail in Section 5.4.

Box 17: The standard applied when assessing whether two areas fall into the same geographic market – main findings

(i) The MDN focuses on the '**sufficiently homogenous conditions of competition**' to define the geographic market and explains further that these homogeneous conditions rely also on the framework of demand-side and supply-side substitutability in the assessment. However, 'homogeneous conditions of competition' and 'supply/demand substitutability' are not equivalent concepts. Arguably, the MDN could provide more clarity on the definition of 'homogenous conditions of competition' and on the relationship between these conditions and demand/supply substitutability.

(ii) European jurisdictions apply similar standards in their guidelines and in proceedings at the national level. EEA case law confirms that '**sufficiently homogeneous conditions of competition**' appears to be the most widely used standard for defining the geographic market, incorporating concepts of substitutability and suitability, in some cases identified through the framework of the SSNIP test.

(iii) The non-EEA guidelines, compared with the MDN, do not always make clear what substantive standard is adopted in their approach to geographic market definition. The HMT and the SSNIP test are used by several NCAs (UK, Canada,

[613] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016).

[614] L. Sleuwaegen (2001). 'Globalisation and the definition of the relevant geographic market in antitrust practice', KU Leuven, 2001.

[615] Ibid.

South Korea) as the foundational framework under which relevant markets are defined. Other non-EEA NCAs indicate that geographic markets are to be defined on the basis of the geographic overlap of areas served by merging parties (Australia and Japan).

(iv) Geographic market definition in the US Horizontal Merger Guidelines is based on demand-side substitutability, with no mention of homogeneous conditions of competition. The US Guidelines go on to specify that their approach to geographic market definition will adapt to whether price discrimination by suppliers based on customer location is possible in a given market: the US Horizontal Merger Guidelines differ from the EC MDN in this respect and commentators noted that the MDN could be more explicit and could clarify what is meant by 'homogeneous conditions of competition'; and how and whether price discrimination possibilities lead to competitive assessments based on customer or supplier location.

5.2 Main factors and weight assigned to them

The MDN describes at Para. 28-31 the factors that the Commission takes into account in its approach to geographic market definition. The Commission takes, as a starting point, a geographic area within which prices and market shares are similar. Following that, the Commission will explore the '*reasons behind any particular configuration of prices and market shares'*. Notably, as set out at Para. 29, it will consider demand characteristics such as the importance of national or local preferences, current patterns of purchases of customers, product differentiation/brands. Following that, and if necessary, according to Para 30, the Commission will analyse supply factors, particularly possible obstacles and barriers isolating companies located in a given area from the competitive pressure of companies located outside that area, such as an examination of requirements for a local presence in order to sell in that area, the conditions of access to distribution channels, costs associated with setting up a distribution network, and the presence or absence of regulatory barriers arising from public procurement, price regulations, quotas and tariffs limiting trade or production, technical standards, monopolies, freedom of establishment, requirements for administrative authorisations, and packaging regulations. The MDN adds that the actual pattern and evolution of trade flows can also be taken into account as useful supplementary indications as to the economic importance of the other demand or supply factors already considered.

Similarly, the **US** DOJ, given that geographic markets are mainly defined on the basis of the hypothetical monopolist test, also provides a list of relevant factors in the US 2010 Merger Guidelines[616]. These factors are:

1. How customers have shifted purchases in the past between different geographic locations in response to relative changes in price or other terms and conditions;
2. The cost and difficulty of transporting the product (or the cost and difficulty of a customer travelling to a seller's location), in relation to its price;
3. Whether suppliers need a presence near customers to provide service or support;
4. Evidence on whether sellers base business decisions on the prospect of customers switching between geographic locations in response to relative changes in price or other competitive variables;

[616] DOJ & FTC Horizontal Merger Guidelines (2010).

5. The costs and delays of switching from suppliers in the candidate geographic market to suppliers outside the candidate geographic market; and
6. The influence of downstream competition faced by customers in their output markets[617].

Generally, the analysis of available guideline documents reveals that there is some variation in terms of the factors that are specifically mentioned as being taken into account for geographic market definition. Table 1 lists the main factors that are taken into account in the market definition process and the number of guidelines where they appear. Factors that are mentioned by most of the guidelines analysed are consumer preferences, product characteristics, price differences, factors linked to transport, trade flows and trade barriers.

Table 1: Main factors taken into account by EEA NCAs in the market definition process

Main factors taken into account[618]	Number of guidelines where factor is explicitly mentioned (n=15)[619]
Customer or consumer preferences	14
Characteristics of products purchased and characteristics of purchasing processes	14
Price differences and effectiveness of price arbitrage	11
Amount of trade flows such as imports	11
Market shares of suppliers in the two areas	11
Access to distribution and sales networks	11
Factors linked to transport (transport costs, delivery times, quality deterioration)	8
Pricing mechanisms and benchmarking used by suppliers	8
Presence of trade barriers (tariffs, quotas, regulatory differences, etc.)	4
Economic incentives to switching supply to other areas	3

Compared to the EEA guidelines, the non-EEA guidelines have a somewhat different emphasis. The importance afforded to consumer preferences, for example, appears generally lower in the non-EEA jurisdictions, while the 'top place' is taken by factors related to transport (see Table 2).

Table 2: Main factors taken into account by non-EEA NCAs in the market definition process

Main factors taken into account[620]	Number of guidelines where factor is

[617] Elzinga and Howell (2018). 'Geographic Market Definition in the Merger Guidelines: A Retrospective Analysis', Rev Ind Organ 53, 453–475 (2018).

[618] Additional factors mentioned in the EEA guidelines: technological barriers, language barriers, innovation, marketing strategies and promotional activities, geographic peculiarities.

[619] Analysis based on the EFTA countries and the following countries: Belgium, Bulgaria, Croatia, Cyprus, Finland, France, Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Romania and Sweden.

[620] Additional factors mentioned in the non-EEA guidelines: consumer switching costs.

	explicitly mentioned (n=7)[621]
Factors linked to transport (transport costs, delivery times, quality deteriorations)	7
Price differences and effectiveness of price arbitrage	5
Presence of trade barriers (tariffs, quotas, regulatory differences, etc.)	4
Amount of trade flows such as imports	3
Customer or consumer preferences	2
Access to distribution and sales networks	2
Characteristics of products purchased and characteristics of purchasing processes	1
Pricing mechanisms and benchmarking used by suppliers	1
Economic incentives to switching supply to other areas	1
Market shares of suppliers in the two areas	0

The following paragraphs present a detailed overview of how these factors are considered in defining the geographic scope of the relevant market, drawing insights from EEA and non-EEA guidelines, from selected cases and the economic literature. The list of papers includes papers that investigate specific topics, countries and industries, as well as much broader analyses[622] (e.g. 2016 OECD background paper).

5.2.1 Consumer characteristics and preferences

'Basic demand characteristics', as described by Para. 46 of the MDN, can include '*national preferences or preferences for national brands, language, culture and lifestyle, and the need for a local presence*', meaning that the preferences of consumers can be determinative in establishing the substitutability of imports.

'Customer and consumer preferences' is mentioned explicitly in the guidelines by most EEA NCAs (Table 1). Most guidelines refer to preferences, habits and purchase patterns more generally while some NCAs mention more specific aspects. The Irish guidelines for instance consider consumers' willingness to switch suppliers as well as data on whether customers have previously switched. The Lithuanian guidelines further consider the mobility of consumers and the French guidelines mention customers' attachment to brands. While consumer and customer preferences are mentioned in most EEA guidelines, it seems to be less important for non-EEA NCAs.

Specific aspects that have been identified in past cases include the following:

- *Consumer characteristics and preferences* should be considered when they affect the consumer's ability or willingness to substitute, thus delimiting the substitutability of imports: these are often cited as contributing factors that favour a national market definition in products such as mineral water and dairy products[623].

[621] Analysis based on the following countries: Australia, Japan, South Korea, UK, US, Canada, Brazil.

[622] See: Fletcher and Lyons. (2016). Geographic Market definition in European Commission Merger Control, CCP, University of East Anglia, Publication for DG Comp, 2016 and OECD (2016), Defining geographic markets across national borders.

[623] Fletcher and Lyons. (2016). Geographic Market definition in European Commission Merger Control, CCP, University of East Anglia, Publication for DG Comp, 2016.

- *Consumer relationships with suppliers* have a bearing on demand substitution and can be indicative of the geographic basis of competition. In *Sysco Corp./US Foods Inc.*, the US District Court accepted the FTC's argument that two geographic market definitions should be considered – a US-wide one for customers with large, national businesses who made purchases through a national sales team, and a set of local markets for smaller customers who purchased from local representatives [624].

- *Consumer purchasing patterns* are indicative of the nature and scope of competition in a market. Elzinga and Hogarty[625] criteria to define geographic market has been discussed in a paper arguing that their approach draws conclusions on the entire geographic market overlooking the role of consumer preferences[626]. Capps introduced the concept of 'silent majority fallacy', building a model assessing the competitive outcomes of local hospital mergers in the US. The scholar concludes that when consumers are characterised by fundamentally different behaviour, differing in taste (in his paper, willingness to travel for healthcare) and needs for local/non-local services, these groups of consumers are not necessarily related despite their location: the presence of a minority of consumers who are willing to travel does not imply that firms lack market power vis-à-vis the majority of consumers who are 'non-travellers'[627].

- *Differences in consumer tastes and preferences* play a role also in other industries, such as grocery. As observed in a recent paper[628], vehicle ownership and income have an impact on consumers' opportunity cost of travel to grocery stores in the US: generally speaking, higher income is matched by a higher disutility of distance from stores (i.e. higher income consumers value more their time allocated to this activity). In fact, vehicle ownership reduces the cost of travel and therefore it reduces the disutility of distance. However, the novelty of the analysis introduced by the two scholars lies in an important correlation between these demand factors (income and vehicle ownership) and supply factors like the type of grocery stores.

The paper shows that supermarkets tend to have a narrower catchment area compared to 'club stores' (i.e. wholesale stores where consumers buy goods in bulk at a low price) and specifically that consumer utility of purchases from club stores is extremely sensitive to car ownership and insensitive to distance at mean levels. Moreover, customers of club stores feature higher income compared to traditional supermarkets. Hence, the insensibility to distance (at mean levels) of club stores at first sight might seem conflicting with the idea that high-income consumers are more sensitive to distance from the shop. However, the authors provide an explanation. Consumers' greater tolerance for travelling to club stores likely reflects the fact that, unlike traditional stores, club stores represent a fundamentally different shopping experience: in particular, consumers purchase many more items in bulk at club stores and therefore

[624] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

[625] Elzinga, Kenneth and Hogarty, Thomas (1973), The Problem of Geographic Market Delineation in Antimerger Suits.

[626] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

[627] Capps, Corey et al (2001). The Silent Majority Fallacy of the Elzinga-Hogarty Criteria: A Critique and New Approach to Analyzing Hospital Mergers, National Bureau of Economic Research Working Paper, No. 8216.

[628] Ellickson, P.B., Grieco, P.L. and Khvastunov, O. (2020), Measuring competition in spatial retail. The RAND Journal of Economics, 51: 189-232. https://doi.org/10.1111/1756-2171.12310.

make correspondingly fewer trips to them[629]. These findings have implications on the geographic size of the relevant market: the authors conclude that different store formats appear to have substantially different catchment areas that arise from targeting consumers with differing travel costs (due to car ownership and income). As a result, a geographic market definition based only on distance of the customers from the store is likely to exclude club format outlets from consideration despite being in fact substantial competitors.

Country-specific tastes by consumers were also highlighted in a UK case related to a potential merger between suppliers of technology of retail platform solutions for wealth management end-users[630]: the CMA in its provisional findings stated that the relevant geographic market for the supply of Retail Platform Solutions is the UK due to both supply-side factors (such as significant regulatory differences and authorisation procedures across jurisdictions) and demand-side factors consisting of the importance the evidence shows that customers place on experience and reputation in serving customers in a particular jurisdiction.

5.2.2 Product characteristics

Most of the EEA NCAs (Table 1) also explicitly state to consider the nature and attributes of the products or services under consideration and mention in relation to this category factors such as weight, frequency of delivery and packaging standards.

OECD[631] also listed several product characteristics that are indicative of the degree of substitutability across national borders, and therefore indicative of whether a market can be defined across multiple countries:

- *Language*: the degree to which a product must be adapted for use in different languages ranges from relatively minor (e.g. translating product information) to very relevant (e.g. the adaption of books, movies and other cultural works according to the language and cultural needs of other countries). There are examples of different decisions taken by the Commission and by EEA NCAs on the size of the geographic market based on this aspect. For example, a narrow (smaller than national) geographic scope was defined in the Belgian case *Telenet/De Vijver Media*, in which customer preferences in language were taken into account in further demarcating the national market. In fact, Flemish customers were loyal to the Flemish TV content and the non-Flemish to their respective languages: hence, production houses have dedicated production lines of content and licensing practices based on regional rather than national preferences.

- *Distribution networks*: The 'access to distribution channels and sales networks' is mentioned relatively frequently in the EEA NCAs guidelines (11 out of 15, Table 1). Within this category, all NCAs refer to two aspects: the access to distribution networks as well as the cost of setting up distribution channels. The access to distribution channels is instead barely mentioned by non-EEA guidelines (Table 2).

[629] Ibid.

[630] FNZ/GBST, 2020. See Summary of provisional findings, 15 April 2021. Available at: https://assets.publishing.service.gov.uk/media/60781675d3bf7f400b462d64/Summary_of_provisional_report__.pdf.

[631] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

The economic literature also acknowledges the role played by the significant differences in the distribution network for goods across countries, which might be indicative of a national, rather than cross-border, market scope. OECD[632] made the case of a product for which the distribution capacity of foreign imports varies significantly. In countries with less import distribution capacity, the influence of foreign competition can be limited – especially where an expansion of this capacity would require significant investment: hence, significant variations in distribution capacity alone could be sufficient to form a narrower geographic scope.

- *After-sales and ancillary services*: as with distribution networks, the presence of a significant after-sales element in a product market could be a decisive factor in market definition.

- *Switching costs and product customisation*: the presence of switching costs and product customisation limits the take-up of foreign imports and arbitrage, respectively.

- Lastly, economic incentives to switching supply to other areas are only pointed out by the guidelines of three EEA NCAs (Ireland, Hungary and Lithuania). Factors that are barely or not touched upon in the non-EEA guidelines include the market shares of suppliers in different areas and the economic incentives to switching supply to other areas.

The literature has also discussed how product differentiation can have an impact on the geographic scope of the relevant market. According to Fletcher and Lyons[633], it would appear that differentiation in preferences tends to be important in grocery-related products, either because consumers simply have different preferences or because they prefer a product that is local in origin (e.g. dairy products). For basic industrial goods, quality differentiation concerns (especially around quality of imports) are more relevant: these concerns relate both to a product's innate quality, and to various service aspects of supply such as flexibility, timeliness, reliability and payment conditions. Therefore, local production and/or distribution can be important for these latter aspects, and this can limit long-distance imports to a fringe role in the market rather than acting as a core source of supply. Therefore, these two considerations suggest that product differentiation might lead to small geographic markets (mostly national): for instance, due to consumers having a strong preference for national brands of grocery products or because of the timeliness of supplying an industrial good. In both cases, the fact that a product could be supplied by a foreign producer does not imply that the foreign product is perceived by consumers as a suitable substitute to the national one.

However, it must be noted that no clear-cut evidence can be drawn on the weight assigned to these aspects, depending on the type of product. On the one hand, Fletcher and Lyons[634] observed that basic industrial goods and grocery products tend to be defined with smaller geographic markets, but on the other hand there are rare cases of grocery-related products (e.g. bulk butter) over which there is no significant differentiation and/or no material differences across national preferences, for which geographic market definition can be broader than national.

[632] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

[633] Fletcher A. and Lyons (2016). 'Geographic Market definition in European Commission Merger Control', CCP, University of East Anglia, Publication for DG Comp, 2016

[634] Ibid.

Bearing in mind these caveats, evidence from EEA and non-EEA cases suggests that there are specificities in the dimension of the geographic market depending on sector-specific considerations. Particularly in high-technology products, we note that the markets are often worldwide.

- For instance, in the 2017 South Korean *Qualcomm* case[635], the geographic market was defined as worldwide as a result of the feature that licensing of telecommunication standard essential patents was granted regardless of the geographic location of the buyer. The same geographic market was set with respect to modern microchips as the product rarely deteriorates during transportation and transport costs are low relative to value.
- Moreover, a proposed acquisition of an aircraft finance business in Japan (*Mitsubishi UFJ Bank/DZ Bank Group*) (2019) saw the Japanese NCA assess demand and supply side substitutability: it was determined that the relevant geographic market was worldwide because aircraft finance customers can often borrow easily from international lenders (in comparison with other financing markets) and they usually conduct business across the world.
- However, it is worth mentioning a Portuguese case in which the worldwide/international nature of technological markets is observed as an acknowledgement of a trend, but it was not enough to conclude that the market object of the proceeding was worldwide. In fact, in Farminveste/Pararede,[636] the Portuguese NCA considered that although information technology services are provided on a national level, 'there is a recognition that the information technology market tends to internationalise, considering factors such as the standardisation of IT contracts (agreed at international level and applied at national or local level), the mobility of skilled labour associated with IT, the centralisation of IT management, the increasing use of English as a universal language for the application of IT and the use of communications that allow tasks to be performed remotely'. However, despite acknowledging a general trend of IT services being exposed to an international dimension, the Portuguese NCA limited its geographic market definition to the national territory, due to the fact that the IT services concerned by the merger cases were provided on a national level.

Other sectors are instead characterised by a narrower geographic market, on national level, such as healthcare.

- In a Finnish case[637] analysed, for example, in the market of occupational healthcare, the NCA made a distinction between clients who procure services for offices in several regions ('multi-location customers', for which the geographic market was defined as national in scope) and local clients, for which the geographic market was defined to cover the area of the municipality in question. In the market of services to insurance companies, the Finnish NCA considered that the geographic scope of the market was national in scope, as insurance companies typically make nationwide contracts with private healthcare

[635] Case No. 2017-025.

[636] Portugal AdC Ccent. 47/2009

[637] Proposed acquisition of Pihlajalinna Oyj by Mehiläinen Oy, Dnro KKV/1233/14.00.10/2019 (available at: https://www.kkv.fi/globalassets/kkv-suomi/ratkaisut-aloitteet-lausunnot/ratkaisut/kilpailuasiat/2020/esitykset-markkinaoikeudelle/r-2019-10-1233.pdf), where the authority considered the characteristics of products purchased and the characteristics of purchasing processes as a relevant factor, referring also the MDN's notion of 'conditions of competition being sufficiently homogeneous'. It applied a catchment analysis when defining the geographic markets for private healthcare services and hospital services. The transaction was later abandoned.

providers. Nevertheless, the Finnish NCA emphasised the fact that in reality, the description of the market as national is inaccurate as the networks of a national customer and a national supplier might not have any overlap. Therefore, it was stated that a more detailed network analysis was necessary to characterise the structure of the market in relation to the multi-point customers. The NCA followed the same logic when defining the relevant geographic market to be national in scope in the market for public sector outsourcing and purchased health services. [638]

In delineating geographic markets, NCAs have also taken into account certain product characteristics that may render it impossible, or unfeasible, to trade across large geographic areas or national borders. For example:

- a Brazilian case[639] on classified ads in the housing market (Brazilian NCA considered the geographic market to be regional because the product - classified ads for purchase or rental of real estate - was considered intrinsically linked to a delimited regional area).

Finally, there are such products/services with a narrow geographic scope of the relevant market (i.e. professional activities)[640]. Pennerstorfer and Yontcheva discussed entry models in five retail sectors including supermarkets, chimney sweeps, electricians, hairdressers and tourist agencies. All these industries are characterised by the fact that on one side trade is highly localised and on the other side consumers very rarely purchase from firms that are not in their immediate vicinity. In fact, the two authors observe that the catchment area (see a detailed discussion on catchment areas in section 6.4) for these industries is approximately equal to the size of an average municipality[641].

5.2.3 Pricing

The effectiveness of information on prices for defining geographic markets is debated and there are different views on the robustness of conclusions that can be drawn from pricing data. Whilst Chapter 6 provides a more quantitative discussion on the strengths and on the limits of the most commonly used pricing techniques, this section focuses on a qualitative discussion on the different approaches to pricing data.

Besides customer/consumer preferences and product characteristics (and characteristics of purchasing processes), the other most relevant factor mentioned in the EEA guidelines is 'price differences and effectiveness of price arbitrage' (Table 1). Exactly like the MDN, some NCAs such as the Romanian NCA and the supranational EFTA surveillance authority, use price differences as well as market shares in the first step of the market definition process where a hypothesis of geographic market boundaries is formed. This initial working hypothesis is then checked against an analysis of other factors such as demand characteristics. According to the mentions in the EEA guidelines, market shares of suppliers in different areas are used as much as price differences and price arbitrage by EEA NCAs (11 out of 15). Price differences and the effectiveness of price arbitrage is named among the most relevant factors for geographic market definition also by most non-EEA NCAs (Table 2). In some guidelines, the analysis of price differences takes transport costs into account: for example, the

[638] Ibid.

[639] CADE, Zap, RBS and Pense, Case No. 08700.009234/2014-40.

[640] Pennerstorfer Dieter and Biliana Yontcheva (2019), How to Draw the Line: A Note on Local Market Definition. Economics working papers 2019-17, Department of Economics, Johannes Kepler University Linz, Austria.

[641] Pennerstorfer Dieter and Biliana Yontcheva (2019), How to Draw the Line: A Note on Local Market Definition. Economics working papers 2019-17, Department of Economics, Johannes Kepler University Linz, Austria.

Canadian NCA and the Japanese NCA consider that price differences between two areas that exceed the transportation costs indicate that the two areas are in two separate geographic markets.

However, price data are widely used as a preliminary step to define geographic markets[642] and these can provide useful indications to NCAs, as long as the limitations of the information used are properly specified. Price correlation analysis is often the first step anticipating the implementation of a hypothetical monopolist test (a detailed description of the SSNIP test is presented in chapter 6 on quantitative techniques). The economic rationale justifying the attention towards pricing information for geographic market definition is that goods in the same geographic market are expected to be '*subject to conditions of competition that are sufficiently homogeneous*' (MDN): hence, OECD[643] suggests that price levels and the dynamic of prices of goods '*which are regarded as interchangeable or substitutable by the consumers*' (MDN) could be reasonably similar, although not fully equivalent.

Here it is also worth mentioning a set of conditions under which the concept of 'hypothetical monopolist' holds[644]. In particular, it is relevant to introduce the concept of 'arbitrage', i.e. the practice of making a profit by buying and selling goods and taking advantage of a price difference between two or more markets. If arbitrage is possible, 'customers who receive the 'low' price from the hypothetical monopolist will have the incentive to resell the product to customers who receive the 'high' price from the hypothetical monopolist'[645]. Hence, if arbitrage is possible, the resellers will compete with the hypothetical monopolist driving the price back to the competitive level.

As introduced above, OECD[646] observes that if a set of products shows a significant discrepancy in price levels and movements, this could suggest that these products do not impose competitive constraints on each other: ultimately, the products might not belong to the same geographic market.

Donath[647] presented the specific case of how event studies could confirm this intuitive finding, taking as an example the event of a plant shutdown in a given Member State. If prices in that Member State move in line with prices in the other Member States despite this plant shutting down, as producers in the surrounding areas are shifting some of their sales to that particular Member State, it is likely that the Member State must be part of a wider market. At the same time, if significant price co-movements are not registered over time, this might suggest that the competitive relationship between the two geographic areas is not particularly strong, hence they might not belong to the same geographic market. A more detailed discussion is available in section 6.3.

However, co-movement of prices alone cannot accurately reflect the competitive conditions of geographic markets, which are as well affected by macroeconomic factors (e.g. exchange rates), trade barriers, characteristics of the products themselves (e.g.

[642] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

[643] Ibid.

[644] Hausman, J, G Leonard and C Vellturo (1996). 'Market definition under price discrimination', Antitrust Law Journal, 64, 367-386.

[645] Hausman, J, G Leonard and C Vellturo (1996). 'Market definition under price discrimination', Antitrust Law Journal, 64, 367-386.

[646] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

[647] Donath (2009). 'The use of pricing analysis for market definition purposes: the Arjowiggins/M-real Zanders Reflex and Arsenal/DSP mergers'.

a fast/slow price response to an increase in production costs), consumer preferences and industry-specific factors. Such correlation can be driven for instance by common costs[648], as in the EC case of *Glencore/Xstrata*. The two scholars upheld the Commission findings that the prices analysed in the proceeding (total zinc metal prices) have moved closely across regions in the recent past: this correlation has been largely driven by the impact of the common element in these prices (i.e. the London Metals Exchange price). Taken this factor into account, the price correlation across regions was low. Moreover, the dynamics of exchange rates, if volatile enough, might have an impact on imports: these might become swiftly more expensive, shutting down the increased demand for foreign imports in response to an increase in domestic prices.

In other words, price correlation analysis is more useful to exclude an area from the relevant geographic market, rather than to include a geographic area based only on pricing considerations and, although analyses based on prices can be insightful, they have to be integrated with further considerations. This is particularly true in light of data gaps which frequently limit the scope and the quality of the available information for the geographic market definition and for the competitive assessment.

5.2.4 Imports

The assessment of trade flows for geographic market definition is frequently discussed in guideline documents by EEA NCAs. More than half of the NCAs (Table 2) considered explicitly discuss the use of trade flows in their guidelines. However, while many say that they use trade flow data in their market definition process, several NCAs and the supranational EFTA surveillance authority also discusses limitations thereto. In particular, the EFTA[649] as well as the Hungarian[650], Latvian[651] and Lithuanian[652] guidelines indicate that trade flows are not a sufficient indicator to determine the boundaries of the geographic market and that no conclusions can be drawn on this factor alone. Rather, they suggest using trade flows as a supplementary source.

Trade flows considerations for geographic market definition are highly debated also in the literature. In a nutshell, Elzinga and Hogarty[653] proposed a procedure to define a potential geographic market area, which is validated under two conditions which have to hold jointly:

(i) at least 90% of consumer purchases made within the area are from producers within the area; and

(ii) at least 90% of the sales of producers in the area are made to consumers in the area.

Moreover, Landes and Posner argue that if a distant seller has some sales in a local market, all its sales, wherever made, should be considered a part of that local market for purposes of computing the market share of a local seller. This is because the distant

[648] Fletcher A. and Lyons. (2016), Geographic Market definition in European Commission Merger Control, CCP, University of East Anglia, Publication for DG Comp, 2016.

[649] EEA EFTA: EFTA Surveillance Authority (ESA), Notice of the EFTA Surveillance Authority on the definition of relevant market for the purpose of competition law within the European Economics (EEA), 1998.

[650] Hungary: Hungarian Competition Authority (GVH), Guidelines for Market Definition in Merger Cases, 2010.

[651] Latvia: Competition Council of Latvia, Competition Council guidelines for defining the relevant market, 2016.

[652] Lithuania: Competition Council of the Republic of Lithuania, Explanations on the definition of the relevant market approval, 2019.

[653] Elzinga, Kenneth and Hogarty, Thomas (1973), The Problem of Geographic Market Delineation in Antimerger Suits.

seller has proved its ability to sell in the market and could increase its sales there, should the local price rise, simply by diverting sales from other markets[654].

However, while the Elzinga-Hogarty test can provide a useful reference point, a number of critiques have been posed to their approach. Among the most relevant, the fact that the 90-percent threshold specified by the test is arbitrary and that the test assumes homogeneity among customers (specifically travellers and non-travellers)[655]. Moreover, the Elzinga-Hogarty test is a static measure of current product flows and is not necessarily indicative of how supply and demand would change in response to a change in relative prices[656].

Therefore, the NCAs' approach is somewhat consistent with findings from the literature and the assessment of the relevance of trade flows for geographic market definition should be along the lines of the one illustrated by OECD[657]: i.e. imports are factors that, considered in isolation, cannot lead to a satisfying conclusion on the size of the geographic market, nonetheless they might be used to integrate pricing considerations. In fact, the volume of current imports into a market is able to provide at least some rough insights on the competitive pressure posed by foreign firms, including indications on how likely it is for imported products to serve the domestic market as well as providing information on the past substitutability between these products and domestically-produced products. This can have implications for both the competitive assessment (all actual imports of competing products will be reflected in market shares) and geographic market definition.

However, the current (at the time of an antitrust proceeding) share of imports in a market does not automatically point towards a broader or narrower geographic market definition, encompassing or excluding the country of origin of those imports. In other words, the absence of imports does not necessarily militate in favour of a narrow market definition, while a significant share of imports does not automatically mean that the geographic definition should be broader. In fact, OECD[658] observed that some caveats need to be spelt out, notably on production capacity. A sound assessment of the competitive pressure exerted by foreign producers should also include an accurate estimation of the spare capacity of these producers: even if consumers might be willing to switch to a foreign product in response to a price increase of the domestic good, it is to be demonstrated that the foreign producers have the possibility to increase their production to meet this additional demand. In fact, it might be the case that not all the foreign producers in a given region or country are able to satisfy the additional demand of foreign customers: if there is only one foreign producer having both the spare capacity and the incentives[659] to serve additional demand in another country, it might be more appropriate to consider this producer as a competitive constraint in the competitive assessment, rather than including the country of origin of this producer in the market definition. Therefore, a 'near-universality' of foreign producers is needed

[654] Landes/Posner, Market Power in Antitrust Cases, Harvard Law Review, 94/1981, p. 968 et seq.

[655] Capps, Corey et al (2001). The Silent Majority Fallacy of the Elzinga-Hogarty Criteria: A Critique and New Approach to Analyzing Hospital Mergers, National Bureau of Economic Research Working Paper, No. 8216.

