

Comments for the European Commission's evaluation of the 1997 Market Definition Notice

15 May 2020

1 Introduction

- 1.1 This submission presents some observations on the 1997 Commission Notice on the definition of relevant market for the purposes of Community competition law (the "Notice").¹
- 1.2 We organise our observations into those relating to (a) conceptual issues; (b) evidentiary issues; (c) the application of the Notice to specific types of cases; and (d) the role of market definition in the enforcement process.
- 1.3 While we suggest clarifications that could be made and request that guidance is given on a number of issues, we consider it important that an updated notice should be sufficiently flexible that it is widely applicable, and that it does not quickly become obsolete as markets evolve.

2 Conceptual issues

Marginal vs inframarginal consumers

- 2.1 It would be useful to explain the relevance of marginal and infra-marginal consumers. The Notice defines the relevant product market as: "*all those products and/or services which are regarded as interchangeable or substitutable by **the consumer**, by reason of the products' characteristics, their prices and their intended use.*"²

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² Market Definition Notice (1997), para. 7. Emphasis added.

- 2.2 There is a common misconception that all or a majority of consumers need to view the alternative products as substitutable.³ Whereas to apply the hypothetical monopolist (HM) test, one needs to consider only whether a sufficient proportion of consumers would switch in response to price increases in order to constrain prices of the product in question.⁴ This proportion of *marginal* consumers need not be very large nor a majority.

Asymmetric constraints

- 2.3 Competitive constraints between products may be asymmetric. Product A may constrain Product B but not *vice versa*. Therefore, the market for Product B may include Product A, whereas the market for Product A would not include Product B.
- 2.4 This concept is particularly important to consider when one is seeking to rely on precedent for the same or a similar group of products, since applying the HM test afresh may give different results according to the starting point. It should be recognised that the purpose and context of a market definition exercise is important and competition authorities, as good discipline, should lay out precisely what competitive constraints should be assessed in each case.
- 2.5 Asymmetric constraints may be an issue on both the demand side and the supply side. Evidence of either demand-side or supply-side substitution in one direction is irrelevant for demonstrating the constraint in the opposite direction.

Chains of substitution: local v national markets

- 2.6 We note that guidance on geographic market definition has important implications for cases reviewed by national agencies – e.g., because several mergers involving local markets have a national dimension (such as with retail for instance). The decisional practice in respect of catchment areas is often both at odds with the existing definition in the Notice (“homogeneity of competition conditions”) and with a customer-centric analysis. The Notice would benefit from further clarification of best practices in this regard. Also, the interplay between a formal national market delineation and a competitive analysis ran at local-level is not entirely satisfactory. It would be worth rejuvenating the discussion of chain substitutions to identify when multiple local markets fold into a single national market.

Geographic market definition: substitution v homogeneity of competitive conditions

- 2.7 We note that while product markets are defined predominantly with respect to consumers’ ability to switch, geographic markets are defined with respect to similarity of competitive conditions.⁵ We understand this reflects the fact that a relevant geographic market is typically *de facto* a particular instance of a price discrimination market, so such that it is defined by the location of the buyer (as a potential price discrimination criterion) rather than the location of

³ This is partly due to the idea of considering a “representative customer” without paying attention to the heterogeneity of customer preferences – which explain why there are marginal and inframarginal consumers.

⁴ Assuming those consumers cannot be identified and offered differential prices.

⁵ Market Definition Notice (1997), para. 8: “*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 area.*”

the seller (as a product differentiation criterion). Hence, the SSNIP test might not be a useful concept in geographic market definition. The “homogeneous conditions of competition” principle then reflects the notion that there is no further scope for location-based price discrimination among buyers within a given region.

- 2.8 When price discrimination by buyer location is not possible, then supplier location becomes relevant and the SSNIP framework becomes applicable again.
- 2.9 The Notice is not explicit about what is meant by a geographic market in this respect, and where/when demand-side substitution vs homogeneous conditions apply. In particular, the distinction between assessment based on customer or supplier location as contingent on price discrimination possibilities has been a source of confusion (e.g., in cases considering what import competition means for market definition and market shares).
- 2.10 It would be helpful if the Commission could clarify this in any future update to the Notice, potentially along the lines of the US Horizontal Merger Guidelines⁶ (at least in terms of the distinction between buyer and seller location definitions), and possibly by adding explanation of what is then meant by “homogeneous conditions of competition”.

Supply-side substitution

- 2.11 The Notice places significant weight on demand-side substitution, stating that it constitutes the most immediate and effective disciplinary force on suppliers.⁷ It also states that supply-side substitution may be a constraint if suppliers can switch production in the short term without incurring significant costs. It defines the short-term as a period that does not entail a significant adjustment of existing tangible and intangible assets.
- 2.12 The combination of these statements makes it difficult to apply the Notice to certain markets, e.g. upstream industries in which customers need highly bespoke products which they put out to tender (for example a bridge, or a power station). These customers have limited ability to change their requirements, so demand-side substitution is not feasible. On the supply side, it may take suppliers a significant amount of time and cost to be able to provide the customer with a solution. However, this does not necessarily mean that, either conceptually or for practical purposes, it would make sense to define a product market for each bespoke product. This issue arises in many bidding markets, where supply-side substitution is the predominant means by which firms discipline each other, though not within the time period and cost constraints currently described in the Notice.
- 2.13 In general, the Notice would benefit from explicit recognition that such time/investment thresholds should be assessed on a case-by-case basis. It needs to be linked to what is viewed as short or long-term by the industry being analysed, as well as to any applicable theory of harm. For instance, it would be illogical to define the market with respect to a time period within which the theory of harm would not be able to take place (for example, looking at switching

⁶ US DOJ and FTC Horizontal Merger Guidelines (issued 19 August 2010), Section 4.2. We note the guidelines address the difference between supplier vs customer location explicitly, but perhaps not entirely successfully in its application of the SSNIP framework to the price discrimination scenario (i.e., geographic market definition based on customer locations).

⁷ Market Definition Notice (1997), para. 13.

within two months for market definition, when a firm would not be able to adjust its behaviour to cause competitive harm within less than a year).

- 2.14 The Commission appears to consider that supply-side substitution can only lead to market aggregation when “most of the suppliers” or “most if not all manufacturers,” are producing and marketing demand-side substitutes for the products in the relevant product market, so that they only need to shift production from their other products to the demand-side substitutes in response to a price increase by the HM. If so, this should be clearly stated to avoid confusion between supply-side substitution and potential entry.

Price as the primary parameter of competition

- 2.15 In many markets, for example certain pharmaceuticals, price is not the primary parameter of competition between firms. Firms may instead compete more strongly on other parameters such as quality, service levels, range or innovation. How to apply the HM test in these circumstances is not explicitly addressed within the current Notice.
- 2.16 Furthermore, there is a question as to how (or whether) to apply the HM test when consumers are faced with zero monetary prices. This phenomenon has become particularly prevalent since 1997 with the rise of digital firms and multi-sided markets where one side of the market may face zero monetary prices. More generally, the Commission should consider whether and in what form the SSNIP should even be used in market definition of multi-sided markets, given that pricing on each respective side can be driven by the strength of indirect network effects on the other sides of the market (see further comments in paragraph 4.6 *et seq.* below).

Second degree price discrimination

- 2.17 The Notice explicitly acknowledges that the existence of third-degree price discrimination might suggest separate and narrower product markets for each distinct category of customer.⁸
- 2.18 We make two observations:
- a. First, market definition is not as straightforward in the case of second-degree price discrimination (where consumers are offered a menu of price/quality combinations and each consumer selects his most preferred combination, i.e., groups are formed by self-selection). Namely, the existence of second-degree price discrimination does not necessarily mean each self-selected customer group constitutes a separate relevant product market: customers in each group may still regard different versions of the product as substitutes and may be ready to switch between them in response to changes in their relative prices. Thus, the hypothetical monopolist's ability to set price for one group may be constrained by the choice of price for the other group.⁹ We note for instance that the Commission has on many occasions recognised the possibility of substitution between different price/quality combinations in its market definition decisions.
 - b. Second, and relatedly, it is not always the case that third-degree price discrimination should result in finding separate product markets. Further clarification in the Notice on the general criteria for defining separate relevant markets in the presence of price

⁸ Market Definition Notice (1997), para. 43.

⁹ For further discussion of this issue, please see: R O'Donoghue, J Padilla, *The Law and Economics of Article 102 TFEU*, Hart Publishing. (2020) (3rd edn), pages 49-50 - attached as annex to this submission.

discrimination would be welcome (e.g., whether it depends on having few alternative choices vs a quasi-continuous menu of choices, the degree of price differences and/or differences in product characteristics, evidence of customer switching across options etc.).

3 Evidentiary issues

Hierarchy of evidence

- 3.1 The Commission notes that, with respect to defining product markets, it follows an open approach to empirical evidence and that it does not “*follow a rigid hierarchy of different sources of information or types of evidence.*”¹⁰ We broadly agree that it is difficult to pre-define which sources of evidence are likely to be the most informative and that a case by case approach is required. However, we note that:
- a. In practice it is generally accepted (amongst both authorities and legal and economic advisors) that findings from revealed preferences (i.e., evidence from actual behaviour) should be given more weight than stated preferences (i.e., survey evidence), because of the biases that typically exist in stated preference data.¹¹ Future updates to the Notice may benefit from recognising this more explicitly.
 - b. More generally, where different sources of evidence may present inconsistent findings with respect to market definition, it would be useful for the Commission to provide further guidance as to its approach to reaching a conclusion. This is particularly valuable where no evidence hierarchy currently exists.

Guidance on applying the HM test

- 3.2 We note that the Notice provides little practical guidance as to how to execute the SSNIP test, i.e., what type of methodological approach and supporting evidence would be expected, how the Commission proposes to calculate the adequate unit margins and measure diversion towards different types of products, etc. On the one hand, such guidance would be helpful insight to focus the efforts of parties under investigation. On the other, we recognise that anything too prescriptive may not be relevant in all circumstances and/or result in some parties facing difficulties in producing the preferred data.

Quantitative v qualitative evidence: the SSNIP test

- 3.3 In *Topps*,¹² the General Court stated: “*In the present case, as regards, first of all, the applicant’s argument that the Commission ought to have carried out an SSNIP test, it must be found that although that type of economic test is indeed a recognised method for defining the market at issue, it is not the only method available to the Commission. It may also take into account other tools for the purposes of defining the relevant market, such as market studies or an assessment of consumers’ and other competitors’ points of view. The SSNIP test may also prove unsuitable in certain cases, for example in the presence of the ‘cellophane fallacy’*,”

¹⁰ Market Definition Notice (1997), para. 25.

¹¹ Unless one expects that future behaviour is likely to diverge significantly from past behaviour, or in situations where the relevant market definition issue may be one that is difficult or not possible to address with existing sets of data.

¹² Case T-699/14, *Topps Europe Ltd v Commission* EU:T:2017:2, para. 82.

that is, the situation where the undertaking concerned already holds a virtual monopoly and the market prices are already at a supra-competitive level, or where there are free goods or goods the cost of which is not borne by those determining the demand. It is also apparent from point 25 of the Commission notice on the definition of relevant market for the purposes of Community competition law (OJ 1997 C 372, p. 5) that the definition of the relevant market does not require the Commission to follow a rigid hierarchy of different sources of information or types of evidence. The Commission did not, therefore, commit a manifest error of assessment in basing its conclusions on the relevant market on its assessment of the evidence gathered without having recourse to an SSNIP test.”

- 3.4 The Commission has relied on this paragraph incorrectly to avoid the intellectual discipline of the SSNIP test and instead rely on qualitative evidence of questionable relevance. We have the following observations in this respect:
- a. The SSNIP test need not be implemented quantitatively; its logic imposes a discipline on market definition that can only be ignored at the risk of reaching conclusions on market definition that defy common sense.¹³
 - b. Even if it is not the only method available to the Commission, the Commission should not be allowed to dismiss the conclusions of a properly executed SSNIP test which contradicts its findings using alternative sources of evidence.
 - c. The cellophane fallacy may condition the interpretation of the results of a SSNIP test when this is implemented quantitatively (e.g. applying the so-called critical loss analysis), but it bears no relevance when the SSNIP test is applied qualitatively, as a logic which disciplines the assessment of evidence about prices, functional characteristics, etc.
- 3.5 For these reasons, we recommend that the relevance of the SSNIP test, at least as a logical tool, is restated.

Evidence of past substitution

- 3.6 The Commission considers evidence of substitution in the recent past (across products for product market definition, and diversion to other areas for geographic market definition) is relevant to reach a conclusion on the relevant market.¹⁴ We note that this statement should be amended to reflect that any evidence of this nature should be considered relevant only if it is sufficiently representative of market dynamics as at the time of the relevant conduct (i.e., this might be historical for an Article 102 TFEU infringement, whereas a merger requires the assessment of current and future market dynamics). This is an issue particularly for highly dynamic markets, in particular when considering conduct over an extended period of time and/or considered capable to harm future competition.

¹³ See R O'Donoghue, J Padilla, *The Law and Economics of Article 102 TFEU*, Hart Publishing. (2020) (3rd edn) page 35 (attached as annex to this submission) discussing market definition in Case M.5830 *Olympic / Aegean Airlines*, Commission Decision of 26 January 2011.

¹⁴ Market Definition Notice (1997), paras. 38 and 45.

Consumer surveys

- 3.7 The Notice makes reference to consumer surveys as a form of evidence for product market definition providing information on consumer preferences. It states: “*The methodology followed in consumer surveys carried out ad hoc by the undertakings involved or their competitors for the purposes of a merger procedure or a procedure pursuant to Regulation No 17 will usually be scrutinized with utmost care.*”¹⁵ Some guidance as to the way these surveys should be designed could be helpful to avoid self-confirmation biases through oriented questions.¹⁶
- 3.8 Furthermore, surveys which have been conducted in the relevant industry but not for the purposes of the investigation should be scrutinised with care. The questions will have been designed for a different purpose, and the responses should be interpreted accordingly.

Market shares

- 3.9 The Notice does not provide much detail on the calculation of market shares. In practice, there are a number of issues that can complicate market shares, including *inter alia*:
- a. Whether captive sales should be included or excluded from share calculations;
 - b. Whether shares should include/exclude non-contestable “historical” sales;
 - c. How to treat markets with differentiated products; and
 - d. The binary nature of market definition (known in practice as the “zero/one” or “binary fallacy” whereby the competition analysis is conducted solely within the context of the defined market), and to what extent competitive pressure from products outside the market should be accounted for in competition analysis (including in market shares).

4 Applying the Notice in practice

Differences in the approach to market definition as between Articles 101 and 102 TFEU and the EU Merger Regulation

- 4.1 The Notice is intended to provide an overview of the general principles that the Commission employs in assessing market definition under Articles 101, 102, and the EU Merger Regulation. While the overall purpose of market definition is the same in each case (identification of the competitive constraints the firm(s) under investigation face), it may be worth considering and making explicit any differences/additional considerations in approach for each of the three main forms of enforcement.
- 4.2 For instance, as noted by R. O’Donoghue and J. Padilla, the competitive constraints that are the focus of market definition under Article 102 TFEU and the EU Merger Regulation are not the same: in merger control we are interested in the constraints faced by the merging parties at pre-merger prices, whereas under Article 102 TFEU we investigate the existence of

¹⁵ Market Definition Notice (1997), para. 41.

¹⁶ The CMA’s survey guidelines (‘Good practice in the design and presentation of customer survey evidence in merger cases’, updated 23 May 2018) gives helpful insight into the expectations of the UK Competition Authority.

competitive constraints at competitive prices.¹⁷ The difference is important when it comes to the assessment of evidence. In the context of a merger, a firm (or candidate market) facing a high own price elasticity of demand, for which a price change causes a relatively significant change in demand, likely implies that the market is wider. In the context of dominance, a high elasticity of demand is consistent with a dominant firm exercising market power. In that case, a low elasticity of demand may be good evidence that the firm faces some competitive constraint, since a dominant profit-maximising firm would not set price at a point where elasticity is low, but rather at a higher price where elasticity is high.

- 4.3 As a first step, specifying the question of interest (i.e., what is the set of products or services over which we are testing the intensity of competitive constraints exerted by other products or services) would be a good discipline to avoid misuse of past case law in other cases. Conversely, the Notice should be clear that generalisations such as ‘Article 102 is retrospective while merger control is forward-looking’ should not be used to justify differences of treatment of market definition in both cases.

Market definition in tying and bundling cases

- 4.4 Tying and bundling occurs when a firm offers two products A and B jointly. Tying refers to a situation where product A (the tying good) can only be purchased with product B (the tied good); so only AB and B are sold in the market. In contrast, mixed bundling occurs when products A and B are sold in a bundle but are also available separately. Finally, pure bundling occurs when the two products can only be purchased as part of a bundle, AB.
- 4.5 The Notice would benefit from further guidance and transparency on how the approach to product market definition might vary when tying and/or bundling are present. In particular:
- a. How to establish if A and B are distinct products in separate product markets, or whether they (individually) form components of a single “bundled” product market for AB; and
 - b. In the case of mixed bundling, another consideration arises which is whether and under what conditions all of products A, B and AB compete in a single relevant product market vs separate product markets.¹⁸

Market definition in two-sided/multi-sided markets

- 4.6 The Notice does not currently make explicit any additional considerations for market definition in the presence of two-sided markets.¹⁹
- 4.7 In particular, it is unclear:
- a. Under what conditions the Commission might define a single product market encompassing the two-sided platforms, or separate product markets for each “side” of the market; and

¹⁷ R O’Donoghue, J Padilla, *The Law and Economics of Article 102 TFEU*, Hart Publishing. (2020) (3rd edn), pages 3-6 - attached as annex to this submission.

¹⁸ For further discussion of this issue, please see: R O’Donoghue, J Padilla, *The Law and Economics of Article 102 TFEU*, Hart Publishing. (2020) (3rd edn), pages 50-53 – attached as annex to this submission.

¹⁹ For ease we make reference here and below to two-sided markets, though the points made also hold more generally in the case of multi-sided markets.

- b. Whether the Commission considers the standard “one-sided” tools/tests (e.g., the basic SSNIP test) are appropriate to test for the boundaries of the relevant product market given they do not account for indirect network effects from the other side of the platform; and if not, then whether/how they should be amended appropriately.

5 The role of market definition as an intermediary step in the enforcement process

- 5.1 It is widely accepted in competition policy that market definition is not an end in itself but rather an intermediate step in the assessment of market power and competitive effects. A full analysis of competition among the companies active in the relevant market (or potentially entering it) should follow this step.
- 5.2 A cause for concern therefore arises where competition authorities place undue emphasis on a structural analysis at the market definition stage, in order to draw inferences about market power from the resulting (binary) market shares, without going further to assess competitive effects. We have noticed some worrying examples of this results-oriented approach occurring in merger control enforcement by some national competition authorities.
- 5.3 Any future update to the Market Definition Notice would benefit from clarification and reiteration of the role of market definition as an intermediary step in any competition investigation, and that it should not allow competition authorities to entirely evade an assessment of effects.
- 5.4 In some circumstances, it may even be more appropriate to bypass a market definition exercise altogether, instead making a direct assessment of market power. This may be the case if some of the issues we highlight in this submission cannot be easily addressed within the standard framework (where there is bundling, or multi-sided platforms, for example).
- 5.5 The Notice should also impose a discipline of consistency between the manner competition authorities approach market definition and competitive effects (or harmful business conduct) respectively, so that the same or similar sets of competitive constraints are considered at both stages. There is sometimes some disconnect between the two.

6 Conclusion

- 6.1 In conclusion, we welcome the Commission's evaluation of the Market Definition Notice. There have been many market developments since 1997, giving rise to issues that could not have been predicted at that time. While we believe clarifications could be made on the various issues highlighted in this submission, we also hope that any revisions to the Notice will be made with the intention of being both generally applicable and capable of remaining relevant for the next twenty years.

Annex

The following annex is an extract of the forthcoming 3rd edition of the book 'The Law and Economics of Article 102 TFEU' by Robert O'Donoghue, Jorge Padilla, published by Hart Publishing.

Chapter 3

MARKET DEFINITION

3.1 INTRODUCTION

The role of market definition under Article 102 TFEU. Article 102 TFEU only applies to the conduct of firms that are dominant at the time the alleged abuse is committed, i.e., firms that can act with a degree of independence from their competitors, customers, and consumers.¹ Evaluating dominance requires an assessment of whether the firm under investigation faces significant competitive constraints. The first step in that assessment is the definition of the relevant market, which comprises all those products (and their geographic locations) that impose an effective competitive constraint on the product(s) of the firm whose unilateral practices are under scrutiny. The second step involves an assessment of the competitive position of the allegedly dominant firm on the relevant market, i.e., its ability to raise prices or reduce output in relation to their competitive levels for a sustained period of time. Both steps are vital in an Article 102 TFEU investigation.

Market definition therefore constitutes a critical step in the assessment of dominance:² the EU Courts have consistently held that the definition of a relevant market is an essential prerequisite for the assessment of dominance.³ As stated by the General Court in *Volkswagen* “for the purposes of Article [102], the proper definition of the relevant market is a necessary precondition for any judgment as to allegedly anti-competitive behaviour, since, before an abuse of a dominant position is ascertained, it is necessary to establish the existence of a dominant position in a given market, which presupposes that such a market has already been defined.”⁴ Accordingly, a material error in market definition may result in a finding of dominance being unsustainable and, therefore, preclude a finding of abuse of dominance even if the conditions for abuse would otherwise be met. Market definition is therefore of some practical importance.

¹ See Case 85/76, *Hoffmann-La Roche & Co AG v Commission* [1979] ECR 461, para. 38. See Ch. 4 (Dominance).

² See DG Competition discussion paper on the application of Article 82 of the Treaty to exclusionary abuses, December 2005 (hereinafter, the “Discussion Paper”), para. 11.

³ See Case 6/72, *Europemballage Corporation and Continental Can v Commission* [1973] ECR 215, para. 32 (“the definition of the relevant market is of essential significance”). See also Case 27/76, *United Brands Company and United Brands Continentaal BV v Commission* [1978] ECR 207, para. 10; Case 31/80, *L’Oreal v De Nieuwe AMCK* [1980] ECR 3775, para. 25; and Case 62/86, *AKZO Chemie BV v Commission* [1991] ECR I-3359, para. 51. The EU Courts have reaffirmed the importance of market definition in Case T-65/96, *Kish Glass & Co Ltd v Commission* [2000] ECR II-1885, para. 62, confirmed on appeal in Case C-241/00 P, *Kish Glass & Co Ltd v Commission* [2001] ECR I-7759. See too Case T-219/99, *British Airways plc v Commission* [2003] ECR II-5917, para. 91.

⁴ See Case T-62/98, *Volkswagen v. Commission* [2000] ECR II-2707, para. 230.

An example is the recent judgment in *Servier*⁵ where, in the context of pharmaceutical markets, the General Court annulled the Commission's findings on market definition in the decision, leading to the annulment of the abuse findings overall. Full annulments of market definitions are, however, rare. Data from 2015 shows that out of 134 cases in which the market definition was contested by the applicants, in only 5 did the EU Courts partially or wholly annul the Commission's market definition.⁶ That said, the record on substantive annulments by the EU Courts in Article 102 TFEU cases is, if anything, worse.⁷ The *Servier* judgment is thus significant not only because the General Court annulled the market definition of the Commission in its entirety, but also because the Court took the time to recall, in considerable detail, its powers to review the decisions of the Commission when it comes to market definition and the limits of the margin of appreciation that the Commission enjoys in respect to complex economic considerations, also showing its readiness to use these powers when it believes necessary.

In practice, the two most common indicators of the existence of a dominant position are market shares and the ease of entry. Market shares can only be calculated once the boundaries of the relevant market have been correctly established. The importance attached to market shares is based on the (often incorrect) presumption that market structure—i.e., market shares and concentration indices—determines the behaviour of firms, and, ultimately, market outcomes.⁸ Market definition also makes it possible to identify the constraints on exercise of market power that stem from potential entry.⁹

Whether a firm actually enjoys a dominant position is materially influenced by the scope of the relevant market defined. An overly narrow definition will be under-inclusive and lead to the imposition of obligations that are unjustified. An excessively

⁵ Case T-691/14, *Servier SAS, Servier Laboratories Ltd, and Les Laboratoires Servier SAS v Commission*, EU:T:2018:922. For discussion, see J Killick, J Jourdan, and P Pêcheux, "The *Servier* Judgment: The General Court Annuls The Commission's Market Definition But Confirms The Illegality Of Certain Patent Settlement Agreements," *Journal of European Competition Law & Practice*, Volume 10, Issue 1, January 2019, pp. 25–30.

⁶ M Sousa Ferro, "Judicial Review: Do European Courts Care About Market Definition?," *Journal of European Competition Law and Practice*, 2015, 6(6), p.400.

⁷ See further Ch. 2 (History, Development, and Reform).

⁸ See S Bishop and S Baker, "The Role Of Market Definition In Monopoly And Dominance Inquiries," *Economic Discussion Paper 2*, OFT 342, July 2001, para. 2.6. This presumption dates back to the structure-conduct-performance paradigm developed by Bain. According to this view, it is the structure of the market that determines its performance via the conduct of its participants. Performance is measured by the ability to charge prices above the competitive level, thereby earning a positive mark-up for a sustained period of time while structure is given by concentration. See JS Bain, *Barriers To New Competition: Their Character And Consequences In Manufacturing Industries*, Harvard University Press (1956); and JS Bain, "Relation Of Profit Rates To Industry Concentration: American Manufacturing, 1936–1940," (1951) 65 *Quarterly Journal of Economics* 293–324. The structure-conduct-performance paradigm was shown to lead to incorrect predictions by modern developments in industrial organisation based on the application of game theory. See A Jacquemin, *The New Industrial Organisation*, Oxford University Press (1987).

⁹ M Motta, *Competition Policy: Theory And Practice*, Cambridge University Press (2004), p. 117. See also AJ Padilla, *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.

broad definition will be over-inclusive and allow unilateral conduct that threatens effective competition to escape scrutiny. Both errors are costly.

Market definition also plays a key role in the identification and assessment of the actual or likely effects of the alleged abusive conduct. Market definition helps delineate the markets that are affected by an alleged abuse of dominance, i.e., the markets where competition is affected by the behaviour of a dominant firm. The abuse of a dominant position may have an effect either on the market where the firm under investigation holds a dominant position, or on a different market that is adjacent to the market where the firm is dominant. To conclude that a given commercial practice in market A has an exclusionary effect on market B, both markets A and B must have been properly defined. Again, an overly narrow definition for market B may lead to the conclusion that exclusion is likely when it is not and *vice versa*.

Relevant product and geographic markets. The relevant market is typically defined along a *product dimension* and a *geographic dimension*. In its product dimension, the relevant market includes those products that compete with each other to satisfy customers' needs. The Commission's Notice on the definition of the relevant markets defines the relevant product market as comprising "all those products and/or services which are regarded as interchangeable or substitutable by the consumer, by reason of the products' characteristics, their prices and their intended use."¹⁰ Substitution is most accurately measured by the extent to which consumers of Firm A's product would be minded to switch to other firms' products in response to a price rise by Firm A, i.e., the effect on demand of non-trivial price increases. Where such a price rise would be unprofitable for Firm A—in the sense that the value of the sales lost to rival firms exceeds Firm A's profits from the price rise—Firm A's product and its rivals' products are likely to be in the same relevant product market. Where quantitative analysis of this kind cannot be performed, the relevant product market may be defined according to qualitative criteria, such as product characteristics. This is, however, a second-best solution, as explained below.

The relevant geographic market encompasses a geographic area in which the conditions of competition are sufficiently homogeneous. The Market Definition Notice states that "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."¹¹ Depending on the degree of homogeneity of the conditions of competition between different areas, the relevant geographic market may be global, regional, trans-national, national, sub-national, or, in rare cases, confined to a facility in a single geographic location (e.g., a port).

Relationship between market definition under Article 102 TFEU and other legal instruments. The approach to market definition under Article 102 TFEU is broadly consistent with the principles applied in merger cases and Article 101 TFEU. This is

¹⁰ Commission Notice on the definition of the relevant market for the purpose of Community competition law, OJ 1997 C 372/5, para. 7 (hereinafter the "Market Definition Notice").

¹¹ *Ibid.*, para. 8.

hardly surprising, since the Market Definition Notice is intended to provide an overview of the general principles that the Commission employs in assessing market definition in the three main areas of EU competition law (i.e., Articles 101, 102, and the EU Merger Regulation). In each case, the purpose of the delineation of the relevant market is to identify the competitive constraints that the firm(s) under investigation face. For example, as the Commission's horizontal merger guidelines state, the purpose of defining a relevant market is "to identify in a systematic way the immediate competitive constraints facing the merged entity."¹² It is also notable that the definition of the relevant market in Form CO (Section 6) adopts almost verbatim the formulation used by the EU Courts for the definition of the relevant market.¹³

Despite the doctrinal equivalence of the definition of market power under both Article 102 TFEU and the EU Merger Regulation, a number of differences should be noted. First, and most importantly, the competitive constraints that are the focus of market definition under Article 102 TFEU and the EU Merger Regulation are not the same. In merger control, the objective of market definition is to identify the competitive constraints faced by the merging parties at pre-merger prices, without questioning the legitimacy of those prices. Instead, under Article 102 TFEU, market definition is used to assess whether the firm whose practices are deemed abusive enjoys market power, which involves investigating the existence of competitive constraints at competitive prices. This makes market definition under Article 102 TFEU inherently more difficult than in merger control. While pre-merger prices are readily observable, defining whether a price is competitive or not is a daunting task.¹⁴

A second, difference between market definition under Article 102 TFEU and the EU Merger Regulation is that the latter makes greater use of quantitative techniques to test the degree of substitution among products. Decisional practice under the EU Merger Regulation shows ever-increasing use of econometric techniques, such as co-integration analysis and regression studies, in order to determine the relevant correlations and price elasticities for purposes of defining the relevant market.¹⁵ This willingness to use sophisticated, data-intensive techniques under the EU Merger Regulation contrasts with

¹² Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, OJ 2004 C 31/5, para. 10. See also Case COMP/M.3108, *Office Depot/Guilber*, para. 22 ("[T]he precise boundaries of the relevant market are difficult to determine, but this should not distract from the main purpose of defining a market, namely to identify those competitors of the undertakings involved that are capable of constraining their behaviour.").

¹³ See, e.g., Case 27/76, *United Brands Company and United Brands Continentaal BV v Commission* [1978] ECR 207, paras. 12–35. See also Case 31/80, *L'Oreal v De Nieuwe AMCK* [1980] ECR 3775, para. 25 ("[T]he possibilities of competition must be judged in the context of the market comprising the totality of the products which, with respect to their characteristics, are particularly suitable for satisfying constant needs and are only to a limited extent interchangeable with other products.").

¹⁴ See Ch. 14 (Excessive Prices) for a detailed explanation of the practical difficulties involved in the definition and calculation of competitive prices.

¹⁵ Some of these techniques are briefly described in section 3.3 below. For an application of these techniques see Case COMP/M.5644, *Kraft Foods/Cadbury*. It should be noted, however, that many merger decisions rely on purely quantitative assessments of the market where the merging parties compete: see e.g., Case COMP/M.6166, *Deutsche Börse/NYSE Euronext*.

the largely qualitative approach to market definition historically adopted by the Commission and the EU Courts under Article 102 TFEU.¹⁶

There is no obvious reason, however, why quantitative techniques should be used more widely in the EU Merger Regulation than under Article 102 TFEU. Lack of specialised resources is not an explanation, since the Chief Economist Team may be involved in any subject matter falling within DG Competition's jurisdiction. Time constraints are also not a factor. Indeed, if anything, the strict time-limits imposed for merger review are much less conducive to data-intensive econometric studies than investigations under Article 102 TFEU (which have no formal time limits).

One possible explanation is that the EU Courts' use of economics in the context of its judicial review function has been more widespread to date in appeals from decisions adopted under the EU Merger Regulation than Article 102 TFEU, which may have led the Commission to make greater use of quantitative techniques in order to bolster its assessments. In *Schneider Electric*,¹⁷ for example, the Commission's prohibition of a proposed merger was overturned due to "several obvious errors, omissions, and contradictions in the Commission's economic reasoning."¹⁸ Market definition was critical in this regard, since the Commission based its market definition (and, therefore, its views on dominance) on the existence of several national markets, but then assessed the transaction's competitive impact on the basis of unsubstantiated trans-national concerns. In other words, the Commission's market definition and substantive analyses did not marry.¹⁹ Errors in economic assessment were also central to the EU Courts' decision to annul the merger prohibition decisions in *Airtours*²⁰ and *Tetra Laval/Sidel*.²¹ But the recent judgment in *Servier*²² now puts it beyond question that the General Court will delve into considerable detail, both factual and economic, in reviewing Commission market definitions in Article 102 TFEU cases. The criticism, if anything, is that it is the *Commission*, and not the EU Courts, which apply a less economic approach to market definition in Article 102 TFEU cases.

Another, more pragmatic, explanation for the greater use of econometric techniques under the EU Merger Regulation than Article 102 TFEU is that the output data required to perform econometric studies will only be available in a small number of cases. Because the number of decisions under the EU Merger Regulation greatly exceeds those

¹⁶ See, e.g., Case COMP/37.990, *Intel*, Commission Decision of 13 May 2009.

¹⁷ Cases T-310/01, *Schneider Electric SA v Commission* [2002] ECR II-4071, and Case T-77/02, *Schneider Electric SA v Commission* [2002] ECR II-4201.

¹⁸ See General Court press release No. 84/02, of 22 October 2002.

¹⁹ The General Court found that "the Commission incorporated, not only in its presentation, but also in its analysis, of the facts, the unmatched geographic coverage of the merged entity throughout the whole of the EEA, in order to show that a dominant position would be created or strengthened on the national sectoral markets for switchboard components and for ultraterminal equipment." See Case T-310/01, *Schneider Electric SA v Commission* [2002] ECR II-4071, para. 176.

²⁰ Case T-342/99, *Airtours plc v Commission* [2002] ECR II-2585.

²¹ Case T-5/02, *Tetra Laval BV v Commission* [2002] ECR II-4381, confirmed on appeal in Case C-12/03 P, *Commission v Tetra Laval BV* [2005] ECR I-987.

²² Case T-691/14, *Servier SAS, Servier Laboratories Ltd, and Les Laboratoires Servier SAS v Commission*, EU:T:2018:922.

adopted under Article 102 TFEU,²³ suitable candidate cases for detailed econometric study are more likely to arise in the merger area. Finally, some of the mergers cases where the Commission has used econometric evidence for market definition purposes concern fast-moving consumer goods markets where transaction data is widely available and reliable. This is not the case for many of the markets which have been investigated under Article 102 TFEU (e.g., licensing markets).

The paramount role of economics in market definition. The largely qualitative approach to market definition for purposes of Article 102 TFEU historically adopted by the EU institutions does not correspond with economists' current understanding of how markets should be defined. This is hardly surprising since many of the leading cases under Article 102 TFEU pre-date the major advancements in economic thinking on market definition—most notably the introduction of the hypothetical monopolist test in the 1982 United States Horizontal Merger Guidelines.²⁴ Market definition in leading Article 102 TFEU cases in the 1970s and 1980s might well be decided differently today or at least would require more rigorous analysis.

For example, in *United Brands*, the Commission and Court of Justice essentially used qualitative evidence in concluding that bananas were a separate relevant market to other fruits,²⁵ relying in particular on the seedlessness and softness of bananas as important defining characteristics for the young and the elderly. They declined to investigate cross-price elasticities, relying instead on a largely subjective assessment, which arguably overstated *United Brands*' market power.²⁶ The existence of modern supermarket scanner data would enable the relative own-price and cross-price elasticities to be easily calculated today. This would allow an empirical evaluation of whether qualitative differences between bananas and other fruits also led to distinct demands for individual products or whether a range of ready-to-eat fruits competed in a broader market. The important point to note is that economic thinking almost certainly provides a more reliable indicator of current and future policy on market definition than older cases under Article 102 TFEU.

²³ There have been over 9,000 EU Merger Regulation decisions rendered by the Commission and several dozen appeals to the EU Courts. Article 102 TFEU Commission decisions and EU Court judgments probably total less than 300, i.e., circa 3% of the EU Merger Regulation total. A search on DG COMP's website results in 228 decisions that list Article 102 TFEU as a legal basis. It is clear, however, that many of these are decisions not finding infringements or that do not reach substantive findings of abuse for other reasons. Even if half of these decisions were appealed—which seems optimistic—the total remains relatively small overall. For full list of Commission decisions, see https://ec.europa.eu/competition/elojade/isef/index.cfm?fuseaction=dsp_result&policy_area_id=1.2.3

²⁴ See G Werden, "The 1982 Merger Guidelines And The Ascent Of The Hypothetical Monopolist Paradigm," speech at the *20th Anniversary Of The 1982 Merger Guidelines: The Contribution Of The Merger Guidelines To The Evolution Of Antitrust Doctrine*, 4 June 2002 ("The hypothetical monopolist paradigm was the lens through which all evidence was to be viewed.").

²⁵ Case 27/76, *United Brands Company and United Brands Continentaal BV v Commission* [1978] ECR 207, paras. 12–35.

²⁶ See V Korah, *An Introductory Guide To EEC Competition Law And Practice*, ESC Publishing Ltd. (1990) (4th edn), p. 59 ("The interests of the toothless are sufficiently protected by the inability of the dominant firm to discriminate against them. It would lose so much market share from the rest of the population that it would not be worth raising prices to exploit the weak.").

A related point, and a further reason why economics should play a paramount role in market definition under Article 102 TFEU, is that many earlier market definition decisions under Article 102 TFEU have been criticised as being result-oriented. In other words, there may have been a temptation to define markets narrowly in order to support a finding of dominance and the pursuit of particular policy goals. The result-oriented tendency in older Article 102 TFEU cases has been summarised as follows:²⁷

“It has been said from time to time that the Commission and Court of Justice have tailored market definitions to reach particular outcomes that reflect substantive policies other than those based on conventional antitrust concerns over market power. There is some truth in this observation, at least with respect to Article [102] cases dealing with essential facilities, refusals to deal and some other vertical restraints. Markets in these decisions do seem to have been drawn more narrowly than a purely economic concern about adverse price and output effects would warrant. But this is a very limited number of relatively discrete cases.”

One example is *Hilti*,²⁸ where the Commission concluded that power-actuated fastening systems (nail guns) were a distinct market from other fastening systems (e.g., welding, screws, rivets, bolts, and nuts). Again, the Commission focused largely on the differences in characteristics between the products in concluding that there was insufficient demand-side substitution.²⁹ The Commission did not consider whether the pricing of one product constrains the pricing of the other products. No consideration was given to whether the number of marginal customers who would switch in response to a price rise for nail guns was sufficiently large to act as a constraint. The Commission’s subsequent decision in *Pelican/Kyocera*³⁰ illustrates a more nuanced approach, in particular in markets in which primary equipment and consumables are involved.

More recent examples come from the pharmaceutical sector, where recent decisions of the Commission seem to highlight a tendency to define the relevant product market as narrowly as possible—particularly in “pay-for-delay” cases—seemingly failing to take into account economic analyses that would help reveal competitive constraints which could prove determinant for a correct definition of the product market.³¹ These issues are discussed in more detail below.

Concerns about market definitions tailored to reach a particular outcome have also been raised about the *Google Shopping* and *Google Android* decisions,³² as well as the

²⁷ See T Kauper, “The Problem Of Market Definition Under EC Competition Law,” in B Hawk (ed.), *International Antitrust Law And Policy: Fordham Corporate Law Institute*, Sweet and Maxwell (1997), p. 303.

²⁸ *Eurofix-Bauco/Hilti*, OJ 1988 L 65/19.

²⁹ *Ibid.*, para. 61.

³⁰ *Pelican/Kyocera*, XXVth Report on Competition Policy (1997), para. 86–87.

³¹ See D N Mishol and J White, “Economics: Overview”, The European, Middle Eastern and African Antitrust Review 2019 A Global Competition Review Special Report, p.4 (“The rulings in these pay-for-delay and excessive pricing cases indicate that governments appear to be adopting very narrow market definitions, typically limited to the molecule. This ignores the role of alternative-brand pharmaceuticals and generics that are different molecules but provide similar therapeutic benefits.”).

³² Case AT.39740, *Google Search (Shopping)*, Commission Decision of 26 June 2017; and Case AT.40099, *Google Android*, Commission Decision of 18 July 2018.

Qualcomm (Exclusivity Rebates) and *Qualcomm (Predation)* cases.³³ For example, in *Google Shopping*, the Commission’s decision to treat general-purpose and vertical search engines as unrelated and exclude marketplaces such as Amazon from the putative market for comparison shopping services is highly controversial. The decision does not acknowledge the implications of the multi-sided nature of Google’s business when delineating relevant product markets in *Google Android*. Similar points can be made about the decision not to perform a formal hypothetical monopolist test to validate the Commission’s narrow market definition in the two *Qualcomm* matters mentioned above. These issues are also discussed in more detail below.

Need for caution in respect of market definition. Excessive importance should not, however, be attached to the outcomes of a market definition exercise: it is, at best, a proxy for identifying a range of products over which a monopolist could in theory exercise market power.³⁴ As noted by an earlier Commissioner for Competition, the Commission uses “market definition and market shares as an easily available proxy for the measurement of the market power enjoyed by firms.”³⁵ Thus, market definition is “a cornerstone of competition policy, but not the entire building.” It is “a tool for the competitive assessment, not a substitute for it. What is ultimately important is to understand the nature of the competitive situation facing the firms involved in a certain practice.”³⁶ In short, “markets cannot be defined in a vacuum; market definitions make sense only in the context in which the questions are posed.”³⁷

3.2 PRODUCT MARKET DEFINITION: BASIC CONCEPTS

Overview. A relevant product market under Article 102 TFEU comprises all those products and/or services that impose a competitive constraint on the product(s) of the company whose behaviour is being analysed.³⁸ The most important constraint is exerted by those consumers who can switch their consumption to products that they regard as interchangeable (demand-side substitution). A second, but less important, constraint is created by those competing firms who can quickly produce and commercialise products that are demand-side substitutes to those of the firm in question (supply-side substitution).

Supply-side substitution is different from *potential competition*. Potential competition concerns the ability of firms outside the relevant product market to enter in the long term. Supply-side substitution concerns the ability of firms to switch production in the short term and without incurring large sunk costs. Only when the competitive constraint imposed by entry is equivalent in its effect to that of demand-side substitution—i.e.,

³³ Case AT.40220, *Qualcomm (Exclusivity Rebates)*, Commission Decision of 25 January 2018; and Case AT.39711, *Qualcomm (Predation)*, Commission Decision of 18 July 2019.

³⁴ See DS Evans, “Lightening Up On Market Definition,” in E. Elhauge (ed.) *Research Handbook On The Economics Of Antitrust Law*, Edward Elgar (2012), Chapter 3.

³⁵ M Monti, “Policy Market Definition As A Cornerstone Of EU Competition Policy,” *Workshop On Market Definition*, Helsinki, 5 October 2001.

³⁶ *Ibid.*

³⁷ See WE Schrank and N Roy, “Market Delineation In The Analysis Of The United States Groundfish Market,” (1991) 36(1) *Antitrust Bulletin* 91–154, at 107.

³⁸ See generally, *OECD Roundtable On Market Definition*, 25 May 2012 (DAF/COMP(201)).

when the entrants offer products or services that can be regarded as demand-side substitutes to those in the market—entry is considered at the market definition stage. Potential competition is therefore only assessed at the stage of analysing dominance. Finally, it may be that two directly competing products are indirectly constrained by competition from a third product, where the products are linked by so-called “chains of substitution.” The basic features of each of these sources of competitive constraint are explained below.

3.2.1 Demand-Side Substitution

Definition. The most important competitive constraint faced by a firm comes from consumers who are prepared to switch to substitute products in the event of a price increase. When a firm’s customers have demand-side substitutes available, the firm cannot profitably raise the price of its products because that would trigger substitution and, therefore, a loss of business. An increase in price leads to a higher margin per unit sold but causes a fall in output. In the presence of demand-side substitutes, however, the loss of sales outweighs the higher unit margin, so the price rise, overall, makes no economic sense. The dominant role played by demand-side substitution in the process of defining a relevant product market is therefore due to the immediate character of the competitive constraint it gives rise to.³⁹ As the Market Definition Notice states, “demand substitution constitutes the most immediate and effective disciplinary force on the suppliers of a given product, in particular in relationship to their pricing decisions.”⁴⁰

The scope and scale of demand-side substitution depends entirely on consumer preferences, and, specifically, the products that consumers view as substitutes. Whether the products have similar physical characteristics is generally unimportant: consumers might view products with distinct physical characteristics as close substitutes or they might regard products that are physically similar as not being interchangeable. All products that consumers regard as close substitutes to the product or products of the firm whose behaviour is analysed should be part of the same relevant market since they impose a competitive constraint on the firm concerned.

Testing for demand-side substitution. Demand-side substitution can be examined either directly or indirectly. Direct evidence of substitution is provided by evidence of consumers’ past behaviour. This is what economists term “revealed preference.” If consumers reacted to past changes in the prices of the firm in question by switching their consumption to other products, then there is clear evidence of demand-side substitution. In some instances, such evidence is not readily available, either because the firm did not change its prices, because the prices of all products that are potential substitutes changed at the same time (and thus there was no change in relative prices that could have triggered substitution), or because of the presence of other factors that masked the volume impact of the price change. In these circumstances, indirect evidence of demand-side preference is required: counterfactual estimation of the influence of price on demand (i.e., the price elasticity of demand) using multiple regression analysis or, if that is not possible, inspection of product characteristics and

³⁹ See *Tetra Laval/Sidel*, OJ 2004 L 43/13, para. 163.

⁴⁰ Market Definition Notice, OJ 1997 C 372/5, para. 13.

intended use. Both qualitative and, ideally, quantitative evidence are relevant in this connection.⁴¹

“In its analysis of demand-substitutability, the Commission may make use of both qualitative and quantitative methods. Qualitative methods could, for example, include an examination of product characteristics and the intended use of a product by consumers, whereas quantitative methods could involve the examination of price trends and the estimation of cross-elasticities using econometric methods.”