[656] OECD (2020), Economic analysis in merger investigations, OECD Global Forum on Competition Discussion Paper, Background paper, 2020.

[657] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

[658] Ibid.

[659] For example, in order to serve a foreign market, the producer might have to reduce its sales on the domestic market: i.e. the opportunity costs of entering the foreign market have to be assessed.

before considering to expand the geographic market definition, including the country/ies of origin of these foreign producers.

However, this information on imports tends to be hardly available, hence limiting the scope of this type of quantitative assessment in antitrust proceedings.

The approach of EEA NCAs in recent decisions suggests similar caution on the reliance on trade flow data to delineate geographic markets. For instance in *SLOVNAFT* (2011)[660] the Slovak NCA took into account the following high level factors: (i) overall characteristics and structure of the markets in Slovakia and in neighbouring countries, (ii) evaluation of existing trade flows (exports and imports) between Slovakia and neighbouring countries, and (iii) assessment of competitive constraints by potential imports (incl. assessment of trade barriers). More specifically, the NCA considered that countries differed in their production/consumption and export/import deficits and that the mere existence of imports/exports did not, in the NCA's view, automatically mean market homogeneity: in fact, the NCA ultimately considered that the actual (existing) imports were marginal and non-intensive and therefore the markets for the wholesale supply of petrol and diesel was national in scope.

In the merger case *Logstor / Powerpipe*[661], the Swedish NCA took into account imports. Nonetheless, the imports did not alter the fact that Swedish customers in general received tenders from the same four suppliers, regardless of their efforts to invite other competitors into the bidding process. The court in contrast with the Swedish NCA's approach assigned significant weight to the imports. It appears that the court considered that the existence of these trade flows gave rise to a presumption for the existence of a geographic market larger than national. Hence in Sweden, imports, exports and trade flows have been a very important factor in this case related to industry goods/commodities.

The Swedish NCA also stressed that the fact that the parties in a merger case export to other Member States do not necessarily indicate that the geographic market is broader than national[662]. Moreover, the Swedish NCA suggests that customers' location should be the starting point of the analysis, rather than supplier location, since export flows can be less relevant in defining a geographical market than import flows: similarly to what has been discussed in the literature in the previous paragraph, the Swedish NCA's view is that a firm located in a geographical area selling to other geographical areas does not necessarily indicates a broader geographical market, since it mainly depends on the relative demand of the geographical areas. This is a case of 'asymmetric' geographic market definition, i.e. the competitive conditions in the two geographic areas are not equivalent and the firm selling to a foreign market does not face the same competitive constraint (from a foreign competitor) in its domestic market.

Evidence from the analysis of cases, both in EEA and non-EEA jurisdictions, allows to draw some further insights on whether to delineate the relevant market on the basis of **customer or supplier location**:

[660] PMU decisions of 10 December 2010 (case no. 2010/DZ/2/1/068) and appellate PMU decision of 8 July 2011 (case no. 2011/DZ/R/2/023).

[661] Case No. PMT 7499-16.

[662] SCA, Logstor / Powerpipe, Case No. PMT 7499-16.

- In the 2019 merger between *Sainsburys and Asda*,[663] the CMA in its provisional findings stated that that 'the conditions for aggregating markets together and assessing them as a group are not met, and markets are therefore local'. There, the CMA considered that consumers choose their grocery retailer based on the options in their local area (convenience) and that the identity, number and strength of competitors varied from area to area: hence, the location of suppliers was taken as the focal point for geographic market definition. In this case, the CMA defined local markets in terms of driving time isochrones around medium and large stores.
- The same approach (again in grocery retail) was adopted in Belgium in the *Ahold Delhaize* case[664]: this was one of the first merger cases in Belgium with a more profound catchment area analysis, including a difference-in-differences study on both market definition and the competitive assessment. At a consumer level it was observed that the geographic market is determined by the catchment areas of the stores concerned and based on these isochrones, procurement practices of parties and competitors were analysed in trying to assess whether the market was national in scope. Isochrones were used by the Belgian NCA also on more recent cases in different sectors, including retail[665], car vendors[666] and cinemas[667]. This discussion, which cuts across the topics of geographic market definition and quantitative methods for market definition, relates to the role of isochrones (or 'iso-distance frontiers') for the definition of geographic markets[668]. Section 6.4 provides additional insights on the use of isochrones and their challenges.

While trade flows are also pointed out by some non-EEA NCAs (Table 2) as relevant factors to take into account, the restriction to only use them as supplementary material is not explicitly made. However, the UK OFT specifies that imports may indicate that the geographic market is wider than national but do not guarantee a wider market. Similarly, the NCA notes that a lack of imports does not preclude the possibility of an international geographic market[669]. Furthermore, the Australian NCA specifically includes customer movement into the analysis of trade flows however this may be implied by other NCAs as well when referring to the use of trade flows more generally[670].

Finally, even when customers are willing and able to switch to a foreign product that largely meets customers' preferences, it is worth to point out that distance may play a role. The distance of the foreign supplier may not only increase the cost of the product (e.g. due to transport costs, duties, etc.) but it may also limit the availability of the supply itself: for example, long time for shipping might reduce the 'security of supply' for customers who need certain products in a short amount of time from the purchase.

[663] Anticipated merger between J Sainsbury PLC and Asda Group Ltd (2019) https://assets.publishing.service.gov.uk/media/5c6eaa9fed915d4a32cf0645/Provisional_findings_Sainsbury_s_Asda.pdf.

[664] Decision BMA-2016-C/C-10.

[665] Décision ABC-2019-C/C-40 : Boulanger – HTM Krëfel

[666] Décision ABC-2019-C/C-19:Mig/NAM ; Décision ABC-2019-C/C-17 : Anders Hedin/Groep Jacobs. Décision ABC-2018-C/C-02 : D'Ieteren/Rietje ; Décision ABC-2018-C/C-04 : Volvo/Kant.

[667] Décision ABC-2016-IO-12 : Kinepolis Group NV/Utopolis

[668] For further details on the Belgian NCA's methodology on the delineation of catchment areas please refer to O. BODY e.a., 'Analyse de la concurrence locale par l'Autorité belge de la concurrence', Competitio 2020, nr. 4, 330-344.

[669] OFT Market definition: Understanding competition law (2004).

[670] Australian Competition and Consumer Commission, Merger Guidelines, 2008 (amended 2017).

Hence, the nature of the product and the incidence[671] of such product will have an impact on the extent to which a geographic market can be broadened on the basis of foreign imports.

Section 5.4 presents additional insights on the assessment of supply-side substitutability, which is closely linked to the discussion on imports presented in this paragraph.

5.2.5 Transport costs

Transport costs increase the relative price of imports and can effectively close a market to some foreign producers, therefore leading to a narrower market definition. For this reason, transport costs are one of the most potentially relevant characteristics of geographic markets[672].

8 out of 15 of the guidelines of the EEA NCAs identify factors linked to transport as relevant in the process of geographic market definition (Table 1). The guidelines of EEA NCAs seem to mainly consider transport costs, while the Latvian and Lithuanian guidelines link transport factors also to product characteristics by examining transport restrictions due to fragility or perishability of products or the required frequency and regularity of deliveries. Factors that are brought up in all non-EEA guidelines under consideration (Table 2) are those linked to transportation costs: these can roughly be divided in the categories of price factors and non-price factors. All guidelines mention price factors which mainly include the cost of transportation and other costs of distribution. Compared to the EEA guidelines, almost all non-EEA NCAs point out that they consider the transport costs as a proportion of the total value of the products or services. Non-price factors are also mentioned in most non-EEA guidelines and consist of aspects such as the weight, perishability and general fragility of the products under considerations.

Fletcher and Lyons [673] noted that a clear framework on how transport costs are assessed by the Commission is currently missing. In some circumstances, the two scholars observed that transport costs were taken into account to define a narrower geographic market, in other circumstances transport costs played a role in the competitive assessment but were not considered in the definition of the geographic market. Fletcher and Lyons conclude that there is no agreed economic framework being used for this analysis: for example, '*transport costs are not compared with the 5-10% increase in price that might be used in respect of a hypothetical monopolist test*'[674] (see section 6.1) and in their view, this is an aspect that could be further clarified and that deserves a methodological discussion.

In some non-EEA cases, transport costs contributed to a limitation of the geographic market, such as in two US cases:

- *Evonik/PeroxyChem* (2020) where the significant freight costs associated with transporting hydrogen peroxide were found to limit the distance of alternative competitors, resulting in the geographic market being confined to Western Canada; and

[671] I.e. how much the customer relies on this product over the total purchases that are in the consumer's portfolio of products.

[672] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

[673] Fletcher A. and Lyons. (2016), Geographic Market definition in European Commission Merger Control, CCP, University of East Anglia, Publication for DG Comp, 2016.

[674] Ibid.

- another US case [675] involving chemical products with very high transport costs relative to value

For geographic markets, in fact, transport costs are often determining which sources of supply are close substitutes for each other: ultimately it will be analysed whether there will be enough substitution to constrain a SSNIP. This is where the critical loss framework is helpful and all of the other quantitative and qualitative evidence, including relative transport costs, contributes to assessing whether the actual loss is likely to exceed the critical loss[676].

5.2.6 Regulatory and trade barriers

The MDN refers to a check on supply factors if necessary, including an examination of '*presence or absence of regulatory barriers arising from public procurement, price regulations, quotas and tariffs limiting trade or production, technical standards, monopolies, freedom of establishment, requirements for administrative authorisations, packaging regulations'.*

Four EEA NCAs point out factors relating to trade barriers (Table 1) and most of these mention the same factors such as quotas, tariffs, taxes, price regulation and other regulatory barriers. Those NCAs that do not explicitly refer to trade barriers in their guidelines touch on barriers more generally; hence it is likely that even more NCAs take trade barrier factors regularly into account. Just like in the EEA guidelines, trade barriers seem to be a relatively important factor outside of the EEA as well (Table 2) and the aspects referred to are similar to the EEA guidelines (tariffs, quotas, price regulations etc.).

In defining geographic markets interpenetration at national, regional or global level, often the main focus is on government-imposed barriers to foreign supplier participation in markets: these measures increase the relative cost of imports and could also limit the responsiveness of imports to a SSNIP, and therefore support a national rather than cross-border market definition. Among the barriers that are usually taken into account in market investigation the OECD[677] includes the following:

- *Import quotas* since they place a ceiling on the volume of imports thus effectively rendering the supply elasticity of foreign producers zero above the ceiling;
- *Import duties* since they raise the relative cost of imports and constrain the competitive pressure of foreign supplier on domestic suppliers.
- *Product regulation and standard (or non-tariff barriers to trades NTBs)* that have a similar effect to import duties that impose barriers or costs on foreign suppliers seeking to offer their products in a country.

5.2.7 Market dynamics and commercial relationships

Market volatility: many of the factors that affect the substitutability of imports exhibit significant volatility such as exchange rates and commodity prices (for instance fuel prices that determine transport costs). These factors can have a determinative effect on the ability of imports to respond to a domestic producer SSNIP and thus present a challenge for geographic market definition.

Chains of substitution: two markets connected by a third may indirectly exert competitive pressure on each other. These chains could be subject to potential breaks,

[675] FTC Matter/File Number 161 0020, Superior/Canexus.

[676] OECD (2020), Economic analysis in merger investigations, OECD Global Forum on Competition Discussion Paper, Background paper, 2020.

[677] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

or missing links in the chain, however – factors that would nonetheless make a SSNIP profitable (i.e. such as low customer switching and low fixed costs and potential price discrimination). A practical example of the role played by chains of substitution in the geographic definition of the relevant market is illustrated by O'Donoghue and Padilla[678].

The two scholars discuss the case of broadband internet access, which in general is offered by local internet service providers and telecommunications providers active on national level. Hence, a country's network is divided into non-overlapping regions, each of which is served by one or more local cable providers. Although these local providers do not directly exert competitive pressure between each other, because consumers cannot switch between local providers active in distinct regions, the national supplier ensures that there is indirect competition between those local firms: this is due to the fact that commercial decisions taken by local companies will ultimately affect the actions of the national supplier, which in turn might affect other local players in other regions[679]. Notably, as observed by the two authors, this intuition holds as long as the national supplier cannot price discriminate between local markets (e.g. due to regulatory constraints).

A further aspect mentioned by the Swedish NCA as regards the application of chains of substitution to geographic markets: in the opinion of the NCA, this can lead to erroneously broad geographic markets. For example, a multi-national firm will naturally sell in several national markets so that its behaviour in one market could be affected by events in one of the other markets. However, this ought not to be taken as an argument to widen the relevant market because the firm may nevertheless be quite capable of price discriminating between the different areas. The market should be extended only when an increase in competitive pressure in one market increases competitive pressure in the other market[680].

Contracting relationships: Contracting characteristics prevalent in a given market can also have a significant effect on geographic market definition when they, for instance, specify the area to which a distribution licence applies[681].

5.2.8 Other factors

Role of online retail delivery networks

As outlined in section 3.4 on digitalisation and e-commerce, the improvements in technology, consumer trust and delivery offerings for online retailers, have led to a rapid expansion of e-commerce in recent years which has been further accelerated by the COVID-19 crisis[682]. As e-commerce grows, digital products that can be seamlessly provided to consumers over an internet connection are subject to fewer of the barriers and costs described above. Nevertheless, distribution and retail networks should be carefully considered when evaluating whether online competition actually broadens the

[678] O'Donoghue Robert, Padilla Jorge (2020). 'The Law and Economics of Article 102 TFEU', Hart Publishing, 3rd edition.

[679] O'Donoghue Robert, Padilla Jorge (2020). 'The Law and Economics of Article 102 TFEU', Hart Publishing, 3rd edition.

[680] Nasdaq OMX, PMT 1443-18.

[681] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

[682] According to OECD (2020) '*retail sales via mail order houses or the Internet in April 2020 increased by 30% compared to April 2019*'. E-commerce in the times of COVID-19, October 2020. Available at: https://read.oecd-ilibrary.org/view/?ref=137_137212-t0fjgnerdb&title=E-commerce-in-the-time-of-COVID-19.

geographic scope of a market[683]: the increased importance of e-commerce does not automatically imply a broader geographic market definition. Indeed, as indicated in section 3.4, we observed no systematic pattern that the emergence of the online segment resulted in broader geographic markets than would have been the case in an offline world[684]. Even online product markets separate from the offline segment can lead to a delineation of markets which are as narrow as national or even potentially regional, or local. We observed this pattern across various sectors, including the groceries retail sector.

Technological innovation

With respect to multi-sided markets, OECD[685] observed that, similar as in one-sided markets, determining catchment areas on the basis of customer locations can be meaningful when defining the geographic market; however, in multi-sided markets additional insights can be gained from analysing whether indirect network effects depend on the location of customers from other groups. If advertisers, for example, are predominantly interested in targeting customers of a platform who are resident in a certain region, this may lead to a corresponding segmentation of the market by regions, even if the advertisers themselves may be based in different regions or countries.

Box 18: **Main factors in defining geographic markets– main findings**

(i) There are various factors mentioned in the EEA and non-EEA guidelines that may be relevant to the definition of the geographic market without a clear hierarchy between them. Furthermore, it will not be necessary or feasible to obtain information on each element in an individual case. Rather, the NCAs seem to follow a **case-by-case strategy** and evidence on a subset of the factors are said to be sufficient to conclude the boundaries of the geographic market.

(ii) In particular, **customer/consumer preferences, characteristics of products purchased/characteristics of purchasing processes and price differences/effectiveness of price arbitrage are the most frequently cited factors** in the EEA guidelines. Of these three factors only price differences are commonly discussed in non-EEA guidelines: where factors related to transport and trade barriers are the most cited factors together with price differences.

(iii) Differences in **consumer tastes and preferences** affect the consumer's ability or willingness to substitute, thus delimiting the substitutability of imports: these are often cited (at least in the EEA) as contributing factors that favour a national (sometimes even smaller) market definition.

(iv) Evidence from EEA and non-EEA cases suggests that there are specificities in the dimension of the geographic relevant market depending on the **product and sector-specific considerations**. Particularly as regards high-technology products, we note that the markets are often worldwide. Other sectors are instead characterised by a narrower geographic market, on national level, such

[683] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

[684] One exception is the Czech case Rockaway/Netretrail, where the geographical purchasing patterns of the consumers (while consumers may seek online suppliers nation-wide, they would typically go only to brick-and-mortar shops within a certain driving distance) were considered by the NCA as potentially broadening the geographic market from local to national. Yet, the market definition was left open.

[685] OECD (2018), Rethinking Antitrust Tools for Multi-Sided Platforms, Publication OECD, Available at: https://www.oecd.org/daf/competition/rethinking-antitrust-tools-for-multi-sided-platforms.htm.

as healthcare, or even at the local level (e.g. the case of professional activities such as hairdressers and electricians).

(v) **Price differences** are a frequently cited factor in the EEA, in the definition of the geographic relevant market: price correlation analysis is often a first step. However, co-movement of prices alone cannot accurately reflect the competitive conditions of geographic markets: therefore, analyses based on price movements can be insightful, but they have to be integrated with further considerations, especially in light of data gaps which frequently limit the scope and the quality of the available information.

(vi) The **share of imports** in a market does not automatically point towards a broader or narrower geographic market definition, encompassing or excluding the country of origin of those imports. On the one hand, the absence of imports does not militate in favour of a narrow market definition and, on the other hand, a significant share of imports does not automatically mean that the geographic definition should be broader. Even if consumers might be willing to switch to a foreign product in response to a price increase of the domestic good, the ability of foreign producers to increase their production to meet this additional demand is to be demonstrated. In fact, it might be the case that not all the foreign producers in a given region or country have both the spare capacity and the incentives to serve additional demand in another country. Therefore, it might be more appropriate to consider a foreign producer as a competitive constraint in the competitive assessment, rather than including the country of origin of such producer in the market definition

(vii) As regards **factors linked to transport**, the distance of the foreign supplier may not only increase the cost of the imported product (e.g. due to transport costs, duties, etc.) but it may also limit the availability of the supply itself: for example, long time for shipping might reduce the 'security of supply' for customers who need certain products in a short amount of time from the purchase.

(viii) **Distribution and retail networks** should be carefully considered when evaluating whether online competition actually broadens the geographic scope of a market. **Digitalisation** and in particular the multi-sidedness of markets can have an impact on the geographic scope of markets.

5.3 Types of evidence

The MDN (Para. 45-50) identifies the type of evidence which is relevant in order to reach a conclusion as to the geographic market:

1. *Past evidence of diversion of orders to other areas*: this is particularly helpful if there have been changes in prices between areas that can be shown to result in customer reactions. Econometric techniques can be used to estimate elasticities and cross-elasticities of demand, price correlations, statistical causality tests and tests for the similarity of price levels and/or their convergence.
2. *Basic demand characteristics*: these include national preferences, such as for national brands, language, culture and lifestyle, and the need for a local presence.
3. *Views of customers and competitors*: they may also provide factual evidence.
4. *Current geographic pattern of purchases*: similarly, there is a consideration of the location of companies that are effective in tender processes.
5. *Trade flows/patterns of shipments*: however, the MDN indicates that this is less helpful than direct evidence from customers because it is open to interpretation. Data on trade may also not be available at the appropriate product level.

6. *Barriers and switching costs associated with the diversion of orders to companies located in other areas*: these include transport costs and transport restrictions but may also include tariffs, quotas and regulations. Transport costs are particularly important for bulky, low-value products. Switching costs may depend on product characteristics[686].

Overall, both the EEA and the non-EEA national guidelines do not provide many specific details on the types of evidence used, as compared to the main factors considered (section 5.2): thus, there is not a framework recognised in the EEA and outside the EEA to link precisely the type of evidence used to assess the impact on geographic market definition of each of the previously mentioned factors. Nonetheless, some sources of evidence are mentioned by some NCAs, with most information given regarding customer and consumer preferences. Specifically, four NCAs within the EEA and almost all non-EEA NCAs indicate that they directly **contact consumers and main companies** in the industry to enquire their view on preferences, habits as well as the boundaries of the geographic market in general (see more in the paragraphs below with survey evidence from selected cases). The Portuguese and Bulgarian NCA further list unions, associations, distributors and sector regulators as other parties the NCA contacts and collects opinions from.

The Irish NCA also uses **supplier surveys** to assess the economic incentives and the likelihood of suppliers switching to a different geographic area.

To identify pricing strategies, promotional strategies and marketing activities, the Portuguese NCA suggests in its guidelines to use **internal documentation of companies** where available. Similarly, the UK CMA points out several different internal documents they rely on for assessing different factors used in the market definition process such as product and service characteristics and substitutability between products and services. Furthermore, they investigate internal business analyses such as board papers, business plans and strategy documents as well as any market analyses or consumer surveys prepared by companies for investors or other stakeholders.

Among the types of evidence mentioned by NCAs both inside and outside the EEA, there are data sources such as **surveys** (at local supermarkets, for instance) to assess how far a representative set of customers travels and/or how likely they would be to travel to a different, potentially more distant, supermarket if customers' regular supermarket were to raise prices or reduce the quality of its offering.

- Such was the case in the UK CMA *Celesio/Sainsbury*'s (2016) and *Sainsbury's/Asda* (2019) cases.
- Many decisions in the EEA as well concern the utilisation of surveys gathering a type of qualitative evidence reflecting those factors (discussed in section 3.2) such as consumer and language preferences. For instance, we have examples of surveys in France (*Burger King* and *Leclerc*[687] cases) and in Belgium (*Kinepolis* and *Kant-Volvo Group* cases)[688].
- The Belgian NCA in fact assessed whether two geographic areas fell into the same geographic market relying on a type of evidence consisting of market surveys (to distributors, operators and customers in the first case, to manufacturers of competing truck brands, to independent authorised Volvo distributors, to multi-brand garages and to Volvo customers in the latter). Customer preferences were assessed when determining the travel time and

[686] Fletcher A. and Lyons. (2016), Geographic Market definition in European Commission Merger Control, CCP, University of East Anglia, Publication for DG Comp, 2016.

[687] FCA Decision n° 20-DCC-116 from 28 August 2020 (Soditroy/E. Leclerc).

[688] Decision 18-CC-12 Kinepolis and Decision 18-CC-04 Kant NV- Volvo Group Belgium NV.

distance they were willing to travel to go to the cinema or to buy the product (trucks): what differs in the decision on the relevant geographic market is the fact that different weight was assigned to different factors, based on the characteristics of the sector. In the cinema case, the market segmentation was assessed based on the role played by a consumer preference (the language factor) whilst in the truck case, a possible definition of separate markets was based on regulatory differences (different emission regulations between regions determining the conditions/characteristics an engine has to meet in a certain region).

Moreover, both EEA and non-EEA NCAs refer in their guidelines and decisions to the analysis of **data relating to trade flows, suppliers' data and purchase patterns** as another type of evidence used (compatibly with data availability).

- In Belgian Decision *19-CC-40*[689], customer preferences were taken into consideration through an indirect approach, by analysing the data from suppliers: this approach aimed to determine, through purchasing processes, whether online sales were homogeneous in Belgium or not.
- In *Schwenk/Optera*[690], the interplay of all demand-side and supply-side factors will usually be reflected in the actual trade or customer flows[691].
- The German NCA has applied a data-driven approach[692] in several merger cases reflecting the applicability of the techniques to a wide range of sectors: namely hospitals[693], milling of durum wheat[694], wholesale trade of automotive spare parts[695], glass recycling[696], professional horticultural supply[697] and cement[698]. As an example of the detailed data that the German NCA collected in these cases, for the cement merger case, data was collected for all physical deliveries from all cement producers in Germany per production plant (between 2014 and 2016), including a complete inventory of disaggregated trade flows, comprising approximately 16,900 supply relationships of 68 plants. Based on these granular data, the NCA carried out a precise identification of the horizontal overlap of the parties: it calculated the share of total demand served by the plants owned by the merging parties ('procurement share') per 5-digit postal code area[699]. The relevant geographic market was defined as the geographic area in which both parties´ plants constitute a relevant source of supply for the customers. Moreover, all the deliveries into the area were included in the market volume (including from production plants situated outside the market and outside

[689] Bekgian *Boulanger/HTM – Krëfel*, decision no. ABC-2019-C/C-40, (2019).

[690] Infra.

[691] Arno Rasek, Mergers in Geographically Differentiated Markets, 2019, available at: https://www.e-ca.com/wp-content/uploads/2018/10/arno-rasek_mergers-in-geographically-differentiated-mergers.pdf.

[692] Source: https://www.e-ca.com/wp-content/uploads/2018/10/arno-rasek_mergers-in-geographically-differentiated-mergers.pdf.

[693] u.a. Fresenius / Rhön – B3-109/13, Klinikum Esslingen / Kreiskliniken Esslingen – B3-135/13.

[694] GoodMills / PMG – B2-112/14.

[695] Wessels & Müller / Trost – B9-48/15.

[696] Rhenus / G.R.I.-Glasrecycling – B4-31/17.

[697] Raiffeisen Gartenbau / Landgard –B2-63/17.

[698] Schwenk/Opterra 2017.

[699] German NCA, 15 November 2017, B 1 – 47/17, Schwenk/Optera.

Germany) and assessed through Elzinga/Hogarty-style (see chapter 6 on quantitative techniques) plausibility checks: these analyses showed that the defined market exhibits a share of self-supply of >65% and a share of production consumed internally of >70%, with neighbouring areas also showing high shares of self-supply and low shares of imports from the defined geographic market.

- A peculiar case of application of the Elzinga/Hogarty test is observed in hospital mergers, relying on the catchment areas approach. In this context, several NCAs have relied on patient flows to delineate geographic markets. Patient flow data can be used to identify self-contained areas (e.g. following the Elzinga-Hogarty approach) or to identify the relevant catchment area. Notably, the economist team within the Brazilian NCA[700] called for a critical use of the Elzinga-Hogarty test: according to the NCA, the selective use of the flow of consumers has important deficiencies. In particular, patient flows may be motivated by treatment availability and not be sensitive to price changes. Hence, the economist team suggested that the best alternative shall be a model that combines price, quantity and spatial distribution, in addition to flow information, to enable a broader geographic assessment.

Another criticism to the soundness of the assessment performed by NCAs, emerges from the economic literature and it is related to the **use of administrative boundaries** to define geographic markets. Pennerstorfer and Yontcheva[701] proposed a new approach evaluating its performance by contrasting it with traditional delineation techniques based on municipal boundaries. The estimation of simple entry models for five industries showed that markets defined using micro-level residence information perform better and predict the equilibrium number of firms on the market more accurately. However, such models (the Brazilian one and the latter) require a combination of data which is not always available, arguably resulting at times in theoretical considerations rather than in practical implications[702].

All in all, the evidence on the **application of the Elzinga/Hogarty test on trade flows** suggests that the test has been heavily debated over the years and its successfulness is criticised: once again sectoral, product and consumer characteristics play a role on the appropriateness of the test on a case-by-case basis. For instance, in an Austrian case concerning the market for the manufacture and sales of office furniture[703] the parties proposed that there is a wider than national market, argument supported by an Elzinga/Hogarty test of trade flows. However, the Austrian NCA concluded that the Elzinga/Hogarty test led to flawed results, because trade flows did not distinguish between sales to final customers, sales to Austrian wholesalers/retailers and inputs for production: in particular, a sensible difference in quality between foreign and Austrian manufacturers was observed across the value chain, disputing the quantitative evidence based on the existence of considerable flows between countries. On the other hand, the experience in Hungary on a case[704] on the market of utilisation of recycled waste appears somewhat different. When defining the geographic market the Hungarian NCA relied on the Elzinga-Hogerty test based on the fact that in the case of different varieties of recycled paper, significant levels of import and export were

[700] Case No. 08700.002346/2019-85, Athena/São Bernardo.

[701] Pennerstorfer Dieter and Biliana Yontcheva (2019), How to Draw the Line: A Note on Local Market Definition. Economics working papers 2019-17, Department of Economics, Johannes Kepler University Linz, Austria.

[702] In fact, Brazilian NCA ultimately adopted in its practice an approach closer to the traditional Elzinga-Hogarty test, despite the economists' caveats.

[703] BWB/Z-3817 BGO / Hali / Svoboda.

[704] Hamburger Recycling Group GmbH/SCH-ÓZON Kereskedelmi és Szolgáltató Kft, Vj-22/2014.

registered. In this sector, it can be argued that quality plays a less relevant role and the NCA concluded that it ought to take into account the whole area in which it is profitable to sell those products/offer the services, extending the relevant geographic market to the neighbouring and geographically close countries.

In the German case of *Schwenk/Optera*[705], the German NCA did not look so much at areas defined as a certain radius around cement plants but at actual flows of trade and supply from a demand perspective[706]. The German NCA chose an approach different from the one hitherto applied by the EU Commission for the geographic definition of grey cement markets. According to the German NCA, a mere radius analysis carries the risk that buyers are included in the market which are actually not affected by the merger, since the merging parties do not supply them to a significant extent. [707] In this context, the market must be defined from the demand side perspective: logistics play a particular role in the choice of a supplier, in addition to distance-related costs of transportation.[708] On this basis, the German NCA considered the markets to be regional. In particular, the German NCA determined five-digit zip code areas in Germany and assessed cement sales volumes – both by German plants and by foreign plants catering to Germany – related to them, both overall and for the two plants involved in the intended merger. Zip code areas were defined to be in the geographic market, if – summarily speaking – one of the two relevant merging plant's sales were above a 20% demand threshold in these areas. As a result, 'central Germany' (Mitteldeutschland) was defined as the relevant market, including large parts of Saxony-Anhalt, Thuringia and Saxony, as well as smaller neighbouring areas.