The Commission’s basic analytical approach to demand-side substitution. A relevant example of the Commission’s analytical approach to demand-side substitution is *Wanadoo*,⁴² where Wanadoo, a subsidiary of France Télécom, was fined for predatory pricing in the high-speed internet access market in France. A central issue was whether ADSL (or broadband) internet access was a separate product from narrowband (or dial-up) and cable-based access, and whether the market should be further segmented between residential and business users. The Commission ultimately concluded that there was a single market for high-speed internet access for residential users, which included cable and ADSL services, but excluded narrowband access.

Factors cited by the Commission in support of this conclusion included: (1) high speed internet access is “always on;” narrowband required dial-up each time and, unless the user has a second line, does not permit simultaneous use of the telephone; (2) for certain multimedia applications (e.g., music downloading), narrowband was not an effective option due to excessive download times; (3) there was considerable asymmetry in consumer substitution between the high-speed internet access and narrowband, i.e., consumers would less often switch back to a phone connection when the price of the high-speed internet was raised, whereas when the high-speed internet access price was lowered, France Telecom would see a large increase in new customers;⁴³ and (4) prices for high-speed internet access differed as between business and residential users.⁴⁴

More recent examples of the same approach can be seen in the decisions in *Google Shopping*⁴⁵ and *Google Android*.⁴⁶ In *Google Shopping*, the Commission defined a market for general search services, concluding that there is limited demand-side substitutability between them and other online services such as content sites, specialised search services and social networks.⁴⁷ This conclusion was based on the following

⁴¹ See XXIVth Report on Competition Policy (1994), para. 280. See also Market Definition Notice, OJ 1997 C 372/5, para. 39.

⁴² Case COMP/38.233, *Wanadoo Interactive*, Commission Decision of 16 July 2003, upheld on appeal in Case T-340/03, *France Télécom SA v Commission* [2007] ECR II-107 and on further appeal in Case C-202/07 P, *France Télécom SA v Commission* [2009] ECR I-2369.

⁴³ *Wanadoo Interactive*, *ibid.*, paras. 193–202, upheld on appeal in Case T-340/03, *France Télécom SA v Commission* [2007] ECR II-107, para. 88.

⁴⁴ See also Case AT. 39523, *Slovak Telekom*. Commission Decision of 15 October 2014 upheld on appeal in Case T-851/14, *Slovak Telekom v Commission*, EU:T:2018:929, currently on appeal.

⁴⁵ Case AT.39740, *Google Search (Shopping)*, Commission Decision of 26 June 2017.

⁴⁶ Case AT.40099, *Google Android*, Commission Decision of 18 July 2018.

⁴⁷ See also Case AT.40153, *E-book MFNs and related matters (Amazon)*, Commission Decision of 4 March 2017, where the Commission found that e-books and print books are not substitutable from a demand-side perspective for a number of factors including, *inter alia*, that e-books are easier to transport, have additional features, and can be downloaded immediately and at any time (para. 43).

considerations: (1) general search services serve a different purpose to these other services;⁴⁸ (2) general search services allow users to search for content all over the web; (3) general search services return more wide-ranging results compared to specialised search services as a result of searching the entire internet; (4) general search services function on the basis of an automated process called “*web crawling*.”⁴⁹

In the same decision, the Commission also defined a market for comparison search services. In its view, there is limited demand-side substitutability between comparison search services and other services, namely (1) search services specialised in different subject matters; (2) online search advertising platforms; (3) online retailers; (4) merchant platforms; and (5) offline comparison-shopping tools. That is because, in the Commission’s view, comparison search services, serve different purposes to the services mention. They provide users that are looking for information on a product with a selection of existing commercial offers available on the internet for that product, as well as with tools to sort and compare those offers. They are perceived by users as a service dedicated to them and use it to receive specialised search results for a product, through price comparison service provider intermediaries between users and online retailers. Finally, price comparison services typically seek to refer users to third-party websites where they can buy the relevant product rather than sell products directly.⁵⁰

In *Google Android*, the Commission established two separate markets for open source (licensable) mobile operating systems (OSs) such as Google’s Android and for non-licensable OSs such as Apple’s iOS. It argued that there is limited demand-side substitutability between the two, at least from the perspective of smartphone original equipment manufacturers (OEMs) as they cannot obtain licences to use iOS or other non-licensable OSs.⁵¹ This conclusion is controversial as discussed in Section 3.5.4 below. In particular, it ignores the key feature of the market which is competition between different “ecosystems” of OSs for the market. In the dominance section of the decision, the Commission also provided an explanation of why it believes that there is only limited demand-side substitutability at the level of users too, citing the following reasons: (1) the significant price differences between Google Android and iOS devices; (2) the substantial costs Google Android users would face in switching to iOS; (3) the significant degree of loyalty shown by users to their existing smart mobile OSs; (4) app developers are unlikely to stop developing for Google Android and develop exclusively for iOS.⁵²

Rigour in assessing demand-side substitution: *Servier*. The recent judgment in *Servier*,⁵³ in which the General Court annulled the entire Article 102 TFEU part of the Commission’s decision based solely on errors in respect of market definition, is a timely

⁴⁸ Case AT.39740, *Google Search (Shopping)*, Commission Decision of 26 June 2017. para. 164. The Commission quotes the “Philosophy” section on Google’s website which states as follows: “[O]ur goal is to have people leave our website as quickly as possible.”

⁴⁹ *Ibid.*, para. 168.

⁵⁰ *Ibid.*, paras. 193-230.

⁵¹ Case AT.40099, *Google Android*, Commission Decision of 18 July 2018, para. 239.

⁵² *Ibid.*, paras. 497 *et seq.*

⁵³ Case T-691/14, *Servier SAS, Servier Laboratories Ltd, and Les Laboratoires Servier SAS v Commission*, EU:T:2018:922.

reminder of the need for factual and economic rigour on demand-side substitution. The case concerned perindopril, an angiotensin converting enzyme (ACE) inhibitor product, used for the treatment of cardiovascular diseases such as hypertension. The Commission's finding was that perindopril was different in terms of therapeutic use from the 15 other ACE inhibitors in the same therapeutic class. While the Commission accepted that there was a certain degree of functional substitutability between perindopril and other ACE inhibitors with respect to first-time use patients, it relied on product differentiation, switching costs, customer loyalty, the general price insensitivity of demand for perindopril, and the regulatory framework to find that it was in its own market.

The General Court held that this conclusion was based on several manifest errors of assessment:⁵⁴ (1) based on medical studies, recommendations from international bodies, polls of prescribing physicians, responses from makers of other ACE inhibitors, and expert evidence submitted by Servier, there were no significant therapeutic differences between ACE inhibitors; (2) the large sums spent by Servier in marketing perindopril showed that it competed with other ACE inhibitors; (3) the Commission attached undue importance to the fact that patients do not generally pay for the medicines they consume: non-price competition in the form of therapeutic substitution was the critical issue in pharmaceutical markets; and (4) the Commission had attached too much importance to prescriber/patient "inertia" to switching to other ACE inhibitors, since relative to other ACE inhibitors, perindopril had a small "installed" patient base.

3.2.2 Supply-Side Substitution

Definition. Supply-side substitution occurs when suppliers of products that are not demand-side substitutes to the products in the relevant product market can—quickly and without incurring significant costs—switch their production plans to offer products that compete with those in the relevant market. When two products are supply-side substitutes, they are taken to be part of the same relevant product market. That is, the possibility of supply-side substitution broadens the scope of the relevant product market. Supply-side substitutability is likely to be of relevance in situations where firms produce a wide range of different qualities, or different grades of a product, that are not seen as substitutable by consumers but which are produced on similar equipment.

A trivial, but intuitive, example of supply-side substitution is shoes. An individual using shoes of size X is not willing to switch to shoes of size Y size if the price of shoes of the size he uses is raised. Shoe manufacturers, however, can easily switch production from shoes of size X to shoes of size Y, and *vice versa*, and are able to supply shoes of both sizes immediately and without incurring any additional costs. In this example, shoes of sizes X and Y are supply-side substitutes and form part of the same relevant product market. Another example is the production of paper. Paper plants usually produce paper in a range of different qualities, for products as diverse as art books, writing paper, etc. While consumers do not regard the different paper product as

⁵⁴ For a discussion see J Killick, J Jourdan, and P Pêcheux, "What The Servier Judgment Teaches Us About Market Definition Under Article 102 And Patent Settlement Agreements Under Article 101," *Competition Policy International*, February 2019.

substitutes, manufacturers can easily and at negligible costs adjust production at short notice. Such an instance of supply-side substitution would lead to a wide relevant market definition that includes all qualities of paper.⁵⁵

Testing for supply-side substitution. The disciplinary effect exerted by supply-side substitution is subject to strict conditions. Of particular importance is the need for supply-side substitution to be sufficiently proximate or immediate so as to be considered equivalent to demand-side substitution:⁵⁶

“Supply-side substitutability may also be taken into account when defining markets in those situations in which its effects are equivalent to those of demand substitution in terms of effectiveness and immediacy. This means that suppliers are 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.”

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;⁵⁷ (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) other 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.⁵⁸

Conditions (1) to (5) are necessary but not sufficient. Supply-side substitution also requires that *a sufficiently large number* of suppliers can switch production to the relevant product in response to a modest price increase.⁵⁹ Consideration of supply-side substitutability translates into market aggregation and will therefore lead to wider

⁵⁵ See Market Definition Notice, OJ 1997 C 372/5, para. 22.

⁵⁶ *Ibid.*, para. 20. See also OFT Market Definition Guidelines, OFT 403, December 2004, paras. 3.15–3.18; Case AT.40153, *E-book MFNs and related matters (Amazon)*, Commission Decision of 4 March 2017 where the Commission argued that it would not be possible for either a traditional book store or an online print book store to switch from print book to e-book sales without acquiring significant tangible and intangible assets, incur additional investments and/or strategic decisions with the immediacy required to allow for a finding of significant supply-side substitutability, para. 43; and Case COMP/A.37.507/F3, *AstraZeneca*, Commission Decision of 15 June 2005, para. 403, where the Commission’s analysis did not take into account the possibility of supply-side substitution because “the effects were not equivalent to those of demand substitution in terms of effectiveness and immediacy,” specifically due to the fact that it took a significant period of time to develop pharmaceutical products, which was exacerbated by the need to avoid patent infringement in producing or marketing new drugs. The decision was largely upheld on appeal: see Case T-321/05, *AstraZeneca v Commission* [2010] ECR II-2805 and Case C-457/10 P, *AstraZeneca v Commission* EU:C:2012:770. For discussion of the market definition aspects of the case see F Murphy, “Abuse of Regulatory Procedures—the AstraZeneca Case: Part I: Relevant Markets and Dominance,” *European Competition Law Review*, Issue 5 (2009).

⁵⁷ This includes access to the required technology, know-how, machinery, and facilities. It also requires access to the appropriate transport infrastructure and distribution channels. Moreover, a supplier must also be able to commercialise the products immediately—i.e., no investment in marketing and brand building is necessary.

⁵⁸ Market Definition Notice, OJ 1997 C 372/5, paras. 22–23.

⁵⁹ *Ibid.*, paras. 23–24.

markets than those that would obtain by considering demand substitution factors only. Yet, aggregating markets for products that are not seen as substitutes by consumers goes against the established principles of economic analysis and may incorrectly enlarge the actual boundaries of the relevant market. It is perhaps for this reason that the Market Definition Notice requires that “most of the suppliers” or “most if not all manufacturers,”⁶⁰ must be able to produce and market demand-side substitutes in order to enlarge the relevant product market. This is the condition required under the US Horizontal Merger Guidelines to aggregate markets as a result of supply substitution: two products A and B which are not demand-side substitutes belong to the same relevant product market if supply-side substitution between them is “nearly universal.”⁶¹

Distinction between supply-side substitution and potential competition. Potential competition represents a competitive constraint that is different from supply-side substitution. While supply-side substitution takes place immediately, potential competition represents a threat of entry either in the long term or one that involves significant sunk costs. The Market Definition Notice therefore states that “potential competition, is not taken into account when defining markets, since the conditions under which potential competition will actually represent an effective competitive constraint depend on the analysis of specific factors and circumstances related to the conditions of entry.”⁶² There is no doubt that the threat of entry, even when costly and long term, constrains the extent to which a firm can exert market power. However, the threat of long-term entry imposes a different competitive constraint than supply-side substitution. To the extent that it involves irreversible investments, the former entails a strong “commitment.” Potential entrants do not respond to modest price increases and do not commit resources to markets where post-entry prices are expected to be low. In contrast, supply-side substitution represents 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.⁶³

More precisely, potential entry and supply-side substitution can be distinguished in at least three respects. First, by the length of time that goes from the price rise to the commencement of supply by the new entrant. Supply-side substitution responds promptly to price increases, while potential entrants may take longer than a year to commence supplying the market with their products. Second, supply-side substitution involves “uncommitted entry,” i.e., entry at a low cost and without incurring irreversible investment. Potential entry or “committed entry” refers to entry at a substantial sunk cost.⁶⁴ Finally, the competitive constraint imposed by supply-side substitutes has a clear-cut significant impact on both pre-entry and post-entry prices. Meanwhile, potential entry is felt via lower post-entry prices only. When entry involves incurring in

⁶⁰ *Ibid.*, para. 34.

⁶¹ US Department of Justice Antitrust Division and Federal Trade Commission 1992 Horizontal Merger Guidelines, 57 Fed. Reg. 41522 (1992) (revised 8 April 1997), (hereinafter “US Horizontal Merger Guidelines”), fn 14.

⁶² Market Definition Notice, OJ 1997 C 372/5, para. 24.

⁶³ See J Padilla, *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, p. 21.

⁶⁴ The concept of “uncommitted” and “committed” entry was first defined in the US Horizontal Merger Guidelines, para. 1.32.

sizeable sunk costs, entrants do not decide whether to join the market on the basis of current prices but, instead, they focus on the price level that would prevail in the market once entry occurs, which obviously depends on the credibility of retaliation by incumbents and, thus, ultimately hinges on whether the fundamental characteristics of the market are likely to support high post-entry prices or not.

The Commission's basic analytical approach to supply-side substitution. Analysis of supply-side substitution has featured prominently in the decisional practice of the EU institutions. In *Continental Can*, the Commission's decision was annulled by the Court of Justice on the grounds, *inter alia*, that it had not considered supply-side substitution when defining the relevant product market.⁶⁵ The Commission distinguished several markets: (1) light containers for canned meat products; (2) light containers for canned seafood; and (3) metal closures for the food packing industry (other than crown corks).

On appeal, the Court of Justice criticised the Commission for not considering how these three markets differed from each other, how they differed from the general market for light metal containers, namely the market for metal containers for fruit and vegetables, condensed milk, olive oil, fruit juices, etc., and whether particular characteristics of production made them specifically suitable for their specific purpose. The defendant's high share on the "market" for light metal containers for meat and fish was irrelevant in the absence of evidence that competitors from other sectors of the market for light metal containers were not in a position to enter this market, by a simple adaptation, with sufficient strength to create a serious counterweight.

In contrast, in *Michelin I*, the Court of Justice upheld the Commission's definition of separate markets for heavy vehicle car tyres. It held that these two categories of tyre were produced using different production techniques so that time and considerable investment was required to switch production from one type of tyre to the other. Consequently, the Court considered that they could not be regarded as supply-side substitutes, and given that they were not demand-side substitutes either, the Court defined separate relevant markets for heavy vehicle and car tyres.⁶⁶

The Commission now routinely considers supply-side substitution, even if, in practice, this circumstance rarely broadens the boundaries of the relevant market.⁶⁷ In *Microsoft*, for example, the Commission spent considerable effort on analysing supply-side

⁶⁵ Case 6/72, *Europemballage Corporation and Continental Can v Commission* [1973] ECR 215, para. 33. See also Case No IV/M.32, *Granari/Últje/Intersnack/May Holding*, paras. 20–23.

⁶⁶ See Case 322/81, *NV Nederlandsche Banden Industrie Michelin v Commission* [1983] ECR 3461, para. 41.

⁶⁷ See *Eurofix-Bauco/Hilti*, OJ 1988 L 65/19, para. 55, upheld on appeal in Case T-30/89, *Hilti AG v Commission* [1991] ECR II-1439, and on further appeal Case C-53/92 P, *Hilti AG v Commission* [1994] ECR I-667; *Microsoft*, OJ 2007 L 32/23, para. 322, upheld on appeal in Case T-201/04, *Microsoft v Commission* [2007] ECR II-3601; Case COMP/38/096, *Clearstream (Clearing and settlement)*, Commission Decision of 4 June 4 2004, para. 200; *DSD*, OJ 2001 L 166/1, paras. 65–86; *Virgin/British Airways*, OJ 2000 L 30/1, upheld on appeal Case T-219/99, *British Airways plc v Commission* [2003] ECR II-5917, para. 74; *Van den Bergh Foods Ltd*, OJ 1998 L 246/1, para. 135; *Trans-Atlantic Conference Agreement*, OJ 1999 L 95/1, para. 75; *Wanadoo España v Telefonica*, OJ 2008 C 83/5, paras. 154-160, upheld on appeal in Case C-295/12 P *Telefónica and Telefónica de España v Commission*, EU:C:2014:2062.

substitution, but ultimately concluded that it did not broaden the market identified from a demand-side perspective.⁶⁸ For each of the three relevant markets (i.e., client operating systems, work group server operating systems, and streaming media players), the Commission checked systematically for demand-side substitutes and then supply-side substitutes before concluding on the relevant market. The Commission found that supply-side substitution was not relevant in the three markets concerned. In a nutshell, the Commission argued that (1) not all suppliers were able to produce demand-side substitutes (i.e. supply-side substitution was not nearly universal) and (2) entry into the candidate market by suppliers from adjacent markets was costly and would take considerable time.⁶⁹ Similarly, in *Clearstream*, while the Commission ultimately concluded that demand-side substitution was the principal determinant,⁷⁰ supply-side substitution was cited as a relevant factor in various security clearing services markets.⁷¹

3.2.3 Chains of Substitution

Definition. Within a relevant market, it is not necessary that all products or services (or regions) are substitutes for each other: it might be sufficient for some products to be indirect substitutes to other products to be included in the same market. Products can be indirectly substitutable if they are linked through so-called “chains of substitution.” The Commission has endorsed this concept and indicated in the Market Definition Notice that:⁷²

“In certain cases, the existence of chains of substitution might lead to the definition of a relevant market where products or areas at the extreme of the market are not directly substitutable....product B is a demand substitute for products A and C. Even if products A and C are not direct demand substitutes, they might be found to be in the same relevant product market since their respective pricing might be constrained by substitution to B.”

Economic theory provides support for a market definition that takes into consideration chains of substitution. A number of contributions have examined the effect of so-called “straddling firms” on the behaviour of companies who do not compete directly.⁷³ One model analyses situations in which there are three differentiated products. Company A offers one of the product varieties and company B offers a different product variety. The product varieties offered by companies A and B are distant substitutes. There is a “straddling” company, company C, which sells a variety that competes with varieties of both A and B. The model shows how the presence of the “straddling” firm creates

⁶⁸ *Microsoft, ibid.*, paras. 321–425, upheld on appeal in Case T-201/04, *Microsoft v Commission* [2007] ECR II-3601. See similarly *DSD*, OJ 2001 L 166/1, paras. 65–86; *P&I Clubs/Pooling Agreement*, OJ 1999 L 125/12, paras. 52–64; and *De Post–La Poste*, OJ 2002 L 61/32, paras. 36–50.

⁶⁹ *Microsoft, ibid.*, paras. 342, 401, and 425, upheld on appeal in Case T-201/04, *Microsoft v Commission* [2007] ECR II-3601.

⁷⁰ Case COMP/38/096, *Clearstream (Clearing and settlement)*, Commission Decision of 4 June 2004, paras. 135–37, upheld on appeal in Case T-301/04, *Clearstream Banking AG and Clearstream International SA v Commission* [2009] ECR II-3155.

⁷¹ *Ibid.*, para. 200.

⁷² Market Definition Notice, para. 57. See also OFT Market Definition Guidelines, OFT 403, December 2004, para. 3.11.

⁷³ See T Cooper, “Indirect Competition With Spatial Product Differentiation,” (1989) 37(3) *The Journal of Industrial Economics*, 241–57. See also PJ DeGraba, “The Effects Of Price Restrictions On Competition Between National And Local Firms,” (1987) 18(3) *RAND Journal of Economics* 333–47.

indirect competition between the products of companies A and B. The ability of company A to raise its price profitably is constrained directly by the presence of Firm C, and indirectly by the existence of firm B.

Suppose that company A considers increasing the price of its product. It will obviously take into account the possibility that some of its sales are diverted to company C, who offers a direct substitute. The loss of business will be smaller if company C responds to the price increase of A by raising the price it charges for its own product. However, the response of company C depends on the reaction of company B. If company C expects company B to keep its prices constant, then it likely will not raise its own prices by as much in response to the price increase of company A, which may then decide not to increase its price. In other words, competition from B deters company C from responding to the price increase of company A, making the price rise less profitable, and thereby imposing an indirect competitive constraint on company A.

Examples of chains of substitution. The Commission has applied the concept of substitution chains in several market definition exercises, primarily in the merger control area.⁷⁴ In *AstraZeneca/Novartis*, for example, the Commission identified two specific herbicides for two different kinds of weed that were not direct substitutes and a broad-spectrum herbicide that could be used for both kinds of weed. The Commission concluded that a chain of substitution operating through the broad-spectrum herbicide linked the two specific herbicides, preventing a hypothetical monopolist for one of the herbicides from raising profitably its price. Its reasoning was as follows:⁷⁵

“In this case, a natural question to ask would be whether a hypothetical sole supplier of all herbicides capable of controlling grasses (i.e. graminicides and, to a lesser extent, broad spectrum herbicides) would find it profitable to increase prices for these products in the way described above. This is not necessarily the case. After all, given that broad spectrum herbicides are competing with broadleaf weed herbicides, an increase in the price of the first would not only lead to a drop in sales stemming from farmers no longer using the broad spectrum product for grass control, but also stemming from farmers that used to buy the product for broadleaf weed control switching to “pure” broadleaf herbicides. To the extent that many buyers of broad spectrum herbicides buy the product to control both types of weeds and the value of broad spectrum products is substantial in comparison with grass weed herbicides, broadleaf weed herbicides do exercise a competitive pressure on the prices of broad spectrum herbicides and, hence, on the prices of graminicides. This is the so-called chain of substitution effect.”

3.2.4 Potential Competition

Generally irrelevant to market definition. As noted above in the context of supply-side substitution, the Commission’s Market Definition Notice states that “potential competition, is not taken into account when defining markets, since the conditions under which potential competition will actually represent an effective competitive constraint depend on the analysis of specific factors and circumstances related to the conditions of

⁷⁴ Case COMP/M.1806, *AstraZeneca/Novartis*, paras. 57, 58, and 60. See also Case COMP/M.2333, *De Beers/LVMH*, paras. 25–27; Case No IV/M.1780, *LVMH/PRADA/FENDI*, para. 11; and Case COMP/M.1882, *Pirelli/BICC*, para. 17.