Finally, the **use of market reports** as evidence was reported by one NCA: in the case *UPC/Aster*[709], the evidence indicated by the Polish NCA is the report on the state of the telecommunications market in Poland in 2009, by the President of the Office of Electronic Communications.

Economic literature on the types of evidence used for geographic market definition, providing theoretical and empirical models on how the type of evidence varies based on factors, sectors or other elements, is also quite scarce. Among the most recognised papers, Donath[710], OECD[711] and Fletcher and Lyons[712] provide some considerations on the types of **empirical analysis** used by NCAs (please see chapter 6 below on quantitative techniques for a detailed discussion of the quantitative tools).

[705] German NCA, 15 November 2017, B 1 – 47/17, Schwenk/Optera.

[706] Arno Rasek, Mergers in Geographically Differentiated Markets, 2019, available at: https://www.e-ca.com/wp-content/uploads/2018/10/arno-rasek_mergers-in-geographically-differentiated-mergers.pdf.

[707] German NCA, 15 November 2017, B 1 – 47/17, Schwenk/Optera.

[708] German NCA, 15 November 2017, B 1 – 47/17, Schwenk/Optera.

[709] Decision of the Polish President of the Office of Competition and Consumer Protection no. DKK-101/11.

[710] Donath (2009). 'The use of pricing analysis for market definition purposes: the Arjowiggins/M-real Zanders Reflex and Arsenal/DSP mergers'.

[711] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5. Available at: https://one.oecd.org/document/DAF/COMP/WP3(2016)5/en/pdf.

[712] Fletcher A. and Lyons. (2016), Geographic Market definition in European Commission Merger Control, CCP, University of East Anglia, Publication for DG Comp, 2016.

The **issue of data accessibility** has been highlighted by OECD[713] and Donath[714] as a significant emerging challenge for geographic market definition, particularly in light of the potential increasing frequency of cases with a possible cross-border scope. This issue arises in light of the limited powers of NCAs in requesting information beyond national borders/jurisdictions, even if the markets they are examining exceed their scope. Given the potential reticence of foreign suppliers to willingly share information with a NCA, international cooperation between NCAs is essential to provide them with the evidence they need in markets with a potential cross-border scope[715].

Trying to **tackle the issue of data requirements**, several academic papers discussed the application of a wide range of price tests to geographical market definition using varying degrees of quantitative and econometric sophistication[716]: these tests have an intuitive appeal, have been applied extensively in past cases and rely on empirical methods and data that make them considerably easier to implement than many alternatives.

This is the case of Bantle, Muijs and Dewenter[717] who have designed a new quantitative method for geographic market definition on the German market for gasoline stations: the authors claimed that, together with the intuitiveness of the method, this technique allows for a narrower and more precise geographic market definition compared to the one identified by the German NCA. In fact, the standard applied by the German NCA (section 5.1) defines the geographic market for a gasoline station based on the distance that consumers are willing to drive to buy gasoline at an alternative station, if the target station increases its price. The authors claim that the approach used by the German NCA results in urban areas with a too broad geographic market (the higher density of gasoline stations in urban areas is an argument for smaller submarkets) characterised by arbitrarily chosen driving time based only on consumer surveys. Moreover, it is overlooked according to the scholars the fact that a consumer will always choose the nearest gasoline station if the price difference is smaller than the driving cost and the opportunity cost of time. Hence, the paper proposes a modified approach starting from the basic idea of clustering all the observations (in this case, prices of gasoline) and then establishing a measure of dissimilarity (in this case, a certain difference between gasoline prices): this measure is used as a sufficient condition for a gasoline station to be competitor in the market and in the authors' views it leads to a more precise geographic definition of the market. This is because the clustering exercise highlights the driving cost and the opportunity cost of time for consumers verifying whether these costs are lower than the hypothetical price increase, instead of just including in the same geographic market each gasoline station based only on the driving distance.

Finally, a type of evidence that can be quite informative in analysing the geographical markets is represented by event studies or '**natural experiments**', as discussed in section 6.1.2. This technique is relevant to geographic market definition because it can help shed light on, for example, whether a price increase above a baseline level in a

[713] OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5.

[714] Donath (2009). 'The use of pricing analysis for market definition purposes: the Arjowiggins/M-real Zanders Reflex and Arsenal/DSP mergers'.

[715] Ibid.

[716] Among others: Haldrup, N, (2003). 'Empirical Analysis of Price Data in the Delineation of the Relevant Geographical Market in Competition Analysis'. University of Aarhus, Economics Working Paper No. 2003-09.; Bantle, Muijs Dewenter, (2018). A New Price Test in Geographic Market Definition: An Application to German Retail Gasoline Market; Pennerstorfer, Yontcheva (2019). How to Draw the Line: A Note on Local Market Definition.

[717] Bantle, Muijs, Dewenter (2018), A New Price Test in Geographic Market Definition An Application to German Retail Gasoline Market.

given geographic area – perhaps due to a proposed merger – will generate a sufficient supply response from other geographic areas to cause prices to return to baseline (pre-merger) levels. If so, then this provides evidence of a broader geographic market as these 'outside' areas ought to be included in the geographic market: however in conducting this kind of event study, it is reasonable to confine the impact analysis to a relatively narrow scope so as to minimise the possible influence of other confounding factors[718].

Box 19: Types of evidence – main findings

(i) Neither the EEA nor the non-EEA national guidelines provide many specific details on the types of evidence used, as compared to the main factors considered: thus, there is not a framework recognised in the EEA and outside the EEA to link precisely the type of evidence used to assess the impact on geographic market definition of each of the previously mentioned factors. Some sources of evidence are however mentioned by some NCAs, with most information concerning the types of evidence gathered for customer and consumer preferences. Specifically, four NCAs within the EEA and almost all non-EEA NCAs indicate in their guidelines that they **survey consumers and main companies** in the industry to enquire their view on preferences, habits as well as the boundaries of the geographic market in general.

(ii) Furthermore, NCAs (such as Portugal and the UK in their guidelines) suggest the use of **internal documentation of companies** where available (e.g. internal business analyses such as board papers, business plans and strategy documents) for geographic market definition.

(iii) Both EEA and non-EEA NCAs refer in their guidelines and decisions to the analysis of **data relating to trade flows, suppliers' data and purchase patterns** as another type of evidence used compatibly with data availability. Nonetheless, the use of this type of evidence calls for a cautious approach in the conclusions drawn: all in all, the evidence suggests that the **application of the Elzinga/Hogarty test on trade flows** has been heavily debated and criticised. Once again sectoral, product and consumer characteristics play a role on the appropriateness of the test on a case-by-case basis.

(iv) Finally, data requirements and access to data are recognised as relevant issues by NCAs, as these might not have the power to request information beyond national borders/jurisdictions. Moreover, new methodologies for geographic market definition are being developed to tackle or limit the need of data (e.g. making use of natural experiments or event studies).

5.4 The role of supply side substitutability

Under the MDN, supply substitution should be used to widen geographic markets only where most suppliers are active across geographical areas and are able to switch supply across them in the short term without incurring in significant additional costs or risks in response to small and permanent changes in relative prices. These situations typically arise when most companies market their products across a range of geographic areas (paras. 20 and 21 of the MDN).

[718] Nieberding, J. (2020). Event Studies and Geographic Market Definition.

According to O'Donoghue and Padilla[719], from an economic point of view, effective supply-side substitution requires consideration of a number of conditions: (1) the assets needed to produce, distribute and commercialise the relevant products are readily available; (2) the firm can purchase or lease additional necessary assets without incurring sunk costs; (3) suppliers of supply-side substitutes have the economic incentive to engage in production of the relevant goods/services; (4) suppliers are able to divert production from supply-side substitutes to the relevant products because, for example, they possess unused plant capacity that can be brought into production at a reasonable cost; and (5) consumers regard their products as valid substitutes for the existing set of products.

The approach taken across EEA jurisdictions is broadly similar. EEA jurisdictions tend to use demand-side substitutability as the primary factor in delimiting a geographic market but do also consider supply-side substitutability where supply-side effects can be demonstrated as imposing an effective competitive constraint on the behaviour of suppliers in the focal area. For example, the EFTA guidelines note that demand-side substitutability is the primary focus at the market definition stage, but supply-side substitutability may be taken into account in situations in which the supply-side effects are 'equivalent to those of demand substitution in terms of effectiveness and immediacy' of the competitive constraint that they exert. Elaborating on this, the guidelines explain that in order for supply-side substitutability to be taken into account, suppliers must be able to 'switch production to the relevant products and market them in the short term without incurring significant additional costs or risks in response to small and permanent changes in relative prices.'

Guidelines across EU Member States provide similar advice in terms of the treatment of supply-side substitutability at the market definition stage. For example, the **Finnish** guidelines note that supply-side substitutability[720] will be taken into account at the market definition stage if supply-side effects are 'as direct and substantial as those associated with demand-side substitutability' under the condition that alternative supplying firms are able to change or increase their supply 'relatively easily and quickly and without incurring notable additional costs or risks'. The **Lithuanian** NCA will consider the supply-side at the market definition stage[721] if the supply-side effects are 'as rapid and effective as demand-side substitutability', but notes that the influence of other supply-side factors will be 'examined at a later stage of the analysis, by identifying potential competitors to enter the relevant market'.

In the absence of near-universal substitutability and un-committed rapid entrance, NCAs have found that the market could not be expanded based on supply-side substitutability:

- The OLG Düsseldorf found in a **German** case[722], that supply-side substitutability could not be assumed, since a successful market entry in the relevant market was not possible at reasonable cost and in a reasonable time-frame given the very strong, identity-based direct network effects existing in the market and user base;

[719] O'Donoghue Robert, Padilla Jorge (2020), The Law and Economics of Article 102 TFEU, Hart Publishing, 3rd edition.

[720] Both for geographic and product market.

[721] Both for geographic and product market.

[722] OLG Düsseldorf, HRS, Case no. VI - Kart 1/14 (V).

The MDN requires that '*most of the suppliers*'[723] must be able to produce and market demand-side substitutes in order to enlarge the relevant market and to aggregate different markets for products that are not demand substitutes. In order to aggregate markets as a result of supply substitution, the supply side substitutability should be nearly universal among the firms selling one or more of a group of products.

In these regards supply-side substitution through rapid switching is distinguished from potential competition. The threat of long-term entry imposes a different competitive constraint than supply-side substitution. Potential competitors do not respond to modest price increases[724] and do not commit resources to markets where post-entry prices are expected to be low[725]. In fact, since potential competition is distinct from supply substitution which takes place immediately, potential competition is not taken into account when defining markets and it is dealt with at a later stage of competition analysis, when NCAs perform the competitive assessment[726]. Consequently, the competitive constraint of potential competitors is not a subject of market definition, but of the competitive assessment. In contrast, supply-side substitution represents a form of 'uncommitted' or 'hit-and-run' entry as it responds to modest increases in current prices sufficiently fast to render any retaliatory strategy pointless[727].

This principle, set out in the MDN, is followed by the other EEA-guidelines. For example:

- The **Latvian** guidelines state that supply-side substitutability will be assessed in cases where 'supply can change as efficiently and quickly as demand'[728].
- The **Romanian** guidelines note that the supply-side effects may be taken into account if such effects are equivalent to those of the demand-side in terms of effectiveness and immediacy of results, i.e. supply can be substituted without significant delays[729].
- The **Bulgarian** guidelines specify that supply-side substitution must have the 'same implication as substitution in demand', and suppliers must be in a position to start production of the relevant product 'in the short-term and without substantial additional costs'[730]. This approach is presented for product markets and 'the same approach can be applied in identifying and grouping geographical areas'.

Certain jurisdictions outside the EEA take a wider range of approaches towards the question of supply-side substitutability. In fact, some non-EEA jurisdictions explicitly rule out taking into account supply-side substitution at the stage of market definition and indicate that such factors are to be considered at the stage of competition effects assessment:

- The approach towards market definition taken in the **US** Horizontal Merger Guidelines is explicit in its exclusion of supply side substitution in the market

[723] OJ C 372, 9.12.1997, p. 21.

[724] To the extent that entering a new market involves irreversible investments and it entails a strong commitment.

[725] O'Donoghue Robert, Padilla Jorge (2020), The Law and Economics of Article 102 TFEU, Hart Publishing, 3rd edition.

[726] OECD (2014), Defining the Relevant Market in Telecommunications, Review of Selected OECD Countries and Colombia, page 23, Competition Committee, 2014.

[727] O'Donoghue Robert, Padilla Jorge (2020), The Law and Economics of Article 102 TFEU, Hart Publishing, 3rd edition.

[728] Competition Council of Latvia, Competition Council guidelines for defining the relevant market, 2016.

[729] Romanian Competition Council, Instructions on market definition, 2010.

[730] Bulgarian Commission for Protection of Competition (CPC), On the investigation and definition of the market position of undertaking in the relevant market, 1998.

definition: '*Market definition focuses solely on demand substitution factors, i.e., on customers' ability and willingness to substitute away from one product to another in response to a price increase or a corresponding non-price change such as a reduction in product quality or service*.' The guidelines do note the importance of supply-side factors to any competitive analysis, but they are not addressed at the market definition stage. Such factors are considered only when addressing the 'identification of market participants, the measurement of market shares, the analysis of competitive effects, and entry.' The US approach is in contrast with the MDN that accepts the use of supply substitution in geographic market definition, on the condition that 'its effects are equivalent to those of demand substitution in terms of effectiveness and immediacy' (Para 20). However, the MDN indicates that any suppliers considered for these purposes should be able to enter the market without significant cost or risk, similarly to the 'rapid entrant' concept in the US Horizontal Merger Guidelines.

- Similarly to the US approach, the **Canadian** NCA's guidelines only examine the ability of competitive suppliers to respond to a price increase at a later stage of the analysis – 'either when identifying the participants in the relevant market or when examining entry into the relevant market' – rather than at the market definition stage. The Canadian guidelines do note the importance of the ability of competitive suppliers to respond to a price increase on the exercise of market power, but only examine such responses later in the analysis.

Some non-EEA jurisdictions take a similar approach as the EEA jurisdictions – demand substitution is given substantially greater consideration, but supply substitution can be taken into account at market definition stage, albeit under strict conditions.

- The **UK** CMA and the OFT Merger Assessment Guidelines do not rule out considering supply-side factors, stating that 'the boundaries of the relevant product market are generally determined by reference to demand-side substitution alone' but that supply-side substitution may be taken into account when 'production assets can be used by firms to supply a range of different products that are not demand-side substitutes, and the firms have the ability and incentive quickly (generally within a year) to shift capacity between these different products'. In some cases, where there are high levels of supply-side substitutability, it may be appropriate to define a market with reference to the similarity of production methods[731]. The OFT's Market Definition Guidelines state that the OFT 'will not factor supply side substitution into market definition unless it is reasonably likely to take place, and already has an impact by constraining the supplier of the product or group of products in question'. In particular, the guidelines note that supply-side substitution can be thought of as a special case of market entry, but that in order to be considered at the market definition stage, supply-side substitution must occur 'quickly (e.g. less than one year), effectively (e.g. on a scale large enough to affect prices), and without the need for substantial sunk investments'. The new CMA merger guidelines are substantially aligned with the approach of the previous guidelines[732].
- **Japan's** Guidelines on the Application of the Antimonopoly Act take a similar perspective, considering substitutability for suppliers 'when necessary', and

[731] See paragraph 3.17. OFT Market definition: Understanding competition law (2004).

[732] Relatively to supply side substitution at the stage of product market definition, the CMA indicates that: 'The boundaries of the relevant product market are generally determined by reference to demand-side substitution alone. However, there are circumstances where the CMA may aggregate several narrow relevant markets into one broader market based on considerations about the response of suppliers to changes in prices'. The Guidelines refer to this paragraph when discussing supply substitution for geographic market definition. See CMA (2021), Merger Assessment Guidelines, March 2021 CMA129 CON. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/970322/MAGs_for_publication_2021_.pdf

noting that any supply-side substitution would need to be able to take place in a time-frame 'basically not longer than one year'.

Some non-EEA jurisdictions do not distinguish between the level of consideration to be given to demand-side versus supply-side substitution factors but may nonetheless qualify under which conditions supply-side substitution is taken into account.

- The **Australian** Competition and Consumer Commission Merger Guidelines note that the Australian NCA takes supply-side substitution into account at the market definition stage. The guidelines consider a product to be a supply-side substitute only if the production facilities, marketing efforts and distribution networks used by the suppliers in question can be profitably switched 'quickly and without significant investment'.

- In **South Korea**, the South Korean NCA's Guidelines for Assessment of Unfair Trade Practices state that 'market definition based on the trading territory shall take into consideration whether there is a sufficient substitutability of goods and services from demand side (whether demand can be substituted to another territory) and supply side (whether supply can be substituted from another territory)'. This suggests an equal and symmetric treatment of supply-side effects and demand-side effects.

Table 3: Supply-side substitutability in geographic market definition

Is supply-side substitution taken into account at market definition stage?	No	Only under certain conditions	Yes/Generally yes
Jurisdiction	US, Canada	EEA, UK, Japan	Australia, South Korea

The variety of approaches in the guidelines reflects the debate on the relevance of supply-side constraints for market definition in the literature.

According to Bishop and Walker, the supply-side substitution should be explicitly considered at the market definition stage because '*(a) it may constrain the behaviour of incumbents with effects similar to demand-side substitution, and (b) for practical reasons*'[733].

Along the same lines, the OECD notes the 'conceptual advantage' of a symmetric treatment of supply-side and demand-side in market definition (both for product and geographic market definition) but it also cautions that 'a symmetric treatment of demand and supply substitution could also lead to problems with respect to the product market', arguing that 'if supply substitution is considered at the market definition stage, it could occur that two products A and B that are no substitutes in demand are forced into the same product market because the producer of B could easily and quickly change production from B to A. This may result in an unintuitive product market comprising products that are not demand substitutes.'[734]. In fact, there are arguments in favour of

[733] Bishop, S. and Walker, M., (2010). 'The economics of EC competition law: concepts, application and measurement'.

[734] OECD (2012). 'Roundtable: Market Definition'. Available at http://www.oecd.org/daf/competition/Marketdefinition2012.pdf.

asymmetric substitution[735] (see also section 5.2.4). In case of asymmetric substitution, it is important to define the focal product of the market analysis: the 'focal product' is defined as the main product under investigation and the focal area is the geographic area under investigation, in which the focal product is sold[736]. Asymmetric substitution is experienced in different markets, such as technology markets, supermarkets and the market for petrol: for example, in telecommunications, asymmetric substitution is likely to take place with respect to switching from less capable networks and services to more capable ones, but not the other way round[737]. Moreover, asymmetric substitution is likely to arise with respect to fixed and mobile broadband services: depending on the characteristics and coverage of the mobile and fixed networks in particular areas, it is possible that substitutability exists in some geographic areas but not others.[738]

In general, OECD notes that 'the simultaneous consideration of demand and supply substitutability at the stage of market definition[739] does, however, require an analysis of the competitive reactions of rivals and a balancing of pro- and anticompetitive effects. Defining the relevant market in this way is substantially more complex and could generate controversies. The focus on demand side substitution in the first stage of a market definition seems to have some practical advantages as one can concentrate on one competitive constraint at a time' as stated in the US Guidelines. Finally, whether these effects are dealt with at market definition stage or later, the OECD argues that 'in general, these two approaches, if carried out correctly, should lead to similar market shares and measures of concentration.'[740]

According to Elzinga and Howell[741], the US approach assessing only demand substitution factors when defining relevant geographic markets has limitations. In fact they argue that this could generate '*a peculiar if not anomalous geographic market definition and, as a consequence, an ill-advised merger enforcement decision. Proper geographic and product market definition requires understanding of how demand and supply would respond to potential price increases that stem from anticompetitive activity—not just a demand-side response*'[742].

Another criticism is raised by Sleuwaegen, both to the US and to the Commission guidelines. The author proposed a new methodology where, as first step, price data and shipments data are used in connection with border effects to define the economic market, based on buyer arbitrage principles. As a second step, the analysis is extended to consider possible supply responses and define the relevant competitive arena[743].

[735] This is the case of two products that perform the same function, but one product has additional functionalities or is of a higher quality and price, thus evidence of substitutability in one direction is irrelevant for demonstrating the constraint in the opposite direction.

[736] BEREC (2011), Report on Impact of Fixed-Mobile Substitution in Market Definition, Page 12, BoR (11) 54.

[737] OECD (2014), Defining the Relevant Market in Telecommunications, Review of Selected OECD Countries and Colombia, page 23, Competition Committee, 2014.

[738] See page 44 BEREC (2011), Report on Impact of Fixed-Mobile Substitution in Market Definition, Page 12, BoR (11) 54.

[739] Both for product and geographic market definition.

[740] OECD (2012), Roundtable: Market Definition

[741] Elzinga Kenneth and Howel Vandy (2018). Geographic Market Definition in the Merger Guidelines: A Retrospective Analysis, Rev Ind Organ 53, 453–475 (2018).

[742] Ibid.

[743] Sleuwaegen L. (2001), Globalisation and the definition of the relevant geographic market in antitrust practice, KU Leuven, 2001.

According to Padilla[744], the secondary role for supply-side substitutability in market definition is problematic, especially in industries where products are differentiated, where network effects are important, where there are substantial economies of scales or in high-tech industries. Röller[745] suggests that the emphasis on demand-side substitutability is in contrast with the business view of market operators where more emphasis is on the supply-side. According to the author, the current approach leads to an overly restrictive market definition.

As shown above, there is an ongoing debate regarding whether supply substitution by imports should be accepted for widening the relevant geographic market. Fletcher and Lyons argued in their report that the role played by supply-side substitutability should be further clarified in the MDN. At the same time, the geographic markets may be better understood by adopting a narrower geographic market definition whilst giving fully appropriate weight to imports and supply-side substitutability as competitive constraints in the competitive assessment as such, rather than in the market definition. As an example, *'Chinese production into the EEA should be reflected in the competitive analysis by including it in the market, as imports, not by expanding the relevant market to include all Chinese production or firms. This may create a too broad geographic market, encompassing several markets with different conditions*'[746]. According to the authors, it has to be assessed whether any symmetric effect between imports and exports has to occur before leading to a widening of the geographic market definition.

[744] Padilla Jorge (2001), The Role Of Supply-Side Substitution In The Definition Of The Relevant Market In Merger Control, NERA, A Report for DG Enterprise, European Commission, June 2001, pp. 65–78.

[745] Röller, Lars-Hendrik (2011), 'Challenges in EU competition policy', Empirica, Vol. 38, pp. 287-314.

[746] Fletcher A. and Lyons. (2016), Geographic Market definition in European Commission Merger Control, CCP, University of East Anglia, Publication for DG Comp, 2016.

Box 20: Role of supply-side substitutability – main findings

(i) The MDN places significant weight on demand-side substitution. Supply-side substitution may be an in-market constraint if most suppliers can switch supply in the short term without incurring significant costs. In some cases, supply-side substitution may represent a form of 'uncommitted' or 'hit-and-run' entry. It responds to modest increases in current prices sufficiently fast to render any retaliatory strategy pointless.

(ii) EEA jurisdictions tend to use demand-side substitutability as the primary factor in delimiting a geographic market but do also consider supply-side substitutability where supply-side effects can be demonstrated as imposing an effective competitive constraint on the behaviour of supplier in the focal area, in the same way as demand-side substitutability.

(iii) Jurisdictions outside the EEA take a wider range of approaches towards the question of supply-side substitutability.

   a. The US and Canada do not take supply-side substitution into account at the geographic market definition stage: such factors are to be considered at the stage of competition effects assessment.

   b. Similarly to the EEA, Japan and the UK take supply-side substitution into account at the market definition stage only under certain conditions, thus with an approach similar to the MDN.

   c. According to their guidelines, the South Korean and Australian NCAs are likely to consider supply-side effects at the market definition stage together with demand substitutability.

(iv) The relevance of supply-side constraints for market definition is debated.

   a. Some commentators argue that the secondary importance of supply-side substitutability leads to overly narrow markets.

   b. Others submit that these approaches if carried out correctly, should lead to similar market shares and measures of concentration. Furthermore, geographic markets are better understood by adopting a narrower geographic market definition whilst giving fully appropriate weight to imports and supply-side substitutability as competitive constraints in the competitive assessment.

6 Quantitative techniques

Quantitative methods of market definition are increasingly used by both NCAs and interested parties. They may substantially add to the quality and reliability of assessments.

There are sometimes concerns raised that quantitative techniques require high quality data, which is unavailable or not provided in a timely fashion. However, many methods can provide effective results with basic information and enlighten the discussion, providing more information than may be available from purely qualitative methods.

We begin with a discussion of the principal quantitative framework associated with market definition, the hypothetical monopolist test (HMT). After outlining the HMT, we discuss tools used to perform the test, including critical loss analysis, natural experiments and surveys. Then, we outline demand estimation techniques which typically utilise econometric methods to estimate own- and cross-price elasticities of demand. Next, we discuss another set of quantitative techniques used surrounding price co-movement analysis. Such tools under this framework include price correlation, stationarity, cointegration and Granger causality tests. Finally, we outline the usage of catchment areas to delineate geographic market definition.

At the outset, it should be noted that quantitative techniques may not be discussed in the publicly available version of NCA reports, particularly technical details. As such, the cases we have been able to observe may be incomplete and may not reflect all available cases. Therefore, the reader is advised not to draw many conclusions regarding the absolute frequency of cases nor the trends in particular techniques over time (unless these trends are explicitly discussed below).

In this summary, we outline cases used and discuss pertinent points in the relevant discussion.

6.1 Hypothetical monopolist test / SSNIP[747]

Most approaches to delimit a relevant market in competition analysis take as a starting point the framework of the hypothetical monopolist. Intuitively, a given set of products constitutes a relevant market if it encompasses all close enough substitutes such that a single seller (a hypothetical monopolist) would be sufficiently unconstrained by any other sellers so as to be able to profitably raise prices significantly and sustainably above competitive levels. In other words, for a set of products to constitute a relevant market it must be the case that a hypothetical monopolist is able to profit from a Small but Significant Non-transitory Increase in Price, or SSNIP. This framework is relevant for both quantitative and qualitative approaches to market definition.

To formalise this test, NCAs often start with a reasonably narrow market, either in terms of the product, or the geography. They then consider whether a hypothetical monopolist could profitably enact a SSNIP in this initial market. If a SSNIP is unprofitable, the proposed group of products is too narrow to form a relevant market and thus should be enlarged to include the next closest substitute. The SSNIP test is then performed on this enlarged group of products and thus iteratively until the narrowest, large enough group of products where a SSNIP is profitable is identified.

The HMT is mentioned in the respective Guidelines of all EEA NCAs as being the predominant analytical framework for market definition. This is the case regardless of whether the HMT is implemented quantitatively. Within this framework, the

[747] It should be noted that the space devoted to each of the quantitative techniques discussed in this chapter is not necessarily proportional to their relative frequency of use by each NCAs. Some earlier techniques have been the subject of greater discussion in the academic literature and the chapter seeks also to reflect that. In addition, the order in which the methods are discussed should also not be understood as any indication of a ranking.

consideration of demand-side substitution in response to a SSNIP is the key element to be evaluated. This is true for both qualitative and quantitative implementations of the HMT framework.

Similarly, the non-EEA Guidelines, with the exception of South Korea and South Africa[748], refer to using the HMT.[749] These same Guidelines discuss the use of the SSNIP test as an implementation of the HMT and are explicit in noting that the general conceptual framework of the HMT is to be used regardless of whether sufficient evidence to conduct a quantitative assessment is available.

In particular, most non-EEA NCAs highlight that the HMT helps conceptualise the nature of substitutability between products. However, issues with a practical application of the SSNIP test are also noted, particularly around the difficulty in obtaining data of sufficient quality to conduct a quantitative analysis and the time required to do so.

The HMT and the SSNIP test were used widely in cases across non-EEA jurisdictions. This occurred in both a quantitative and qualitative sense, with the framework being used in a quantitative sense when data permitted, particularly in the form of critical loss analysis. When data was not available the framework of the HMT guided the definition of the relevant market, especially with regards to demand substitution. This is even the case in South Africa and South Korea, despite lack of formal guidance on such a framework in their Guidelines.

At the same time, some NCAs consider the SSNIP test somewhat impractical due to the absence of reliable (historic) data to implement it.

We discuss a number of issues related to the practical implementation of the HMT/SSNIP test and note issues raised in NCA Guidelines and cases.

Defining the initial 'reasonably narrow' market

For this first step, the MDN suggests starting from the type of products that the undertakings involved sell and the area in which they sell them.[750]

There is little discussion in the literature regarding the practical difficulties in defining a 'reasonably narrow' initial focal market. Nor is there much mention of this issue in NCA Guidelines, other than to suggest that the focal product for the initial market is the product(s) under investigation.

It is highlighted in the Portuguese Guidelines that the results of the SSNIP test depend upon the starting point of the test, particularly when there are asymmetries in substitution patterns. These Guidelines advise starting with the focal product/geography.[751]

In the UK and Brazil, the focal product is noted in the respective Guidelines as being the product under investigation in the geographic area in which the product is sold. The

[748] There was no relevant guidance provided for South Africa and the Guidelines for South Korea do not refer to the HMT/SSNIP test (Guidelines for Review of the Abuse of Market Dominant Position, KFTC).

[749] OFT Market definition: Understanding competition law (2004) and UK Guidelines for Market Investigation (2013), Merger Enforcement Guidelines, CBC and Abuse of Dominance Guidelines, CBC, Merger Guidelines, ACCC, Proposed Analysis Guide for Horizontal Concentrations, CADE and Guidelines to Application of the Antimonopoly Act Concerning the Review of Business Combination, JFTC, Horizontal Merger Guidelines, US DJ and FTC. Note that the UK has recently released Merger Assessment Guidelines (2021). The revised Guidelines do not contradict the approaches of earlier Guidelines discussed in this document unless otherwise stated however they may not mention the same topics that are attributed to other Guidelines.