⁷⁵ Case COMP/M.1806, *AstraZeneca/Novartis*, para. 60.

entry.”⁷⁶ This is clearly correct. There is no doubt that the threat of entry, even when costly and long term, constrains the extent to which a firm can exert market power. However, the threat of long-term entry imposes a different competitive constraint than supply-side substitution. To the extent that it involves irreversible investments, the former entails a strong “commitment.” Potential entrants do not respond to modest price increases and do not commit resources to markets where post-entry prices are expected to be low. In contrast, supply-side substitution represents 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.⁷⁷

The approach in *Paroxetine*. In a striking deviation from the approach set out in Market Definition Notice, the Court of Justice judgment in *Paroxetine* found that it may, in certain specific circumstances, be permissible to have regard to potential competition when defining a relevant market under Article 102 TFEU.⁷⁸ The case concerned a decision rendered by the UK competition authority, the Competition and Markets Authority (CMA), finding that an originator company, GlaxoSmithKline (GSK), entered into anticompetitive settlement agreements involving transfers of value to two generic companies who were involved in patent litigation with GSK. A third generic company, IVAX, also entered into a settlement agreement with GSK. However, under domestic UK law at the time, the competition laws concerning anticompetitive agreements did not apply to the IVAX agreement. The CMA instead applied domestic laws on abuse on dominance to the IVAX agreement—which are for all practical purposes the same as Article 102 TFEU—and found that GSK had abused its dominant position by entering into this agreement.

The basic issue of market definition was simple. The case concerned paroxetine, one of many different types of anti-depressants falling into a category known as selective serotonin reuptake inhibitors (SSRIs), which are generally therapeutic substitutes for each other. It was accepted by the CMA that GSK would *not* be dominant in a market defined as SSRIs, since there were multiple therapeutic substitutes in the SSRI category, and therapeutic substitution is the main indicator of demand-side substitution in pharmaceutical cases.

In a novel approach, however, the CMA suggested that the market should be defined as paroxetine—a single molecule—on the theory that, *following* independent entry by generic suppliers of paroxetine, the locus of competition would shift to intense price competition between GSK’s and the generics’ paroxetine products (rather than competition between paroxetine and other SSRIs). The complication which arose was

⁷⁶ Market Definition Notice, OJ 1997 C 372/5, para. 24. Thus, in *Clearstream*, the Commission analysed the threat of potential competition in the section on the assessment of dominance. See Case COMP/38/096, *Clearstream (Clearing and settlement)*, Commission Decision of 4 June 2004, paras. 209-215, upheld on appeal in Case T-301/04, *Clearstream Banking AG and Clearstream International SA v Commission* [2009] ECR II-3155, paras. 65-66. This view is consistent with the US approach which considers potential entry as factor that reduces market power rather than as an element of market definition. US Horizontal Merger Guidelines, *ibid.*, para. 3.

⁷⁷ See J Padilla, *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, p. 21.

⁷⁸ Case C-307/18, *Generics (UK) Ltd and others v CMA*, EU:C:2020:52.

that the settlement agreement between GSK and IVAX in the context of a patent dispute contained a provision that prevented IVAX from entering the market with its *own* product—at the time IVAX had not (yet) entered the market with its own product. Instead of entering with its own (potentially infringing) product, IVAX concluded a distribution agreement with GSK to distribute GSK's paroxetine. The CMA's case on abuse was that this settlement agreement affected potential competition from IVAX with its own paroxetine product.

In respect of market definition, the CMA sought to rely on these putative abuse findings to argue that: (1) market definition should also take into account the impact of potential independent generic entry by IVAX; and (2) if one assessed this potential competition, the market was not wider than paroxetine, and GSK would, on this basis, be dominant. The CMA argued that this approach was correct when (but for the settlement agreement) independent generic entry is looming and the very issue under consideration is action taken by the patent holder to stave off such independent generic entry.

This approach was controversial. In the first place, as noted, it is contrary to the Commission's approach in the Market Definition Notice of excluding potential competition from market definition, which, as also noted above, is justified in principle. More importantly, it involves regard being had to the putative abusive conduct at the market definition stage. This approach is unorthodox since "*before* an abuse of a dominant position is ascertained, it is necessary to establish the existence of a dominant position in a given market, which presupposes that such a market has already been defined."⁷⁹ The CMA's approach involves having regard to the effects of the putative abuse on potential competition *at* the market definition stage.

The Competition Appeal Tribunal referred this question to the Court of Justice. The question referred was "whether, where a patented medicine is therapeutically substitutable with a number of other medicines of a therapeutic class and where the alleged abuse within the meaning of Article 102 TFEU consists in the patent holder effectively excluding from the market generic versions of that medicine, those generic medicines should be taken into consideration for the purposes of definition of the product market concerned, although they could not lawfully enter the market before the expiry of the patent if (as is uncertain) that patent is valid and if that patent is infringed by those generic medicines." The Court of Justice answered the question in the affirmative.⁸⁰

The Court of Justice's essential reasons were as follows:⁸¹ (1) the key aspect of market definition under Article 102 TFEU is the degree of substitutability between the products or services under consideration; (2) substitutability is not, however, assessed solely in relation to the objective characteristics of the products and services at issue and can include consideration the conditions of competition and the structure of supply and demand on the market; (3) the substitutability of products is naturally dynamic, in that a new supply of products may alter the conception of the products considered to be interchangeable with a product already present on the market or as substitutable for that

⁷⁹ See Case T-62/98, *Volkswagen v. Commission* [2000] ECR II-2707, para. 230 (emphasis added).

⁸⁰ Case C-307/18, *Generics (UK) Ltd and others v CMA*, EU:C:2020:52.

⁸¹ *Ibid.*, paras. 123-140.

product and, in that way, justify a new definition of the parameters of the relevant market; (4) if the generic manufacturers are in a position to present themselves within a short period on the market concerned with sufficient strength to constitute a serious counterbalance to the originator medicine already on the market, the market may be limited to the molecule in question; (5) evidence of entry within a “short period” can include the generics obtaining a marketing authorisation, concluding supply contracts with third-party distributors, or even the perception of the originator of the immediacy of the threat of market entry; and (6) the fact that the originator relies on patents against the generics does not undermine this conclusion, since the mere assertion of such patents offers no certainty that generic entry can ultimately be prevented.

These findings stretch the concept of market definition under Article 102 TFEU considerably. They appear intended to plug a perceived gap in circumstances where, as in *Paroxetine*, Article 101 TFEU cannot for some idiosyncratic reason apply. It is certainly controversial to approach market definition on such a “forward-looking” basis, since it attaches potentially decisive importance to competition which not only has not taken place yet. Indeed, it is even more controversial in circumstances where, as in *Paroxetine*, independent generic entry may not lawfully happen at all due to the originator’s patents. It is of course a truism that if there is generic entry the originator’s prices will fall quickly as a direct result of such generic entry. But to covert such uncertain potential benefits into the lodestar of market definition, to bolster the case for dominance, is controversial.

In many ways, the radical aspect of *Paroxetine* is not such much a technical question of market definition as to whether potential competition can feature in the analysis. The more pressing issue may be that it may now allow what are effectively *attempted* abuses to be challenged under Article 102 TFEU. In contrast to Section 2 of the United States Sherman Act, Article 102 TFEU contains no offence of attempted monopolisation. Article 102 TFEU only applies to firms that are dominant at the time the alleged abuse is committed. There is no scope for applying Article 102 TFEU to conduct that would tend to *create* a dominant position where none exists at the time the conduct was carried out, i.e., monopolisation claims:⁸² “only the strengthening of dominant positions and not their creation can be controlled under Article [102 TFEU].”⁸³

The requirement of prior (or at least contemporaneous) dominance does of course impose significant limitations on the application of Article 102 TFEU to deception-related issues, since it may mean that at the time the undertaking commits the alleged deception it is not dominant, and Article 102 TFEU cannot therefore apply.⁸⁴ As

⁸² By contrast, monopolisation claims (including attempted monopolisation) can be made under Section 2 of the Sherman Act in the United States.

⁸³ See Case T-102/96 *Gencor Ltd v Commission* [1999] ECR II-753, para. 155 (citing Case 6/72, *Europemballage Corporation and Continental Can Company Inc v Commission* [1973] ECR 215, para. 26).

⁸⁴ Competition authorities and courts would thus be prevented from conducting the type of analysis that is sometimes undertaken in technology markets under merger control rules, where account is taken of pipeline products in assessing the extent to which nascent technologies would create dominance in the near future. See, e.g., *Glaxo Wellcome/SmithKline Beecham*, OJ 2000 C 170/6, para. 70 (“In the pharmaceuticals industry, a full assessment of the competitive situation requires examination of the products which are not yet on the market but which are at an advanced stage of development.”). See

discussed in Chapter Thirteen (Abusive Conduct And Standards), this presented some difficulties for the Commission in *Rambus*. Rambus was accused of allegedly deceptive activity within a standards setting organisation (SSO). One of the issues which may arise in a SSO context is that, at the time of the allegedly deceptive activity, the patentee may not be dominant, since the SSO would usually have the option of working around a known patent issue. However, if a patent is concealed, and then later asserted, the patentee may have acquired considerable market power through the allegedly deceptive activity. The way the Commission got around this issue was to characterise the abuse not as intentional non-disclosure but Rambus' ability to claim royalties "at a level which absents its allegedly intentional deceptive conduct it would not have been able to charge."⁸⁵ On this basis the Commission considered that Rambus held a dominant position "at the point when it started *asserting* its patents and continues to hold that dominant position since."⁸⁶ But, in the light of *Paroxetine*, the Commission (and competition authorities and plaintiffs) may well seek to argue that, applying a "forward-looking" approach to market definition, dominance is now made out at the earlier point of the conduct.

3.3 RELEVANT PRODUCT MARKETS: FROM THEORY TO PRACTICE

3.3.1 Hypothetical Monopolist Test: Overview

Basic elements of the hypothetical monopolist test. Definition of the relevant product market requires a determination of which products, if any, are reasonably close substitutes for the products under examination, and so are in competition with them. Such a determination cannot be based on anecdote or intuition. Rather, it must be based on a rigorous assessment of economic substitutability. The search for an analytical means of identifying such products has led to the development of an economically sound methodology—the "hypothetical monopolist test" ("HMT"). Under this test, a market is defined as a product or a group of products that a hypothetical firm, seeking to maximise its profits not subject to price regulations and constituting the unique present and future seller of these goods, could impose a significant and lasting price increase. In short, the hypothetical monopolist test seeks to determine the narrowest market on which a hypothetical monopolist could exercise market power.

The HMT test was first developed by the US enforcement agencies in their Horizontal Merger Guidelines, amended most recently in 2010.⁸⁷ The HMT has subsequently gained widespread acceptance among competition authorities and courts worldwide, authorities including the Commission,⁸⁸ the EU Courts, and national courts. The HMT

also *AstraZeneca/Novartis*, OJ 2004 L 110/1; *Pfizer/Warner Lambert*, OJ 2000 C 210/9; COMP/M.5661 *Abbot/Solvay Pharmaceuticals*; and COMP/M.7975 *Mylan/Meda*.

⁸⁵ *Rambus*, OJ 2010 C 30/17, para. 28.

⁸⁶ *Ibid.*, para 26 (emphasis added).

⁸⁷ US Department of Justice and Federal Trade Commission *Merger Guidelines* issued 19 August 2010.

⁸⁸ See Market Definition Notice, OJ 1997 C 372/5, s. III. The Commission also followed the principles of the hypothetical monopolist test in several cases. See, e.g., *Tetra Pak I (BTG licence)*, OJ 1988 L 272/27, para. 30; *Eurofix-Bauco/Hilti*, OJ 1988 L 65/19, para. 60; and *1998 Football World*

has made a valuable contribution in providing a more rigorous basis for market definition in EU competition law. This test is a “thought experiment”⁸⁹ that can be applied in practice relying on both quantitative and qualitative evidence. The translation of the theory of the HMT into a practical tool applied to the facts of a particular case may not always be easy, however. While the theory behind the HMT is reasonably clear, implementing it in practice is much less so. Crisp equations and clean demand curves often become blurred and imprecise when the HMT theory is applied to a given set of facts. The actual definition of the relevant market necessarily involves the exercise of judgment and discretion in practice.

Iteration of the HMT test. The HMT test iterates through three steps. The first step is to define a candidate set of products for the hypothetical monopolist to control. This defines the so-called *candidate market*,⁹⁰ which in an Article 102 TFEU investigation is given by the products or services of the allegedly dominant firm that are the subject of commercial practices under investigation.⁹¹ For example, in a predation case, the candidate market will be given by the product(s) of the allegedly dominant firm which are allegedly priced below cost.

The second step is to consider the effect of demand-side substitution on the profitability of a price rise by the hypothetical monopolist. The test asks whether this would be rendered unprofitable by defections of customers who choose to buy products outside the candidate market rather than paying the higher price.

The final step in the process is to consider the effect of supply-side substitution. The test asks whether suppliers of products outside the candidate market could and would respond to an increase in price by the hypothetical monopolist by quickly entering the candidate market and offering a substitutable product.

If the hypothetical monopolist is not able to raise prices profitably over the initial set of products for a sustained period of time, it means that consumers would switch to products outside the candidate market. The candidate market would have to be redefined to include those substitutable products. This process would continue

Cup, OJ 2000 L 5/55, para. 66. See also Case IV/M.214, *Du Pont/ICI*, para. 23 (“For two products to be regarded as substitutable, the direct customer must consider it a realistic and rational possibility to react to, for example, a significant increase in the price of one product by switching to the other product in a relatively short period of time.”). The United Kingdom competition authorities have also confirmed that the HMT is the central plank of their analysis. See Office of Fair Trading and Competition Commission, *Merger Assessment Guidelines*, CC2 (Revised) and OFT 1254, September 2010. See also Autorité de la Concurrence, *Projet révisé des lignes directrice de l’Autorité de la concurrence relative au contrôle des concentrations*, February 2013, and International Competition Network, *Assessing Dominance/Substantial Market Power*, May 2011.

⁸⁹ See J Gual, “Market Definition In The Telecoms Industry,” *CEPR Discussion Paper* No. 3988 (2003).

⁹⁰ The term “candidate market” originates from Werden. See GJ Werden, “Market Delineation And The Justice Department’s Merger Guidelines,” (1983) *Duke Law Journal* 514; and GJ Werden, “The 1982 Merger Guidelines And The Ascent Of The Hypothetical Monopolist Paradigm,” (2003) 71 *Antitrust Law Journal* 253–75.

⁹¹ The candidate market should not be disaggregated further. See GJ Werden, “Market Definition Algorithms Based On The Hypothetical Monopolist Paradigm,” *US DOJ Antitrust Division Economic Analysis Group Discussion Paper* No. 02-8, July 2002.

iteratively until a putative market is found for which the hypothetical monopolist is able to raise prices profitably.

A difficulty with the HMT test is that the precise boundaries of the relevant market may depend on the iterative process that is applied. This is why (1) it is essential to define the candidate market as indicated above and (2) apply an iterative algorithm such that the candidate market is sequentially enlarged by adding products according to their “closeness” to the products in the candidate market.⁹²

3.3.2 Assessing Demand-Side Substitution Under The HMT

Overview. Several quantitative techniques can be used to undertake a HMT. The most satisfactory of all—because it attempts to directly implement the HMT test—is the small but significant non-transitory increase in price (SSNIP) test. This test uses data on prices and sales volumes to assess whether a hypothetical monopolist could profitably increase the prices of the products in the candidate market by 5–10% during a sustained period of time.⁹³ An alternative quantitative approach is to investigate how the prices of the products in the candidate market react to changes in the prices of some products outside the candidate market, but which are in principle related to them. Price correlation studies and co-integration analysis are the main techniques used in this connection. If a reduction in the price of a product outside the candidate market triggers a price cut within the candidate market, then there are reasons to argue that the market should be enlarged. The SSNIP test and price correlation and co-integration techniques are described in detail below, as well as their respective limitations.

A second-best approach to the HMT test is the *use of qualitative evidence* based on an analysis of product characteristics and customer preferences and needs. This information is used to identify substitutable products that may undermine the attempt to raise the prices of the products in the putative market. Qualitative evidence is less reliable than quantitative techniques since it does not measure the hypothetical monopolist’s ability to raise prices either accurately or at all. As noted earlier, qualitative evidence has historically played an important role in Article 102 TFEU cases, although quantitative techniques are increasingly being used, with qualitative evidence providing a useful cross-check. The role of qualitative evidence under Article 102 TFEU is also discussed below. Finally, other evidence—such as consumer surveys and natural experiments—may be used in some cases to support market definition.

3.3.2.1 Quantitative techniques

Basic operation of the SSNIP test. The SSNIP test operates as follows. Starting with the candidate market, the analysis considers whether a hypothetical monopolist with control over this (initial) set of products is able permanently and profitably to raise the price of these products by 5–10%, assuming that the prices of all other products remain constant. If the answer is affirmative, then the relevant product market contains that

⁹² See GJ Werden “Market Definition Algorithms Based On The Hypothetical Monopolist Paradigm,” SSRN 327282, 2002.

⁹³ As noted by Baker, “this figure is not a tolerance level for anticompetitive price increases; it is merely a conceptual benchmark for assessing buyer substitution.” See J Baker, “Market Definition,” in WD Collins (ed.), *Issues In Competition Law And Policy*, (2008) Vol I, pp.315-352.

(initial) set of products—i.e., coincides with the candidate market. Otherwise, new products (the closest substitute to those in the initial set) should be added to the market and the exercise repeated. The relevant market is then defined as the smallest set of products that meets the “hypothetical monopolist” test. According to the Market Definition Notice:⁹⁴

“The question to be answered is whether the parties’ customers would switch to readily available substitutes...in response to an hypothetical small (in the range 5%–10%), but permanent relative price increase in the products and areas being considered. If substitution were enough to make the price increase unprofitable because of the resulting loss of sales, additional substitutes and areas are included in the relevant market. This would be done until the set of products...is such that small, permanent increases in relative prices would be profitable.”

A price increase has two opposing effects on profits: a higher price leads to a higher unit margin and greater profits, but reduces demand. Only if the first effect outweighs the second is the price increase profitable. This trade off is resolved by means of a *critical loss analysis*. This analysis compares the actual losses that are likely to result from a price increase with a threshold—the critical loss—which is equal to the level of sale losses for which a given price increase is just profitable.⁹⁵ Thus, the critical loss is the point where the two opposing effects of a price increase offset each other so that the net effect in profits is nil. If the actual losses of a price increase exceed this threshold, then the price increase is not profitable.

Formal steps in a critical loss analysis. A critical loss analysis involves three steps: (1) the calculation of the critical loss; (2) an estimate of the sales likely to be lost to competitors in the event of a price increase; and (3) a comparison of two figures in order to see if a price increase would be profitable or not.

1. *Assessing the critical loss.* Consider a hypothetical monopolist with control over the products and services included in the relevant product market. Suppose that it considers increasing its prices by X per cent (where X is equal to 5 or 10 in the typical experiment). Suppose in addition that prior to that price increase the gross margin (the difference between revenues and the cost of sales) achieved by the monopoly supplier was m per cent.⁹⁶ The profits earned by the hypothetical monopolist prior to the price increase were equal to $m p Q$, where Q denotes the monopolist’s output and p its price. After the price increase, the monopolist’s profits equal $(m + X) p Q (1 - z)$, where z captures the reduction in output that results from the price increase. The critical loss is then given by the value of z that makes the profits before and after the price increase equal:

⁹⁴ Market Definition Notice, OJ 1997 C 372/5, para. 17.

⁹⁵ The critical loss analysis was formally developed by BC Harris and JJ Simon, “Focusing Market Definition: How Much Substitution Is Necessary?,” (1989) 12 *Research in Law and Economics* 207–26. See also J Langefeld and W Li, “Critical Loss Analysis In Evaluating Mergers,” (2001) *Antitrust Bulletin* 299–337; and DP O’Brien and AL Wickelgren, “A Critical Analysis Of Critical Loss Analysis,” (2003) 71(1) *Antitrust Law Journal* 161–84.

⁹⁶ Formally, $m = (p - c)/p$, where c denotes the unit variable cost of the monopolist. This is also known as the Lerner index.

$$z^* = \frac{X}{X + m}$$

A greater loss (i.e., a value of z greater than z^*) would render the price increase unprofitable. Note that the critical loss is lower when the gross margin m is higher. When m is high, the negative impact on profits of a reduction in volume is large.

2. *Assessing actual losses.* The loss in sales that results from an X per cent price increase is given by the price elasticity of demand of the product or products in the candidate market. The elasticity of demand measures the response of consumers to a change in price and, therefore, provides information on the amount of sales lost as a result of a small though significant and non-transitory increase in price of X per cent. A high elasticity indicates that consumers are very responsive to price changes and, consequently, that the loss in sales resulting from the price increase is large. Let e denote the elasticity of demand of the products in the candidate market, then the actual loss in sales associated with a price increase is greater when e is large. Suppose it is possible to estimate the proportion of sales D that would be lost following an X per cent price increase, the actual loss would be:

$$A = (1 - D) \frac{X}{m}$$

3. *Comparison.* If the price increase leads to a loss in sales lower than the critical loss, the overall effect on profits is positive and the price increase is profitable. If that is the case, the candidate market constitutes a properly defined relevant product market. If, instead, the price increase leads to a loss in sales that exceeds the critical loss z^* , then the candidate market does not constitute a relevant market and, therefore, needs to be enlarged to encompass those products which attracted consumers from the products in the candidate market following the price increase (i.e., their closest substitutes). The actual loss associated to an X per cent price increase likely will exceed the critical loss, and hence the market will be broader than the candidate market, when the elasticity of demand e is large and the gross margin m is high. A high elasticity of demand implies a significant loss in volume, while a high gross margin indicates that the opportunity cost of losing volume is high.⁹⁷

A practical example. Sauces like mustard, ketchup, brown sauce and other condiments are “cold sauces,” to use the language of the Commission in its merger decision in *Unilever/Best Foods*.⁹⁸ Suppose two makers of a variety of condiments wish to merge in a national market and wish to ascertain whether the approving agency is likely to conclude that different product categories (e.g., mayonnaise, barbecue sauce, brown

⁹⁷ Note, however, that in equilibrium there is an inverse relationship between m and e . In other words, the margin is high when the elasticity is low and vice versa. Thus, critical loss analyses claiming that both m and e are very high are likely to be erroneous. See below.

⁹⁸ Case No IV/M.1990, *Unilever/Bestfoods*.

sauce, ketchup etc.) constitute separate or combined markets. In order to apply the SSNIP test to each of these product categories, the merging firms would need to provide data on the gross margins for each product. With these data, the critical loss for each product could be calculated.

A complete analysis would require the econometric estimation of a full demand model in order to compute the loss that would result from a modest but non-trivial price increase. The simplest technique would be to regress sales volumes against the price of each product (controlling for product characteristics as well as for time-specific and company-specific fixed effects). Supermarket scanner data from firms such as ACNielsen, GfK, or IRI would allow the sales volume and prices of each product category, and for each firm selling that product, to be calculated over multiple periods. The coefficient of the price variable in such a regression would provide a direct estimate of the elasticity of demand for each product, which could then be used to calculate the actual loss associated to a price increase. This could then be compared with the critical loss value calculated previously to see if its is larger (narrow market) or smaller (broad market).