[750] Market Definition Notice, para 16.

[751] AdC's Guidelines for the Economic Analysis of Mergers.

Australian Merger Guideline suggests starting with one of the products and geographic areas supplied by one or both of the merger parties.

Identifying the next closest substitute

After establishing the initial 'narrow' market, the SSNIP test proceeds by considering the next closest substitute. However, it might not always be clear what the next closest substitute is. Indeed, failing to consider the next closest substitutes can lead to the SSNIP test being concluded before all sufficiently interchangeable products or geographies are included in the relevant market.[752]

Often, knowledge of cross-price elasticities – the extent to which the volume of sales of one good responds to a change in price of another good – can be useful in identifying goods which may be considered close substitutes. Diversion ratios – discussed further below – are also considered useful in the literature.

This issue arose in practice in […] where the NCA argued that the SSNIP test conducted by the Merging Parties had been applied incorrectly as substitutes were not added to the relevant market in order of closeness of substitution.[753]

The Cellophane Fallacy

The Cellophane Fallacy is a well-known pitfall in using the HMT whereby a firm that already has a dominant position sets prices high enough that a further increase in prices from a SSNIP would lead to lower profits, regardless of there being any close substitutes to the product *at the competitive price.* As a result, a CA which assesses the effect of a SSNIP relative to current market price may define the market too broadly.

In this regard, the MDN advises that the prevailing market price may not be the adequate one to consider where it has been '*determined in the absence of sufficient competition. In particular for the investigation of abuses of dominant positions, the fact that the prevailing price might already have been substantially increased will be taken into account'*.[754]

To overcome this problem, the literature notes that the competitive price should be used in the SSNIP test. However, in reality, it may be difficult to determine the competitive price.[755] Consequently, in situations where there are concerns that prices are above the competitive level, due to existing market power or collusive behaviour, the SSNIP test may not be the best approach to market definition. NCAs can, in such cases, rely instead on other quantitative tests (e.g. time series analysis, natural experiments or customer surveys) or resort to qualitative evidence.[756]

NCAs appear to be well aware of this problem and it is mentioned in the Guidelines of France, Ireland, Lithuania and Portugal. Some NCAs (France and Lithuania) do not attempt to apply the SSNIP test when the prevailing price is not considered to be the competitive price. For instance, the French Guidelines note that when there are indications that prevailing prices are not competitive prices, quantitative methods other than the SSNIP test may be more adequate to delineate the relevant market.[757] On the

[752] Ferro, M. (2019). 'Market Definition in EU Competition Law'. Edward Elgar Publishing.

[753] *Confidential source*

[754] Market Definition Notice, para 19.

[755] Davis, P. and Garcés, E., (2009). 'Quantitative techniques for competition and antitrust analysis'. Princeton University Press.

[756] Ferro, M. (2019). 'Market Definition in EU Competition Law'. Edward Elgar Publishing.

[757] Competition Authority Guidelines Relating to the Control of Concentrations, Autorite de la Concurrence.

other hand, some NCAs, including Portugal and Ireland[758], note that the SSNIP test may be conducted using lower than prevailing prices as a benchmark. The estimation method for calculating these prevailing prices is not explained in these Guidelines.

As well as being mentioned in EEA Guidelines, there are a number of cases where the existence of the Cellophane Fallacy is noted.[759]

In non-EEA countries, the Australian, Canadian and UK Guidelines note that the SSNIP test should potentially be disregarded when the Cellophane Fallacy is suspected of being a problem. The US Guidelines note the existence of the Fallacy but do not indicate how the NCA proceeds.[760] The UK Guidelines do note that it is theoretically possible to calculate competitive prices but state that this is particularly difficult to do in practice.[761]

In addition to the prevailing market price being above the competitive price, it is also possible that the opposite occurs, with the prevailing price being below the competitive price. This is referred to in the literature as the Reverse Cellophane Fallacy. It may be a relevant concern for example in predatory pricing cases or in regulated industries. If prices are 'too low', the HMT framework may lead to relevant markets being drawn too narrowly, since, at prices below competitive levels, consumers may not consider switching to otherwise close substitute products, in response to a SSNIP.[762]

The level of the 'small' price increase

The SSNIP is usually defined as a small price increase of 5 to 10%. However, in some instances it might be the case that the market definition conclusion is altered, depending on whether the SSNIP is 5% or 10% and these levels are rather arbitrary measures.[763]

The Portuguese Guidelines note, in particular, that whilst a 5 to 10% SSNIP is often adequate, there are certain markets – especially those with large sales volumes but small margins – where a small price increase (of only 1 to 2%) might be significant and profitable for a hypothetical monopolist and so consideration of the market under investigation will be important.[764]

The significance of using a 5 or 10% SSNIP was noted in a […] case, where the conclusion of the SSNIP test differed between these alternatives. Ultimately, the question of which level was most appropriate was never resolved as the merger notification was withdrawn.[765]

Outside the EEA, the most common view across non-EEA Guidelines is that a SSNIP should be 5% or at least 5%, but that the appropriate level can vary based on market conditions. The Guidelines of the US, Canada and Australia suggest a 5% SSNIP but all these guidelines are open to the possibility to vary the level of the SSNIP. Both the US and Brazilian Guidelines state that the NCA may use a price increase higher or lower

[758] M/18/067 LN Gaiety/MCD Productions (2019).

[759] 478/14/2010 Valio (2010), S669/2013/DP (2013) CHAPS and R12/2016/HS CHAPS (antitrust, 2016))

[760] DOJ & FTC Horizontal Merger Guidelines (2010).

[761] OFT Market definition: Understanding competition law (2004), UK Guidelines for Market Investigation (2013) and Merger Enforcement Guidelines, CBC.

[762] Davis, P. and Garcés, E., (2009). 'Quantitative techniques for competition and antitrust analysis'. Princeton University Press.

[763] OECD (2012). 'Roundtable: Market Definition'.

[764] AdC's Guidelines for the Economic Analysis of Mergers.

[765] *Confidential source*

than 5% depending on the exact market and specificities of the cases.[766] Both the UK and Japanese Guidelines suggests using a SSNIP of between 5 to 10%.[767]

Procurement markets

The difficulty in applying the SSNIP test in markets where goods are purchased through procurement/tender markets is noted in a few EEA cases[768], as well as in the Lithuanian and Portuguese Guidelines.[769] Fundamentally, it is not immediately clear what the prevailing price is, making it difficult to apply a SSNIP. In such a case, it may be necessary to consider other evidence or quantitative techniques (e.g. price co-movement analysis).

Similarly, it was noted in a Finnish case that the SSNIP is difficult to implement when prices are individually negotiated and there is not a prevailing price in the market.[770]

Substitution or migration?

Several NCAs mentioned the issue that migration might be mistaken for substitution. That is, customers may be shifting away from a good as a result of factors unrelated to changes in price or quality (i.e. migration) which is not the same thing as substitution (which must be as a result of changes in price or quality).

This was raised in the UK commentary on retail mergers which notes that there is an increasing online presence in the retail sector, which may reflect migration and not substitution.[771] It is therefore important to focus on the reason for customer migration/substitution; if it occurs irrespective of changes in price and quality, it is more likely to be migration than substitution.

This was also noted in a Dutch and Australian case. In the former (merger) case, the NCA criticised the analysis conducted by the Merging Parties for not distinguishing between a decline in volume of physical letters resulting from a change in price (substitution) compared with migration to digital communication products.[772] In the latter (merger) case, a similar point was made, in that there was migration away from the focal product of clay bricks, primarily due to the increase in multi-dwelling buildings where clay bricks are less popular.[773]

The implication of such a discussion on migration versus substitution is that quantitative analysis of data needs to be carefully evaluated to distinguish between migration and substitution. Often, this distinction can be clarified by considering trends in the data.

Product differentiation and price discrimination

Another important drawback of the HMT framework is the difficulty of applying a SSNIP in markets where sellers engage in price discrimination or products are highly differentiated. If sellers are able to price discriminate across groups of consumers, it

[766] Abuse of Dominance Guidelines, CBC and Horizontal Merger Guidelines, US DJ and FTC, Merger Guidelines, ACCC and Proposed Analysis Guide for Horizontal Concentrations, CADE.

[767] Market Definition, Office for Fair Trading (2004) and Guidelines to Application of the Antimonopoly Act Concerning the Review of Business Combination, JFTC.

[768] In Lithuania (2S-17/2015 Vilniaus energija/First Opportunity gruodžio (2015)), in Austria (VIL-Slg 2014/7 Zellhofer / Motyka (2013)) and in Sweden (578/2015 Logstor/Powerpipe (2015)).

[769] Explanations on the Definition of the Relevant Market, Lithuanian NCA (KT).

[770] KKV/121/14.00.10/2018 Avarn Security Holding AS / Prevent 360 Holding Oy (2018).

[771] Retail mergers commentary, CMA.

[772] 19/035236 PostNL / Sandd (2019).

[773] 54285 CSR Limited / Boral Limited (2015).

may be necessary to treat each group separately and examine the effects of a SSNIP in each.

Highly differentiated products raise the question of whether the SSNIP should be applied to a single product, a group of products or all products in the candidate market.[774] MDNs, such as the US Merger Guidelines, often do not specify which of these SSNIP tests should be performed.[775]

It is suggested in the literature that a uniform price increase is best applied in the case where products are symmetric (i.e. where all products have equal margins and demand structures) because a hypothetical monopolist would have an incentive to increase all prices. On the other hand, in an asymmetric market, the hypothetical monopolist would have an incentive to increase the price of some products more than others, in which event a price increase for a single product may be more applicable.[776] In fact, it can be shown that, in situations with asymmetries, applying a uniform SSNIP test could result in an overly broad market definition.[777]

Greater complexity is added when considering firms selling multiple products either inside or outside the candidate market.[778] Such complexity is reflected in the US Merger Guidelines, where it is suggested to apply a different test, which is referred to as the hypothetical cartel test (HCT).[779]

The HMT implicitly assumes that the hypothetical monopolist only owns the products inside the candidate market and ignores pricing incentives for the hypothetical monopolist between its goods inside and outside the candidate market. The HCT relaxes this assumption and explicitly considers the pricing incentives a hypothetical monopolist may have concerning goods outside the candidate market. It is found that when firms sell multiple substitute products, the relevant market using the HCT is typically narrower than when using the HMT. In contrast, when the firms sell multiple complementary products, the HCT finds broader markets than the HMT.[780]

The intuition for this is simple: if the hypothetical monopolist produces goods outside the candidate market which are somewhat substitutable, it will find a SSNIP on the goods inside the candidate market to be more profitable than if it did not produce the outside goods. Given that the HMT ignores the existence of the outside goods, it would ignore the increased profits from the outside substitute goods, and so a SSNIP might be unprofitable, leading to an overly broad market. On the other hand, the HCT considers the effect on profits of these outside substitute goods and, hence, it is more

[774] Daljord, Sorgard and Thomassen (2008). 'The SSNIP test and market definition with the aggregate diversion ratio: A reply to Katz and Shapiro'; and Ten Kate and Niels (2009). 'The Concept of Critical Loss for a Group of Differentiated Products'. Journal of Competition Law and Economics, 6(2), pp.321-333.

[775] Ten Kate and Niels (2009). 'The Concept of Critical Loss for a Group of Differentiated Products'. Journal of Competition Law and Economics, 6(2), pp.321-333.

[776] Daljord, Sorgard and Thomassen (2008). 'The SSNIP test and market definition with the aggregate diversion ratio: A reply to Katz and Shapiro'.

[777] Daljord, Ø. and Sorgard, L. (2010). 'Single-Product versus Uniform SSNIPs'. Available at https://core.ac.uk/download/pdf/52069188.pdf.

[778] Moresi et al. (2008). 'Implementing the Hypothetical Monopolist SSNIP Test with Multi-Product Firms', Antitrust Source (Feb. 2008).

[779] Moresi, S., Salop, S., and Woodbury, J., (2017). 'Market Definition'. Available at https://scholarship.law.georgetown.edu/facpub/1942.

[780] Moresi, S., Salop, S., and Woodbury, J., (2017). 'Market Definition'. Available at https://scholarship.law.georgetown.edu/facpub/1942.

likely to find that a SSNIP is profitable, leading to narrower markets. The reverse argumentation applies in the case of outside complementary goods.

Full knowledge requirement

A Danish case raised the concern that the SSNIP test may not be informative when consumers are not fully informed about the prices of all alternative products on the market. In this particular Danish merger case, the NCA was concerned that asking a SSNIP question on the broadband market may have led to a conclusion where consumers say they want to switch to a product that they do not have access to, e.g. because the infrastructure that provides the specific product is not available at their address or because the consumers are not aware of the limitation of speed across different types of infrastructure. To address this issue, the NCA decided to ask a small but significant non-transitory decrease in price (SSNDP) question applied to a broadband package at a lower speed than their current broadband connection. It was believed, in this instance, that a question posed in this way would be more useful for market delineation.[781]

Box 21: HMT/SSNIP – main findings

(i) The HMT is a suitable framework to consider demand substitution and to aid in delineating the relevant market. This applies both in a qualitative and quantitative sense (the latter in the situation where data exists for quantitative evaluation).

(ii) The framework is well established among NCAs in delineating relevant markets and is often quantitatively formalised by the SSNIP test.

(iii) To begin applying the SSNIP test the initial market needs to be defined which is often based on the focal product of the case at hand.

(iv) The set of closest substitutes to the focal product(s) need to be carefully evaluated, this can be aided by knowledge of cross-price elasticities of demand.

(v) If the prevailing market price is not the competitive price, either the HMT should not be used or the competitive price needs to be estimated. The latter approach is difficult in practice.

(vi) There are instances where the prevailing market price is not known, particularly in bidding/procurement markets. Where the prevailing price is unknown, it may be more appropriate to use another method for delineating the relevant market rather than relying on available estimates of the prevailing price.

(vii) A SSNIP of 5-10% is often applied; however this might vary depending on the exact nature of the market (there is convergence on this point in Guidelines).

(viii) Careful consideration of trends in the market is required to ensure that the observation of consumers shifting away from a product is only interpreted as substitution when it is based on price/quality considerations. In other words, substitution should not be mistaken for migration, otherwise an erroneous conclusion may be made.

(ix) If firms are able to price discriminate, it may be necessary to treat each customer group separately and apply the SSNIP test to each individually.

(x) In markets with differentiated products, careful consideration is needed of whether to apply a uniform or a single-product SSNIP. The literature suggests applying a uniform SSNIP in cases where the market is symmetric (i.e. relatively

[781] 18/18156 Eniig / SE (2019).

homogenous products with equal market shares between products) and the single-product SSNIP in cases where the market is more asymmetric. However, this clearly requires a degree of judgement in considering relative symmetry.

(xi) If the hypothetical monopolist sells products outside the candidate market and if demand for these and the focal product is correlated (either substitutes or complements), it may be necessary to consider this interaction. One possibility is to use the Hypothetical Cartel Test instead of the HMT.

Next, we discuss methods which can be used to quantitatively implement the HMT/SSNIP test. After that, we discuss econometric techniques for demand estimation and then proceed to discuss techniques which study how prices co-move. We finish by discussing techniques related to catchment areas.

6.1.1 Critical loss analysis

Critical loss analysis (CLA) is a widely used tool for the quantitative implementation of the hypothetical monopolist framework. CLA aims to ascertain how much the volume of sales can fall, following a SSNIP by a hypothetical monopolist, with the price increase still being profitable.

The intuition stems from the fact that an increase in price increases the profit of the firm on each unit of good sold but higher prices may also result in demand substitution towards other goods. The firm would then lose the entire revenue from customers that substitute away from the good. If demand substitution is high enough, then loss in revenue may outweigh the increase in price-cost margin for consumers who do not substitute away.

Formally, in the context of CLA, the critical loss is defined as the maximal percentage of unit sales that can be lost for the price increase to remain just profitable. This critical loss is then evaluated against estimates of the actual loss that would be sustained in reality, following a SSNIP. If the actual loss is estimated to be greater than the critical loss, then the SSNIP would be unprofitable, and the relevant market is wider than proposed.

Actual loss can in principle be calculated by any of the methods used to estimate demand or demand reactions, including econometric demand estimation, shock analysis / natural experiments, consumer surveys and qualitative evidence on the likely magnitude of demand substitution.

An alternative way to consider critical loss analysis is to consider the critical elasticity rather than the critical loss. The critical elasticity is defined as the elasticity of demand that is 'just high enough' to prevent the hypothetical monopolist from profitably increasing the price by 5-10%.[782] In a similar manner to the comparison of actual and critical loss values, if actual elasticity is greater than the critical elasticity for the hypothetical monopolist then the focal product in question is not a relevant market.

In the early 2000s, the academic literature introduced a critique to implementations of CLA, noting that critical loss and actual loss are, in fact, related: high margins (and, thus, low critical loss) tend to be associated with low elasticity of demand (and, thus, low actual loss).[783] The critique proposed that actual loss be estimated by aggregate

[782] Baumann and Godek (1995). 'Could and would understood: critical elasticities and the merger guidelines'. The Antitrust Bulletin, Winter 1995, pp 885.

[783] This is based on the Lerner rule, which states that the profit margin (m) equals the negative reciprocal of the elasticity (E): $m = \frac{P-c}{P} = -\frac{1}{E}$. Therefore, a high profit margin indicates a low elasticity.

diversion ratios (referred to as the 'recapture percentage' in the 2010 US Merger Guidelines).[784] This technique has been termed modern critical loss analysis.[785]

Where quantitative techniques have been applied, the CLA method has been used regularly in competition cases, in both the traditional and modern form. Indeed, the method is the predominant quantitative technique used to implement the HMT/SSNIP test in practice. In the EEA, CLA has been used by Austria[786], Denmark[787], Finland[788], Sweden[789] and the Netherlands[790] and principally in the modern form using aggregate diversion ratios. Furthermore, the actual loss is typically calculated based on switching behaviour estimated from survey results rather than based on actually observed switching behaviour.

CLA has been applied in a number of non-EEA cases, including in countries, such as South Korea and Japan, where it is not explicitly mentioned in the Guidelines.[791] The exception to this is in Australia and Canada where the technique was not observed, although exact quantitative techniques were not often publicly disclosed in these jurisdictions. The quantitative method has also been used regularly in both the UK and the US.[792]

Where the traditional version of CLA has been used in practice by EEA countries, it tends to be by estimating the critical loss using the standard formula and then making an assumption about the actual loss based on a qualitative consideration of the product and its characteristics, rather than more quantitative techniques for the estimation of the actual loss.[793] This happens to a lesser extent outside the EEA, where econometric methods such as instrumental variables have been used to estimate the actual loss.[794]

It is difficult to tell whether the greater use of modern CLA compared with traditional CLA reflects the discussion in the literature or instead reflects the relative ease in conducting surveys to estimate aggregate diversion ratios which can then be compared with critical loss using standard formulae presented in the literature review. However, the formula applied depends strictly on the underlying assumptions surrounding demand as well as whether a uniform or single-product SSNIP is applied (these points

[784] The estimation of the aggregate diversion ratios or the recapture percentage begins by considering a price increase for only one of the products in the candidate market. After the price of product A is raised by X percent, some customers will switch their purchases away from A. Some of which will switch to products inside the candidate market. This diversion to products inside the candidate market is then calculated for X percent price increases for all other products in the candidate markets and the sum of these is the **aggregate diversion ratio** for the group of products in the candidate market. See Katz and Shapiro (2003). 'Critical Loss: Let's Tell the Whole Story'.

[785] Moresi, S., Salop, S., and Woodbury, J., (2017). 'Market Definition'. Available at https://scholarship.law.georgetown.edu/facpub/1942.

[786] See for instance BWB/Z-3817 BGO / Hali / Svoboda (2018).

[787] See for instance 12/11898 Pernod Ricard Denmark A/S / Arcus-Gruppen Holding AS (2012), 18/18156 Eniig / SE (2019).

[788] KKV/55/14.00.10/2019 Kesko Oyj / Heinon Tukku Oy (2019) and KKV/1233/14.00.10/2019 Mehiläinen Yhtiöt Oy / Pihlajalinna Oyj (2019).

[789] See for instance 426/2014 Swedbank Franchise/SvenskFast (2014) and 472/2015 Kronfågel/Lagerberg (2015)

[790] See for instance 19/035236 PostNL/Sandd (2019).

[791] See for instance, Mohaak / Daesun (2002) and Hite / Jinro (2005) in South Korea and Nippon Steel case (2016) in Japan.

[792] See for instance, Zipcar Inc. / Streetcar Ltd (2010) in the UK and Whole Foods Market / Wild Oats Market (2008) in the US.

[793] Lithuanian antitrust case No 1S-121 UAB Orlen Lietuva / Lithuanian Gas Stations Union (2018).

[794] Such as in Japan (Nippon Steel (2016)) and in Brazil (08700.009988/2014-09 Tigre/Condor (2014)).

are discussed in more detail below). Nevertheless, a number of the cases reference the relevant literature, suggesting that NCAs are well aware of the academic debates on the topic.

Despite the widespread use of CLA in practice, there is little mention of it in the Guidelines of EEA NCAs. The method is only mentioned, briefly, in the Guidelines of Latvia.[795] More extensive mention is made in Portuguese Guidelines where it is highlighted that despite being an appealing method the conclusion is often dependent upon the assumptions made in respect to the demand and supply costs.[796]

In non-EEA Guidelines, the method is noted as a quantitative tool by the UK's NCA[797] and as being a useful implementation of the SSNIP test, when data permits, by both the Brazilian[798] and US[799] NCAs.

Break-even or profit-maximising approach

The critical loss test outlined so far is based on a break-even approach. That is, it asks whether it *could* be profitable for a hypothetical monopolist to enact a SSNIP. This is not equivalent to *would* a hypothetical monopolist enact a SSNIP. The latter question depends upon the profit-maximising price and is a subtle different as it asks what price would be charged rather than could be charged.

To understand this difference, it is important to remember that, according to economic theory, there is a profit-maximising price for a monopolist and any change in price above or below this price (whilst profitable) might not be the most profitable price. Therefore, the *would* approach asks whether that HMT profit-maximising price is at least 5-10% higher than the current, pre-monopolisation, price.

The *would* approach is stated in the US Horizontal Merger Guidelines whilst the *could* approach is used in the UK and EEA countries. Despite this difference the US tends to apply the CLA test using a *could* approach anyway.

Relationship between profit margins and demand elasticity

The development of the so-called modern CLA stemmed from the theoretical observation that high profit margins are, in a market equilibrium, associated with low elasticity of demand.[800] The literature, and some NCAs, noted, therefore, that it was inconsistent for merging parties, for example, to argue for wide markets on the basis of simultaneously low critical loss (as a result of high margins) and high actual loss (as a result of high elasticity of demand).[801]

This 'internal inconsistency' critique was, however, itself subject to criticism for relying on a series of assumptions that are not necessarily met by certain real-world markets. For example, kinks in demand and supply curves could invalidate the relationship.[802]

[795] Guidelines for Defining the Relevant Market, KP.

[796] AdC's Guidelines for the Economic Analysis of Mergers.

[797] Market Definition, Office for Fair Trading (2004). However, the critical loss technique is not mentioned in the CMA Merger Assessment Guidelines (2021).

[798] Proposed Analysis Guide for Horizontal Concentrations, CADE.

[799] DOJ & FTC Horizontal Merger Guidelines (2010).

[800] This is based on the relationship between margins and elasticities as given in the Lerner rule.

[801] Katz and Shapiro (2003). 'Critical Loss: Let's Tell the Whole Story' and O'Brien and Wickelgren (2003). 'A Critical Analysis of Critical Loss Analysis'.

[802] Coate and Williams (2007). 'Generalised critical loss for market definition'. In Research in Law and Economics, Emerald Group Publishing Limited. See also Coate and Simons (2014). 'Should DOJ's Controversial Approach to Market Definition Control Merger Litigation, the Case of US v. H&R Block.'

Kinks in the demand curve may arise, for example, if consumers are more responsive to a price increase than a price decrease. This implies that it is possible that actual loss is high, due to a large demand reaction to a new price increase, at the same time that critical loss is low as a result of high margins which are sustainable due to lower elasticity of demand at current, lower prices. However, the overall discussion suggests that (a) when high margins exist, the Notifying Party ought to justify claims of a high actual loss by relying on elasticity data, (b) if such evidence is not provided then the base assumption should be that a high profit margin is associated with a low actual loss.

This insight has been recognised in the US Merger Guidelines which state that '*unless the firms are engaging in coordinated action […] high pre-merger margins normally indicate that each firm's product individually faces demand that is not highly sensitive to price'*.[803] The point is similarly made by Portugal and the UK, with both implying that the margin alone may not provide sufficient information for an accurate conclusion on the level of demand elasticity. Instead, they suggest that an estimate of demand elasticities might be necessary to provide further evidence.[804]

The point has been successfully used in a number of cases, including in the US and Brazil.[805] This suggests that the critique has been generally accepted by NCAs, certainly outside the EEA, although there was less discussion on this point within the EEA.

Modern critical loss analysis

As touched upon above, modern critical loss analysis links the critical loss value with aggregate diversion ratios through estimation of the actual loss. Diversion ratios are a form of switching analysis which evaluates the closeness of competition between products by analysing consumer behaviour, either actual behaviour or reported behaviour from a customer survey.[806] The benefit of using aggregate diversion ratios in critical loss analysis is that they provide a direct route to estimate actual loss, without requiring a large amount of data.

A SSNIP will be profitable for a hypothetical monopolist controlling market x and y if the aggregate diversion ratio (D) is greater than the value for the critical loss.[807] However, the literature identifies that the mathematical derivation of the modern CLA formula rests on strict assumptions that must be supported and not used indiscriminately; careful attention is required in deriving the formula between critical loss and the aggregate diversion ratio depending on the underlying assumptions of demand.[808]

[803] Merger Guidelines supra note 7 at §4.1.3. See also Moresi et al. (2017). 'Market Definition' for a summary on the debate.

[804] OFT Market definition: Understanding competition law (2004) and AdC's Guidelines for the Economic Analysis of Mergers.

[805] See 100CV01501 TFH Swedish Match (2000), 9710090 Tenet (1999), 1410231 Advocate Health Care Network (2016), 0710114 Whole Foods Market / Wild Oats Market (2008) and Brazilian Case 08700.004211/2016-10 Tam Linhas Aéreas, Iberia Líneas Aéreas and British Airways (2016).

[806] The diversion ratio from product x to product y is the fraction of sales lost by product x to y when the price of x increases by a specified amount, often a SSNIP of between 5 and 10%. The aggregate diversion ratio for a price rise in x is defined as 'the fraction of overall sales lost by Product [x] that are captured by – or diverted to – any of the other products in the candidate relevant market' (Katz and Shapiro, 2003).

[807] This assumes (i) linear demand, (ii) profit margin same for different brands, and (iii) there is full pass through of marginal cost to consumers.

[808] Coate, M. and Simons, J., (2014). 'Should DOJ's Controversial Approach to Market Definition Control Merger Litigation, the Case of US v.

A number of NCAs cited some of this literature in their Decisions but there was less mention of the debate regarding the assumptions on the formulae used for modern CLA. In particular, a number of EEA NCAs appeared to be using the standard formulae in the literature without presenting a clear rationale to verify the underlying assumptions (i.e. of linearity in demand). However, it could be the case that such discussion was too technical to include in case documents and may have been relegated to annexes which were not publicly available.

Whilst the majority of modern CLA applications use survey data to calculate aggregate diversion ratios, perhaps due to the relative ease of this method, there have been instances where actual switching behaviour has been estimated. For instance, in a US case, salesforce data was used to estimate the actual switching behaviour of consumers and similarly, in Finland actual switching data from the Notifying Parties was used.[809]

Weaknesses of the CLA technique

A number of drawbacks associated with the use of CLA (in both traditional and modern forms) have been noted in the literature, Guidelines and in practice. These issues can be categorised as (i) categorisation of costs as fixed or variable, (ii) whether to apply a uniform, or single-product, price increase, (iii) the format of the SSNIP question, and (iv) the modelling assumptions. It should also be noted that the Cellophane Fallacy is still applicable as a pitfall to the CLA technique (see discussion on the HMT/SSNIP).

Categorisation of costs as fixed or variable

The CLA method requires an accurate categorisation of costs between fixed and marginal costs. This is necessary because mark-up depends on the average product price and marginal costs, so it is vital to collect accurate information on these variables.[810] In practice, the marginal cost is usually proxied by the (average) variable cost. Poor identification of variable costs could lead to relevant markets that are broader than they actually are (when margins are too high) or markets that are narrower than in reality (when margins are too low).

The Portuguese Guidelines note that it is difficult to distinguish between fixed and variable cost components based on accounting data, but no remedy or best practice is suggested.[811]

In a case in Finland, the NCA was criticised by the Markets Court for incorrectly estimating margins used in its critical loss analysis.[812] The discrepancy in estimation arose partly due to the lack of precise margin estimates.[813] This demonstrates the importance of correctly assigning costs upon which the whole CLA technique hinges.

H&R Block.', Scheffman, D., and Simons, J. (2003). 'The State of Critical Loss Analysis: Let's Make Sure We Understand the Whole Story', Antitrust Source, Nov. 2003.

Coate, M., Ulrick, S., Yun, J., (2020). 'Tailoring Critical Loss to the Competitive Process'.

[809] 171 0161 Wilhemsen Holding / Resolute Fund II / Drew Marine Group (2018) and the Finnish merger case KKV/55/14.00.10/2019 Kesko Oyj / Heinon Tukku Oy (2019). In the case KKV/1233/14.00.10/2019 Mehiläinen Yhtiöt Oy / Pihlajalinna Oyj (2019), the Finnish NCA also used customer switching data but the data came from the Social Insurance Institution.

[810] Amelio, A. and Donath, D. (2009). 'Market definition in recent EC merger investigations: the role of empirical analysis'. Law and Economics, Concurrences, No 3.

[811] AdC's Guidelines for the Economic Analysis of Mergers.

[812] MAO:50/20 Kesko Oyj ja Heinon Tukku Oy (2019).

[813] Exact detail of the assignment was not provided.

A detailed description of the categorisation of costs was included in a couple of South Korean cases that applied CLA.[814] This was particularly important, as there was contention between the Notifying Party and a competing party regarding the classification of costs and thus the CLA as a whole. Ultimately, the Korean NCA ruled that some labour, advertising and maintenance costs were variable rather than fixed costs.[815]

Uniform or single-product SSNIP

It is not always clear, based on NCA Guidelines, whether to apply a SSNIP across all products under the control of the hypothetical monopolist (uniform SSNIP) or a SSNIP on just one or some products in the candidate market.[816] This point matters particularly in terms of which formula is used to apply the CLA technique and the selected formula must be consistent with the approach taken. The literature suggests using the single-product SSNIP when asymmetries exist in the market, as the hypothetical monopolist may alter prices of products differently, and the uniform SSNIP when the market is more symmetric.

The Swedish NCA has in the past used modern CLA based on formula derived assuming a uniform price increase on all products in the candidate market. However, in the empirical estimation of the actual loss, the NCA used survey data from price increases on individual products.[817]

The issue similarly arose in a Finnish case, where the party based their claim for a wider market on survey data that asked customers about their reaction to the price increase of *one* product but used the formula for a uniform price increase. The Finnish NCA thus highlighted that the implementation of the SSNIP in this case was incorrect, given that the products in question were not symmetric.[818]

In general, caution must be applied to ensure that the appropriate formula in terms of uniform/single price increase is used when estimating the actual loss.

The argument has also occurred in a US case, where there was discussion on whether the single-product SSNIP is more appropriate in asymmetric markets. Whilst this point generally holds – i.e. where there are large differences in market shares between products in the candidate market it is more appropriate to consider a single-product SSNIP – in this particular case the data supported a uniform-price SSNIP.[819]

To address this concern, best practice would involve developing an economic model of market-specific pricing in the relevant market. From this model, the appropriate SSNIP method can be derived and applied.[820] Essentially, it is necessary for proponents of modern CLA to carefully assess the form of the SSNIP question (i.e. uniform or single-

[814] Seonghoon, J., (2016). 'Critical Loss Analyses in Korean Liquor Mergers'. Available at https://www.intechopen.com/books/empirical-modeling-and-its-applications/critical-loss-analyses-in-korean-liquor-mergers.

[815] Seonghoon, J., (2016). 'Critical Loss Analyses in Korean Liquor Mergers'.

[816] Daljord, Sorgard and Thomassen (2008). 'The SSNIP test and market definition with the aggregate diversion ratio: A reply to Katz and Shapiro' and Ten Kate and Niels (2009). 'The Concept of Critical Loss for a Group of Differentiated Products'. Journal of Competition Law and Economics, 6(2), pp.321-333.

[817] 661/2018 Arla Foods a.m.b.a., Norrmejerier ek. för., Falköpings mejeri ek. för. / Svensk Mjölk AB (2018).

[818] KKV/55/14.00.10/2019 Kesko Oyj / Heinon Tukku Oy (2019).

[819] 141 0067 Sysco / US Foods (2015).

[820] This approach was used in the Finnish merger case KKV/1233/14.00.10/2019 Mehiläinen Yhtiöt Oy / Pihlajalinna Oyj (2019).

product) and derive the required formula rather than use an 'off-the-shelf' formula from the academic literature.

Format of the SSNIP survey question

The aggregate diversion ratio is often calculated based on switching behaviour revealed in consumer surveys. In these surveys, the respondent is questioned on which products they would switch to (if they switch at all) following a 5-10% price increase in the candidate market.

However, in practice, a number of NCAs do not directly ask the SSNIP question but pose the question as: which product the consumer would switch to in the event that the product is not available.

This was the case, for example, in Denmark where the NCA noted in a case that the question was not posed as a SSNIP but in the event that the product was 'sold out'. However, the NCA believed that this question could proxy for the SSNIP question and hence it was used in the aggregate diversion ratio and CLA assessment.[821]

An advantage of asking consumers what their response would be to their desired product being unavailable is that it is often easier for consumers to rationalise their actions compared with questions asking directly about a hypothetical price increase. This can therefore help overcome problems arising from the difference between revealed and stated preference. Such reasoning was used in a separate Danish case, where aggregate diversion ratios were calculated for the use of modern CLA based on a survey. The Danish NCA stated that experience showed that it was difficult for consumers to relate to how they would react to a hypothetical price increase and that responses were more accurate when framed in the sense that a product is unavailable.[822] A Finnish case followed the same approach, noting that it was often faster to ask questions related to product unavailability rather than explain and ask SSNIP questions.[823]

Modelling assumptions

As briefly mentioned in the above discussion vigilance is needed in applying standard formulae without careful consideration of the underlying demand (and cost) functions in the case at hand. The literature has often discussed findings making strict assumptions about the demand curve, namely considering that it is linear. This assumption may not hold in reality which may mean that 'standard' formulae to estimate critical loss based on aggregate diversion ratios do not hold.

NCAs both within and outside the EEA seem to generally be aware of this problem although it is often difficult to tell from publicly available documents the extent the NCA went to in deriving the calculations (or whether formulae were applied from the literature without consideration of the demand and cost functions).

Box 22: Critical loss analysis – main findings

(i) Critical loss analysis (CLA) is a method to formalise the SSNIP test. It involves a) evaluating the maximum loss of sales, following a price increase, for such a price increase to remain profitable (the 'critical loss'), b) estimating 'actual loss'

[821] 12/11898 Pernod Ricard Denmark A/S / Arcus-Gruppen Holding AS (2012).

[822] 13/05691 IDdesign A/S / JYSK (2013).

[823] KKV/55/14.00.10/2019 Kesko Oyj / Heinon Tukku Oy (2019). The precise reason for omitting the price increase question was that the length of the survey would have become excessively long if both questions had been asked. Moreover, there was a risk that a few customers would have reacted to the hypothetical price increase. Therefore, the Finnish NCA considered that the forced diversion question would be more suitable.

of sales likely to result from said price increase and c) comparing the two magnitudes. If the critical loss is greater than the actual loss, a SSNIP would be profitable and so the market is no wider than the currently included products.

(ii) The critical loss can be calculated using information on profit margins whilst the actual loss can be estimated through demand estimation, diversion ratios, natural experiments, customer surveys or internal business documents and information.

(iii) If high margins are observed then an assertion of low elasticity of demand needs to be suitably justified, as economic theory suggests that in the standard case high margins imply a low demand elasticity.

    a. Suitable evidence includes quantitative evidence on own-price elasticity or evidence of factors which may mean the standard case does apply (such as non-linear demand or cost functions).

(iv) There is a distinction between the break-even and profit-maximising formulae for critical loss. Whilst the two formula are closely related the literature has generally followed the break-even approach.

(v) Costs need to be suitably assigned as fixed or variable to ensure that margins are accurately estimated.

(vi) Modern critical loss analysis uses aggregate diversion ratios to estimate the actual loss which can be compared with the critical loss, in a similar manner as traditional analysis.

(vii) Critical loss analysis (both in traditional and modern form) has been used regularly by NCAs to delineate the relevant market.

(viii) However, there is no reference to critical loss analysis in the MDN.

(ix) The regular use of modern CLA might reflect the relative ease in conducting consumer surveys to estimate the aggregate diversion ratios compared with other econometric techniques. Nonetheless, there are still difficulties in conducting a representative consumer survey under the tight deadlines of a merger control proceeding (see section 6.1.3 on surveys below).

    a. Some NCA have relied on a qualitative estimation of actual loss but this is usually difficult to justify except in extreme cases where the estimation is unambiguous.

(x) A single-product price increase should be used when the market is asymmetric (i.e. market shares differ significantly across products) and a uniform SSNIP used when the market is symmetric.

(xi) Aggregate diversion ratios can be estimated from survey data and information on previous consumer behaviour to directly answer the critical loss question. If the aggregate diversion ratio is greater than the critical loss value then a SSNIP would be profitable, and so the market is defined.

(xii) It is important that the formula used to estimate modern CLA based on the aggregate diversion ratio is formulated to correctly account for the specificities of demand and supply in the market under consideration.

    a. Standard formulae presented in the literature tend to make strict assumptions surrounding linearity of demand and constant marginal costs and should not be used if these assumptions do not hold in a particular case.

(xiii) It is common in practice for the aggregate diversion ratio to be based on questions asking for the consumer's response in the event that the product is unavailable rather than a more direct SSNIP question. It is considered that the former question sufficiently proxies for the latter question. However, there has been no discussion of this point in either Guidelines or the academic literature.

(xiv) Finally, whilst it is clear that fixed and variable costs need to be correctly assigned, there is little guidance in Guidelines as to the best practice around this point.

6.1.2 Natural experiments

The MDN indicates that, where feasible, the analysis of actual changes in quantities demanded and of actual demand substitution that occurred in reaction to recent past events or shocks in the market, such as changes in prices or in relative prices, will normally be fundamental for market definition. Such analysis can provide direct evidence of demand elasticity and of demand-side substitutability.

The reliance on actual events or shocks in a certain market to study the behaviour of demand is referred to in this context as natural experiments.[824] Natural experiments can be used in several ways. For example, to directly assess the degree of substitutability between products or to estimate demand elasticity as part of a CLA.

Since consumer reaction is estimated on the basis of events that have in fact happened, this is a 'revealed preferences' method rather than a 'stated preferences' method (such as consumer surveys). Revealed preferences methods, where feasible, are preferred because they are not dependent on consumers hypothesising their behaviour correctly.

In the EEA, a number of Guidelines refer to the use of natural experiments as a suitable quantitative technique, including Bulgaria, Finland, France, Hungary, Ireland, Portugal and Romania.

Outside the EEA, the expression 'natural experiments' is not used in national Guidelines, with the exception of the UK's, but a number of other Guidelines suggest the use of past evidence of consumer behaviour in response to price changes. However, other than highlighting the applicability of such evidence there is scant discussion. On the other hand, the UK Guidelines explicitly mentions the use of natural experiments as a quantitative technique, particularly in the context of geographic markets. It is stated that natural experiments which show the effect on one outlet's sales arising from entry, exit or expansion by other outlets nearby is considered appropriate evidence to evaluate the relevant geographic market.[825]

Nature of the shock

The literature identifies that relevant shocks are often sudden and unexpected changes to either supply or demand. As such, natural experiments can involve a change in market structure perhaps arising from market entry, cost shocks, natural disasters, general strikes, plant shut-downs, stock shortages, sudden exchange rate movements and regulatory intervention. Given that the shock is unexpected, the reaction of consumers and producers can reveal the competitive nature of the market.

In the Finnish Guidelines, it is noted that relevant shocks include the launch of new products and any resulting changes in the sale of some competing products.[826] In the Portuguese Guidelines, changes in supply conditions relating to the introduction of new products, advertising campaigns or marketing were mentioned as relevant shocks.

In Sweden, a natural experiment was used in a 2012 antitrust case in the broadcasting sector.[827] The Swedish NCA used historic sale data of non-national radio advertising and based this analysis on comparing the prices in local broadcasting areas where change occurred from one / two sellers of radio advertising to two / one seller of radio advertising. More specifically, this model estimated the extent to which the market

[824] The method is also known as shock-analysis.

[825] UK Guidelines for Market Investigation (2013). Note that there is no mention (either affirmatively or contradictorily) regarding the use of natural experiments in the CMA Merger Assessment Guidelines (2021).

[826] Guidelines on the Application of the Competition Act, KKV.

[827] 174/2012 Konkurrensverket/ SBS Discovery Radio AB (SBS Radio) and RBS Broadcasting AB (NRJ).

structural change, from monopoly to duopoly or from duopoly to monopoly, had affected the prices of non-national radio advertising campaigns in the broadcast areas.

In other EEA practice, the exit of a competitor from the unaddressed mail market in Denmark[828], a marketing campaign in the frozen food market in Sweden[829] and a customer boycott of the frozen food market in the Netherlands[830] have been used as the relevant shock through which natural experiment analysis has been conducted.

Outside the EEA, an unexpected factory closure in a Brazilian merger case[831] and market entry in a UK antitrust case[832] were used as the relevant shock for the analysis.

Exogeneity of the shock

The literature emphasises that for natural experiment studies to be robust, shocks must be exogenous relatively to the market conditions that influence the behaviour of consumers and suppliers. That is, it must be ensured that no other major change took place in the market, at the same time as the shock, such that the reaction to the shock can be clearly identified.

There is limited mention of the exogeneity requirement in EEA Guidelines, excepting the Portuguese Guidelines which highlight the importance of shocks being exogenous to ensure robust results.[833]

The issue of exogeneity was raised in an EEA case, where the Merging Parties in a Dutch case presented evidence from a natural experiment which was rejected by the NCA due to exogeneity concerns. These concerns arose because the shock (a consumer boycott of the focal product) was contaminated by promotions of other products during the boycott period, meaning any analysis trying to isolate the effect of the boycott would not be able to separate the effect of the promotions. This highlights the importance of identifying a unique shock which can be analysed to evaluate the relevant market.[834]

Data requirement

To conduct analysis of natural experiments, past price and purchase data may need to be collected, or the use of data from market research firms can be utilised. Even more fundamentally, an appropriate shock needs to have occurred (relatively recently), which can be considered exogenous and for which data can be collected.

Box 23: Natural experiments – main findings

(i) When a shock with the right characteristics has occurred, and data on its impacts can feasibly be collected, its analysis can provide powerful direct evidence of demand elasticity and of demand-side substitutability.
(ii) The identified shock should be sudden and unexpected so that there is no 'expectation' effect polluting the data.

[828] 18/06447 FK Distribution (antitrust) (2020).

[829] 472/2015 Kronfågel/Lagerberg (2015).

[830] 7313 NPM Capital - Lion Capital - Buitenfood - Ad van Geloven (2012).

[831] 08700.000436/2014-27 Braskem / Solvay (2014).

[832] Paroxetine (antitrust) (2013).

[833] AdC's Guidelines for the Economic Analysis of Mergers.

[834] 7313 NPM Capital - Lion Capital - Buitenfood - Ad van Geloven (2012).

(iii) The shock needs to be exogenous, well identified and should not occur at the same time as another event affecting demand/supply which may make it difficult to disentangle the effects of a shock.

(iv) In practice, there are relatively few examples of the use of natural experiments. This may be explained by the lack of observed shocks, or lack of data on such shocks.

(v) The Commission's MDN mentions the use of natural experiments in the context of 'evidence of substitution in the relevant past'. It is stated that '[i]n certain cases, it is possible to analyse evidence relating to recent past events or shocks in the market that offer actual examples of substitution between two products. When available, this sort of information will normally be fundamental for market definition'.[835]

a. This reference is consistent with the limited focus given on technical details in national Guidelines. However, it might be necessary to add a comment regarding the exogeneity of observed shocks, given the relevance of this point in investigation.[836]

(vi) The MDN describes 'launches of new products in the past' as a suitable shock for analysis. As shown in this section, there are also a number of other shocks which have been used in practice and mentioned in national Guidelines which could also be referred to in the revised MDN.

6.1.3 Surveys

Surveys of market participants can often provide insights into the nature of the market, including the scope of the market and market participants, as well as the range of substitutes and how closely they are considered to substitute for focal products. Customer surveys can directly ask how customers would respond to a hypothetical price increase and provide additional information on customer preferences to aid in an assessment of substitutability.

In EEA Guidelines, surveys are mentioned as a tool to ascertain consumer preferences and the degree of substitutability of products. Several countries, including Hungary, Latvia, Lithuania and Portugal, included a discussion on the use of surveys for the purpose of market definition.

Outside the EEA, there was less reference to surveys in Guidelines, other than to note that surveys can often be used to provide information on the degree of substitutability. Neither did the non-EEA Guidelines contain a much discussion regarding best practice with respect to surveys.

In practice, both within the EEA and outside, surveys are used to conduct switching analysis to address the SSNIP question[837], to calculate diversion ratios to estimate actual loss in CLA[838] and to illustrate product characteristics and consumer preferences more generally[839].

[835] Market Definition Notice, para 38.

[836] Whilst this was only mentioned in the Portuguese Guidelines and one EEA merger case, the point is unlikely to be contentious in a theoretical sense.

[837] See for example 18-CC-04 Kant NV / Volvo Group Belgium NV (2018), 19-182 Soditroy ACDlec/Casino (2019) and M/18/063 Berendsen (Elis)/Kings Laundry (2019).

[838] See for example, Post NL/Sandd (2019) and 04/LM/Jan09 Masscash Holdings (Pty) Ltd v Finro Enterprises (Pty) Ltd t/a Finro Cash and Carry (2009).

[839] See for example, 13/13057 KPMG/EY (2014) and C12246 FRATELLI ARENA/RAMI DI AZIENDA DI SMA / DISTRIBUZIONE CAMBRIA-ROBERTO ABATE (2019), Lotte Incheon Development Co. Ltd (2013) and Pan Fish ASA / Marine Harvest N.V (2006).

When conducting a survey, either in the context of market definition or more generally, one has to be aware of several survey errors that can occur and potentially lead to biased results. These sources of error can be categorised as: (1) issues related to sampling, and (2) issues related to survey design.

Sampling issues

There are issues related to surveying when the survey sample does not accurately reflect the population under consideration. This can result in sample bias, where the survey only reflects the views of a certain subset of the population and is not representative.

The Hungarian Guidelines, in particular, discuss this issue and mention that the survey sample should be random and representative (especially with respect to the important aspects of the relevant case) and be adjusted for sample size.[840]

A general principle to mitigate this issue is to achieve a large sample and conduct random sampling thereby increasing the likelihood that the responses accurately reflect the entire population. A large sample size further ensures that the results are statistically significant.

For example, in the UK, the CMA has disregarded its own online survey in a past merger case because the response rate was below 5%. This is below the CMA's threshold to place evidential weight on the survey.[841]

NCAs should consider sampling the most important and relevant participants for the inquiry where the appropriate sample list often comes from parties' customer lists. It is especially important to distinguish between marginal and inframarginal customers, where market definition is most concerned with the marginal customers, to avoid misleading results such as the so-called 'toothless fallacy'.[842] This can involve screening survey respondents in the first instance, to identify marginal customers who can then proceed with the rest of the survey.

Such an issue arose in a merger case in South Africa, where the NCA acknowledged that a survey question asking about customer diversion may have invoked a response from infra-marginal consumers which might have caused concerns regarding the toothless fallacy. To prevent such an outcome, the NCA relied on the response to a question investigating what percentage price increase would lead to them switching, and only evaluated respondents who responded 10% or less to this question (i.e. screening responses).[843]

[840] Market Definition, GVH.

[841] Note that this case was recently appealed at the UK Competition Appeals Tribunal and it was decided that the CMA had not followed up with suppliers and failed to properly assess the likely impact of the Covid-19 pandemic in its decision. See https://www.catribunal.org.uk/judgments/135441220-jd-sports-fashion-plc-v-competition-and-markets-authority-judgment-2020-cat-24.

[842] The toothless fallacy is the mistaken belief that because some non-marginal customers may be unable or unwilling to switch to a particular product, means that the product falls outside the scope of the relevant market. However, the HMT test is not based on whether a SSNIP leads the average customer to substitute, but the marginal consumer. The name follows from the United Brands case, where the European Commission defined the relevant market to be bananas, because the very young and very old (toothless) would not consider other fruits a substitute for bananas. See Kleinova (2016). 'The Use of a Consumer Survey to Determine the Relevant Market–Case Study for public transport between Prague and Most'. Review of Economic Perspectives, 16(1), pp.17-28 for more.

[843] 04/LM/Jan09 Masscash Holdings (Pty) Ltd v Finro Enterprises (Pty) Ltd t/a Finro Cash and Carry (2009).

Furthermore, sampling non-customers should be avoided since they are unlikely to provide reliable information on customer reactions to a SSNIP.[844]

Issues of representativeness were raised in a Dutch merger case, where the NCA was concerned that respondents self-selected to complete the survey and so the survey may not be representative.[845]

Survey design issues

To minimise the risk of participants giving inaccurate answers, surveys need to be carefully designed. Some general remedies include:

- Framing the survey question correctly such that biases are not introduced based on the wording of the question.
- The survey should not distort responses (e.g. anchoring effect) which would lead to over- or under-statement of switching behaviour (presentational bias).
- The instructions should be clear and easy so as not to confuse respondents.
- It should be acknowledged that some agents have misaligned incentives and may alter their response with the intent of biasing the survey towards a particular outcome (strategic bias). Therefore, such agents may be assigned a lower weight in the survey, or their responses are cross-checked with other evidence to ensure their response is correct and valid.

Furthermore, it is important to acknowledge that respondents are not always able to answer accurately to a hypothetical question (i.e. stated preference does not always equal revealed preference). This hypothetical bias could mean that switching behaviour is misstated in surveys, as consumers behave differently to how they believe they would behave in a hypothetical scenario.[846]

This last point was noted in the decision of an Irish merger case where the Irish Commission highlighted that *'information obtained from the Customers and Self-suppliers, while a useful practical means of gathering information on customer and business preferences/behaviours, need to be interpreted with care and that stated preferences of Customers and Self-suppliers can differ from how they behave in practice'*, highlighting the issue of revealed versus stated preferences.[847]

Similarly, in a Dutch merger case, the NCA criticised evidence from the Merging Parties based on surveys which suggested switching rates which were inconsistent with actual (revealed) evidence. As such, the NCA pointed out that surveys based on hypothetical questions need to be consistent with revealed evidence, in order for them to be useful for inquiries. In particular, it was pointed out that the SSNIP questions were asked in a direct (non-concealing) manner, which would likely result in the overestimation of price sensitivity due to hypothetical bias. The issue of strategic bias – whereby survey respondents adjust their response according to their prior strategic interest – is also highlighted as resulting in an overestimation of price elasticity. In this case, the strategic interest was highlighted as customers wanting to influence the future pricing

[844] Reynold and Walters (2008). 'The use of customer surveys for market definition and the competitive assessment of horizontal mergers'. Journal of Competition Law and Economics, 4(2), pp.411-431.

[845] 19/035236 PostNL/ Sandd (2019). See https://www.acm.nl/sites/default/files/documents/2019-09/besluit-concentratieverbod-postnl-shm-beheer-annex-a-b-c-d.pdf.

[846] Loomis (2020). 'What's to Know About Hypothetical Bias in Stated Preference Valuation Studies' finds evidence that hypothetical willingness to pay exceeds actual willingness to pay by a factor of two to three. This would suggest that switching behaviour is actually overstated as a result of hypothetical bias.

[847] M/18/063 Berendsen (Elis)/Kings Laundry (2019).

policy of their supplier, resulting in them overstating their intention to switch in response to a price increase.[848]

Several of these points are also raised in the Portuguese Guidelines which note that the usefulness of surveys depends to a large extent on their design and structure. To ensure best practice it is emphasised in the Guidelines that the objectives of the survey (the hypotheses to be tested) should be established ex ante to ensure the survey meets its intended aim. In terms of questions, special attention is drawn by the Guidelines to the fact that they should be clear, non-subjective nor leading, and cover a comprehensive range of appropriate responses.[849]

Similarly, it is important to recognise that some consumers may struggle to understand percentages. It might therefore be recommended more generally, when asking SSNIP questions, to ask them what their action would be in response to an actual price, rather than a price change.

To ensure that surveys elicit meaningful answers, Reynolds and Walters[850] suggest – based on their experience at the UK's NCA – that respondents are encouraged to relive their purchasing decisions by asking questions in different stages: matters of fact, matters of behaviour, matters of choice and matters of attitude. By asking first about matters of fact, customers are reminded of their thought process which should promote internal consistency when it comes to answering questions on matters of attitude.

The first stage of the survey would therefore be to address simple factual points in the context in which the decision was made, for instance what the purchasing motives were. In this first stage, screening questions are also asked, to ensure that the relevant respondents (e.g. those who purchased the good from the relevant party) are those who continue with the survey. Secondly, questions on product/service alternatives can be asked, and the extent to which the respondent considers them to be effective alternatives. Thirdly, the factors which led to the purchase can be examined, for instance was the choice decided based on price, or other characteristics. Finally, the survey could then question what the respondent would have done under a different situation, such as a SSNIP.

Box 24: Surveys - main findings

(i) Surveys have been used in a number of cases to define the relevant market, particularly within the HMT/SSNIP framework to either evaluate a SSNIP question or to be used in critical loss analysis.
(ii) A sufficiently large sample needs to be obtained to ensure that survey results are robust and statistically meaningful.
(iii) Random sampling is typically the most appropriate method to ensure that results are not biased to a certain group.
(iv) Sampling methods should take care to include marginal consumers – to avoid the toothless fallacy – potentially by screening participants to ensure that those who are the most likely to substitute following a SSNIP are surveyed.
(v) The design of the survey needs to be carefully considered to ensure that there are no biases in either the questions or the ordering of the questions.
(vi) The survey instructions should be clear and simple.

[848] 19/035236 PostNL/Sandd (2019). See https://www.acm.nl/sites/default/files/documents/2019-09/besluit-concentratieverbod-postnl-shm-beheer-annex-a-b-c-d.pdf.

[849] AdC's Guidelines for the Economic Analysis of Mergers.

[850] Reynold and Walters (2008). The use of customer surveys for market definition and the competitive assessment of horizontal mergers'. Journal of Competition Law and Economics, 4(2), pp.411-431

(vii) Some respondents may have a strategic incentive to respond in a certain (untruthful) way which may bias the results. This needs to be considered and mitigated by either:
   a. removing such respondents,
   b. applying a lower weight to such responses,
   c. applying a lower weight to the survey with respect to other pieces of evidence.

(viii) If there are concerns that respondents may not fully understand percentage changes then actual prices should be asked instead.

(ix) It may be difficult for respondents to accurately determine their actual response to a hypothetical question. This issue can be mitigated by:
   a. asking respondents to relive their purchasing decision,
   b. questioning what scenarios a consumer would base a particular decision,
   c. asking respondents their certainty regarding their response

The MDN notes that consumer surveys can be used '*to establish whether an economically significant proportion of consumers consider two products as substitutable, also taking into account the importance of brands for the products in question*'.[851] The MDN also notes that *'reasoned answers of customers and competitors as to what would happen if relative prices for the candidate products were to increase in the candidate geographic area by a small amount (for instance of 5 % to 10 %) are taken into account when they are sufficiently backed by factual evidence*'.[852] However, there is little guidance on the methodology that surveys should take.

6.2 Demand estimation techniques

Econometric methods of demand estimation can be used to estimate own and cross price demand elasticity. These estimates can be used as direct indication of substitutability or in the performance of a SSNIP test, or in critical loss analysis.

Whilst the class of quantitative demand estimation techniques is wide, only a few relevant techniques have been mentioned with respect to market definition. These are Almost Ideal Demand System (AIDS) models and logit and nested logit demand models.

There were also other techniques mentioned, which do not strictly fall under these categories. For instance, in a UK merger case[853], a demand model was constructed to examine the interaction between demand and price for salmon and, more specifically, to estimate the cross-price elasticity of demand between Scottish and Norwegian salmon. These techniques were applied addressing common pitfalls in the econometrics literature (such as the concern of endogeneity and heteroskedasticity). This model revealed a high degree of substitutability between Scottish and Norwegian salmon and aided the delineation of the relevant product market.

We discuss the remaining techniques in turn, briefly describing the model – in a non-technical manner – before discussing their use in Guidelines and merger/antitrust cases.

6.2.1 AIDS models

The AIDS model can be used to estimate a series of demand equations derived from consumer theory. It gives a second-order approximation to any demand system

[851] Market Definition Notice, para 41.

[852] Market Definition Notice, para 40.

[853] Pan Fish ASA/ Marine Harvest N.V (2006).

aggregating over consumers whilst satisfying the axioms of choice theory.[854] Within the class of demand models, the AIDS is comparatively simple to estimate and is widely applied in the applied demand literature. However, in comparison to other quantitative tools used for market definition, the technique requires substantial data and is more complex and time-consuming than other techniques.

This technique is not mentioned in any EEA Guidelines, nor observed in any EEA case studied.

Neither was the technique mentioned in non-EEA Guidelines studied. It was, however, used in a Canadian merger case to capture the patterns of substitution in the condiment market[855]. The demand estimates derived from this model failed to identify a positive cross-price relationship between the products of the Parties, indicating limited substitutability. It is important to note that this formal AIDS analysis was not standalone but was supplemented by qualitative information from a review of the Parties' internal documents, interviews with market participants and consideration of the pricing and location characteristics of the products within supermarkets. This supplementary information confirmed the results of the formal quantitative technique, suggesting limited substitutability. There was limited discussion on the pros or cons of this technique and no mention was made of any contention regarding its use.

6.2.2 Logit and nested logit models

The logit demand model is also used to estimate elasticities and is relatively simple to estimate. However, it makes restrictive assumptions about the elasticities[856]. Specifically, it assumes that own-price elasticity is increasing in price, which contradicts other findings and it assumes that cross-price elasticity depends only on market shares and prices but not on similarities between goods (independence of irrelevant alternatives assumption).