Criticisms of the SSNIP test. The SSNIP test has been subject to two principal criticisms. The first criticism relates to false conclusions that may result from the measurement of the elasticity of demand in Article 102 TFEU cases—known as the “cellophane fallacy.” Suppose A’s products are *already* priced supra-competitively. In this circumstance, the elasticity of demand of Firm A’s products may be very large simply because at those prices some products which consumers would not regard as substitutes at competitive prices become credible alternatives. So, the SSNIP test may show switching to other products at prevailing prices, whereas, had Firm A priced its product at a competitive level, switching would either not have occurred at all or at a level insufficient to impose an effective competitive constraint. This defect in the SSNIP test is discussed below, together with the principal solutions proposed.

A second criticism also concerns the practical application of the SSNIP test and, in particular, the relationship between the estimated values of the elasticity of demand and the gross margin. Normally, when gross margins are high, one would expect a low value of the critical loss, so that it would be unprofitable for a firm to risk a price increase. However, a high margin is typically associated to a low elasticity of demand.⁹⁹ And, as we saw above, a low elasticity of demand constitutes evidence in favour of a narrow market. Therefore, it is not possible to rely exclusively on the size of the gross margin in the delineation of the relevant product market.

A third criticism of the SSNIP test is that its implementation requires making an assumption about the shape of the demand schedules around the benchmark price (i.e., the competitive price in abuse of dominance cases). A fourth criticism is that the SSNIP

⁹⁹ Economic theory shows that a monopolist maximising short-term profits would set prices (quantities) so that its gross margin is inversely related to its own elasticity of demand: $m = 1/e$. This is known as the Lerner equation.

test tends to produce overly narrow markets, especially in industries where marginal costs are low and fixed costs are high.¹⁰⁰

a. The cellophane fallacy. The cellophane fallacy highlights a practical flaw of the SSNIP test and the critical loss analysis when applied to Article 102 TFEU cases.¹⁰¹ The SSNIP test requires examining whether a hypothetical monopolist could profitably and permanently raise prices above their “competitive level.” However, if a firm is dominant, its prices are already likely to be at supra-competitive levels. The implication of this is that the estimated elasticity of demand and gross margin will be greater than if prices corresponded to a competitive market. The elasticity of demand will therefore be overestimated because, at high prices, consumers regard even inferior substitutes as attractive, whereas, if prices were at the lower, competitive level, they would not. As a result, the application of the SSNIP test in abuse of dominance cases may lead to excessively broad market definitions that tend to mask the existence of dominant positions.

A number of solutions have been proposed to address the problem of the cellophane fallacy. Ultimately, however, there is no single, best solution. Much will depend on what evidence is available to estimate the extent to which prices already exceed the competitive level, including by reference to qualitative criteria and experience in comparable markets:

1. *Estimate the competitive price before undertaking a critical loss analysis.* One obvious solution in order to avoid drawing a wrong inference from the existence of supra-competitive prices is to estimate the competitive price level prior to engaging in a critical loss analysis.¹⁰² But, in practice, this is not a very realistic alternative, given the enormous difficulties of estimating a competitive price in most industries.¹⁰³ These problems have plagued the analysis of excessive pricing under Article 102 TFEU and, as discussed in Chapter 14 (Excessive Prices), no effective solution has emerged. A second difficulty is that estimating the competitive price level would transform the SSNIP test into a direct test of dominance. If, somehow, the competitive price level could be identified, then there would be no need to go through the whole

¹⁰⁰ DS Evans, “Lightening Up On Market Definition,” in E Elhauge (ed.) *Research Handbook On The Economics Of Antitrust Law*, Edward Elgar (2012), Chapter 3. This bias towards narrow markets inherent in the SSNIP or HMT test should make analysts somewhat less concerned about the cellophane fallacy.

¹⁰¹ The cellophane fallacy received its name from *United States v E.I. Du Pont De Nemours & Co*, 351 US 377 (1956). DuPont (wrongly) claimed that cellophane was not a separate market, since there was a high cross-price elasticity of demand with other flexible packaging material.

¹⁰² S Bishop and S Baker, “The Role Of Market Definition In Monopoly And Dominance Inquiries,” *Economic Discussion Paper 2*, OFT 342, July 2001, para. 3.4. Both the Commission and the OFT acknowledge the distinction between the prevailing and the competitive price level in their respective guidelines. See Market Definition Notice, OJ 1997 C 372/5, para. 19; OFT Market Definition Guidelines, OFT 403, December 2004, para. 2.10.

¹⁰³ Rejecting the prevailing price level in favour of some notional “competitive” price also renders correlation analysis irrelevant and complicates consumer surveys. See W Consult and S Sanders, *Methodologies For Market Definition And Market Analysis*, Study for ICP-ANACOM, 2003, p. 23.

process of defining relevant markets and assessing dominance on the basis of structural and behavioural proxies.¹⁰⁴

2. *Use a combination of qualitative and quantitative evidence.* Another proposed solution is to adopt a qualitative approach based on the analysis of product characteristics and intended use, but taking into account the logic and principles of the SSNIP test and the critical loss analysis.¹⁰⁵ The SSNIP test forces analysts to take a structured view of the process of market definition and takes into account only those products that are potentially demand-side or supply-side substitutes of those forming part of the relevant market. A purely *ad hoc* market definition, which ignores these basic principles, is likely to produce overly narrow markets. What is important is not the difference in physical characteristics *per se* but the manner in which these differences influence demand. Relying on the sound principles of the SSNIP test ensures that: (a) two physically similar products which, however, are not regarded as substitutes by consumers, are not included in the same market; and (b) two products with relatively dissimilar functionality, but which consumers regard as substitutes, are included in the same relevant product market. Additionally, because the cellophane fallacy may lead to overly broad markets, it is important to verify that the characteristics and intended use of the products that are taken to be part of the relevant market make them credible substitutes.
3. *Use other comparable markets as a crosscheck.* A third alternative complements the critical loss analysis approach to market definition with: (a) the qualitative analysis of product characteristics and customer needs; and (b) the study of competition in “comparable” markets, i.e., markets with similar structural and non-structural characteristics. Direct application of the critical loss analysis provides an upper boundary to the scope of the relevant product market: all products that are found to be outside the relevant product market using a critical loss analysis at prevailing (high) prices can be safely excluded.¹⁰⁶ The additional analysis of physical product characteristics could help to limit the size of the possibly overly wide market emerging from the critical loss analysis. Another possible way to refine the market definition resulting from the quantitative analysis is to investigate market conditions in similar markets that are more competitive than the one under investigation. If the price level in these markets is not significantly lower than in the market defined using a standard critical loss analysis, then it is unlikely that the cellophane fallacy plays a major role.¹⁰⁷
4. *Examine the competitive reactions of the allegedly dominant firm.* Another possibility is to investigate whether the allegedly dominant firm monitors and reacts to the price changes and new product introductions of its competitors. If

¹⁰⁴ S Bishop and S Baker, “The Role Of Market Definition In Monopoly And Dominance Inquiries,” *Economic Discussion Paper 2*, OFT 342, July 2001, para. 3.7.

¹⁰⁵ *Ibid.*, paras. 3.35–3.40.

¹⁰⁶ S Bishop and S Baker, “The Role Of Market Definition In Monopoly And Dominance Inquiries,” *Economic Discussion Paper 2*, OFT 342, July 2001, para. 3.34.

¹⁰⁷ *Ibid.*, para. 3.46.

it does, then those products are likely to be close substitutes for its own products and the locations where those rivals operate are likely to be part of the same geographic market than the firm in question.¹⁰⁸

5. *The small but significant non-transitory “decrease” in price (SSNDP) test.* An alternative way to delineate the boundaries of the relevant market is to consider the impact on the volume sold by a hypothetical monopolist of a 5–10% *reduction* in the prevailing price (unlike an *increase* in the case of SSNIP).¹⁰⁹ If the prevailing price was supra-competitive, the price reduction would lead to a relatively small increase in sales (otherwise, the price would not have been increased to its prevailing level in the first place). On the contrary, if the prevailing price was competitive, the output response to the price reduction would be large or small depending on the degree of substitution between the products in the candidate market and those outside it. Therefore, evidence that the response to a price reduction would trigger a significant output response suggests a broad market and a high degree of competition. On the other hand, if a small price reduction does not cause a significant increase in output, then the candidate market is likely to be a proper antitrust market where market power can be, or already is, exercised.

While one cannot ignore the cellophane fallacy when defining markets in Article 102 TFEU cases, concerns in this regard may be overstated in exclusionary abuse cases. These cases can be assimilated to mergers, as the key question is whether the unilateral behaviour is likely to change market structure and lead to increases in prices. If a competition authority is interested in investigating the incentive and ability of a company to engage in exclusionary conduct, it is essentially interested in understanding the competitive constraints that exist at the time the abuse is taking place and that may prevent the company from profitably raising prices once competitors are excluded—i.e., during the so-called recoupment period. Therefore, as the relevant competitive constraints in exclusionary abuse cases are those which exist at the time that the dominant firm is engaged in the conduct under scrutiny, and not those that would keep prices at levels that would only be observed in a hypothetical perfectly competitive scenario, the SSNIP test can be as meaningfully applied in exclusionary cases as in mergers.

b. Consistency between elasticity and margin estimates. As explained above, a higher gross margin is typically associated with a lower value of the critical loss threshold. This fact has been used by defendants to argue that a firm enjoying high gross margins is unlikely to find a price increase profitable and, hence, to support a finding of a wide product margin. This argument is conceptually flawed and may lead to incorrect delineations of the relevant product market. Economic theory shows that in markets where firms maximise short-term profits, the gross margin is inversely related to the own price elasticity of demand. A high gross margin is therefore associated to a

¹⁰⁸ See J Baker, “Market Definition,” in WD Collins (ed.), *Issues In Competition Law And Policy*, vol I, ABA Publishing, 2008.

¹⁰⁹ See Baker, *ibid.* See also PB Nelson and LJ White, *Market Definition And The Identification Of Market Power In Monopolisation Cases: A Critique And A Proposal*, Working Paper #EC-03-06 of Stern School of Business, (November 2003).

low elasticity of demand and *vice versa*. But since a low elasticity of demand implies that the actual volume loss resulting from a price increase is small and hence points to a narrow market finding, it is not possible to establish an unambiguous relationship between the size of the gross margin and the dimension of the relevant product market. In sum, it is not possible to conclude that the relevant product market is likely to be broad based on an analysis of gross margin only. And, furthermore, unless there are good reasons to sustain otherwise,¹¹⁰ a rigorous critical loss analysis must take into account the inverse relationship between the gross margin and the own price elasticity of demand.¹¹¹

c. The shape of demand. As noted above, the implementation of the SSNIP test in Article 102 TFEU cases requires making an assumption on the shape of the demand curve around the competitive price-quantity equilibrium. The standard assumption is that demand is linear. However, this assumption is often unjustified since demand is likely to be non-linear. The results of the HMT critically depend on the curvature of the demand function.¹¹²

Other quantitative techniques for assessing demand-side substitution. The SSNIP test is not the only quantitative approach to market definition. An alternative is to analyse the behaviour of the prices of the products in the candidate market in response to changes in the prices of products with characteristics that place them *outside* the candidate market. Two common methodologies for this sort of analysis are price correlations and co-integration analysis.

a. Price correlations. Price correlation analysis measures the extent to which the prices of two or more different products are interrelated.¹¹³ A strong positive correlation between the prices of two different products suggests, but does not prove, that the two products belong to the same market. If two products A and B are in the same relevant market, their relative price (the ratio of the price of A with respect to the price of B) cannot change significantly: a change in their relative prices would trigger a process of demand-side or supply-side substitution that would bring the relative price back to its starting point. This relationship is given mathematically by the “correlation coefficient.” Two prices are perfectly positively correlated prices if their correlation

¹¹⁰ This may be the case, for example, because firms do not maximise short-term profits but rather engage in dynamic pricing to penetrate a market or because they operate in two-sided markets.

¹¹¹ See ML Katz and C Shapiro, “Critical Loss: Let’s Tell The Whole Story,” *Antitrust*, Spring 2003, 49-56. For a response, see DT Scheffman and JJ Simons, “The State of Critical Loss Analysis: Let’s Make Sure We Understand The Whole Story,” *Antitrust Source*, November 2003. For a counter-response, see ML Katz and C Shapiro, “Further Thoughts On Critical Loss,” *Antitrust Source*, March 2004.

¹¹² See L Froeb, S Tschanz, and G Werden, “Pass-Through Rates And The Price Effects Of Mergers,” *International Journal of Industrial Organisation*, 2005.

¹¹³ Instead, *price level* comparisons are not useful for market definition. Two products A and B may have very different prices and still be part of the same relevant product market. This is because consumers may be willing to substitute the high price (but high quality) product A for the low price (but low quality) product B. The OFT Market Definition Guidelines are explicit on this point: “Although a one is of a lower quality, customers might still switch to this product if the price of the more expensive product rose and if they no longer felt that the higher quality justified the price differential.” See OFT Market Definition Guidelines, OFT 403, December 2004, para. 3.5.

coefficient is +1, while they are perfectly negatively correlated if they have a correlation coefficient of -1. A coefficient of 0 means that two prices are uncorrelated.

The Commission has used correlation analysis in several cases, most notably in the *Nestlé/Perrier* merger decision. The Commission found that the prices of all water brands were highly correlated, regardless of whether the water was still or sparkling. In contrast, the prices of the water brands were poorly correlated with those of soft drink brands. In these circumstances, the Commission concluded that there was a separate market for all bottled waters, distinct from the soft drink market.¹¹⁴ In *AstraZeneca*, the Commission analysed a series of price correlation studies to confirm whether there was evidence of substitution between PPIs and H2 blockers, which might rebut its preliminary conclusion that there was no such substitution from a therapeutic usage perspective. The Commission concluded that on the sole basis of the correlation coefficients, there was *prima facie* no substitution between PPIs and H2 blockers in five of the geographic markets considered.¹¹⁵ In the correlation study it was assumed that only the existence of a constantly negative pattern (i.e., a negative correlation coefficient of between 0 and -1) between relative prices and sales in a country would indicate that there was substitution between PPIs and H2 blockers. In each of the five relevant geographic markets, the correlation coefficient was positive, albeit to differing degrees ranging from +0.15 to +0.92.¹¹⁶

This methodology presents two problems. First, there is no threshold coefficient above which the two products can be considered conclusively part of the same relevant market. Second, the correlation may be *spurious*, i.e., due to factors other than demand-side or supply-side substitution. For example, the prices of two products may move together over time in response to common external factors, such as cost shocks, exchange rate shocks, etc. They may be correlated simply as a result of having a common trend. In short, a positive correlation need not necessarily indicate that two products are close substitutes.¹¹⁷ Consistently, the Commission has in practice adopted the following rule of thumb: while no price correlation (or a negative price correlation) constitutes evidence that two products belong to separate product markets, a positive price correlation, even when close to one, is not evidence that they are part of the same relevant product market.

b. Co-integration or stationarity analysis. The goal of a co-integration analysis is to estimate possible relationships between economic data series, such as price series, that are non-stationary. Broadly speaking, a non-stationary time series varies widely over time without exhibiting a long-run stable relationship. Two price series (the price series of, say, products A and B) are co-integrated if a combination of two price series (for example, the difference between two prices) is stationary and exhibits a long-run

¹¹⁴ *Nestlé/Perrier*, OJ 1992 L 356/1.

¹¹⁵ Case COMP/A.37.507/F3, *AstraZeneca*, Commission Decision of 19 July 2006, paras. 76 and 400-457, largely upheld on appeal in Case T-321/05, *AstraZeneca v Commission* [2010] ECR II-2805 and Case C-457/10 P, *AstraZeneca v Commission* EU:C:2012:770.

¹¹⁶ *AstraZeneca*, *ibid.*, para. 76.

¹¹⁷ See LECG, *Quantitative Techniques In Competition Analysis*, OFT Research paper 17, October 1999, pp. 53-55.

relationship.¹¹⁸ If the price series of two products are co-integrated, this means that there is a strong relationship between the two, which indicates that both products may be interchangeable.

The Commission has employed co-integration analyses in several merger cases.¹¹⁹ In *Gencor/Lonrho*, for example, the Commission had to consider whether platinum, gold, silver, rhodium, and palladium were part of separate markets. The Commission found high correlation coefficients between those products, but noted that “a high correlation does not in itself imply a causal relationship...indeed economic price-series data are often non-stationary (i.e., trended) and therefore automatically correlated.”¹²⁰ Accordingly, the Commission undertook a co-integration analysis that led to the conclusion that the products were in separate markets.¹²¹

This method addresses some of the concerns associated with price correlation analysis. Because the analysis focuses on relative price changes between two series, common influences are cancelled out and do not contaminate the results. Co-integration analysis is capable of identifying delayed price responses, something that is impossible with contemporaneous price correlations.¹²² However:¹²³

“[b]oth analyses should be viewed as complements rather than substitutes, as each has its own advantages and disadvantages. While the key advantage of correlation analysis is that it is fairly easy to implement, it suffers from some important shortcomings that need to be taken into account when interpreting the results. Stationarity tests, on one hand, avoid most of the issues that correlation analysis is suspect to and also do not require any benchmarks. On the other hand, they involve sophisticated econometric tests that are more difficult to implement and can also result in misleading findings due

¹¹⁸ For a formal treatment of co-integration, see RF Engle and CWJ Granger, “Co-Integration And Error Correction: Representation, Estimation And Testing,” (1987) 55 *Econometrica* 251–76. For a discussion of how to apply co-integration analysis to market definition, see S Gürcan Gülen, “Rationalisation In The World Crude Oil Market,” (1997) *The Energy Journal* 109–26; I Horowitz, “Market Definition In Antitrust Analysis: A Regression-based Approach,” (1981) 48 *Southern Economic Journal* 1–16; M Forni, “Using Stationarity Tests In Antitrust Market Definition,” (2004) 6(2) *American Law and Economics Review* 441–64; AE Rodriguez and MD Williams, “Is the World Oil Market ‘One Great Pool’? A Test,” (1993) *Energy Studies Journal* 121–30; ME Slade, “Exogeneity Tests Of Market Boundaries Applied To Petroleum Products,” (1986) 34(3) *Journal of Industrial Economics* 291–303; JG Werden and LM Froeb, “Correlation, Causality, And All That Jazz: The Inherent Shortcomings Of Price Tests For Antitrust Market Definition,” (1993) 8 *Review of Industrial Organisation* 329–53, 344; and H Wills, “Market Definition: How Stationarity Tests Can Improve Accuracy,” (2002) 23(1) *European Competition Law Review* 4–6. For a defence of these methods, see M Forni, “Using Stationarity Tests In Antitrust Market Definition,” (2004) 6(2) *American Law and Economics Review* 441–64.

¹¹⁹ See Case IV/M.619, *Gencor/Lonrho*, upheld on appeal in Case T-102/96, *Gencor Ltd v Commission* [1999] ECR II-753. See also Case COMP/M.2187, *CVC/Lenzing*; and Case IV/M.315, *Mannesmann/Vallourec/Ilva*.

¹²⁰ *Gencor*, *ibid.*, para. 52.

¹²¹ *Ibid.*, para. 53.

¹²² Lexecon, *An Introduction to Quantitative Techniques in Competition Analysis* (2004), p. 10. See also P Davis and E Garcés-Tolón, *Quantitative Techniques for Competition and Antitrust Analysis*, Princeton University Press (2010), Chapter 4.

¹²³ A Amelio and D Donath, “Market Definition In Recent EC Merger Investigations: The Role Of Empirical Analysis,” *Concurrences* (2009), pp.1-9.

to for example a presence of a number of structural breaks in the relative prices.”

3.3.2.2 Qualitative evidence

Comparing prices, product characteristics, and functions. The Market Definition Notice does not limit demand-side substitution to consumers’ willingness to switch in response to increases in price, but also includes non-quantitative factors such as the product characteristics and intended use. Indeed, if anything, this qualitative approach to market definition characterises most of the major decisions and judgments under Article 102 TFEU.¹²⁴ One of the seminal cases under Article 102 TFEU—*United Brands*—decided the relevant market on the basis of a subjective evaluation of the product’s characteristics. The Commission and Court of Justice concluded that bananas were in a separate relevant market to other fruits because of their seedlessness, softness, and ease of handling (which were said to be important for the very young, the sick, and the elderly).¹²⁵ No quantitative evidence of *United Brands*’ ability to successfully raise prices was put forward: indeed, the Court of Justice declined to undertake such an analysis. This largely subjective approach to market definition has characterised much of the main precedents under Article 102 TFEU:¹²⁶

“Demand substitutability was measured in large part on physical and technical characteristics, with price differences, cross elasticity of demand and distribution differences also playing a role, primarily to confirm what the physical characteristics analysis seemed to indicate... The Commission also defined markets in terms of end uses, even when products were physically identical, without inquiry into the ability of the seller to segregate particular end users with regard to price.”

More recent decisions under Article 102 TFEU have also relied heavily on qualitative evidence. For example, in *Microsoft*, the Commission defined a product market for “streaming” media players distinct from the market for media players not including

¹²⁴ Case 27/76, *United Brands Company and United Brands Continentaal BV v Commission* [1978] ECR 207, paras. 12–35. See also *Decca Navigator System*, OJ 1989 L 43/27, paras. 83–85; *ECS/AKZO (Interim Measures)*, OJ 1983 L 252/13; *Warner-Lambert/Gillette and Others*, OJ 1993 L 116/21, para. 6; *GVL*, OJ 1981 L 370/49, paras. 18, 19, and 45; *Eurofix-Banco v Hilti*, OJ 1988 L 65/19, paras. 55–56; *Magill TV Guide/ITP, BBC and RTE*, OJ 1989 L 78/43, para. 20; *Bandengroothandel Frieschebrug BV/NV Nederlandsche Banden-Industrie Michelin*, OJ 1981 L 353/33, paras. 31–34; *London European/Sabena*, OJ 1988 L 317/47, paras. 13–15; Case C-333/94 P, *Tetra Pak International SA v Commission* [1996] ECR I-5951, paras. 7–20; *Vitamins*, OJ 1976 L 223/27, para. 20; Case COMP/38/096, *Clearstream (Clearing and settlement)*, Commission Decision of 4 June 2004, paras. 199–200; and *Van den Bergh Foods Ltd*, OJ 1998 L 246/1, paras. 129–33. See also Case 31/80, *L’Oreal v De Nieuwe AMCK* [1980] ECR 3775, para. 25 (“The possibilities of competition must be judged in the context of the market comprising the totality of the products which, with respect to their characteristics, are particularly suitable for satisfying constant needs and are only to a limited extent interchangeable with other products.”). See also Case T-7/93, *Langnese-Iglo GmbH v Commission* [1995] ECR II-1533, para. 61 and, more recently, Case AT.39740, *Google Search (Shopping)*, Commission Decision of 26 June 2017 and Case AT.40099, *Google Android*, Commission Decision of 18 July 2018

¹²⁵ Case 27/76, *United Brands Company and United Brands Continentaal BV v Commission* [1978] ECR 207, para. 31

¹²⁶ See T Kauper, “The Problem Of Market Definition Under EC Competition Law,” in B Hawk (ed.), *International Antitrust Law And Policy: Fordham Corporate Law Institute*, Sweet and Maxwell (1996), p. 251.

streaming functionality by pointing to their different functionality.¹²⁷ The Commission also undertook a detailed analysis in *Clearstream* to assess demand-side substitutes and identified a number of characteristics of specific securities clearing services that distinguished them from other services in consumers' eyes.¹²⁸ In *Wanadoo*,¹²⁹ the Commission relied not only on quantitative data showing asymmetries in switching between high-speed internet access and dial-up, but also relied on qualitative factors, such as the unavailability of many streaming media and global games products to users without high-speed internet. In *Google Shopping*, the Commission defined a product market for general search services which excluded alternative ways of discovering content such as content sites, specialised search services and social networks.¹³⁰ Its conclusions on a lack of substitutability between these different services and general search services was driven by two main factors, each of which was largely analysed in qualitative terms: (1) general search services and other content discovery services served different purposes, with general search services primarily seeking to guide users to other sites (whereas other content sources typically send users the content in question directly); and (2) content search functionality remains limited to their own content or content from partners and does not allow users to search for all content over the internet, let alone all information on the web. In *Google Android* the Commission justified its conclusion that Google's Android and Apple's iOS do not belong in the same product market by focusing on their different characteristics,¹³¹ seemingly placing little weight on the quantitative and other evidence Google put forward in an attempt to prove that its mobile OS is, in fact, competing with Apple's mobile OS. This issue is discussed in detail in Section 3.5.4 below.