The nested logit model improves upon the logit model as it does not require the strict assumption of independence of irrelevant alternatives. It thus operates by separating close substitutes into nests and comparing consumer preferences across these various nests.[857] An alternative approach to the nested model is random-coefficients logit models which may be more appropriate when the substitutability of products cannot be easily reflected by nests.[858]

Neither logit, nor nested logit techniques are mentioned in any EEA Guidelines studied, although nested logit models were used in one EEA merger case, from the Netherlands. In this case[859], retailer scanner data was used to examine levels of substitution between product categories, estimating the cross-elasticity of products using product prices and market shares. Ultimately, the nested logit model supported the delineation of the relevant product market.

In non-EEA Guideline studied, there was no mention of these techniques. However, nested logits were used in a US merger case[860]. The estimates from the nested logit model were used to calculate aggregate diversion ratios which supported the relevant

[854] Deaton and Muellbauer (1980). 'An Almost Ideal Demand System'. The American Economic Review, vol 70 no3.

[855] Heinz / Kraft (2015).

[856] Motta (2004). 'Competition policy: theory and practice'. Cambridge University Press.

[857] Motta (2004). 'Competition policy: theory and practice'. Cambridge University Press.

[858] See Berry (1994). 'Estimating Discrete-Choice Models of Product Differentiation'. The RAND Journal of Economics, vol 25, no. 2 and Berry et al. (1995). 'Automobile Prices in Market Equilibrium'. Econometrica, 63(4), 841-890.

[859] 7313 NPM Capital - Lion Capital - Buitenfood - Ad van Geloven (2012).

[860] Aetna / Humana (2017).

product market definition. Again, there was limited discussion in terms of practical applicability of the technique.

Box 25: Demand estimation techniques – main findings

(i) Demand estimation techniques can provide robust and reliable estimates of own- and cross-price elasticities of demand which can aid in delineating the relevant market. However, for robust analysis, sufficient data, resources and time are required.
(ii) The exact technique used depends on the case but carefully applying best practice from the econometric literature is recommended.
(iii) Econometric techniques discussed in this section have rarely been used in the context of market definition and are not explicitly mentioned in national guidelines.
    a. This may reflect the complexity of such models which are time-consuming to estimate, require a large amount of data and may not be well understood by non-econometricians.
(iv) The MDN does note that there are econometric and statistical approaches to estimate elasticity and cross-price elasticity of demand[861] but this does not differ from the limited mention in Guidelines of the same point.

6.3 Price co-movement analysis

A separate class of quantitative methods focus on analysing price time series data. These techniques do not rely on estimation of own- and cross-price elasticities but instead group products together into relevant markets to the extent that their prices 'move together' in some well-defined sense.

The key intuition is that if two products are in the same relevant market, then competition between them would be sufficiently strong to ensure that any 'misalignment' between their prices would only be temporary, as consumers would switch from the 'high price' product to the 'low price' product, leading prices to realign in a form of arbitrage.

Empirical applications of this approach use a range of statistical and econometric tools, including price correlation analysis, stationarity or unit-root tests, cointegration tests and Granger causality tests. There are a number of benefits and detractions from each technique.

In the EEA, price co-movement analysis is mentioned as an appropriate quantitative technique in a number of Guidelines studied[862], although the level of detail presented varies. Typically, the discussion is limited to the price correlation technique, which is mentioned in a number of Guidelines, despite the theoretical objections to the method raised in the literature. The remaining techniques (stationarity, unit root, cointegration and Granger causality tests) are rarely mentioned in the Guidelines, with the exception of Latvia and Portugal. Latvia notes that the stationarity technique is preferable to price correlation analysis.[863] Additionally, the French Guidelines highlight the general point that time series data should be corrected for seasonal variation.[864]

[861] Para 39, Market Definition Notice.

[862] Bulgaria, Ireland, France, Portugal, Latvia, Lithuania and Romania.

[863] Guidelines for Defining the Relevant Market, KP.

[864] Competition Authority Guidelines Relating to the Control of Concentrations, Autorite de la Concurrence.

As discussed under the heading of each technique, price correlation is the most commonly used price co-movement technique in EEA countries. Many of the other techniques have only been used rarely, if at all. This may reflect the technical difficulties in using other price co-movement techniques such as stationarity and cointegration tests and Granger causality (as well as the data and time requirement and the theoretical limitations of these methods), as outlined in the literature review.

Outside the EEA, there is little discussion of price co-movement techniques, especially regarding the technical details. The only exceptions are in the Canadian and Brazilian Guidelines[865] which mention that price correlation may provide evidence that products fall in the same markets. Furthermore, the Brazilian Guidelines refer to the common factor issue but note the existence of methods to resolve this particular issue.

As with EEA countries, non-EEA countries have tended to apply price correlation analysis when price co-movement techniques are used. Again, this may reflect the relative ease of analysis and data collection.

We firstly discuss the simplest technique in the price co-movement toolbox, price correlation. We then turn to stationarity tests, which correct for a prominent bias in price correlation tests related to spurious correlation. Finally, more advanced techniques, such as cointegration and Granger causality tests, are examined.

6.3.1 Price correlation

Price correlation analysis is based on the assumption that prices of products that are close substitutes move together over time, as a result of arbitrage. Consider two goods which are close substitutes, A and B. If the relative price between A and B diverges over time, then we would expect consumers to substitute between the two products until the relative price difference re-adjusts. Therefore, we would expect to see strong correlation between the prices of A and B over time as their relative price should not be able to diverge substantially for extended periods of time. Note that the technique considers the relative price difference, and not the absolute price difference. It is possible that an absolute price difference exists between A and B but the relative price (and changes of this variable over time) is the key determinant behind correlation analysis. A similar intuition applies for two regions being considered in a geographic market delineation.

This simplicity – in terms of conceptual understanding – as well as the limited data required to enact this statistical measure, are major attractions of the method. However, there are a number of considerations and possible pitfalls, discussed in more detail below, regarding (i) how to judge what level of correlation is 'high enough' to classify two products in the same market (benchmarking), (ii) ensuring that the data is stationary before applying correlation techniques (stationarity), (iii) ensuring that the results are not driven by the existence of shared variables which are causing 'spurious correlation' (common factors), (iv) shifts in relative price related to non-arbitrage factors which suggest two similar goods do not belong to the same market (changes in market structure), and (v) at what time-frequency should the data be analysed (data frequency).

Despite the existence of drawbacks, with sufficient data and experience, it is possible to mitigate against these problems and ensure robust results.

It tends to be the case that, where there are concerns with price correlation analysis, they are in relation to factors that result in two products being erroneously included in the same market. Therefore, price correlation analysis is more informative when it indicates that two products *do not* belong to the same market (than the opposite

[865] Abuse of Dominance Guidelines, CBC and Proposed Analysis Guide for Horizontal Concentrations, CADE.

conclusion). This finding is identified in both the literature[866] and the Portuguese Guidelines[867] as suggesting that correlation analysis should be particularly useful to conclude when products do not belong in the same market. It was also raised in a UK merger case, where the NCA concluded that 'whilst these types of [price correlation] analyses are helpful, in our view they are better at demonstrating that products are not in the same market, through an absence of price correlation, than that they are in the same market through the presence of such price correlation'.[868]

Overall, the relative ease in analysing price data may explain the comparative popularity of this technique. In the subset of price co-movement analysis, price correlation analysis was the most frequently used method, despite its theoretical detractions. In the EEA, this technique has been observed in practice in Czechia, Estonia, Ireland and Sweden.[869]

Outside the EEA the technique has been observed in Brazil, Japan, the UK and the US.[870] However, the observed usage of the technique is rare. Furthermore, in the UK, it was noted that '*while informative, neither the correlation test, nor the extent of co-movement in prices (stationarity) test can be viewed as definitive evidence of the existence of a relevant market'*.[871]

Benchmarking

The correlation coefficient is used to capture the correlation between multiple price series and is given as a value between -1 and 1. The closer the correlation coefficient to one then the greater the indication that the products are substitutes and should be considered in the same market. This raises the question of what level of correlation is required to conclude that two products belong in the same geographic or product market.

Often this is resolved through benchmarking, whereby the correlation coefficient between two products already determined to be in the same relevant market can be used as a baseline to evaluate whether other products ought to be included in the market definition if they have a correlation equal to or greater than this baseline. The use of benchmarking can overcome concerns of selecting an arbitrary correlation level, so long as an appropriate benchmark can be suitably found.

For example, in a Czech merger case, the benchmark was selected as the correlation coefficient between the prices of different producers of the focal product and a correlation greater or equal to this benchmark with the price of a candidate product resulted in the product being considered part of the relevant market.[872]

Stationarity corrections and relative price stationarity

In order that the results of the correlation test are valid, the price series must be stationary. A process which is stationary has the feature that statistical properties (such as the mean and variance) of the process do not change over time. If the series are

[866] See Motta (2004). 'Competition policy: theory and practice'. Cambridge University Press.

[867] AdC's Guidelines for the Economic Analysis of Mergers.

[868] Pan Fish ASA/ Marine Harvest N.V (2006).

[869] See for instance, ÚOHS-S472/2011/KS - AGROFERT HOLDING, a.s. / EURO BAKERIES HOLDING a.s. (2011), 22/2018 (Reg No 5-6/18-0161) Enefit Green AS / Nemlja Energia AS (2018), M/12/031 Top Snacks / KP Snacks (2013) and 472/2015 Kronfågel/Lagerberg (2015).

[870] See for instance, 08012.006122/2012-24 Delphi Luxembourg / FCI Automotive (2012), Nippon Steel and Sumitomo Metal Corporation, Pan Fish ASA/ Marine Harvest N.V (2006), Tronox Limited (2018).

[871] Pan Fish ASA/ Marine Harvest N.V (2006).

[872] ÚOHS-S472/2011/KS - AGROFERT HOLDING, a.s. / EURO BAKERIES HOLDING a.s. (2011).

non-stationary, they need to be differenced enough times so that they become stationary. Only then is it correct to check if correlation exists between them or not. However, there are a number of tests to check whether a time series is stationary, and it is relatively straightforward to difference the data (or otherwise detrend it) to make it stationary.

A test of relative price stationarity can be helpful to assess correlation between price series affected by common factors (see below). If the ratio of the price series is stationary, this is an indication of the presence of correlation that goes beyond the effect of the common factors.

Common factors

A more fundamental concern about price correlation techniques is that observed correlation between two products can be driven by a common factor, such as a common input/cost (e.g. price of oil or other raw input).[873] In this case, the observed correlation is spurious in the sense that is not driven by arbitrage between substitute products, but by movements in the common factor. This would lead to a 'false positive'[874] whereby we believe two products are in the same market despite this not being true. This problem can occur whether price series are stationary or not, although it is exacerbated by a time trend in the series when non-stationarity exists (see above).

Whilst this problem is a serious detraction of price correlation analysis – and sometimes motivates using more sophisticated measures, particularly in the literature – it can be overcome by purging the time series of the common input before conducting the correlation analysis. However, this does of course require that the identified input is known and data exists to purge it from the price data of the relevant product.

Concern regarding common factors resulting in spurious correlation was raised in the Portuguese Guidelines.[875] Additionally, the French Guidelines[876] noted that time series data should be corrected for common cost factors.

In the reviewed case practice, common factors have included common costs of the price of wheat[877] and paint feedstock chemicals[878]. Whilst this issue has only been mentioned in very few cases[879], it has been mitigated using first-differenced data and correlation coefficients have then been calculated based on this transformed data.[880]

Changes in market structure

A change in market structure, such as an improvement in the quality of a given product, can lead to a shift in the relative price between two goods. Such a shift could make the series appear non-stationary, and therefore lead to conclusions that the goods do not belong in the same market ('false negative'). This issue can be remedied if the change in market structure can be sufficiently identified and data is available to take account of this change. However, adjusting the relative price for quality differences may not solve the issue as the change may affect the level of competition in the market, or other

[873] Davis, P. and Garcés, E., (2009). 'Quantitative techniques for competition and antitrust analysis'. Princeton University Press.

[874] Davis, P. and Garcés, E., (2009). 'Quantitative techniques for competition and antitrust analysis'. Princeton University Press.

[875] AdC's Guidelines for the Economic Analysis of Mergers.

[876] Competition Authority Guidelines Relating to the Control of Concentrations, Autorite de la Concurrence.

[877] ÚOHS-S472/2011/KS - AGROFERT HOLDING, a.s. / EURO BAKERIES HOLDING a.s. (2011).

[878] Tronox Limited (2018).

[879] It may be the case that the technical details are not publicly provided, rather than not considered by NCAs.

[880] ÚOHS-S472/2011/KS - AGROFERT HOLDING, a.s. / EURO BAKERIES HOLDING a.s. (2011).

factors related to market structure. Whilst this issue was raised in the literature review, it has not been mentioned in Guidelines or cases in either EEA or non-EEA countries.

Data frequency

The final issue with price correlation is choosing the level of frequency at which to analyse price data. Such data is often available on a high frequency basis (multiple observations a day) but for ease of analysis, the data is often analysed at a less-granular frequency, such as weeks, months or quarters. Furthermore, there may be a time delay in the arbitrage process, whereby consumers only substitute between products slowly. If the data frequency is too granular (i.e. daily/weekly) then price correlation analysis may mask the fact that the two goods are in the same market as a result of slow consumer reaction ('false negative'). To overcome this, a less granular frequency should be selected and then correlation analysis be applied on this data. Alternatively, a model which included lags could be used to account for this issue.

The practical details of the implementation of this technique are scarce, however, in Czechia monthly frequency data has been used in a merger case to analyse price correlation.[881]

6.3.2 Stationarity tests

The stationarity test – also known as the unit-root test – involves the same concept as price correlation: if two products belong to the same relevant market, then limitations exist in terms of corridors within which their price movement may diverge as a result of arbitrage opportunities.[882]

To enact such tests, the logarithm of the price ratio is calculated and econometric techniques to test whether the ratio is stationary are used. If the price ratio is found to be stationary, then this would suggest the two products belong in the same market, whilst a non-stationary ratio would suggest the opposite conclusion.

However, some of the literature argues that this method of testing the stationarity of the relative price will depend upon the stationarity of relative costs which may not be informative as to the degree of substitutability between products[883] (see advantages and disadvantages below). Furthermore, the technique has not been observed much in practice nor in Guidelines.

In the EEA Guidelines there is no explicit mention of stationarity analysis, with the sole exceptions of the Latvian and Portuguese Guidelines. The Latvian Guidelines note the greater reliability relative to correlation analysis as '*it does not face difficulties in the analysis process*' (elaboration not provided).[884] On the other hand, the Portuguese Guidelines note that stationarity tests *mitigate* concerns of the correlation test (particularly related to common costs/trends) but do not *eliminate* concerns.[885]

The stationarity test has been used in a Slovakian merger case where non-stationarity was found, providing evidence that wholesale prices were not closely related to international commodity exchange prices.[886] The technique was favoured over price

[881] ÚOHS-S472/2011/KS - AGROFERT HOLDING, a.s. / EURO BAKERIES HOLDING a.s. (2011).

[882] Forni (2004). 'Using stationarity tests in antitrust market definition'. American Law and Economics Review, 6(2), pp.441-464.

[883] Genesove (2004). 'Comment on Forni's Using Stationarity Tests in Antitrust Market Definition'. American Law and Economics Review, 6(2), pp.476-478.

[884] Guidelines for Defining the Relevant Market, KP.

[885] AdC's Guidelines for the Economic Analysis of Mergers.

[886] 2010/DZ/2/1/068 - SLOVNAFT, a.s. (2010).

correlation analysis due to the issues regarding benchmarking and common factors associated with the correlation method. These benefits were also raised in a Czech antitrust case, where the Czech NCA highlighted that stationarity analysis removed common inputs and time series trends and was robust to the issue of time lags in the pricing mechanism.[887]

Similarly, there is no mention of this technique in non-EEA Guidelines and the technique has only been observed in one UK case, where it was used in addition to price correlation analysis. There was limited discussion on the technique itself, however general concerns about price co-movement analysis and the ability to conclude that two goods belonged in the same market were raised.[888]

Advantages and disadvantages

Theoretically, stationarity tests mitigate concerns of spurious correlation associated with using non-stationary data or data with common factors in the price correlation method. However, concerns regarding common factors still exist in this method, where it is highlighted that stationarity tests may simply be picking up stationarity (or non-stationarity) of common costs which may lead to erroneous conclusions on market definition.[889]

The concern of delayed consumer response associated with price correlation techniques are not a problem for stationarity tests, which look at whether the relative price reverts to a constant value over time and allows for the fact that there may be a delay in the response of prices. The method is also technically superior to price correlation analysis as there are fewer concerns related to arbitrary benchmarking.

However, the technique does have some theoretical detractions, including vulnerability to structural breaks in the time series. More fundamentally, stationarity between two price series may be observed regardless of whether the goods belong in the same product/geographic market. This would occur, for instance, if prices themselves were stationary or are affected only by common sources of non-stationary variation. Consequently, stationarity is a necessary, but not sufficient, condition for products to belong to the same product/geographic market.[890] As with price correlation analysis, a change in market structure can lead to a conclusion that the two products do not belong to the same market.

6.3.3 Cointegration tests

Two non-stationary time-series are said to be cointegrated if there exists a linear combination of the two series which is stationary. Econometric techniques can be used to test for such a linear combination. In a sense, therefore, cointegration tests are similar to stationarity tests and have similar advantages and disadvantages. This lack of substantial difference in the technique (other than actual implementation) may explain why the method is rarely mentioned in NCA Guidelines or cases (with two exceptions).

In the EEA Guidelines there is no explicit mention to cointegration tests, except for the Portuguese Guidelines which mention that theoretical evidence is required to

[887] S162/2008/DP STUDENT AGENCY (antitrust) (2008) and R169/2010/HS STUDENT AGENCY (antitrust) (2010).

[888] Pan Fish ASA/ Marine Harvest N.V (2006).

[889] Genesove (2004). 'Comment on Forni's Using Stationarity Tests in Antitrust Market Definition'. American Law and Economics Review, 6(2), pp.476-478.

[890] Haldrup (2003). 'Empirical analysis of price data in the delineation of the relevant geographical market in competition analysis'. University of Aarhus, Economics Working Paper, (2003-09).

supplement the use of the technique otherwise there may be concerns around the conclusions of the test.[891]

There is no mention of this technique in non-EEA Guidelines. The technique was used in a US case but there was little discussion around its use.[892]

6.3.4 Granger causality

Two goods would be considered as belonging to the same market if there is bi-directional Granger causality between their prices. This Granger causality can be tested econometrically and principally assesses the existence of causality between price series of two products.[893] It is an alternative to price correlation analysis with the advantages that it includes dynamics in price determination and does not rely on 'arbitrary' levels of correlation.

In the EEA Guidelines there is no explicit mention to Granger causality nor is the technique observed in practice.

Similarly, there is no mention of this technique in non-EEA Guidelines nor cases.

Box 26: Price co-movement analysis – main findings

(i) There are several techniques evaluating the relationship between movement in prices which aid in the delineation of the relevant market. These include price correlation, cointegration, Granger causality and stationarity tests. In practice, price co-movement techniques are used relatively infrequently compared to other quantitative techniques.

(ii) The basic premise is that products which are in the same relevant market should see the evolution of their prices change in a similar manner.
   a. The emphasis is on the change in price over time, rather than the absolute price.

(iii) Price correlation is the simplest of these techniques and requires the least amount of data. This may explain why it is one of the most commonly applied price co-movement techniques.
   a. Data must be stationary to apply this technique and should be stripped of common cost factors to ensure validity. This can be achieved by differencing the data or detrending.
   b. It may be appropriate to benchmark the correlation coefficient against that of two products known, a priori, to be in the same product market, rather than rely on an arbitrary coefficient.
   c. The frequency of data should be sufficient to ensure that delayed consumer responses are accounted for.
   d. As a result of some theoretical challenges, price correlation analysis may be more useful as a tool to rule out two products being in the same market, rather than confirming that two products are in the same market.

(iv) Stationarity tests involve examining whether the log ratio of two price series is stationary. It improves upon the price correlation methods, as it does not rely on the use of benchmarking or arbitrary selection of correlation coefficients and mitigates concerns of common costs driving the results.

[891] AdC's Guidelines for the Economic Analysis of Mergers.

[892] Tronox Limited (2018).

[893] Slade (1986). 'Exogeneity tests of market boundaries applied to petroleum products'. The Journal of Industrial Economics, pp.291-303; Cartwright, Kamerschen and Huang (1989). 'Price correlation and granger causality tests for market definition'. Review of Industrial Organization, 4(2), pp.79-98.

a. If the price time series are non-stationary, then they either need to be made stationary or a stationarity test should be used in favour of less sophisticated price co-movement techniques.
b. A finding that the log ratio is non-stationary may indicate that the two products belong to separate markets. It is important that the effect of common costs is accounted for when performing stationarity tests.
c. Stationarity tests may be more appropriate, theoretically, when it is likely that delayed consumer response is to be expected or when a suitable benchmark is not available.
d. A further advantage is that the test requires only a limited amount of data which is often readily available. However, there are some concerns in the literature that the empirical performance of this technique is low, particularly when small samples are used.

(v) Cointegration tests are similar to price correlation analysis and suffer similar shortcomings. Despite this, the empirical performance is found, in the theoretical literature, to be weaker than that for price correlation.
(vi) Granger causality are more robust than correlation and cointegration tests but, according to the theoretical literature, require large sample sizes in order to work well. Such data may be difficult to obtain in the context of market definition delineation.
(vii) Price co-movement techniques are more appropriate to confirm that two goods do not belong in the same market than that they belong in the same market.
(viii) There are several advantages and disadvantages of each technique and the pitfalls described in each section need to be carefully accounted for in quantitatively applying the method.
(ix) It is often necessary to mitigate the issue of common factors (such as common costs), which can either be purged from the pricing data (if cost data is available) or more sophisticated techniques adopted.
(x) Overall, despite some theoretical concerns and pitfalls which need to be addressed, price correlation analysis remains a strong technique given its empirical performance (as tested in the literature) and relatively low data burden, which makes it feasible to conduct.
(xi) There is little mention of price co-movement techniques in the MDN, which states that '*tests based on similarity of price movements over time'* is a quantitative technique to delineate markets.[894]
a. The lack of more detail is in contrast to a few NCAs which discuss the methods more thoroughly in their respective Guidelines.
b. However, very few NCAs go into much detail, particularly regarding the attractions and detractions of each method.

6.4 Catchment areas

Catchment areas indicate the area from which an outlet receives a specified percentage of its customers. The catchment area can be measured using the straight-line distance, the drive-time (or walk-time), or postcode areas.

Adjustments can be made to distance-based catchment areas where significant barriers to travel are identified, such as for instance rivers, mountains or other geographic features which act as a barrier. However, travel-time based catchment areas (i.e. areas delimited by isochrones) are an improvement upon purely geographic catchment areas. These are often drawn as contour lines around each outlet for different drive-times, and

[894] Market Definition Notice, para 39.

implicitly capture geographic or other physical barriers which may affect drive-time including rivers, mountains, the road network and areas of congestion.

The overlap between catchment areas of different outlets indicates that such outlets are likely to be considered substitutes, for at least some customers.[895]

Catchment areas are often applied to the definition of geographic markets in contexts where transport costs, security of supply or other relevant parameters related to distance are a significant determinant of what consumers consider as substitutes. In retail markets, where location of brick and mortar stores are an important competitive consideration, transport costs are a significant determinant in constraining the size of the geographic market[896]. As such, catchment areas play an important role in the geographic definition of retail markets. This is seen in the use of catchment areas in enforcement practice, where they have been used to delineate the relevant geographic market in a number of cases, particularly focused on the retail market[897] but also including in the healthcare sector.[898]

Use of the technique

The academic literature regarding catchment areas is sparse, with much of the discussion instead coming from NCA Guidelines, particularly the UK's, and merger inquiries. In this section, we discuss the theoretical and practical application of catchment areas in the Guidelines and merger investigations of EEA and non-EEA NCAs. We will highlight a number of practical issues with the use of catchment areas mentioned in the available literature, in addition to how these have been dealt with in NCA cases and guidelines.

With respect to Guidelines, few NCAs have directly commented on using catchment areas, particularly in the EEA. In fact, in the EEA, direct mention of catchment areas in Guidelines is limited to France, Latvia, Lithuania and Poland.[899] However, it should be noted that despite the limited discussion on the issue in Guidelines, there have been cases in other jurisdictions that have dealt with such techniques.

The French Guidelines provide a number of details on their approach, emphasising that catchment areas are often used in retail cases and cases where delivery of heavy materials occurs.[900] Similarly, the Lithuanian Guidelines state that the method is recommended in cases where consumers search for goods and travel only a limited distance to the point of sale (such as retail sales of consumer goods and cinemas) or when transportation costs are only viable over a limited distance (such as for concrete mix or gravel products).[901]

Outside the EEA, excepting the UK[902], there has been limited discussion of catchment areas in the respective Guidelines.

[895] OECD (2020), Economic analysis in merger investigations, OECD Global Forum on Competition Discussion Paper, Background paper, 2020.

[896] Ibid.

[897] For instance, in the South Korean merger case of Lotte Incheon Development Co., Ltd (2013) and in the Australian merger case of Woolworths Limited / Lowe's Companies Inc (2010).

[898] See for instance, the Australian merger case of Healthscope Limited / Brunswick private hospital (2014).

[899] However, the Latvian discussion on catchment areas was merely a footnote, stating the possibility of their use. See Guidelines for Defining the Relevant Market, KP.

[900] Competition Authority Guidelines Relating to the Control of Concentrations, Autorite de la Concurrence.

[901] Explanations on the Definition of the Relevant Market, Lithuanian NCA (KT).

[902] Retail mergers commentary, CMA.

There is a brief mention in the Brazilian Guidelines that catchment areas are at the disposal of the NCA for evaluation of market definition.[903] In Canada and the US[904] there is no explicit mention of 'catchment areas' but the Canadian Guidelines discuss the use of spatial competition analysis to delineate the boundaries of localised geographic markets depending on the characteristics of the market under consideration.[905,906] Neither of these three NCAs provide further technical details on their methodology.

In the UK, both the merger Guidelines and a CMA commentary document on retail mergers, include a relatively detailed discussion on catchment areas (discussed by topic below).[907]

A number of issues and best practices are noted in the Guidelines, cases and available literature, which we turn to next. Such issues include (i) how to define catchment areas (ii) the appropriate distance measure to define catchment areas, (iii) the size of the catchment area, (iv) the data used to determine the size of catchment areas, (v) the use of differing catchment areas between different types of stores and rural vs urban areas (asymmetric catchment areas), (vi) whether to use customers' home addresses to determine the catchment area, and (vii) the difference between centring catchment areas on customers or stores.

How to define catchment areas

A catchment area may be defined on the basis of **isochrones** which measure the catchment area in terms of travel time (most often drive-time), rather than as a straight-line distance. From a theoretical standpoint, isochrones are considered more appropriate in delineating catchment areas, as they take into account geographical barriers to travel such as topography and the relevant road infrastructure.

However, in practice, the distinction between a straight-line distance catchment area and a drive-time catchment area seems to be driven by data availability. NCAs did not tend to have an overriding preference, a priori, as to either technique although isochrones were used when local markets were more important (particularly in retail studies) when the data permitted.

The UK's Guidelines note that the choice of using straight-line distance or drive-time depends on the available data and the characteristics of the market, noting that the approach will depend upon the case being analysed. Isochrones were more likely to be used by the CMA if geographic features may make a straight-line approach inaccurate.[908]

The CMA also uses postcode areas to measure catchment areas which are constructed by centring on the postcode area in which a store is located and then adding

[903] Proposed Analysis Guide for Horizontal Concentrations, CADE.

[904] DOJ & FTC Horizontal Merger Guidelines (2010).

[905] To do this, the Bureau identifies all locations of both the Merging Parties and their product market competitors to determine how firms' locations are based relative to each other.

[906] Merger Enforcement Guidelines, CBC.

[907] Retail mergers commentary, CMA; OFT Merger Assessment Guidelines, Sep 2010. The CMA Merger Assessment Guidelines (2021) note that 'Catchment areas are a pragmatic approach to identifying the most significant competitive alternatives available to customers of the merger firms' but do not discuss their implementation.

[908] Retail mergers commentary, CMA.

neighbouring postcode areas until the catchment area represents 80% of customers. This might be useful when other data (disaggregated by postcode area) is used.[909]

Such instances where postcode data has been used are in the funeral sector in the UK, where the CMA has used data on the number of deaths in each postcode area to determine the total number of deaths in a catchment area.[910] This then permits the use of market share of deaths accounted by a funeral home.

It should also be noted that isochrones are not always based on drive-time but have also been calculated based on pedestrian walk time. This may be a particularly useful approach if the majority of customers to a store walk, rather than drive, which may especially be the case in dense metropolitan areas or places with a lack of parking facilities.[911]

Size of the catchment area

It is usually the case that a distance or drive-time is calculated to capture a certain percentage of an outlets sales or customers. For instance, a drive-time of 20 minutes might be stated, based on the fact that this is the average drive-time for 80% of the outlet's customers.

It is noted in the literature that the threshold is typically arbitrary.[912] Often, the threshold set should capture less than 100% of customers, to reflect the fact that some customers are outliers in their behaviours (i.e. they may be willing to travel much further distances than average customers or that they are travelling from an address which is not their home address).

In practice, the size of the catchment area is usually calculated to encompass around 80% of customers, based either on turnover or across all customers, which is in itself an arbitrary number. This was the threshold set in the Guidelines of France, Lithuania and the UK. This number is usually chosen as reflecting the majority of customers that are likely to represent standard behaviours (and thus discards outliers). On the other hand, this particular threshold is not fixed and there have been instances where a different threshold was used. The Lithuanian Guidelines specifically mention that the 80% threshold is only a guide and depends upon the particular case.[913]

In the UK's *Green King / Spirit Pub (2015)* merger case, a threshold of 60% was used because the NCA considered that people who lived closer to a given pub were more likely to spend/visit more and so account for a larger share of revenue than those who lived further away. As a result, a lower threshold was required, to sufficiently encompass individuals who lived nearby to their local pub.