Reliance on qualitative evidence is problematic—for the obvious reason that it risks being wholly or mainly subjective, as well as confirmation bias—and the more systematic use of econometric techniques in second-phase merger review should be followed more closely in Article 102 TFEU cases. However, recent indications from the case law may further embolden the Commission to have regard to qualitative evidence. In *Topps*,¹³² the General Court stated:

“In the present case, as regards, first of all, the applicant's argument that the Commission ought to have carried out an SSNIP test, it must be found that although that type of economic test is indeed a recognised method for defining the market at issue, it is not the only method available to the Commission. It may also take into account other tools for the purposes of defining the relevant market, such as market studies or an assessment of consumers' and other competitors' points of view. The SSNIP test may also prove unsuitable in certain cases, for

¹²⁷ *Microsoft*, OJ 2007 L 32/23, paras. 411–25; upheld on appeal in Case T-201/04, *Microsoft v Commission* [2007] ECR II-3601.

¹²⁸ Case COMP/38/096, *Clearstream (Clearing and settlement)*, Commission Decision of 4 June 2004, para. 199, upheld on appeal in Case T-301/04, *Clearstream Banking AG and Clearstream International SA v Commission* [2009] ECR II-3155, paras. 51-57

¹²⁹ Case COMP/38.233, *Wanadoo Interactive*, Commission Decision of 16 July 2003; upheld on appeal in Case T-340/03, *France Télécom SA v Commission* [2007] ECR II-107 and on further appeal in Case C-202/07 P, *France Télécom SA v Commission* [2009] ECR I-2369.

¹³⁰ Case AT.39740, *Google Search (Shopping)*, Commission Decision of 26 June 2017, Section 5.2.1.2.

¹³¹ Case AT.40099, *Google Android*, Commission Decision of 18 July 2018.

¹³² Case T-699/14, *Topps Europe Ltd v Commission* EU:T:2017:2, para. 82.

example in the presence of the ‘cellophane fallacy’, that is, the situation where the undertaking concerned already holds a virtual monopoly and the market prices are already at a supra-competitive level, or where there are free goods or goods the cost of which is not borne by those determining the demand. It is also apparent from point 25 of the Commission notice on the definition of relevant market for the purposes of Community competition law (OJ 1997 C 372, p. 5) that the definition of the relevant market does not require the Commission to follow a rigid hierarchy of different sources of information or types of evidence. The Commission did not, therefore, commit a manifest error of assessment in basing its conclusions on the relevant market on its assessment of the evidence gathered without having recourse to an SSNIP test.”

In both *Qualcomm (Predation)* and *Qualcomm (Exclusivity Rebates)*¹³³ the Commission relied on this ruling to conclude that it did not need to perform a quantitative assessment of the hypothetical monopoly test and decided to rely exclusively on qualitative evidence without imposing the logical discipline that is implicit in the SSNIP test. The problem is not the use of qualitative evidence, but the abandonment of the rigorous thought experiment that lies at the heart of the test; a test which does not require quantitative data to be implemented.

The problematic implications of defining markets on the basis of qualitative assessments without the discipline imposed by the SSNIP test can be illustrated by reference to the Commission’s decision in *Olympic/Aegean*.¹³⁴ The Commission decided that airlines and ferries communicating the Greek peninsula with the Greek islands belong to separate markets for two reasons: (1) airline tickets were more expensive than ferry tickets; and (2) airline trips were of shorter duration than the ferry trips. This absurd conclusion is the result of ignoring that the observed price differences simply reflected the differences in the duration of the trip and the possibility of substitution between expensive/short trips and cheap/long trips. The Commission would have reached a different conclusion if it had applied the common-sense assessment of substitution that is implicit in the SSNIP test.

Unfortunately, the General Court’s ruling in *Topps* provides the Commission with a wild card in market definition, and one that can be abused as in *Olympic/Aegean*. For these reasons, it is at least hoped that qualitative data should be used in future as a cross-check on quantitative data. That said, in some cases, good data may not be available, in which case competition authorities have no choice but to rely exclusively on qualitative techniques.

3.3.2.3 Other sources of evidence

Consumer surveys. Market studies and consumer survey data may reveal information on consumer preferences and, therefore, may be useful to identify those products that

¹³³ Case AT.40220, *Qualcomm (Exclusivity Rebates)*, Commission Decision of 25 January 2018; and Case AT.39711, *Qualcomm (Predation)*, Commission Decision of 18 July 2019.

¹³⁴ Case M.5830 *Olympic / Aegean Airlines*, Commission Decision of 26 January 2011.

consumers regard as interchangeable with those in the candidate market.¹³⁵ The Market Definition Notice states that:¹³⁶

“Marketing studies that companies have commissioned in the past and that are used by companies in their own decision making as to pricing of their products and/or marketing actions may provide useful information for the Commission’s delineation of the relevant market. Consumer surveys on usage patterns and attitudes, data from consumer’s purchasing patterns, the views expressed by retailers and more generally, market research studies...are taken into account to establish whether an economically significant proportion of consumers consider two products as substitutable.”

Of course, the reliability and validity of such studies must be carefully considered. Survey evidence has always been considered cautiously by competition authorities. For example, the Commission has always been sceptical about the probative value of surveys.¹³⁷ The Commission is aware of the risk that studies prepared *ad hoc* for the case at hand may not be objective since “[u]nlike pre-existing studies, they have not been prepared in the normal course of business for the adoption of business decisions.”¹³⁸ The UK Competition and Markets Authority (CMA) has relied on surveys on several occasions but places tight methodological constraints on its surveys.¹³⁹ This is why survey evidence is typically a complement to other corroborating, qualitative or quantitative evidence.

So-called ‘contingency surveys’, where customers or consumers are asked direct questions about their preferences, are particularly problematic.¹⁴⁰ Respondents often claim to be much more price sensitive than they truly are in order not to appear stupid to the interviewer. Other respondents may answer strategically to the survey’s questions, because they may want to push the case in a given direction. Even when they answer candidly, their responses may not serve to elicit their true preferences because they may be conditioned by the way the questions are posed, because the set of possible answers is constrained, or because the questions impose answers that are vague, unrealistic or drastic. It is also possible that the respondents exhibit personal, potentially irrational, biases. All the above-mentioned problems are aggravated in phone interviews because

¹³⁵ See, e.g., Case COMP/38/096, *Clearstream (Clearing and settlement)*, Commission Decision of 4 June 2004, paras. 146 and 166.

¹³⁶ Market Definition Notice, OJ 1997 C 372/5, para. 41.

¹³⁷ See for example No. COMP/M.7758 *Hutchison 3G Italy / Wind / JV* and COMP/M.8792 *T-Mobile NL / Tele2*.

¹³⁸ *Ibid.*

¹³⁹ See for example Case ME/6501/14 *Greene King/Spirit*, Case ME/6467-14 *Poundland/99p Stores* and CMA (2018) *Good Practice In The Design And Presentation Of Survey Evidence In Merger Cases*, updated 23 May 2018.

¹⁴⁰ See, among others, DL McFadden, AC Bemmaor, FG Caro, J Dominitz, BH Jun, A Lewbel, RL Matzkin, F Molinari, N Schwarz, RJ Willis, and JK Winter, (2005) “Statistical Analysis Of Choice Experiments And Surveys,” *Marketing Letters*, 16(3-4), pp.183-196; D Kahneman and A Tversky, (1973) “On The Psychology Of Prediction,” *Psychological Review*, 80(4), p.237; D Kahneman and A Tversky, (2013) “Choices, Values, And Frames,” in *Handbook Of The Fundamentals Of Financial Decision Making: Part I* (pp. 269-278); AJ Nederhof, (1985) “Methods Of Coping With Social Desirability Bias: A Review,” *European Journal Of Social Psychology*, 15(3), pp.263-280; and A Furnham, (1986) “Response Bias, Social Desirability And Dissimulation,” *Personality And Individual Differences*, 7(3), pp.385-400.

respondents have limited time to answer and potentially care about the impression they give to the interviewer.

The alternative is to use a discrete-choice conjoint design. It is common ground that discrete choice modelling analysis or conjoint analysis, like those pioneered by Nobel Prize laureate Daniel McFadden, are superior to contingency surveys like the ones typically relied upon by competition agencies.¹⁴¹ Discrete choice modelling analysis and conjoint analysis are commonly used in business decision making as well as in the assessment of competitive effects in competition cases. These methodologies are preferred over contingency surveys, because they are less vulnerable to the problems described above. In particular, the ‘survey environment’ of these methodologies is designed to resemble the real decision-making situation as closely as possible. The clear choice structure is not the only advantage of a discrete-choice conjoint design. A discrete-choice model allows different choice alternatives to be presented to the respondent by characterizing the options with different attributes such as price, quality and flexibility of delivery. It also allows respondents to mix and match different product groups from different suppliers and compare the total costs, prices, and shopping costs of such combinations with the cost of buying everything only from a generalist.

Natural experiments. Unexpected events may provide valuable information on substitution patterns between different products. Such events include strikes, promotions and advertising campaigns, unexpected plant outages, supply shortages, regulatory intervention, and market entry.¹⁴² For example, consumers may react to a disruption in supply due to a strike by switching consumption to other products which they regard as substitutes, thereby revealing information on demand-side substitution. Natural experiments involving market entry can be particularly revealing. For example, evidence that branded drug A’s prices and sales dropped in response to the launch of branded drug B (or a generic variant of A) would indicate that the two products are part of the same product market.

Internal business documents. Internal documents may also reveal which products a firm regards as close substitutes to its own. Business and strategic plans, internal pricing studies, and analyses of promotions, may provide information on competitors and the degree of substitutability between their products and those in the candidate market, although the probative value of such documents will vary in each case.¹⁴³ In addition, it should be appreciated that such documents are usually prepared for purposes

¹⁴¹ See J Hausman, (2012) “Contingent Valuation: From Dubious to Hopeless,” *Journal of Economic Perspectives*, 26 (4), pp. 43-56, and PA Diamond and J Hausman, (1994). “Contingent Valuation: Is Some Number Better than No Number?,” *Journal of Economic Perspectives*, 8 (4), pp. 45-64.

¹⁴² Lexecon, *An Introduction To Quantitative Techniques In Competition Analysis*, 2004, p. 34.

¹⁴³ See e.g., in Case COMP/A.37.507/F3, *AstraZeneca*, Commission Decision of 19 July 2006, para. 494, the Commission cast doubt on the probative value of contemporaneous business documents, concluding that they were of secondary value in comparison to hard evidence relating to actual use and demand patterns. It noted that as market definition analysis was an objective exercise, established objective facts (e.g., on actual substitution between products) would normally prevail over parties’ subjective perceptions of developments however contemporaneously they may have been made. The decision was largely upheld on appeal in Case T-321/05, *AstraZeneca v Commission* [2010] ECR II-2805 and Case C-457/10 P, *AstraZeneca v Commission* EU:C:2012:770.

other than market definition under competition law.¹⁴⁴ The approach taken in such documents is also likely to offer a narrower appreciation of a firm's competitive constraints than would result from a properly-defined relevant market.

3.3.3 Assessing Supply-Side Substitution Under The HMT

Conditions for supply-side substitution. To determine whether two products A and B are regarded as supply-side substitutes, a number of cumulative conditions must be satisfied. Only if all of these questions are answered positively can products A and B be considered as supply-side substitutes. Then, and only then, does supply-side substitution have a similar effect as demand-side substitution “in terms of effectiveness and immediacy,” as required by the Market Definition Notice.¹⁴⁵ The conditions are as follows:

1. *Ability of other suppliers to switch production without major additional investment.* For supply-side substitution to be effective, other suppliers must be able to switch production quickly and relatively costlessly. This involves consideration of the assets needed to produce the relevant products and in particular whether manufacturers of supply-side substitutes: (a) possess the required technology, know-how, machinery and facilities; (b) have access to the appropriate network infrastructure, transport infrastructure and distribution channels; and (c) possess the relevant marketing assets, such as brand name, and/or the ability to develop those assets within a reasonable period of time.¹⁴⁶ If any relevant assets are missing, it is relevant to ask whether they can be acquired without the need for significant, irreversible new investments by buying assets that involve no sunk costs or contracting with third parties.
2. *Economic incentives of manufacturers to divert production.* Even if manufacturers of potential supply-side substitutes could divert production, it

¹⁴⁴ This is reflected in Market Definition Notice, OJ 1997 C 372/5, para. 3: “the concept of ‘relevant’ market is different from other definitions of market used in other contexts. For instance, companies often use the term ‘market’ to refer to the area where it sells its products or to refer broadly to the industry or sector where it belongs.”

¹⁴⁵ Market Definition Notice, OJ 1997 C 372/5, para. 20.

¹⁴⁶ The Commission seems to have endorsed this condition. In several cases, the Commission rejected the presence of supply-side substitution because of costly switching or because of the long time horizon needed. For example, in *Industri Kapital (Nordkem)/DYNO*, the Commission did not include supply-side substitutes into the relevant market, because it considered that switching production capability was “time-consuming and costly.” See Case COMP/M.1813, *Industri Kapital (Nordkem)/DYNO*, paras. 26–27. See also Case COMP/M.1879, *Boeing/Hughes*, para. 22 (the Commission rejected supply-side substitutability between satellites with different orbits because it took three to five years for a producer to develop the technical capacity to develop a new satellite); and Case COMP/M.2314, *BASF/Eurodiol/Pantochim*, para. 35; and Case COMP/38.784, *Wanadoo España v Telefónica*, Commission Decision of 4 July 2007, paras. 172–176 (the Commission held that local loop unbundling and regional wholesale access were not substitutable since a new operator would have to incur substantial network roll-out investments, which would be extremely time consuming and even then would only be economically viable if the operator achieved a sufficient customer base, which was neither certain nor immediate), upheld on appeal in Case T-336/07, *Telefónica and Telefónica de España v Commission* EU:T:2012:172 and Case C-295/12 P *Telefónica and Telefónica de España v Commission*, EU:C:2014:2062.

must still be shown that they have the economic incentives to do so. It would thus be relevant to ask whether: (a) suppliers are contractually tied to continue production of existing products; and (b) spare capacity is available or whether additional capacity that can be brought into production at a reasonable cost.¹⁴⁷ Unless manufacturers can economically adapt production—in other words they do not face opportunity costs sufficiently large to make switching production unprofitable (even without sunk costs)—supply-side substitution is not effective.¹⁴⁸

3. *Consumer reaction.* The final, and decisive, condition is that consumers must regard potential supply-side substitute products as valid substitutes for the existing set of products. That is, the existence of supply-side substitutes must influence the market behaviour of the alleged dominant firm by allowing supply-side substitutes to steal sales from incumbents charging excessively high prices. In this regard, it is important to assess whether consumers are really willing to change consumption. For example, in the presence of switching costs, consumers might not be willing to change to a substitute product, rendering supply-side substitution ineffective. Therefore, it may be useful to distinguish between situations in which firms compete with products that are currently available from others and those that compete by producing to order or on the basis of blueprints. In the last set of cases, supply-side substitutability is much more likely to be of importance since switching costs do not play a major role.

These cumulative conditions are not enough, however. The Commission requires that “that most of the suppliers are able to offer and sell the various qualities under the conditions of immediacy and absence of significant increase in costs described above.”¹⁴⁹ Thus, before including supply-side substitutes in a single separate market, the Commission must assess the universal character of supply-side substitution. That is, a sufficiently large number of suppliers of supply-side substitutes must be ready to respond and move production before their products would be included in the relevant market.

Examples of effective supply-side substitution in the decisional practice and case law. Supply-side substitution is most likely to be effective where a market contains a number of different grades, varieties, or sizes of essentially the same underlying product. For example, no shoemaker manufactures only one shoe size; no car manufacturer produces only white cars. In some cases, supply-side substitution may not

¹⁴⁷ A lack of commercial incentives was one of the arguments by the Commission not to include supply-side substitutes in the relevant market in Case IV/M.774, *Saint-Gobain/Wacker-Chemie/NOM*, para. 36. See also Case COMP/M.2420, *Mitsui/CVRD/Caemi* (Commission’s market investigation indicated that the low degree of supply-side substitution was due to lack of economic incentives). See too Case COMP/M.1381, *Imetal/English China Clays*, para. 16 (supply-side substitution between kaolin, a form of china clay, and certain other pigments was considered “technically possible” but unlikely in practice given that the “economics of the additional processing would make the product non-competitive”).

¹⁴⁸ See Case IV/M.1313, *Danish Crown/Vestjyske Slagterier*, paras. 62–64. The Commission defined a narrow relevant geographical market due to contractual obligations.

¹⁴⁹ Market Definition Notice, OJ 1997 C 372/5, para. 21.

require adjustments in production, but a repositioning of an existing brand or product through, for example, a successful marketing strategy, design changes or revised marketing. In such circumstances, supply-side substitution occurs only if the repositioning involves no sunk costs.

The strict conditions for supply-side substitution have resulted in the expansion of the market to include supply-side substitutes in only a small number of cases. For example, in *Electrolux/AEG*, the Commission found that all models and sizes of each type of major domestic appliance constituted a single relevant market because a “high degree of supply side substitutability” permitted producers to use the same production line to manufacture a broad range of different models and sizes.¹⁵⁰ Likewise, in *Volvo/Scania*, the Commission determined that, notwithstanding some differences in functional characteristics, rigid trucks and tractor trucks comprised part of a single market for all heavy-duty trucks, *inter alia*, because the costs related to switching from the production of one type of heavy truck to another were not substantial.¹⁵¹ Finally, in *Kish Glass*, the General Court upheld the Commission’s finding that the production of 4mm glass is technological identical to the production of glass of other thicknesses and that manufacturers could easily switch production “without excessive costs.”¹⁵²

A common problem when assessing supply-side substitution in actual cases is failing to understand that product A may be a supply-side substitute for product B, but the opposite need not be true. Suppose we are testing whether there is a separate product market for product High Quality A; a product for which there are no demand side substitutes. In particular, consumers are unwilling to substitute High Quality A for Low Quality A. Suppose that we are investigating whether Low Quality B is a supply-side substitute for High Quality A. If that were the case, we would expect that all (or at least most) producers of Low Quality A were also producers of High Quality A, in which case they could shift production from the former to the latter in case of a SSNIP for High Quality A. That all producers of High Quality A also produce Low Quality A is irrelevant for demonstrating that Low Quality A imposes a competitive constraint on High Quality A (rather it demonstrates that the competitive constraint operates in the opposite direction). This is unfortunately a common mistake.¹⁵³

3.4 GEOGRAPHIC MARKET DEFINITION

3.4.1 Key Concepts

Definition. Geographic market definition is the second essential step in the definition of the relevant market: a product market is meaningless without a corresponding definition of its geographic scope. As early as *United Brands*, the Court of Justice stated that the opportunities for competition must be considered “with reference to a

¹⁵⁰ Case IV/M.458, *Electrolux/AEG*, para. 9. See also Case IV/M.2498, *UPM/Kymmene/Haindl*, para. 13; and Case IV/M.2499, *Norske Skog/Parenco/Walsum*, para. 13 (single market for newsprint).

¹⁵¹ Case IV/M.1672, *Volvo/Scania*, paras. 24–30.

¹⁵² Case T-65/96, *Kish Glass & Co Ltd v Commission* [2000] ECR II-1885, para. 68, confirmed on appeal in Case C-241/00 P, *Kish Glass & Co Ltd v Commission* [2001] ECR I-7759.

¹⁵³ See for example Comisión Nacional de la Competencia, Case S/0354/11 *Hewlett-Packard v Oracle Corporation*, 26 February 2013.

clearly defined geographic area in which the product is marketed and where conditions of competition are sufficiently homogenous for the effect of the economic power of the undertaking concerned to be able to be evaluated.”¹⁵⁴ More recently, the Market Definition Notice defines the relevant geographic market as the area where: (1) the company or companies whose behaviour is in question are involved in the supply and demand of products or services, (2) the conditions of competition are sufficiently homogeneous, and (3) those conditions are appreciably different from the conditions of competition in neighbouring areas.¹⁵⁵

The principles of product market definition apply with equal force to the definition of the relevant geographic market.¹⁵⁶ The relevant geographic market therefore includes all those regions where consumers can find demand-side substitutes for the products of the firm under scrutiny (demand-side substitution) and there are suppliers who can readily shift production to the markets where the firms whose commercial practices are investigated operate (supply-side substitution). The chain of substitution logic is also relevant to delineate the scope of the relevant geographic market.

Consider, for example, broadband internet access. In many countries, this service is offered by local cable companies and national telecommunications providers offering ADSL services. Typically, a country is subdivided into non-overlapping regions, each of which is served by one or more local cable providers. Although consumers cannot switch between local cable providers active in distinct regions, the presence of the national supplier ensures that there is nevertheless (indirect) competition between those local firms. Decisions taken by local cable companies are likely to influence the policy adopted by the national telecommunications provider, which in turn may affect the actions chosen by cable companies in other regions.¹⁵⁷

Basic analytical process. According to the Market Definition Notice, the analytical approach used when defining relevant geographic markets involves three steps:

1. *Identifying the putative market from the demand-side.* A preliminary view on the scope of the relevant geographic market must first be taken. This defines a putative geographic market. Market shares and prices in and out of the putative market must then be compared to ascertain whether the conditions of

¹⁵⁴ Case 27/76, *United Brands Company and United Brands Continentaal BV v Commission* [1978] ECR 207, paras. 11. See also Case 247/86, *Société alsacienne et lorraine de télécommunications et d'électronique (Alsatel) v SA Novasam* [1988] ECR 5987 (Commission's finding of dominance rejected on the basis of an incorrect geographic definition).

¹⁵⁵ Market Definition Notice, OJ 1997 C 372/5, para. 8.

¹⁵⁶ M Motta, *Competition Policy: Theory And Practice*, Cambridge University Press (2004), p. 113.