There were also cases where the NCA opted for a time catchment area, irrespective of the exact percentage of customers/turnover captured. For instance, the Polish Guidelines do not mention a percentage threshold but instead delineation of a drive-time of 20 or 30 minutes from the location of the supplier.[914]

[909] Retail mergers commentary, CMA.

[910] ME/3004/07 Co-operative Group (CWS) Limited / United Co-operatives Limited (2007).

[911] This approach was taken in Latvian case KL\5-4\18\17 Notification on acquisition of lease rights at Terbatas Street 33/35, Riga by SIA 'MAXIMA Latvija' (2018).

[912] ICLG (2019) A Road Map to Assessing Local Market Mergers: Merger Control Laws and Regulation 2020; https://iclg.com/practice-areas/merger-control-laws-and-regulations/1-a-road-map-to-assessing-local-market-mergers.

[913] Explanations on the Definition of the Relevant Market, Lithuanian NCA (KT).

[914] Explanations concerning the assessment of Notified Concentrations, UOKiK.

In some instances, NCAs also considered a number of different sizes to ensure robustness of the results. This occurred in the UK's *Care Tech / Cambina (2019)* merger case where the CMA considered three different catchment areas, one based on the 80% threshold, one of 20 miles and one of 50 miles.[915]

Data used to determine the size of catchment areas

In practice, a variety of data has been used to determine the size of catchment areas, including customer surveys[916], internal documents, customer loyalty data[917], customer contact details[918]/mailing lists[919] and records on home and site deliveries[920]. Customer surveys tend to ask about the customer's journey and where they might shop if the store was not available.[921]

In instances where there is a lack of data, publicly available tools may be of assistance. An example of this was used in Belgium, where the Parties did not have reliable access to data on the location of supermarkets in Belgium and the Netherlands. The Belgian NCA used Google's GeoCoding API to locate and calculate the drive distance between hypermarkets, supermarkets and discount stores using the 'distance matrix' Google API. This aided the creation of isochrones which were used for the delineation of geographic markets. The location of customers of the party was based on loyalty card data provided by the party and isochrones representing 80% of the turnover of the party's stores were used (supplier-centric catchment areas).[922]

The Belgian NCA has made extensive use of catchment area analysis in recent decisions. Most cases have used data on turnover to delineate the area corresponding to the customers responsible for 80% of the turnover at a given supplier location.[923] In addition to turnover, the Belgian NCA has also calculated catchment areas on the basis of number of residents,[924] and number of visitors.[925] A recent paper, discussing the Belgian approach in some detail, also compares the catchment area approach to the hypothetical monopolist test:[926] whilst the HMT delimits the smallest geographical area in which a hypothetical monopolist would introduce a profitable SSNIP, a catchment area represents an area that covers, for example, 80% of the sales of the producer at

[915] ME/6775-18 Care Tech / Cambina (2019).

[916] For instance, a telephone survey was carried out in the Australian case of Woolworth's proposed acquisition of Hawker Supa IGA (2013) or the UK merger case of ME/6752-18 Sainsburys / Asda (2019) or the antitrust case MPINF-PSWA001 Flybe (2010).

[917] This approach was popular in Latvia. See KL\5-4\16\13 SIA 'Plesko Real Estate' notification on acquisition of lease rights (2017); KL\5-4\17\13 SIA 'MAXIMA Latvija' notification on acquisition of lease rights at Riga, Grostonas Street 1 (2017).

[918] ME/3872/08 Nationwide Building Society/Derbyshire Building Society (2008).

[919] ME/6501/14 Greene King / Spirit (2015).

[920] ME/4609/10 Travis Perkins / BSS Group (2010); ME/5252/11 Saint-Gobain / Build Centre (2012); Edmundson Electrical / Western Electrical (2014).

[921] See for instance the Latvian case KL\5-4\18\17 Notification on acquisition of lease rights at Terbatas Street 33/35, Riga by SIA 'MAXIMA Latvija' (2018) or the UK cases of Sainsburys / Asda (2019) or Flybe (2010).

[922] CC-16-0002 Ahold/Delhaize (2016).

[923] Decision ABC-2019-C / C-19: Mig / NAM; Decision ABC-2019-C / C-17: Anders Hedin / Groep Jacobs. Decision ABC-2018-C / C-02: D'Ieteren / Rietje; Decision ABC-2018-C / C-04: Volvo / Kant.

[924] Decision ABC-2018-C / C-20: Senior Assist NV / Senior LivingGroup NV.

[925] Decision ABC-2016-IO-12: Kinepolis Group NV / Utopolis.

[926] See further discussion of the use of catchment areas in the Belgian NCA decision practice: Alexis Walckiers, Olivier Body, Griet Jans, Jeroen Vander Cruyssen, Bert willekens, (2020) Analyse de la concurrence locale par l'Autorité belge de la ConcurrenceRevue de la Concurrence Belge, Vol. 2020-4, p.330, December 2020.

a given point in time. As such, a catchment area can be drawn on the basis of data that are relatively easy to collect. In that sense, the HMT remains an intellectually rigorous method, but it may be, for practical effects, unreliable, if the data required to implement it are unavailable.

Use of asymmetric catchment areas

In a number of cases catchment areas have been applied asymmetrically to different types of outlets, e.g. small convenience stores versus large supermarkets, or for breakdowns based on conurbation size, such as urban versus rural or cities versus towns.

As an example of asymmetric catchment areas based on store type, in the *Carpetright / Allied Carpets (2010)* merger case, the UK's NCA found that some independent outlets had narrower catchment areas than the larger, out-of-town outlets.[927]

In another merger case the UK's CMA found that customers travelled longer for Sainsbury's pharmacies than for Lloyds pharmacies (mainly because Sainsbury's pharmacies were located with Sainsbury's supermarkets), so it used different catchment areas for supermarket and non-supermarket pharmacies.[928]

In EEA jurisdictions, it was frequently the case that when catchment areas were used, they were disaggregated by urban/rural locations.[929] The disaggregation is often at the level of urban/metropolitan areas versus rural areas, although there are instances when the metropolitan area of the capital city is given a different threshold compared with urban and rural areas.[930] The Norwegian NCA has even created a drive-time matrix delineating a separate drive-time between rural areas, small towns, towns and large towns, and for each category further separating drive-times by distance to municipality.[931]

Using customers' home address to determine catchment area

In some cases, it has been noted that it is not always appropriate to use customers' home address when they do not visit the store from their home. For instance, the UK's CMA noted in one case that the Parties' customers were tradesmen who were more likely to buy goods close to their place of work, rather than from their home address. As such, the NCA used evidence from a customer survey to calculate the appropriate size of the catchment area in this instance.[932]

Similarly, in a French merger case, the NCA highlighted that it did not make sense to create catchment areas based on customer data in the Paris region because the customer's home address is often not pertinent. It was believed that Parisian customers tended to make their purchases near their workplace, rather than home address and also that tourists will account for a large share of customers in the Paris region. This

[927] ME4570/10 Carpetright / Allied Carpets (2010).

[928] ME/6558/15 Celesio / Sainsbury (2016).

[929] For instance, in the French Case 15-233 Fnac / Darty (2016) merger case the catchment area analysis proceeded applying a shorter drive-time for metropolitan cities such as Paris compared with a longer time for more rural areas.

[930] This approach was also taken in a Romanian case (85/2019 OMV Petrom Marketing SRL – ART Petrol Service SRL (2019)) where a catchment area of 10 minutes (by car) was used for urban areas, 20 minutes for rural areas and 5 minutes in the metropolitan area of Bucharest.

[931] Decision V2015-24 Coop Norge Handel AS - ICA Norge AS (2015).

[932] ME/5252/11 Saint-Gobain / Build Center (2012).

led to a different catchment area threshold for large conurbations relative to towns and more rural areas.[933,934]

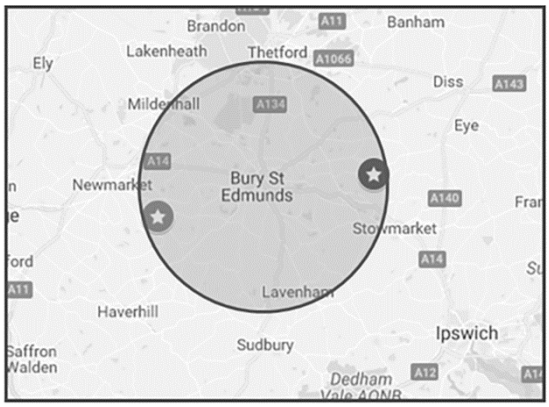
In a similar vein, it is important to consider the actual address of the customer, as opposed to the billing address. This is particularly pertinent for business customers whose billing address may refer to headquarters and not the actual branch/store where the product was delivered.[935]

Difference between centring catchment areas on customers or store

Finally, catchment areas can theoretically be centred on the local outlet or instead be centred on the location of demand. The former method results in catchment areas around the areas where most of the outlet's customers come from. It does not, however, consider the choices that consumers have. The latter method builds population data and looks at their shopping travel patterns[936].

For example, as illustrated in the figure below, if customers are located in a town centre (Bury St Edmunds in this example[937]), centring catchment areas on each of two stores on opposite ends of the town may fail to recognise the competition that exists between the parties from the consumer perspective, which is better understood in the demand-centric version. It is therefore important to consider both methods, when possible, rather than simply rely on one, which may lead to non-robust conclusions.

store-centred catchment area



demand-centred catchment areas

However, in practice, centring catchment areas on customer areas (location of demand) is less common, perhaps due to a lack of data and because of difficulties associated with the method. The major difficulty being how to identify suitable consumer areas. It might not be possible to simply base the analysis on a population map, especially in large conurbations or where towns and cities overlap.

[933] 15-233 – Fnac / Darty (Decision N°16-DCC-111).

[934] A similar approach was taken in Latvian case KL\5-4\18\17 (Notification on acquisition of lease rights at Terbatas Street 33/35, Riga by SIA 'MAXIMA Latvija') (2018) where a consumer survey was used to determine the size of the catchment area around a retail property in Riga where it was noted that customers were likely to include tourists and employees who would not be travelling from their home address.

[935] This point was noted in a Norwegian case (V2014-9 Norsk Gjenvinning AS/Avfall Sør Bedrift AS (2014)) where analysis from the Merging Parties used billing data rather than customer's collection address.

[936] Pilsbury, S., (2005). 'Attack of the Isochrones: An Emerging Approach to Local Market Definition'. Competition Law Journal, 158.

[937] ICLG (2019), A Road Map to Assessing Local Market Mergers: Merger Control Laws and Regulation.

In a 2019 UK merger case, catchment areas were defined in a way that can be interpreted as centred on the location of demand. The merger involved Unite Group plc and Living Group plc, two companies active in the supply of purpose-built student accommodation.[938]

In this case, the CMA did not take the location of the 'supply' as the centre for the catchment areas but instead the location of the university campuses served by those accommodations. This was based on the premise that students would only choose accommodations in relatively close proximity to campus. Where both merger parties had properties within 20-30 minutes walking distance from the same campus, the parties were considered to overlap.

This point was also raised in a German case investigating the grey cement product market. A demand-centred approach was taken (focusing on the location of customers), albeit more complex than a simple population-centred catchment area, as it was noted that the perspective of the customer is the most relevant aspect of both product and geographic market definition and that store-centred catchment areas may lead both to customers unaffected by the merger being included in the catchment area and to some customers affected by the merger being excluded from the catchment area. The exact approach adopted in this case was to study trade flows of producers and the postcode areas of customers, which led to a geographic market that more accurately captured the areas affected by the proposed merger. However, despite benefits arising from elimination of unaffected customer bias such a method is time consuming and requires that the Merging Parties know the location of their customers, which may only apply in certain cases.[939]

Box 27: Catchment areas - main findings

(i) Catchment areas indicate an area around a firm's outlet which can be based on an absolute distance or which considers drive-time to the outlet.
(ii) The method can be used to delineate the geographic market and are particularly prominent in competition cases concerning bricks and mortar retailers, where location and transport costs are an important consideration in consumer behaviour.
(iii) Isochrones (drive-time based catchment areas) should be used in favour of distance-based measures to delineate catchment areas when geographical and road network features of the area of study are likely to result in a significant discrepancy between the two measures.
(v) Overall, we see that discussion of catchment areas is limited in both the academic literature and in Guidelines issued by both EEA and non-EEA countries, with a few exceptions. Even in Guidelines that mention such techniques there is often very little discussion on the technical details. This likely reflects the fact that the approach taken by NCAs in practice is very flexible and depends upon the facts of the case and the data available. Consequently, detailed best practice is difficult to identify, except to recognise that the approach is generally tailored on a case-by-case basis.
(vi) Furthermore, there is no reference to the use of catchment areas in the MDN.
(iv) Disaggregating the catchment area threshold between urban, rural and even metropolitan areas when consumers are likely to have different preferences in terms of distance travelled to an outlet.

[938] ME/6825/19 Unite Group plc / Liberty Living Group plc.

[939] B1-47/17, Schwenk/Opterra see https://www.e-ca.com/wp-content/uploads/2018/10/arno-rasek_mergers-in-geographically-differentiated-mergers.pdf for more details.

(v) Similarly, disaggregating the threshold by type of store in the market when consumer preferences warrant. This is particularly pertinent in the supermarket industry.
(vi) The exact size of the catchment area varies across decisions and guidance with the UK recommending 80% and the decision practice across studied jurisdictions ranging between 70% and 90%, remaining always lower than 100% to exclude outliers.
(vii) Ultimately, it is dependent on the nature of the market studied but customer surveys may be useful to explore the distance that customers are willing to travel.
(viii) It needs to be considered whether data on the customer's home address is always the best measure for catchment area delineation, particularly when consumers may travel to the outlet from work or as part of a tourist visit.
(ix) In a couple of cases, demand centred catchment areas have been defined. This approach has the benefit of focusing on demand effects but raises the challenge of identifying delimited demand groups on which to centre the analysis.
(x) If data is available on the location of customers, for all purchases, then it may be more appropriate to consider an approach based on trade flows of producers and the postcode area of customers. This can lead to a geographic market which more accurately captures the areas affected by the proposed merger. However, this technique is time-consuming and requires a large amount of data.
(xi) It is especially important to ensure that the approach taken is robust to small changes in the methodology, particularly the exact threshold used to delineate the catchment area. This robustness will ensure that small adjustments to the distance/drive-time used, for instance, will not result in a change in the geographic market definition and ensures accurate calculation of the relevant market.
(xii) Finally, whilst it is noted that there are some shortcomings to using catchment areas centred on outlets, rather than demand, there are relatively few instances of this principle being applied. This is likely to be due to data availability but might also reflect the fact that outlet-centred approaches are often good approximations for a true population-based approach. Nonetheless, a demand-focus approach, such as that taken by the German NCA, or a simpler analysis focusing on population centres, might be an avenue for further refinement of the technique in the future.

7 Abstract

This study provides the European Commission (Directorate-General for Competition) with an overview of principles and best practices from the literature, guidelines and case law for the definition of relevant markets that can inform the current evaluation of the Market Definition Notice. The study identifies and describes such principles and best practices under four main topics: digitalisation, innovation, geographic market definition, and quantitative techniques.

First, an analysis of the most debated topics related to digitalisation explains the results of the study related to multi-sided markets including relevant factors and tools, digital ecosystems, the relationship between data and market definition and, finally, the e-commerce sector.

Second, the study provides an analysis of the link between innovation and market definition for current product markets, future markets and technology markets.

Third, the study presents an overview of how geographic markets are defined, the factors that have an impact on how geographic markets are defined and the evidence used, and the role of supply-side substitutability in defining the geographic market.

Finally, the study provides an overview of the quantitative methods used to define relevant markets. The main quantitative frameworks discussed are the hypothetical monopolist test, demand estimation techniques, price co-movement analysis and catchment areas.

8 ANNEX - List of sources

8.1 List of Guidelines by country

- Australia: Australian Competition and Consumer Commission, Guidelines for Authorisation of Conduct (non-merger), 2019, https://www.accc.gov.au/system/files/Guidelines%20for%20Authorisation%20of%20conduct%20%28non-merger%29_0.pdf
- Australia: Australian Competition and Consumer Commission, Guidelines on Concerted Practices, 2018, https://www.accc.gov.au/system/files/Updated%20Guidelines%20on%20Concerted%20Practices.pdf
- Australia: Australian Competition and Consumer Commission, Guidelines on Misuse of Market Power, 2018, https://www.accc.gov.au/system/files/Updated%20Guidelines%20on%20Misuse%20of%20Market%20Power.pdf
- Australia: Australian Competition and Consumer Commission, Media and Merger Guidelines, 2017, https://www.accc.gov.au/system/files/Media%20Merger%20Guidelines%202017_0.pdf
- Australia: Australian Competition and Consumer Commission, Merger Authorisation Guidelines, 2018, https://www.accc.gov.au/system/files/Merger%20Authorisation%20Guidelines%20-%20October%202018.pdf
- Australia: Australian Competition and Consumer Commission, Merger Guidelines, 2008 (amended 2017), https://www.accc.gov.au/system/files/Merger%20guidelines%20-%20Final.PDF
- Austria: Institute of European Media Law (EMR), Market Definition in the Media Sector. Comparative Legal Analysis. chapter 2 Austria, 2003, https://ec.europa.eu/competition/sectors/media/documents/austria.pdf
- Belgium: Belgium competition authority, Specific rules for a simplified notification of concentrations, 2007, https://economie.fgov.be/sites/default/files/Files/Competition/procedure-simplifiee-notification-de-concentrations-08062007.pdf
- Brazil: Brazil Administrative Council of Economic Defence (CADE), Guide to Analysis of Horizontal Concentration Acts, 2016, https://cdn.cade.gov.br/Portal/acesso-a-informacao/participacao-social/contribuicoes-da-sociedade/guia-de-ac-horizontal.pdf?_ga=2.180165474.713176596.1612267687-254558138.1612267687
- Bulgaria: Bulgarian Commission for Protection of Competition (CPC), On the investigation and definition of the market position of undertaking in the relevant market, 1998, https://www.cpc.bg/storage/file/Methodology_EN.doc

- Canada: Competition Bureau, Abuse of Dominance: Enforcement Guidelines, 2019, https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/CB-ADEG-Eng.pdf/$file/CB-ADEG-Eng.pdf
- Canada: Competition Bureau, Big Data and Innovation: Key Themes for Competition Policy in Canada, 2018, https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/CB-Report-BigData-Eng.pdf/$file/CB-Report-BigData-Eng.pdf
- Canada: Competition Bureau, Enforcement Guidelines: Price Maintenance (section 76 of the Competition Act), 2014, https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/cb-eg-price-maintenance-e.pdf/$file/cb-eg-price-maintenance-e.pdf
- Canada: Competition Bureau, Merger Enforcement Guidelines, 2011, https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/cb-meg-2011-e.pdf/$FILE/cb-meg-2011-e.pdf
- Canada: Government of Canada, Intellectual Property Enforcement Guidelines, 2019, https://www.ic.gc.ca/eic/site/cb-bc.nsf/eng/04421.html
- Croatia: Croatian Competition Agency (AZTN), Regulation on the definition of relevant market, 2004, http://www.aztn.hr/uploads/documents/eng/documents/legislation/Regulation_on_the_Definition_of_Relevant_Market.pdf
- Cyprus: Office of the Law Commissioner, The control of concentrations between undertakings law, 2014, http://www.competition.gov.cy/competition/competition.nsf/All/5937AB49B8B38080C2257FB2003A442B/$file/Law%2083(I)2014.pdf
- Czech Republic: Institute of European Media Law (EMR), Market Definition in the Media Sector. Comparative Legal Analysis. chapter 3 Czech Republic, 2005, https://ec.europa.eu/competition/sectors/media/documents/czech_republic.pdf
- EEA EFTA: EFTA Surveillance Authority (ESA), Notice of the EFTA Surveillance Authority on the definition of relevant market for the purpose of competition law within the European Economics (EEA), 1998, https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1998:200:0046:0057:EN:PDF
- Estonia: Institute of European Media Law (EMR), Market Definition in the Media Sector. Comparative Legal Analysis. chapter 4 Estonia, 2005 https://ec.europa.eu/competition/sectors/media/documents/slovak_republic.pdf
- Finland: Finnish Competition Authority (FCA), Guidelines on merger control, 2011, https://www.kkv.fi/globalassets/kkv-suomi/julkaisut/suuntaviivat/en/guidelines-1-2011-mergers.pdf
- France: Competition Authority, Guidelines on merger control, 2020, https://www.autoritedelaconcurrence.fr/sites/default/files/Lignes_directrices_concentrations_2020.pdf
- Greece: Institute of European Media Law (EMR), Market Definition in the Media Sector. Comparative Legal Analysis. chapter 6 Greece, 2003, https://ec.europa.eu/competition/sectors/media/documents/greece.pdf
- Hungary: Economic Competition Authority (GVH), Guidelines for Market Definition in Merger Cases, 2010,

https://www.gvh.hu/pfile/file?path=/gvh/elemzesek/vitaanyagok/vitaanyagok/elemzesek_vitaanyagok_Piacdefiniciiok_GYIK_2010_05_13pdf.pdf&inline=true

- Ireland: Competition and Consumer Protection Commission, Guidelines for Merger Analysis, 2014, https://www.ccpc.ie/business/wp-content/uploads/sites/3/2017/04/CCPC-Merger-Guidelines.pdf
- Japan: Fair Trade Commission, Guidelines to Application of the Antimonopoly Act concerning Review of Business Combination, 2004 (revised as of 2019), https://www.jftc.go.jp/en/pressreleases/yearly-2019/December/1912173GL.pdf
- Japan: Fair Trade Commission, Guidelines to Application of the Antimonopoly Act concerning Review of Business Combination, 2004 (revised 2019), https://www.jftc.go.jp/en/legislation_gls/imonopoly_guidelines_files/191217GL.pdf
- Japan: Fair Trade Commission: Competition Policy Research Center, Report of Study Group on Data and Competition Policy, 2017, https://www.jftc.go.jp/en/pressreleases/yearly-2017/June/170606_files/170606-4.pdf
- Latvia: Competition Council of Latvia, Competition Council guidelines for defining the relevant market, 2016 https://www.kp.gov.lv/lv/vadlinijas/citi_vadlinijas_konkreta_tirgus_noteiksanai_20161.pdf
- Lithuania: Competition Council of the Republic of Lithuania, Explanations on the definition of the relevant market approval, 2019, https://www.e-tar.lt/portal/lt/legalAct/c76622a0166c11ea9d279ea27696ab7b/asr
- Malta: Institute of European Media Law (EMR), Market Definition in the Media Sector. Comparative Legal Analysis. chapter 8 Malta, 2005, https://ec.europa.eu/competition/sectors/media/documents/malta.pdf
- OECD: OECD Competition Policy Roundtables: Market Definition, 2012, http://www.oecd.org/daf/competition/Marketdefinition2012.pdf
- Poland: Office of Competition and Consumer Protection, Clarifications regarding the assessment of the reported concentrations, https://www.uokik.gov.pl/download.php?plik=11899
- Portugal: Portuguese Competition Authority, Public consultation guidelines for economic analysis of merger horizontal, 2013, http://www.concorrencia.pt/vPT/Noticias_Eventos/ConsultasPublicas/Documents/Linhas%20de%20Orienta%C3%A7%C3%A3o%20para%20a%20An%C3%A1lise%20Econ%C3%B3mica%20de%20Opera%C3%A7%C3%B5es%20de%20Concentra%C3%A7%C3%A3o%20Horizontais.pdf
- Romania: Romanian Competition Council, Instructions on market definition, 2010, http://www.consiliulconcurentei.ro/wp-content/uploads/2020/02/ordin_nr388_din_05082010_cu_instructiuni.pdf
- Slovak Republic: Institute of European Media Law (EMR), Market Definition in the Media Sector. Comparative Legal Analysis. chapter 10 Slovak Republic, 2005, https://ec.europa.eu/competition/sectors/media/documents/slovak_republic.pdf
- Slovenia: Institute of European Media Law (EMR), Market Definition in the Media Sector. Comparative Legal Analysis. chapter 11 Slovenia, 2005, https://ec.europa.eu/competition/sectors/media/documents/slovenia.pdf

- South Korea: Korea Fair Trade Commission, Guidelines for Assessment of Unfair Trade Practices, 2015, https://www.ftc.go.kr/eng/cop/bbs/selectBoardList.do?key=2855&bbsId=BBSMSTR_000000003632&bbsTyCode=BBST11
- South Korea: Korea Fair Trade Commission, Guidelines for Review of the Abuse of Market Dominant Position, 2009, https://www.ftc.go.kr/eng/cop/bbs/selectBoardList.do?key=2855&bbsId=BBSMSTR_000000003632&bbsTyCode=BBST11
- South Korea: Korea Fair Trade Commission, Guidelines for the Combination of Enterprises Review, 2017, https://www.ftc.go.kr/eng/cop/bbs/selectBoardList.do?key=2857&bbsId=BBSMSTR_000000003634&bbsTyCode=BBST11
- South Korea: Korea Fair Trade Commission, Review Guidelines on Unfair Exercise of Intellectual Property Rights, 2016, https://www.ftc.go.kr/eng/cop/bbs/selectBoardList.do?key=2855&bbsId=BBSMSTR_000000003632&bbsTyCode=BBST11
- South Korea: Merger Control 2020, South Korea: Trends and Developments, Chambers and Partners, 2020, https://practiceguides.chambers.com/practice-guides/merger-control-2020/south-korea/trends-and-developments
- Sweden: Swedish Competition Authority, Regulations on the Notification of Concentrations between Undertakings under the Swedish Competition Act, 2008, https://www.konkurrensverket.se/globalassets/english/competition/the-swedish-competition-authoritys-regulations-on-the-notification-of-concentrations-between-undertakings-under-the-swedish-competition-act-2008579.pdf
- UK: Competition Commission and the Office of Fair Trading, Merger Assessment Guidelines, 2010, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/284449/OFT1254.pdf
- UK: Competition Commission, Guidelines for Market Investigations: Their Role, Procedures, Assessment and Remedies, 2013 (adopted by the CMA Board), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/284390/cc3_revised.pdf
- UK: Office of Fair Trading, Market definition: Understanding competition law, 2004 (adopted by the CMA Board), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/284423/oft403.pdf
- CMA (2021), Merger Assessment Guidelines, March 2021 CMA129 CON. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/970322/MAGs_for_publication_2021_.pdf
- US: Department of Justice and the Federal Trade Commission, Antitrust Guidelines for Collaborations Among Competitors, 2000, https://www.ftc.gov/sites/default/files/documents/public_events/joint-venture-hearings-antitrust-guidelines-collaboration-among-competitors/ftcdojguidelines-2.pdf
- US: Department of Justice and the Federal Trade Commission, Antitrust Guidelines for the Licensing of Intellectual Property, 2017, https://www.ftc.gov/system/files/documents/public_statements/1049793/ip_guidelines_2017.pdf

- US: Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, 2010, https://www.justice.gov/sites/default/files/atr/legacy/2010/08/19/hmg-2010.pdf
- US: Department of Justice and the Federal Trade Commission, Statements of Antitrust Enforcement Policy in Health Care, 1996, https://www.justice.gov/atr/page/file/1197731/download
- US: Department of Justice and the Federal Trade Commission, Vertical Merger Guidelines, 2020, https://www.ftc.gov/system/files/documents/reports/us-department-justice-federal-trade-commission-vertical-merger-guidelines/vertical_merger_guidelines_6-30-20.pdf
- Various jurisdictions: Merger Control: The international regulation of mergers and joint ventures in 71 jurisdictions worldwide, Law Business Research Ltd, 2019, https://www.davispolk.com/sites/default/files/merger_control_2019_gtdt.pdf
- Various jurisdictions: The Merger Control Review, Tenth Edition, Law Business Research Ltd, 2019, https://www.wildy.com/isbn/9781838620462/the-merger-control-review-10th-ed-hardback-law-business-research-ltd

8.2 List of literature

- ACM (2018), Market study into mobile app stores, https://www.acm.nl/sites/default/files/documents/market-study-into-mobile-app-stores.pdf.
- Amelio, A. and Donath, D. (2009), Market definition in recent EC merger investigations: the role of empirical analysis, Law and Economics, Concurrences, No 3.
- American Association for Public Opinion Research (AAPOR), Best Practices for Survey Research: https://www.aapor.org/Standards-Ethics/Best-Practices.aspx
- Areeda, P. and Turner, D. (1975): Predatory pricing and related practices under section 2 of the Sherman act, Harvard Law Review, Vol. 88(4).
- Argenton, C., & Prüfer, J. (2012). Search engine competition with network externalities. Journal of Competition Law and Economics, 8(1), 73-105.
- Armstrong, M. (2006): Competition in two-sided markets. RAND Journal of Economics, 37 (3), 668–691 for the case of a monopoly platform.
- Armstrong, M. and Wright, J. (2007): Two-sided markets, competitive bottlenecks and exclusive contracts, Economic Theory 2007, Vol. 32.
- Autio, T., Padilla, J., Piccolo, S., Saaskilahti, P., Vaananen, L., (2020). 'On the Risk of Using a Firm-Level Approach to Identify Relevant Markets'. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3701141
- Baker, J. and Bresnahan, T., (2006). 'Economic evidence in antitrust: defining markets and measuring market power'. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=931225
- Baker, J., (2007). 'Market definition: An analytical overview'. Antitrust Law Journal, 74(1), pp.129-173.
- Baumann, M. and Godek, P. (1995). 'Could and would understood: critical elasticities and the merger guidelines'. The Antitrust Bulletin, Winter 1995, pp 885.