¹⁵⁷ See, e.g., Case IV/36.539, *British Interactive Broadcasting/Open*; Commission Notification Case COMP/M.2845, *Sogecable/Canalsatélite Digital Via Digital*. Note, however, that the validity of the chain-of-substitution argument hinges crucially on the inability of the “straddling” firm to price-discriminate across local markets. In the broadband example, the scope for price discrimination of this type seems to be limited, which is due in particular to either regulatory constraints or reputation considerations. The same logic can not only be applied to Pay-TV and telecommunications markets, but also to markets such as food retailing where frequently large supermarket chains compete with local retailers. In many of these instances, a large national supplier faces competition only in some regions, but is unable to exert market power because of the inability to price-discriminate between regions.

competition are homogenous or heterogeneous across regions. None of this is conclusive, however. For example, market shares may be evenly distributed across regions and yet the relevant market may be regional. Also, prices may differ widely from region to region and yet the market may cover all the regions. This is why the Commission considers the characteristics of the products and services offered at different locations to determine whether producers that are available in locations outside the putative market can be regarded as demand-side substitutes by consumers in the putative market.¹⁵⁸

2. *Supply-side factors.* Supply-side substitution factors must then be considered. The goal is to investigate whether suppliers located outside the putative market would be able to enter the market in response to a price increase. For example, the Commission investigates whether that reaction is feasible or there are impediments to entry, such as limited access to distribution channels, regulatory barriers and substantial set-up costs.¹⁵⁹
3. *Scope for widening the market based on future integration.* Finally, it is relevant to ask whether there is a continuing process of market integration. As a result, it may identify a wider geographic market when there is a rational expectation that legislative or technical barriers are likely to fall in the near future.¹⁶⁰

3.4.2 Defining Geographic Markets In Practice

Sources of evidence. The EU institutions, and national authorities and courts have relied on various sources of evidence to assess the extent of demand-side and supply-side substitution across different geographic areas. They have also gathered and analysed information on transport costs, trade barriers, or contractual obligations to assess the extent to which suppliers located outside the candidate market effectively constrained the behaviour of those located inside. The principal types of evidence are discussed below.

a. Price evidence. The scope of the relevant geographic market can be investigated by means of price correlation and co-integration studies, with the same caveats described in Section 3.3 above. The prices of a product sold in the region that forms a candidate market cannot be constantly higher than the prices for the same product in region outside the candidate market unless there are substantial obstacles to trade. Thus, a strong positive correlation between the prices of products sold in regions within and outside the candidate market indicates that: (1) consumers located in the candidate market can easily purchase the product in regions outside it; or (2) suppliers outside the candidate market do not face obstacles to shipping their products into the boundaries of the candidate market.

b. Trade flows (quantity evidence). Although not conclusive, information on trade flows and the pattern of shipments can be used to obtain an understanding of geographic

¹⁵⁸ Market Definition Notice, OJ 1997 C 372/5, paras. 28-29.

¹⁵⁹ *Ibid.*, para. 30.

¹⁶⁰ *Ibid.*, para. 32.

purchasing patterns, and hence, to delineate the boundaries of the relevant geographic market.¹⁶¹ Some commentators have suggested defining geographic markets on the basis of data on product flows, arguing that “the only data required to estimate market areas—at least in most cases—are shipments data in physical terms.”¹⁶² Their “shipment test” measures quantify the export and import flows taking place between two regions: if both levels were high, the relevant geographic should comprise both regions.¹⁶³

This proposal has been criticised, since high levels of imports and exports are neither a necessary nor sufficient condition for a broad geographic market.¹⁶⁴ Products may move between two regions and yet the two regions may belong to separate product markets. If there are differences in demand between the two regions, and producers are able to price discriminate, trade may occur in great quantities and yet the products sold in one of the regions are not constrained by the products sold in the other. On the contrary, there may be few imports and exports between two regions and yet they may belong to a single market. If transportation costs are small, each region exerts a competitive constraint on the other but there may be no trade between the two because the products sold in both regions are relatively homogeneous and prices are the same in the two regions. The threat of imports may be enough to discipline prices in both regions. If the threat of imports is credible and substantial, it should lead to broader geographic markets. The Commission appeared to have ignored this in *Italian Flat Glass*.¹⁶⁵ It argued that market definition ought to be based on actual product shipments, not those that were “theoretically possible.” Since Italian producers supplied 80% of Italian flat glass, there could be no doubt that the geographic market was Italy, the Commission concluded.¹⁶⁶

c. Barriers to trade. The existence of barriers to trade gives rise to separate relevant product markets. The following barriers have been identified in the economic literature and the case law:

1. *Transport costs.* Transport costs are the most important factor in the definition of the relevant geographic market. The impact of transport costs is likely to be

¹⁶¹ *Ibid.*, para. 49.

¹⁶² KG Elzinga and TF Hogarty, “The Problem Of Geographic Market Definition In Antimerger Suits,” (1973) 18 *Antitrust Bulletin* 45–81, at 73; and KG Elzinga and TF Hogarty, “The Problem Of Geographic Market Delineation Revisited,” (1978) 23 *Antitrust Bulletin* 1–18.

¹⁶³ See M Motta, *Competition Policy: Theory And Practice*, Cambridge University Press (2004), p. 114 (“Suppose for instance that a considerable proportion of trade was observed between one region and another. This would be a clear indication that the regions’ producers are exercising a competitive constraint on each other.”).

¹⁶⁴ See DL Kaserman and H Zeisel, “Market Definition: Implementing The Department Of Justice Merger Guidelines,” (1996) 41(3) *Antitrust Bulletin* 665–90. See also G Stigler and R Sherwin, “The Extent Of The Market,” (1985) 28 *Journal of Law and Economics* 555–86.

¹⁶⁵ *Italian Flat Glass*, OJ 1988 L 33/34. The General Court seemed troubled by geographic market definition because certain documents indicated that Italian producers took account of competition from producers in other member states and in Turkey and Eastern Europe. See Joined Cases T-68 and 77-78/89, *Società Italiana Vetro SpA, Fabbrica Pisana SpA and PPG Vernante Pennitalia SpA v Commission (re Italian Flat Glass)* [1992] ECR II-1403.

¹⁶⁶ *Italian Flat Glass*, OJ 1981 L 326/12, para. 77.

high for bulky, low value products. Import tariffs are also direct costs that increase the price of transportation. In *British Plasterboard*, for instance, the Commission based the definition of the relevant geographic market on the existence of significant transport costs and identified Great Britain and Ireland as separate relevant markets. The Commission relied on estimates of transport costs and information of competing firms about entry plans to conclude that imports between Europe, Great Britain and Ireland represented no competitive threat.¹⁶⁷

2. *Consumer preferences.* An important factor in the definition of the relevant geographic market is to assess whether consumers have a marked preference for local products. Local preferences are not uncommon and may stem from cultural differences, differences in lifestyle or differences in language. The Market Definition Notice states that differences in consumer preferences must be taken into account in the definition of the relevant geographic market.¹⁶⁸ If differences in local preferences are strong, as in the case of media markets, the geographic market is likely to be defined narrowly.¹⁶⁹ In *Magill*, for example, the Commission emphasised the importance of Ireland's cultural identity in the definition of a region-wide geographic market (Ireland and Northern Ireland).¹⁷⁰
3. *Capacity constraints.* If firms in remote regions could offer their products in the regions forming part of the candidate market without incurring any significant additional costs, those regions should be included in the relevant product market. However, the existence of capacity constraints may lead to separate geographic markets.

¹⁶⁷ *BPB Industries plc*, OJ 1989 L 10/50, paras. 21–24. Other case where transport costs were considered in the definition of the relevant market include *Napier Brown/British Sugar*, OJ 1988 L 284/41; Case 27/76, *United Brands Company and United Brands Continentaal BV v Commission* [1978] ECR 207; *ECS/AKZO—Interim Measures*, OJ 1983 L 252/13; *Italian Flat Glass*, OJ 1981 L 326/12; *Eurofix-Banco v Hilti*, OJ 1988 L 65/19; *Tetra Pak I (BTG licence)*, OJ 1988 L 272/27; *Tetra Pak II*, OJ 1992 L 72/1 and, more recently, Case AT. 39767 *BEH Electricity*, Commission Decision of 10 December 2015 and Case AT.39767, *E.ON Gas*, Commission Decision of 26 July 2016.

¹⁶⁸ Market Definition Notice, OJ 1997 C 372/5, para. 29.

¹⁶⁹ See *Bass*, OJ 1999 L 186/1, paras. 115–16; *Scottish and Newcastle*, OJ 1999 L 186/28, paras. 85–86; and *Tetra Pak I (BTG licence)*, OJ 1988 L 272/27, para. 37. See also Case T-69/89, *Radio Telefís Éireann (RTE) v Commission* [1991] ECR II-485, Case T-70/89, *British Broadcasting Corporation and BBC Enterprises Ltd (BBC) v Commission* [1991] ECR II-535, and Case T-76/89, *Independent Television Publications Ltd (ITP) v Commission* [1991] ECR II-575, confirmed in Joined Cases C-241/91 P and C-242/91 P, *Radio Telefís Éireann and Independent Television Publications Ltd (RTE & ITP) v Commission* [1995] ECR I-743.

¹⁷⁰ See Case T-69/89, *Radio Telefís Éireann (RTE) v Commission* [1991] ECR II-485. The Commission did not, however, mention national/regional preferences when defining the geographical market. See *Magill TV Guide/ITP, BBC and RTE*, OJ 1989 L 78/43, para. 21. See also Case AT.40153, *E-book MFNs and related matters (Amazon)*, Commission Decision of 4 March 2017. The Commission considered that the market for the distribution of e-books in English and German could be national in scope rather than EEA-wide due to the fact that customer preferences are not fully homogeneous across countries, differences including language and cultural preferences (para. 49).

4. *Long-term contracts.* Like capacity constraints, firms in different regions might be committed to their local markets by long-term contracts and, therefore, be unable to divert sales from their regions to regions in the candidate market even after a price increase. Thus, those regions would not form a single geographic market.¹⁷¹
5. *Regulatory barriers.* There is a wide range of regulatory barriers that may limit the size of the relevant geographic market. Examples of regulatory barriers are legal monopolies, price regulation, or technical standards.¹⁷² The Commission has defined nationwide relevant geographical markets in the case of fiscal monopolies and exclusive rights.¹⁷³
6. *Local presence.* When it is important to have a local distribution or an after-sales network, foreign competitors might be at a competitive disadvantage and not able to exert a competitive constraint on domestic suppliers.¹⁷⁴

Examples of geographic market definitions in the decisional practice and case law.

Depending on how homogeneous the conditions of competition between different areas are, the relevant geographic market may be global, regional, trans-national, national, sub-national, or, even, confined to a facility in a single geographic location (e.g., a port):

1. *Worldwide markets.* Worldwide markets are most likely for globally-traded commodities such as minerals, metals, and oil.¹⁷⁵ Technology, such as software and hardware, may also give rise to global markets given standardisation and ease of distribution. In *Microsoft* for example the Commission concluded that a worldwide market existed with respect to work group server operating system software and media player software. It noted that multinational computer manufacturers entered into worldwide licensing agreement for the software and sold computers globally. An important element of the Commission's determination was the lack of significant import restrictions and transport costs associated with Microsoft's software.¹⁷⁶

¹⁷¹ See Case IV/M.1313, *Danish Crown/Vestjyske Slagterier*, paras. 62–64. The Commission defined Denmark as the relevant geographical market despite the fact of price correlation of 0.93–0.98 between the Danish market and other northern European markets, because Danish farmers had to supply locally due to contractual obligations.

¹⁷² M Monti, "Policy Market Definition As A Cornerstone Of EU Competition Policy," *Workshop On Market Definition*, Helsinki, 5 October 2001.

¹⁷³ *Amministrazione Autonoma dei Monopoli di Stato*, OJ 1998 L 252/47, upheld on appeal in Case T-139/98, *Amministrazione Autonoma dei Monopoli di Stato (AAMS) v Commission* [2001] ECR II-3413; *Deutsche Post AG*, OJ 2001 L 125/27; and *Deutsche Post AG—Interception of cross-border mail*, OJ 2001 L 331/40. See also *British Sugar plc*, OJ 1999 L 76/1; *Soda-Ash/Solvay*, OJ 1991 L 152/21 and Case AT.39813, *Baltic Rail*, Commission Decision of 2 October 2017.

¹⁷⁴ See *Tetra Pak I (BTG licence)*, OJ 1988 L 272/27, para. 41 (Commission considered the need to establish a local distribution network and concluded that the costs of doing so were not high enough to narrow the definition of the relevant geographic market). See too *PO–Michelin*, OJ 2002 L 143/1.

¹⁷⁵ See, e.g., Case IV/M.1161, *Alcoa/Alumax* (aluminium); Case IV/M.1383, *Exxon/Mobil* (crude oil); Case COMP/M.2413, *BHP/Billiton* (copper); and Case IV/M.619, *Gencor/Lonrho* (platinum).

¹⁷⁶ *Microsoft*, OJ 2007 L 32/23, para. 427; upheld on appeal in Case T-201/04, *Microsoft v Commission* [2007] ECR II-3601. See also Case COMP/37.990, *Intel*, Commission Decision of 13 May

2. *EU-wide markets.* When products are sold on a similar price and scale across the EU, EU-wide market definitions are likely. In *Chiquita*, for example, the Commission found that the relevant geographical market for the company's bananas consisted of a substantial portion of the EU, including Denmark, Germany, the Netherlands, Ireland, Switzerland, and Austria. Despite sometimes lengthy transport routes, the Commission found that transport costs were not so high as to constitute a significant barrier to entry within those nations. The Commission did not provide a detailed explanation of its exclusion of France, Italy, and the United Kingdom from the relevant market, but noted generally the unfavourable "import arrangements and trading conditions in these countries and the fact that bananas of various types and origin are sold there."¹⁷⁷ In *Hilti*, the General Court provided greater guidance in its determination that the relevant geographic market for nail guns and consumables was EU-wide. Specifically, the Court found that the transport cost of nails was low and that price differences between the Member States were sufficient to encourage parallel trade.¹⁷⁸
3. *National markets.* National markets have featured most prominently in the decisional practice under Article 102 TFEU.¹⁷⁹ For example, in *Irish Sugar*, the Commission concluded that the relevant geographic market for sugar was Ireland. Although sugar prices were higher than in other areas of the EU as to encourage imports to Ireland, the Commission noted that sugar importing was in fact minimal. Barriers to entry, in the form of transport costs, helped explain this trend. The Commission also observed that, "[d]uring the price war in the United Kingdom, Irish Sugar was able to continue to maintain a substantial price difference for, in particular, retail sugar in Ireland. As regards industrial sugar, Irish Sugar [also maintained] significantly higher prices for those customers operating only on the home market."¹⁸⁰ In contrast, in *DSD*,

2009, upheld on appeal in Case T-286/09, *Intel v Commission*, EU:T:2014:547 and Case C-413/14 P, *Intel v Commission*, EU:C:2017:632, as well as Case AT.40099, *Google Android*, Commission Decision of 18 July 2018 (worldwide market, with the exception of China).

¹⁷⁷ *Chiquita*, OJ 1976 L 95/1, Art. 1.

¹⁷⁸ Case T-30/89, *Hilti AG v Commission* [1991] ECR II-1439, para. 79–81. See also *Tetra Pak I (BTG licence)*, OJ 1988 L 272/27, para. 41 ("Even if there exist the differing demand conditions between Member States [for milk cartons], the EEC is the relevant geographical market for the cartons and machines under discussion....all types of carton and machine are found to a significant extent in all Member States. Secondly transport costs for both machines and cartons are not significant."). See also *Tetra Pak II*, OJ 1992 L 72/1, para. 98 (noting that the market consisted of the entire EU) and Case AT.40072, *Magyar Suzuki*, Commission Decision of 14 October 2014, where the Commission expressed its belief that the car market might now be EU-wide as a consequence of, *inter alia*, manufacturers adopting EU-wide pricing.

¹⁷⁹ Case 127/73, *Belgische Radio en Televisie v SV SABAM and NV Fonior* [1974] ECR 313; *HOV SVZMCN*, OJ 1994 L 104/34; Case 322/81, *NV Nederlandsche Banden Industrie Michelin v Commission* [1983] ECR 3461; Case T-69/89, *Radio Telefís Éireann (RTE) v Commission* [1991] ECR II-485; Case C-333/94 P, *Tetra Pak International SA v Commission* [1996] ECR I-5951; *Virgin/British Airways*, OJ 2000 L 30/1, upheld on appeal Case T-219/99, *British Airways plc v Commission* [2003] ECR II-5917; and Case AT.39813, *Baltic Rail*, Commission Decision of 2 October 2017.

¹⁸⁰ *Irish Sugar plc*, OJ 1997 L 258/1, para. 92–97. See also *Napier Brown/British Sugar*, OJ 1988 L 284/41, para. 43–49 (noting transport costs and trade flow statistics in concluding that the United Kingdom was the relevant geographic market).

the Commission relied almost exclusively on differences between technical regulatory schemes among Member States in determining that the waste-management sector was divided into national markets.¹⁸¹

4. *Local markets.* The relevant geographic market has been found to be limited to a local facility in cases where the nearest alternative facility was in practical terms unsuitable or where the product or service by definition must be provided within the local facility. In *Stena Sealink*, the Commission deemed the port of Holyhead to be the entire relevant market because the nearest alternative port, Liverpool, was nearly twice the distance from Dublin to Holyhead. Because there was no practical substitute for the port, the Commission limited the relevant geographic market to the local facility.¹⁸² Similarly, the Court of Justice found in *Aéroports de Paris* that, because ground handling services must be supplied within the airport only, the relevant geographic market was limited to the local facilities at the airport.¹⁸³

3.5 SELECTED ISSUES ON MARKET DEFINITION

Overview. Market definition can raise more complex issues in certain settings. First, the impact of price discrimination on market definition is considered. When firms can effectively price discriminate between customers, this may impact on the relevant market definition. Second, market definition in cases of tying and bundling presents issues, in particular whether separate markets exist for: (1) the bundled products alone; (2) for each of the bundled products on a stand-alone basis; or (3) separate markets comprising the bundled products and each of the stand-alone products. Third, market definition in aftermarkets—where consumers of a primary market need to purchase compatible consumables—require consideration. At the extreme, a firm’s own consumables may be a relevant market. Finally, market definition in so-called two-sided markets—where firms compete simultaneously for two groups of customers A and B whose demands are interrelated—is considered. These issues are discussed below.

3.5.1 Impact Of Price Discrimination On Market Definition

Issue stated. Very often firms can and do price discriminate, often in astoundingly

¹⁸¹ *DSD*, OJ 2001 L 166/1, para. 87–91 (noting that “the laws and regulations governing the disposal of packaging, including their implementing rules, differ widely from one country to another....One result of this is that the take-back and exemption system operated by DSD is restricted to Germany.”).

¹⁸² *Sea Containers v Stena Sealink—Interim measures*, OJ 1994 L 15/8, para. 62–65. See too *FAG—Flughafen Frankfurt/Main AG*, OJ 1998 L 173/32, paras. 55–56; *Ilmailulaitos/Luffartsverket (Finnish Airports)*, OJ 1999 L 69/24, paras. 24–33 and Case AT.39.886, *Ryanair/DAA-Aer Lingus*, Commission Decision of 17 October 2010, paras. 70–75.

¹⁸³ Case C-82/01 P, *Aéroports de Paris v Commission* [2002] ECR I-9297, at para. 95–96. See also Case T-128/98, *Aéroports de Paris v Commission* [2000] ECR II-3929, para. 141–42 (noting that “land and buildings in the Paris region cannot be taken into consideration, since they do not in themselves enable those services to be provided” and that “for most passengers leaving or arriving in the Paris region or other French regions, the air transport services...are not interchangeable with the services offered in other airports”).

multifarious ways.¹⁸⁴ For example, airlines generally operate complex yield-management systems whereby they try to differentiate ticket prices between customers based on time of purchase, ticket flexibility etc. Price discrimination is an ubiquitous business practice,¹⁸⁵ which, on its own, does not evidence market power,¹⁸⁶ and which, even where there is market power, is a type of behaviour that almost invariably enhances market efficiency (although not necessarily consumer welfare).¹⁸⁷

Price discrimination can sometimes be relevant for market definition. The Commission's Notice on market definition states that "[a] distinct group of customers for the relevant product may constitute a narrower, distinct market."¹⁸⁸ This may be appropriate "when such group could be subject to price discrimination."¹⁸⁹ As the Commission's Notice clarifies, the first condition needed for a group of customers to form a separate relevant market is that "it is possible to identify clearly which group an individual customer belongs to."¹⁹⁰ If it is not clear to which group a customer belongs, the particular price intended for the group will also be charged to many customers outside the group. If a hypothetical monopolist attempts to offer the same product at different prices to two different groups, customers will (all else equal) all attempt to buy at the lower price. Customers of the "high price" group will pretend to be customers of the "low price" group. The profitability of the price offered to the "high-price" group will be constrained by demand substitution if the members of that group can buy at the lower price, and, consequently, demand substitutes will need to be included in the market.

Similarly, if the hypothetical monopolist charges a price based on some observable feature that is only partially associated with the target group, the result will be that many customers outside the target group will be charged the target price, and the demand substitutes that are relevant to these other customers must be included in the relevant market. However, price discrimination not only requires the existence of clearly identifiable sets of consumers, but also requires that trade among customers belonging to different groups or arbitrage by third parties is not feasible. Otherwise, the hypothetical monopolist would not be able to price discriminate among different customer groups.

¹⁸⁴ See for example the amount of price discrimination on display in just one Broadway theatre (in what is a highly competitive industry) in P Leslie, "Price Discrimination In Broadway Theatre," (2004) 35(3) *RAND Journal Of Economics* 520–41.

¹⁸⁵ See for example the extensive, unanimous discussion (involving a round-table discussion of six US academic economists) in the *Empirical Industrial Organisation Roundtable*, Federal Trade Commission, 2001, at p. 104ff.

¹⁸⁶ S Carbonneau, P McAfee, H Mialon and S Mialon, *Price Discrimination And Market Power*, Emory Economics 0413, 2004. See also B Klein and JS Wiley Jr "Competitive Price Discrimination As An Antitrust Justification For IP Refusals To Deal," *Antitrust Law Journal*, 2003.

¹⁸⁷ See R Schmalensee, "Output And Welfare Implications Of Monopolistic Third-Degree Price Discrimination," (1981) *American Economic Review* 239–4. See also AS Edlin, M Epelbaum and WP Heller, "Is Perfect Price Discrimination Really Efficient: Welfare And Existence In General Equilibrium," (1998) 66 *Econometrica* 897–922. See also M Armstrong and J Vickers "Competitive Price Discrimination," *Rand Journal of Economics*, 2001.

¹⁸⁸ Market Definition Notice, OJ 1997 C 372/5, para. 43.

¹⁸⁹ *Ibid.*

¹⁹⁰ *Ibid.*

Effect of price discrimination on demand-side substitution. To better understand the impact of price discrimination on market definition, it is useful to distinguish between third-degree price discrimination (where consumers are grouped according to observable characteristics and each group is charged a different price for the same good) and second-degree price discrimination (where consumers are offered a menu of price/quality combinations and each consumer selects his most preferred combination, i.e., groups are formed by self-selection).

Third-degree price discrimination is only feasible when consumers of one group are clearly identifiable and there is no arbitrage. Each group of consumers constitutes a separate product market. This is the case we explained above and the one that has been explicitly covered in the Commission's Notice on market definition.