- Behringer, S. and Filistrucchi, L. (2014): Areeda-Turner in Two-Sided Markets, CentER Discussion Paper, Vol. 2014-038, Tilburg: Economics.
- BEREC (2011), Report on Impact of Fixed-Mobile Substitution in Market Definition, Page 12, BoR (11) 54
- Berry, S. (1994). 'Estimating Discrete-Choice Models of Product Differentiation'. The RAND Journal of Economics, vol 25, no. 2.
- Berry, S., Levinsohn, J., and Pakes, A., (1995). 'Automobile Prices in Market Equilibrium'. Econometrica, 63(4), 841-890.
- Bishop, S. and Walker, M., (2010). 'The economics of EC competition law: concepts, application and measurement'.
- Blanschczok, M. (2015): Kartellrecht in zweiseitigen Wirtschaftszweigen, Wirtschaftsrecht und Wirtschaftspolitik 276, Nomos.
- Bleier, A., & Eisenbeiss, M. (2015). The importance of trust for personalised online advertising. Journal of Retailing, 91(3), 390-409.
- Boshoff, W., (2007). 'Quantitative competition analysis: Stationarity tests in geographic market definition'. Economics, 75(1), pp.52-65.
- Boshoff, W., (2013). 'Limits and Uses of Price Tests for Market Definition'. Stellenbosch Economic Working Papers, 01/11.
- Bourreau, M., & De Streel, A. (2019). Digital conglomerates and EU competition policy. *Available at SSRN 3350512*.
- Bourreau, M., A. de Streel, and I. Graef (2017). Big Data and Competition Policy: Market power, personalised pricing and advertising. Available at http://www.cerre.eu/publications/big-data-and-competition-policy.
- Breen, P. and Srinivasan, V. (1978): Conjoint analysis in consumer research: Issues and outlook, Journal of Consumer Research, 5.
- Brynjolfsson E, Hu Y and Rahman M (2009): Battle of the retail channels: How product selection and geography drive cross-channel competition, Management Science, 55.11, pp. 1755-1765.
- Bundeskartellamt (2016), Market Power of Platforms and Networks, Working Paper B6-113/15.
- Bundeskartellamt (2019). B6-22/16, Facebook.
- Calvano, E., & Polo, M. (2020). Market Power, Competition and Innovation in digital markets: A survey. Information Economics and Policy, 100853.
- Capps, Corey et al (2001). The Silent Majority Fallacy of the Elzinga-Hogarty Criteria: A Critique and New Approach to Analyzing Hospital Mergers, National Bureau of Economic Research Working Paper, No. 8216
- Cartwright, P., Kamerschen, D. and Huang, M., (1989). 'Price correlation and granger causality tests for market definition'. Review of Industrial Organization, 4(2), pp.79-98.
- Cavallo, Alberto. 2017. 'Are Online and Offline Prices Similar? Evidence from Large Multi-channel Retailers.' American Economic Review, 107 (1): 283-303.
- CMA (2014): The economics of open and closed systems, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/387718/The_economics_of_open_and_closed_systems.pdf; last download: 19.10.2020

- Coate, M. and Simons, J., (2009). 'Critical loss vs. diversion analysis: Clearing up the confusion'. The CPI Antitrust Chronicle, (1).
- Coate, M. and Simons, J., (2010). 'Critical Loss v. Diversion Analysis: Another Attempt at Consensus. Diversion Analysis: Another Attempt at Consensus' (April 19, 2010). CPI Antitrust Journal, 1.
- Coate, M. and Simons, J., (2010). 'Models, Mathematics and Critical Loss. Mathematics and Critical Loss' (April 2010).
- Coate, M. and Simons, J., (2012). 'In defense of market definition'. The Antitrust Bulletin, 57(4), pp.667-717.
- Coate, M. and Simons, J., (2014). 'Should DOJ's Controversial Approach to Market Definition Control Merger Litigation, the Case of US v. H&R Block.' Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2225395
- Coate, M. and Williams, M., (2007). 'Generalized critical loss for market definition'. In Research in Law and Economics. Emerald Group Publishing Limited.
- Coate, M., (2013). 'The use of natural experiments in merger analysis'. Journal of Antitrust Enforcement, 1(2), pp.437-467.Coate, M. and Fischer, J., (2008). 'A practical guide to the hypothetical monopolist test for market definition'. Journal of Competition Law and Economics, 4(4), pp.1031-1063.
- Coate, M., Ulrick, S., Yun, J., (2020). 'Tailoring Critical Loss to the Competitive Process'. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3592873
- Coe, P. and Krause, D (2008). 'An Analysis of Price-based Test of Antitrust Market Delineation', Journal of Competition Law and Economics, 4(4), 983-1007
- Crémer, J., de Montjoye, Y. A., & Schweitzer, H. (2019). Competition policy for the digital era. Report for the European Commission. https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf.
- Daljord, Ø. (2009). 'An Exact Arithmetic SSNIP Test for Asymmetric Products'. Journal of Competition Law & Economics, Volume 5, Issue 3, September 2009, Pages 563–569
- Daljord, Ø. and Sorgard, L. (2010). 'Single-Product versus Uniform SSNIPs'. Available at https://core.ac.uk/download/pdf/52069188.pdf
- Daljord, Ø., Sorgard, L. and Thomassen, Ø., (2007). 'Market definition with shock analysis'. NHH Dept. of Economics Discussion Paper, (36).
- Daljord, Ø., Sørgard, L. and Thomassen, Ø., (2008). 'The SSNIP test and market definition with the aggregate diversion ratio: A reply to Katz and Shapiro'. Journal of Competition Law and Economics, 4(2), pp.263-270.
- Davis, P. and Garcés, E., (2009). 'Quantitative techniques for competition and antitrust analysis'. Princeton University Press.
- De Loecker, J., Eeckhout, J. (2020). 'Global Market Power'. Working paper available at https://www.janeeckhout.com/wp-content/uploads/Global.pdf
- De Loecker, J., Eeckhout, J., Unger, G, (2020). 'The Rise of Market Power and the Macroeconomic Implications'. The Quarterly Journal of Economics, Volume 135, Issue 2, May 2020, Pages 561–644
- Deaton, A., and Muellbauer, J., (1980). 'An Almost Ideal Demand System'. The American Economic Review, Vol 70, No. 3.

- Dillman D. A., Smyth J. D., and Christian L. M (2014*). 'Internet, phone, mail, and mixed-mode surveys: The tailored design method'.* Hoboken, NJ: John Wiley & Sons, Inc.
- Donath, Daniel (2009), The use of pricing analysis for market definition purposes: the Arjowiggins/M-real Zanders Reflex and Arsenal/DSP mergers, Competition Policy Newsletter
- DotEcon Ltd (2015): E-commerce and its impact on competition policy and law in Singapore A DotEcon study for the Competition Commission of Singapore, Final Report – October 2015
- Durand, B. and Rabassa, V., (2005). 'The role of quantitative analysis to delineate antitrust markets: an example. Blackstone/Acetex'. Competition policy newsletter, (3), pp.118-122.
- E Damme, L Van, D Filistrucchi, S Geradin, T Keunen, T Klein, J Michielsen, Wileur (2010) Mergers in Two-Sided Markets - A Report to the NMa, p. 1 - 183
- Eaton, B., Elaluf-Calderwood, S., Sørensen, C., & Yoo, Y. (2011): Dynamic structures of control and generativity in digital ecosystem service innovation: the cases of the Apple and Google mobile app stores. London School of Economics and Political Science, 44(0), 1-25.
- Ellickson, P.B., Grieco, P.L. and Khvastunov, O. (2020), Measuring competition in spatial retail. The RAND Journal of Economics, 51: 189-232. https://doi.org/10.1111/1756-2171.12310
- Elzinga Kenneth and Howel Vandy (2018), Geographic Market Definition in the Merger Guidelines: A Retrospective Analysis, Rev Ind Organ 53, 453–475 (2018)
- Elzinga, K. and Mills, D., (2011). 'The Lerner Index of Monopoly Power: Origins and Uses', 101 American Economic Review 558, 561.
- Elzinga, Kenneth (1981), Defining Geographic Market Boundaries, Antitrust Bulletin, Vol. 26 (739) 1981.
- Elzinga, Kenneth and Hogarty, Thomas (1973), The Problem of Geographic Market Delineation in Antimerger Suits
- Elzinga, Kenneth and Howell, Vandy M. (2018), Geographic Market Definition in the Merger Guidelines: A Retrospective Analysis
- European Commission (1997): Commission Notice on the definition of relevant market for the purposes of Community competition law, 97/C 372/03
- European Commission (2005): DG Competition discussion paper on the application of Article 82 of the Treaty to exclusionary abuses
- European Commission (2014). Case No COMP/M.7217 – Facebook/WhatsApp.
- European Commission (2017), Final Report on the E-Commerce Sector Inquiry (COM(2017) 229 final), published Brussels, 10 May 2017
- European Commission (2017). 7, Az. AT.39740.
- Evans, D. S. and Schmalensee, R. (2007): The Industrial Organization of Markets with Two-Sided Platforms, Competition Policy International, Vol. 3, No. 1.
- Evans, D. S. and Schmalensee, R. (2016): Matchmakers: The New Economics of Multisided Platforms, Harvard Business Review Press.
- Evans, D. S.: (2003): The Antitrust Economics of Multi-Sided Platform Markets, Yale Journal of Regulation, 20(2).

- Evans, D.S. and Schmalensee, R. (2008): Markets with Two-Sided Platforms, Issues in Competition Law and Policy (ABA section of Antitrust Law), Vol. 1, chapter 28.
- Ezrachi, A. and Stucke, M., (2015). 'The curious case of competition and quality'. Journal of Antitrust Enforcement, 3(2), pp.227-257.
- Farrell, J and Klemperer, P (2007): Coordination and Lock-In: Competition with Switching Costs and Network Effects. In Armstrong, M and Porter R (eds), Handbook of Industrial Organization, 1967–2072. Amsterdam: Elsevier
- Farrell, J. and Shapiro, C., (2007). 'Improving critical loss analysis'. Available at https://escholarship.org/uc/item/0ff249px
- Farrell, J. and Shapiro, C., (2010). 'Antitrust evaluation of horizontal mergers: An economic alternative to market definition'. The BE Journal of Theoretical Economics, 10(1).
- Ferro, M. (2019). 'Market Definition in EU Competition Law'. Edward Elgar Publishing.
- Filistrucchi, L. (2008): A SSNIP Test for Two-Sided Markets: The Case of Media, NET Institute Working Paper No. 08-34.
- Filistrucchi, L. (2018): Market definition in multi-sided markets, part of OECD (2018): Rethinking Antitrust Tools for Multi-Sided Platforms.
- Filistrucchi, L., Geradin, D., van Damme, E. und Affeldt, P. (2013): Market Definition in Two-Sided Markets: Theory and Praxis, Tilburg Law School Legal Studies Research Paper Series No. 09/2013.
- Filistrucchi, L., Geradin, D., van Damme, E. und Affeldt, P. (2014): Identifying two-sided markets, Journal of Competition Law and Economics 10 (2), 293-339.
- Filistrucchi, L., Geradin, D. und van Damme, E. (2012): Identifying Two-Sided Markets, TILEC Discussion Paper DP 2012-008.
- Fletcher A. and Lyons. (2016), Geographic Market definition in European Commission Merger Control, CCP, University of East Anglia, Publication for DG Comp, 2016
- Forni, M., (2004). 'Using stationarity tests in antitrust market definition'. American Law and Economics Review, 6(2), pp.441-464.
- Franck, J. - U. and Peitz, M. (20198): Market definition and market power in the platform economy, Report for CERRE (Centre on Regulation in Europe).
- Friederiszick, Hans W. and Ela Glowicka (2016), 'Competition policy in modern retail markets,' 4 Journal of Antitrust Enforcement 42
- Froeb, L., and Werden, G. (1992). 'The reverse Cellophane fallacy in market delineation'. Rev Ind Organ 7, 241–274.
- Gaynor, M., Kleiner, S. and Vogt, W., (2013). 'A structural approach to market definition with an application to the hospital industry'. The Journal of Industrial Economics, 61(2), pp.243-289.
- Genesove, D., (2004). 'Comment on Forni's Using Stationarity Tests in Antitrust Market Definition'. American Law and Economics Review, 6(2), pp.476-478.
- Geroski, P., and Griffith, R., (2003). 'Identifying Anti-Trust Markets'. https://www.ifs.org.uk/wps/wp0301.pdf

- Goldfarb A and Tucker C (2011): Substitution between offline and online advertising markets, Journal of Competition Law and Economics, 7.1 pp. 37-44.
- Graef, I. (2019). Rethinking the Essential Facilities Doctrine for the EU Digital Economy. TILEC Discussion Paper No. DP2019-028, Available at SSRN: https://ssrn.com/abstract=3371457 or http://dx.doi.org/10.2139/ssrn.3371457.
- Graef, I., Wahyuningtyas, S. Y., & Valcke, P. (2015). Assessing data access issues in online platforms. Telecommunications policy, 39(5), 375-387.
- Graef, I. (2015). Market definition and market power in data: The case of online platforms. World Competition, 38(4), 473-505.
- Green, P., Carroll, J. and Goldberg, S. (1981): A general approach to product design optimization via conjoint analysis, Journal of Marketing, 43.
- Greenfield, D., Kobayashi, B., Sandford, J. et al (2019). 'Economics at the FTC: Quantitative Analyses of Two Chemical Manufacturing Mergers'. Rev Ind Organ 55, 607–623.
- Grunes, A. P., & Stucke, M. E. (2015). No mistake about it: The important role of antitrust in the era of big data. Antitrust Source, Online.
- Hagiu, A. and Wright, J. (2020). Data-enabled learning, network effects and competitive advantage. Mimeo. Available at: http://andreihagiu.com/wp-content/uploads/2020/06/Data-enabled-learning-June2020.pdf.
- Hajko, V. and Bil, J., (2013). 'The relevant markets for meat production and processing in the Czech Republic: Analysis of the price movements'. Czech Economic Review, 7(3), pp.178-198.
- Haldrup, N., (2003). 'Empirical analysis of price data in the delineation of the relevant geographical market in competition analysis'. University of Aarhus, Economics Working Paper, (2003-09).
- Hand (2001): Evidence on the Winner-takes-all Business Model: The Profitability Returns-to-scale of Expenditures on Intangibles Made by U.S. Internet Firms, 1995–2001, Working Paper Series
- Harris, B. and Simons, J. (1989). 'Focusing Market Definition: How Much Substitution is Necessary?', Research in Law and Economics, 12, pp 207-26.
- Hausman, J, G Leonard and C Vellturo (1996) Market definition under price discrimination Antitrust Law Journal, 64, 367-386
- Hay, George, John Hilke and Philip Nelson (1988), Geographic Market Definition in an International Context
- Hazlett, T, Teece, D and Wavermann, L (2011): Walled Garden Rivalry: The Creation of Mobile Network Ecosystems. George Mason University Law and Economics Research Paper Series, 11 (50)
- Hildebrandt, C. and Nett, L. (2016): Die Marktanalyse im Kontext von mehrseitigen Online-Plattformen, WIK-Discussion Paper, Nr. 419.
- Horowitz Ira (1981), Market definition in antitrust analysis: a regression-based approach, Southern Economic Journal, pp. 1–16 1981
- Hosken, D. and Taylor, C., (2004). 'Discussion of 'Using stationarity tests in antitrust market definition'. American Law and Economics Review, 6(2), pp.465-475.
- Human Capital (2008). 'Research Bias and the Hypothetical Monopolist Test: A Report from Human Capital'. Available at https://www.ofcom.org.uk/__data/assets/pdf_file/0023/40883/annex_5.pdf

- Kaiser, H F (2011): Are 'Closed Systems' an Antitrust Problem? Competition Policy International, 7 (1), 91–113)
- Katz & Shapiro (1985): Network Externalities, Competition, and Compatibility. The American Economic Review, 75 (3), 424–440
- Katz M. and Shapiro C. (2003). 'Critical Loss: Let's Tell the Whole Story', available at https://www.law.berkeley.edu/wp-content/uploads/2015/04/Katz-Shapiro-Critical-Loss-Lets-Tell-the-Whole-Story-2003.pdf
- Katz, M L and Shapiro, C (1994): Systems Competition and Network Effects. The Journal of Economic Perspectives, 8 (2), 93–115
- Katz, M. and Shapiro, C., (2004). 'Further thoughts on critical loss'. The Antitrust Source, pp.1-9.
- Katz, M. and Shelanski, H. (2006). 'Mergers and Innovation'. Antitrust Law Journal, Winter 2006.
- Kelley, K., Clark, B., Brown, V. and Sitzia, J. (2003). 'Good practice in the conduct and reporting of survey research'. International Journal for Quality in Health Care 15(3), 261-266.
- Kleinová, E., (2016). 'The Use of a Consumer Survey to Determine the Relevant Market–Case Study for public transport between Prague and Most'. Review of Economic Perspectives, 16(1), pp.17-28.
- Klemperer, P. (1995). Competition when consumers have switching costs: An overview with applications to industrial organization, macroeconomics, and international trade. The review of economic studies, 62(4), 515-539.
- Krämer, J., Schurr, D. & Broughton Micova, S. (2020). The Role of Data for Digital Markets Contestability: Case Studies and Data Access Remedies, CERRE Report, Available at: https://cerre.eu/publications/data-digital-markets-contestability-case-studies-and-data-access-remedies/.
- Lambrecht, A. & Tucker, C.. Can Big Data Protect a Firm from Competition? (Dec. 18, 2015). Available at SSRN: http://dx.doi.org/10.2139/ssrn.2705530.
- Lerner, A. P. (1934): The Concept of Monopoly and the Measurement of Monopoly Power, The Review of Economic Studies, 1(3).
- Lerner, A. V. (2014), The Role of 'Big Data' in Online Platform Competition (August 26, 2014). Available at SSRN: http://dx.doi.org/10.2139/ssrn.2482780.
- Lianos, I., (2019) Competition Law for the Digital Era: A Complex Systems' Perspective, available at https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID=3492730.
- Loomis, J., (2020). 'What's to Know About Hypothetical Bias in Stated Preference Valuation Studies'. Journal of Economic Surveys, 25(2), pp. 363-370.
- Maggiolino, Mariateresa (2017), 'Personalized Prices in European Competition Law,' Bocconi Legal Studies Research Paper No. 2984840
- Mandrescu D., (2018). 'The SSNIP Test and Zero-Pricing Strategies'. Eur. Competition & Reg. L. Rev., 2, p.244.
- Mandrescu D. (2017), 'Applying EU Competition Law to Online Platforms: the Road Ahead—Part 2' 38 European Competition Law Review 410
- Massey, P., (2000). 'Market definition and market power in competition analysis: some practical issues'. Economic and Social Review, 31(4), pp.309-328.
- Dolmans M. and Mostyn H. (2020), The Dominance and Monopolies Review: Switzerland 8th ed. The Dominance and Monopolies Review, 8th edition, July 2020, S. 442 – 514; ed. by Maurits Dolmans and Henry Mostyn

- Bantle M., Muijs M. and Dewenter R. (2018), A New Price Test in Geographic Market Definition An Application to German Retail Gasoline Market, Economics Working paper Diskussionspapier No. 180. Available at: https://www.econstor.eu/handle/10419/184877
- Meyer C. (2007). 'Designing and Using Surveys to Define Relevant Markets': https://www.justice.gov/sites/default/files/atr/legacy/2011/08/26/274432b.pdf
- Monopolkommission (2015): Sondergutachten 68 Wettbewerbspolitik: Herausforderung digitale Märkte, Tz. 189, Nomos Verlag, Baden-Baden.
- Moresi, S., Salop, S., and Woodbury, J., (2008). 'Implementing the Hypothetical Monopolist SSNIP Test with Multi-Product Firms', Antitrust Source (Feb. 2008).
- Moresi, S., Salop, S., and Woodbury, J., (2017). 'Market Definition'. Available at https://scholarship.law.georgetown.edu/facpub/1942
- Motta, M., (2004). 'Competition policy: theory and practice'. Cambridge University Press.
- Neven, D. and Albaek, S. (2008): Antitrust Update: DG Competition 2007-2008, Rev Ind Organ (2008) 33.
- Newman, J. (2015). 'Antitrust in zero-price markets: Applications'. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2681304
- Nieberding, J. (2020). Event Studies and Geographic Market Definition
- Nieberding, J., (2009). 'The Role of Price Tests in Market Definition'. HMG Review Project, pp.545095-00013.
- O'Donoghue Robert, Padilla Jorge (2020), The Law and Economics of Article 102 TFEU, Hart Publishing, 3rd edition
- O'Brien, D. and Wickelgren, A. (2003). 'A Critical Analysis of Critical Loss Analysis'. FTC Bureau of Economics Working Paper No. 254.
- OECD (2009): Roundtable on Two-Sided Markets.
- OECD (2012). 'Roundtable: Market Definition'. Available at http://www.oecd.org/daf/competition/Marketdefinition2012.pdf
- OECD (2013). 'Roundtable: The Role and Measurement of Quality in Competition Analysis'. Available at http://www.oecd.org/competition/Quality-in-competition-analysis-2013.pdf
- OECD (2014), Defining the Relevant Market in Telecommunications, Review of Selected OECD Countries and Colombia, page 23, Competition Committee, 2014
- OECD (2016), Defining Geographic Markets Across National Borders, Background Paper by the Secretariat, DAF/COMP/WP3(2016)5. Available at : https://one.oecd.org/document/DAF/COMP/WP3(2016)5/en/pdf
- OECD (2017): Competition issues in aftermarkets – Background note by the OECD Competition Division, DAF/COMP (2017)2 published on April 28, 2017
- OECD (2018), Implications of E-commerce for Competition Policy, Background Note at the 129th Meeting of the Competition Committee on 6-8 June 2018, 6 June 2018
- OECD (2018), Rethinking Antitrust Tools for Multi-Sided Platforms, Publication OECD, Available at: https://www.oecd.org/daf/competition/rethinking-antitrust-tools-for-multi-sided-platforms.htm

- OECD (2018). 'Considering non-price effects in merger control – background note by the Secretariat'. Available at https://one.oecd.org/document/DAF/COMP(2018)2/en/pdf
- OECD (2018), Personalised Pricing in the Digital Era: Background note by the Secretariat, https://one.oecd.org/document/DAF/COMP(2018)13/en/pdf.
- OECD (2020), Abuse of dominance in digital markets, www.oecd.org/daf/competition/abuse-of-dominance-in-digital-markets-2020.pdf
- OECD (2020), Economic analysis in merger investigations, OECD Global Forum on Competition Discussion Paper, Background paper, 2020. Available at: www.oecd.org/daf/competition/economic-analysis-in-merger-investigations-2020.pdf
- OECD (2020), 'Retail sales via mail order houses or the Internet in April 2020 increased by 30% compared to April 2019'. E-commerce in the times of COVID-19, October 2020. Available at: https://read.oecd-ilibrary.org/view/?ref=137_137212-t0fjgnerdb&title=E-commerce-in-the-time-of-COVID-19
- OFT (2003): Switching costs. Part one: Economic models and policy implications (OFT655)
- Padilla Jorge (2001), The Role Of Supply-Side Substitution In The Definition Of The Relevant Market In Merger Control, NERA, A Report for DG Enterprise, European Commission, June 2001, pp. 65–78.
- Pennerstorfer Dieter and Biliana Yontcheva (2019), How to Draw the Line: A Note on Local Market Definition. Economics working papers 2019-17, Department of Economics, Johannes Kepler University Linz, Austria.
- Pepall, Lynne, Richards, Dan and Norman, George (2005). Industrial Organization: Contemporary Theory and Empirical Applications
- Pilsbury, S., (2005). 'Attack of the Isochrones: An Emerging Approach to Local Market Definition'. Competition Law Journal, 158.
- Pike C. (2018), Introduction and Key Findings, in: OECD, Rethinking Antitrust Tools for Multi-Sided Platforms. Available at: www.oecd.org/competition/rethinking-antitrust-tools-for-multi-sided-platforms.htm.
- Pittman R. (2018) Three Economist's Tools for Antitrust Analysis: A Non-technical Introduction. In: Begović B., Popović D. (eds) Competition Authorities in South Eastern Europe. Contributions to Economics. Springer, Cham.
- Ponto J., (2015). 'Understanding and Evaluating Survey Research'. Journal of the advanced practitioner in oncology, 6(2), 168–171.
- Reynolds, G. and Walters, C., (2008). 'The use of customer surveys for market definition and the competitive assessment of horizontal mergers'. Journal of Competition Law and Economics, 4(2), pp.411-431
- Rochet, J.-C. and Tirole, J. (2003): Platform Competition in Two-sided Markets, Journal of the European Economic Association, 1(4).
- Rochet, J.-C. and Tirole, J. (2004): Defining Two-Sided Markets.
- Rochet, J.-C. and Tirole, J. (2006): Two Sided Markets: A Progress Report, RAND Journal of Economics, 37(3).

- Röller, Lars-Hendrik (2011), 'Challenges in EU competition policy', Empirica, Vol. 38, pp. 287-314, www.dx.doi.org/10.1007/s10663-010-9164-x.
- Schaerr, G., (1985). 'The Cellophane fallacy and the Justice Department's guidelines for horizontal mergers'. The Yale Law Journal, 94(3), pp.670-693.
- Scheffman, D., and Simons, J. (2003). 'The State of Critical Loss Analysis: Let's Make Sure We Understand the Whole Story', Antitrust Source, Nov. 2003.
- Schepp, N. P., & Wambach, A. (2016). On big data and its relevance for market power assessment. *Journal of European Competition Law & Practice*, *7*(2), 120-124.
- Schweitzer, H.; Haucap, J.; Kerber, W.; Welker, R. (2018): Modernisierung der Missbrauchsaufsicht für marktmächtige Unternehmen. Final Report (Endbericht) Projekt im Auftrag des Bundesministeriums für Wirtschaft und Energie (BMWi) Projekt Nr. 66/17 Submission: 29. August 2018, page 30, available at https://www.bmwi.de/Redaktion/DE/Publikationen/Wirtschaft/modernisierung-der-missbrauchsaufsicht-fuer-marktmaechtige-unternehmen.pdf?__blob=publicationFile&v=15 last download 19 October 2020.
- Seonghoon, J., (2016). 'Critical Loss Analyses in Korean Liquor Mergers'. Available at https://www.intechopen.com/books/empirical-modeling-and-its-applications/critical-loss-analyses-in-korean-liquor-mergers
- Shampanier, K., Mazar, M., Ariely, D (2007). 'Zero as a Special Price: The True Value of Free Products' 26(6) Marketing Science 742.
- Slade, M., (1986). 'Exogeneity tests of market boundaries applied to petroleum products'. The Journal of Industrial Economics, pp.291-303.
- Sleuwaegen L. (2001), Globalisation and the definition of the relevant geographic market in antitrust practice, KU Leuven, 2001.
- Stigler, G. and Sherwin, R., (1985). 'The extent of the market'. The Journal of Law and Economics, 28(3), pp.555-585.
- Stocking, G. and Mueller, W. (1955). 'The Cellophane case and the New Competition'. The American Economic Review Vol. 45, No. 1 (March 1955), pp. 29-63
- Ten Kate, A. and Niels, G., (2010). 'The Concept of Critical Loss for a Group of Differentiated Products'. Journal of Competition Law and Economics, 6(2), pp.321-333.
- Tucker, C. (2019). Digital data, platforms and the usual [antitrust] suspects: Network effects, switching costs, essential facility. Review of Industrial Organization, 54(4), 683-694.
- Tucker, D. S., & Wellford, H. B. (2014). Big Mistakes Regarding Big Data. Available at SSRN: Scholarly Paper No. ID 2549044.
- Valletti, T. and Zenger, H., (2020). 'Mergers with Differentiated Products: Where do we stand?'. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3653040
- Walters, C. and Reynolds, G., (2007). 'The relevance of surveys to the 'relevant market''. Available at http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.136.4693&rep=rep1&type=pdf
- Wang, Kitty and Goldfarb (2017), Avi, Can Offline Stores Drive Online Sales?. http://dx.doi.org/10.1509/jmr.14.0518, Rotman School of Management

Working Paper No. 2941484, Available at SSRN: https://ssrn.com/abstract=2941484

- Wang, W., & Benbasat, I. (2005). Trust in and Adoption of Online Recommendation Agents. Journal of the Association for Information Systems, 6(3), 72-101.
- Werden, G., (2002). 'Beyond critical loss: Tailoring applications of the hypothetical monopolist paradigm' (No. 9). Economic Analysis Group, Antitrust Division, US Department of Justice.
- Wismer, S. and Rasek, A. (2018): Market definition in multi-sided markets, part of OECD (2018): Rethinking Antitrust Tools for Multi-Sided Platforms.
- Wright, J. (2004): One-sided Logic in Two-sided Markets, Review of Network Economics, Vol. 3, Issue 1 – March 2004.
- Zhaolin L. (July 2015): Online Versus Bricks-And-Mortar Retailing: A Comparison of Price, Assortment and Delivery Time', International Journal of Production Research, 53 (13): 3823–3835
- Zipitria, L., (2010). 'New Directions in Price Test for Market Definition'. Available at https://mpra.ub.uni-muenchen.de/58046/1/MPRA_paper_58046.pdf
- Zipitria, L., (2010). 'Price Test for Market Definition in the Beer Industry in Uruguay'. Revista de Economía, Banco Central del Uruguay, 17(1), pp.149-68.

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