Market definition is not as straightforward, however, in the case of second-degree price discrimination. Consider a market scenario where firms offer different versions of the same product at different prices. In this way, they induce consumers to reveal their preferences by selecting their most desired version.¹⁹¹ Some consumers will choose a low quality version because of its low price, while others will be willing to pay extra to have access to a higher quality version. For each version, a separate group of consumers can be identified. However, unlike in the case of third-degree price discrimination, those self-selected groups need not constitute separate relevant product markets: unless the price differential between the various versions is sufficiently large, consumers will regard them as substitutes and may be ready to switch between them in response to changes in their relative prices. Suppose, for example, that a firm sells two product varieties, H and L , at prices P_H and P_L , respectively. The firm knows that some customers may be willing to pay more for quality than others but it does not know the identity of those customers. The firm will set P_H and P_L so that those customers who are willing to pay more for quality choose the high quality/high price combination while those with a lower valuation for quality self-select the low quality/low price combination. The choice of P_H will be, however, constrained by the choice of P_L since if the differential is too large, all consumers, irrespective of their preference for quality will select the low quality/low price combination. So the mere fact that one observes menu pricing (i.e., second-degree price discrimination) is not enough to conclude that separate markets exist. The Commission has in many occasions recognised the possibility of substitution between different price/quality combinations in its market definition decisions.¹⁹²

Substitution may be asymmetric, however. For example, it may happen that at prevailing prices the high quality version may exert a considerable competitive

¹⁹¹ This strategy is known as "versioning". See C Shapiro and H R Varian, *Information Rules*, Harvard Business School Press (1998), Chapter 3.

¹⁹² Case COMP/38.233, *Wanadoo Interactive*, Commission Decision of 16 July 2003, para. 182; Case T-342/99, *Airtours plc v Commission* [2002] ECR II-2585, para. 34. In *Carnival/P&O Princess*, whilst not taking a definitive decision, the Commission considered the possibility that cruises of different quality were in the same market. See Case COMP/M.2706, *Carnival Corporation /P&O Princess*. In *Nestle/Ralston Purina*, the Commission, even though stating that to some extent makers of pet food segment their products into "economy," "mainstream" or "premium" categories, decided to not define separate product markets on quality levels. See Case COMP/M.2337, *Nestle/ Ralston Purina*.

constraint on the pricing of a low quality version—i.e., a price increase for the low quality version would trigger substitution towards the high quality variant—whereas the opposite is not true. In this example, there are two separate product markets: one including the low and high quality versions, and another one including the high quality version only.¹⁹³

Effect of price discrimination on supply-side substitution. Price discrimination does not represent an obstacle to supply-side substitution. On the contrary, “challenges based on such price discrimination markets have to overcome formidable supply-side obstacles that reduce the likelihood of anticompetitive effects.”¹⁹⁴ In the case of third-degree price discrimination, the products sold to different groups of consumers are functionally identical, which makes supply-side substitution a credible constraint and could lead to broad market definitions. When firms engage in versioning strategies (second-degree price discrimination), supply-side substitution is also relevant. A producer of a high-quality version can often downgrade his product at no significant cost and almost instantaneously. If that were the case, supply-side substitution would represent an effective competition constraint that would have to be taken into account when delineating the market. Price discrimination may even facilitate supply-side substitution. This is because, when price discrimination is feasible, the entrant into the candidate market can compete aggressively in it by setting low prices for a downgraded version of its product while charging high prices in its “home” market with the high-quality version of its product.

3.5.2 Market Definition In Tying And Bundling Cases

Issue stated. Consider two components, A and B, which could be supplied separately or together. If there was sufficient demand, competing businesses could provide AB, A, and B. Sometimes businesses do just that: one can buy headache medicine, sinus medicine, and combined headache and sinus medicine. Other times there is not sufficient demand for A on a stand-alone basis and businesses provide AB and B: cars come with tyres and one can buy tyres separately, but not cars without tyres. And sometimes there is sufficient demand only for the combined product AB, which is the case for most books—generally one cannot buy chapters separately, even if they cover distinctly different subjects that are themselves the subjects of other books.¹⁹⁵

¹⁹³ In Case COMP/38.233, *Wanadoo Interactive*, Commission Decision of 16 July 2003, the Commission followed this logic to conclude the existence of a separate high-speed Internet access market. It commissioned a survey of high-speed users to determine whether they would switch back to low speed access if the price of high-speed access increased. It found that the rate of switching from high speed to low speed was much less than from low speed to high speed, an asymmetry that suggested the existence of a separate market for high-speed access. The Commission decision was upheld on appeal in Case T-340/03, *France Télécom SA v Commission* [2007] ECR II-107 and on further appeal in Case C-202/07 P, *France Télécom SA v Commission* [2009] ECR I-2369.

¹⁹⁴ JA Hausman, GK Leonard and CA Velluro, “Market Definition Under Price Discrimination,” (1996) 64(2) *Antitrust Law Journal* 367, at 383.

¹⁹⁵ M Salinger, “A Graphical Analysis Of Bundling,” (1995) 68(1) *Journal of Business* 85–98; DS Evans and M Salinger, “Why Do Firms Bundle And Tie? Evidence From Competitive Markets And Implications For Tying Law,” (2005) 22(1) *Yale Journal on Regulation* 37; S Stremersch and GJ Tellis, “Strategic Bundling Of Products And Prices: A New Synthesis For Marketing,” (2002) 66(1) *Journal of Marketing* 55–72; and DS Evans and M Salinger, “An Empirical Analysis Of Bundling And Tying:

Tying and bundling occurs when a firm offers two products A and B jointly. Tying refers to a situation where product A (the tying good) can only be purchased with product B (the tied good); so only AB and B are sold in the market. In contrast, mixed bundling occurs when products A and B are sold in a bundle but are also available separately, albeit at a greater total cost. Finally, pure bundling occurs when the two products can only be purchased as part of a bundle, i.e., only AB is commercialised.

Effect on market definition: tying and pure bundling. The effect of tying and bundling practices on market definition varies according to the type of bundling at issue. Consider first tying and bundling. The first key question in cases involving allegations of illegal tying and bundling is to establish whether A and B are “separate products” from the viewpoint of consumer demand or whether instead they should be treated as components of a single product.¹⁹⁶ Two products can only be tied if they are genuinely distinct products. That is, when an independent product market exists for each of them; or, in other words, when there are separate product markets for both A and B.¹⁹⁷

As noted by Professors Areeda, Elhauge, and Hovenkamp:¹⁹⁸

“However, under the competitive market practices test, a distinct market for the tied item does not imply separate products absent widespread sales of the tying item in unbundled form. For example, an independent market for carburettors does not make a car with carburettor installed two products because no significant independent market exists for cars stripped of their carburettors. Nor does an independent market for television tubes prove that a television and its installed tube are separate products because we have no significant independent market for televisions lacking tubes. Two items constitute one product under the market practices test unless *each* could efficiently be sold without the other.”

That is, one cannot determine whether the bundle AB is a single product or the combination of two separate products by looking solely at the demand for product B. In fact, once it is established that B is a separate product, the relevant question is whether there is demand for A as a stand-alone product. Are there consumers prepared to pay a price to acquire product A without product B attached? If so, then A and B are separate products; otherwise, there are two products AB and B, and A is just a component of the first of the two products.

A case that has considered this issue is *BT Analyst*.¹⁹⁹ In that case, the Office of Fair Trading (OFT) was concerned about a product (BT Analyst) which British Telecom (BT) was giving to multi-line customers free of charge. BT Analyst provided a retail telephony electronic bill service. A rival company, Magictelecom, complained alleging that BT was attempting to foreclose the market. The OFT decided that BT Analyst did not constitute a separate product. Instead, it concluded that there was a single market

Over-The-Counter Pain Relief And Cold Medicines,” CESifo Working Paper No. 1297, 2004.

¹⁹⁶ See Ch. 11 (Tying and Bundling) below.

¹⁹⁷ This test was approved by the Irish Supreme Court in *Competition Authority v John O’Regan and others* [2007] IESC 22, para. 120.

¹⁹⁸ P Areeda, E Elhauge and H Hovenkamp, *Antitrust Law*, Aspen Publishers (2004) (2nd edn.), Vol. X, p. 183, ¶1745d2.

¹⁹⁹ *Pricing of BT Analyst*, OFT Decision of 26 October 2004.

for retail telephony services, which should be considered as a “cluster” and which included *inter alia* an electronic bill provision service:²⁰⁰

“In a cluster market, consumers choose suppliers on the basis of the most competitively priced cluster of products offered. Once a supplier is chosen on this basis, the consumer will purchase all products/services within the cluster from the chosen supplier. This means that purchasing decisions are not made on the basis of the individual prices of products. Consequently, the practice of ‘bundling’ these services together is not in itself anti-competitive.”

The Commission took a different position in *Microsoft*. In that case, the Commission concluded that operating systems and media players were separate products because there was separate demand for and supply of media players. The Commission held that whether there was separate demand for operating systems without media players did not need to be considered to determine whether operating systems and media players were separate products. This approach was upheld by the General Court.²⁰¹

Likewise in *Google Android*, the Commission defined individual markets for: (1) the licensing of smart mobile OSs; (2) the market for Android app stores; (3) the market for the provision of general search services; and (4) the market for non OS-specific mobile web browsers.²⁰² In so doing it rejected the argument that these products were part of a single market involving mobile platform-to-platform competition between Android and other OSs like Apple’s iOS. Among the reasons for this conclusion were: (1) app stores and smart mobile OS are only components of the smart mobile device and the spending on apps is small compared to the costs of a smart mobile device; (2) a user’s choice of an app store is determined by its choice of a smart mobile device and the corresponding mobile OS and a user cannot, for technical reasons, install an app store that has not been developed for that OS; app stores and smart mobile OSs are separate products satisfying different user needs; (4) Google gives access to Android without the Play Store; and (5) there are several players that offer only one of these products (for example Aptoide, LG Electronics, Opera, SFR and Yandex offer an app store but not a smart mobile OS).²⁰³ This conclusion forms an important part of Google’s appeal.

Effect on market definition: mixed bundling. There are several candidates for the relevant market when companies compete by offering mixed bundles. First, the bundle and the single products may all be part of the same relevant market. Second, there may be different relevant markets for the bundle and for the separate products. The first option is the correct one if at current prices consumers are practically indifferent between buying the bundle and the two products separately—that is, if a small increase in the price of the bundle induces consumers to acquire the two products separately. Alternatively, separate markets for the bundle and its constituent products may be found when consumers derive a large benefit from buying the products jointly, so that at current prices no substitution is likely in response to a small increase in the price of the

²⁰⁰ *Ibid.*, para. 43. See too OFT Market Definition Guidelines, OFT 403, December 2004, para. 5.11.

²⁰¹ *Microsoft*, OJ 2007 L 32/23, paras. 342, 401, and 425, upheld on appeal in Case T-201/04, *Microsoft v Commission* [2007] ECR II-3601.

²⁰² Case AT.40099, *Google Android*, Commission Decision of 18 July 2018.

²⁰³ *Ibid.*, paras. 299-305.

bundle.²⁰⁴ In sum, whether or not the stand-alone products belong to the same relevant market than the bundle depends on the size of any economies of scope in consumption. These include transaction cost savings, learning-by-doing advantages, reduction in shipping costs, and technological compatibility benefits.

3.5.3 Aftermarkets

Issue stated. In some instances, the consumer of a product, typically a durable good (e.g., a jet engine), must subsequently purchase a complementary follow-on product (e.g., spare parts or maintenance and repair services). The market for the durable good is denoted as the “primary market” or the foremarket, while the markets for the follow-on products are known as “secondary markets” or “aftermarkets.” Examples of foremarkets and aftermarkets include inkjet printers and replacement cartridges, game consoles and game cartridges, electric toothbrushes and replacement heads, and photo cameras and their repair parts.²⁰⁵

The application of the hypothetical monopolist test to situations where competition occurs both in primary and secondary markets requires great care. As noted by the Commission’s Market Definition Notice, the “method to define markets in these cases is the same, i.e., assessing the responses of customers based on their purchasing decisions to relative price changes.”²⁰⁶ The difference lies in that attention needs to be paid to the “constraints on substitution imposed by conditions in the connected markets,”²⁰⁷ and in particular to the extent to which competition in the foremarket prevents exploitation of consumers in the aftermarket(s).

Effect on market definition. Consider the example of jet engines and the maintenance, repair, and overhaul (MRO) services for jet engines.²⁰⁸ Suppose that the jet engines manufactured by different original equipment manufacturers (OEMs) are substitutes and, therefore, all belong to the same relevant product market. There are in principle three conceivable market configurations: (1) *two dual markets*—one for all jet engines and one for the spare parts and MRO services for all engine brands; (2) a *single system market* for jet engines including their spare parts and MRO services; or (3) a *primary market* for jet engines and *separate secondary MRO markets* for each engine brand.

²⁰⁴ Europe Economics, “Market Definition In The Media Sector—Economic Issues,” Report for the European Commission, DG Competition, 2002, pages. 24–26.

²⁰⁵ See C Shapiro, “Aftermarkets And Consumer Welfare: Making Sense Of *Kodak*,” (1995) 63(2) *Antitrust Law Journal* 483–512. See too J Temple Lang, “Practical Aspects Of Aftermarkets,” *Competition Policy International* (Spring 2011) Volume 7, No. 1, p. 199. For an economic discussion, see P Davis, L Coppi and P Kalmus, *The Economics of Secondary Product Markets*, Compass Lexecon study for the Office of Fair Trading, 21 December 2012.

²⁰⁶ Market Definition Notice, OJ 1997 C 372/5, para. 56. See also OFT Market Definition Guidelines, OFT 403, December 2004, paras. 6.1–6.7. See further, Case COMP/C-3/39692, *IBM Maintenance Services*, Commission Decision of 13 December 2011, para. 21 (whether an aftermarket service constituted a separate product market depended on the likely reaction of customers to moderate price increases in the aftermarkets”).

²⁰⁷ Market Definition Notice, *ibid.*, para. 56.

²⁰⁸ This example is taken from Case COMP/M.2220, *General Electric/Honeywell*, and the judgment on appeal in Case T-210/01, *General Electric Company v Commission* [2005] ECR II-5575.

Which of these market configurations is appropriate depends on the particular facts of the case.²⁰⁹ If the spare parts and the MRO services for each engine brand are compatible with the spare parts and the MRO services for other brands (and are perceived as such by customers), then market configuration (1) is likely appropriate. In this scenario, the purchase of a particular jet engine brand does not “lock-in” customers, who remain free to use the maintenance service providers and the spare parts of competing engine brands.

If, instead, the spare parts and the MRO services of one brand are incompatible with those of other brands (or are perceived as such by customers), then the right configuration is either (2) or (3). Customers of a given engine brand are “forced” to make use of the spare parts for that engine, i.e., they are locked in. Which of the two is correct depends on the extent to which a rise in the price of spare parts and MRO services affects the sales of jet engines. That is, it depends on the extent to which current and future customers of jet engines react to a price increase in spare parts and MRO services, which *inter alia* depends on whether customers take into account the whole-life cost of the jet engine, including its maintenance and repair, when choosing the primary product.

If they do take into account the cost of spare parts and MRO services when acquiring an engine, and the “characteristics of the primary good market make quick and direct consumer responses to relative price increases of the secondary products feasible,”²¹⁰ then a price increase in the aftermarket (spare parts and MRO services) would not be profitable due to a fall in sales of the primary product (jet engines) and the aftermarket. In such circumstances, the aftermarket does not constitute a separate product market, and so market definition (2) is likely to be appropriate.²¹¹

However, in many cases customers either do not consider whole-life costs or underestimate them. This may make a unilateral rise in the price of spare parts and MRO services profitable, as it will not lead to a response in the primary market. In other cases, even if aircraft buyers correctly estimate the whole-life costs of an engine, a unilateral price rise for the aftermarket product will be profitable if: (1) the installed base of jet engine customers is locked in because it is extremely onerous to replace the existing jet engines with new ones in response to a price increase in spare parts and MRO services.

²⁰⁹ XXVth Report on Competition Policy (1995), para. 86. See also C McSorley, AJ Padilla and M Williams, “Switching Costs,” OFT-DTI Discussion Paper, April 2003, para. 7.16.

²¹⁰ Market Definition Notice, OJ 1997 C 372/5, para. 56.

²¹¹ See, e.g., the Commission’s approach in its investigation of *Kyocera/Pelikan*. Kyocera was accused of dominating the aftermarket for the supply of spare parts to its printers. The Commission found that Kyocera was not dominant in the market for spare parts as it was constrained by competition in the market for printers, since customers took into account the price of the consumables when considering which printer to buy. See *Pelikan/Kyocera*, XXVth Report on Competition Policy (1995), para. 87. See also Case COMP/C-3/39.391 *European Federation of Ink Manufacturers*, Commission Decision of 20 May 2009; *Novo Nordisk*, XXVIth Report on Competition Policy (1996), 37; and *Infolab/Ricoh*, Competition Policy Newsletter, No. 1, (February 1999) pp. 35-37. At national level see *Kaisha v. Green Cartridge Company (Hong Kong) Limited (Hong Kong)* [1997] UKPC 19 and Case CA98/6/2001, *ICL/Synstar*, Office of Fair Trading Decision of 20 July 2001.

CEAHR. The judgment of the General Court in *CEAHR*²¹² confirms the foregoing analysis. In this case, the applicant had complained to the Commission that several luxury watch manufacturers had entered into an agreement or a concerted practice, and committed an abuse of dominance by refusing to continue to supply spare parts to independent watch repairers. The Commission rejected the complaint. One of its reasons was that in the Commission's view the market for luxury watches and the two aftermarkets at stake (namely the market for the supply of spare parts, and the market for repair and maintenance services) were part of the same product market and that the luxury watch manufacturers did not hold a dominant position (either collectively or individually) in such a market. On appeal, the Court considered that the Commission had committed manifest errors in assessing market definition. In doing so, the Court made a series of clarifications.

First, the Court stated that an aftermarket of a specific brand could be a separate relevant market in two situations: (1) if it was possible for a user of primary products of a brand to switch to secondary products manufactured by another producer (i.e., if secondary products of different brands were interchangeable); or (2) if it was possible for a user of primary products of one brand to switch to primary products of another brand in order to avoid a price increase for secondary products of the first brand: in this case there is a "system market" because price increases in the aftermarket would affect demand for products in the primary market so that such price increases would be unprofitable. Second, the Court held that it must be demonstrated that a sufficient number of consumers would switch to other primary or secondary products in order to render price increases unprofitable.²¹³ Third, the Court clarified that the mere possibility for a consumer to choose from several brands on the primary market was not sufficient to treat the primary market and aftermarkets as a single market unless that choice was made on the basis of the competitive conditions on the secondary market.²¹⁴ Finally, the Court held that the fact that there are undertakings which are active only in the aftermarket provided a strong indication that the aftermarket was a separate market.²¹⁵

Applying the above to the case at hand, the Court held that the Commission had insufficient evidence to base its conclusion that the two aftermarkets in question did not constitute separate relevant markets. As regards spare parts, concerning the first test, the Court criticised the Commission for failing to assess the degree of substitutability between spare parts manufactured by competing brands and whether users of primary products of a specific brand could switch to spare parts manufactured by another

²¹² Case T-427/08, *Confédération européenne des associations d'horlogers-réparateurs (CEAHR) v Commission* [2010] ECR I-5865.

²¹³ *Ibid.*, paras. 79-80. The test was applied in Case COMP/C-3/39693, *IBM Maintenance Services*, Commission Decision of 13 December 2011, paras. 21-24, where the Commission stated that an aftermarket consisting of the secondary products or services of only one brand of primary product could be a relevant product market if: (1) switching to secondary products of other brands was not possible; and (2) there were high switching costs in the market for the primary product.

²¹⁴ *Confédération européenne des associations d'horlogers-réparateurs (CEAHR) v Commission*, *ibid.*, para. 105.

²¹⁵ *Ibid.*, para. 108.

producer.²¹⁶ Concerning the second test, the Court held that the Commission erred in finding that, in the event of a price increase on the market for spare parts of a specific brand, users that already owned a primary product could switch to primary products of another brand since, as the Commission itself recognised in the rejection decision, a moderate price increase for spare parts would be negligible as compared to the cost of buying a new primary product (i.e., a new luxury watch).²¹⁷ In addition, the Court considered that the Commission's claim that, in the event of a price increase of spare parts, users could sell their primary products in the second-hand market in order to buy a new primary product of another brand was implausible.²¹⁸ Further, the fact that there were undertakings which were active only in the production of spare parts was in itself a strong indication that spare parts constitute a separate market.²¹⁹

As regards repair and maintenance services, the Court again held that the Commission failed to take into account the fact that there were existing undertakings which were active only on the market for repair and maintenance services (namely independent repairers).²²⁰ The Court further found that the Commission failed to establish whether a moderate price increase on the repair and maintenance services market would affect demand for the primary product (i.e., luxury watches) such that a price increase would be unprofitable. Moreover, the Court suggested that this would unlikely be the case since the decision itself indicated that the cost of repair and maintenance services was minor as compared to the cost of the primary product.²²¹

Example of overall “systems” market: *EFIM*. In the *EFIM* case,²²² producers of generic ink cartridges complained to the Commission that they were denied access to the intellectual property rights by the four original equipment manufacturers (OEMs) of printers: Hewlett Packard, Lexmark, Canon and Epson. The Commission dismissed the complaint as it concluded that it was not likely that the OEMs held a dominant position on the secondary market of ink cartridges, since the OEMs did not have a dominant position on the primary market of inkjet printers.

According to the Commission, there is a single systems market rather than separate primary and secondary markets when the following conditions hold: (1) consumers can and are likely to make an informed choice when purchasing the system taking into account, among other things, the total cost of ownership of the system (i.e. both the cost of the primary product and the lifecycle cost of the secondary product); and (2) in case of an apparent policy of exploitation being pursued in the secondary market, a sufficient number of customers would adapt their purchasing behaviour at the level of the primary market within a reasonable time. Condition (1) is more likely to hold when the secondary product is a consumable used with the primary product in fixed proportions,

²¹⁶ *Ibid.*, paras. 84-89.

²¹⁷ *Ibid.*, paras. 94-96.

²¹⁸ *Ibid.*, paras. 97-99.

²¹⁹ *Ibid.*, para. 108.

²²⁰ *Ibid.*, paras. 112-113.

²²¹ *Ibid.*, paras. 115-118.

²²² Case AT.39391 *Printers (EFIM complaint)*, Commission Decision of 20 May 2009, upheld on appeal Case T-296/09 *EFIM v Commission* EU:T:2011:693 and Case C-56/12 P *EFIM v Commission* C:2013:575.

than in the case of spare parts and services. On the contrary, it may be less likely to hold when replacement times for the secondary product are long and unpredictable.

3.5.4. Market Definition In Two-Sided Markets

Overview. In many industries firms compete simultaneously for two groups of customers, A and B, whose demands are interrelated. As two leading economists note, “many if not most markets with network externalities are two-sided.”²²³ This is certainly the case of the software industry at large. The video game market constitutes a neat example of a two-sided market. No game platform, such as Sony’s PlayStation, Nintendo’s Wii or Microsoft’s Xbox, can sell consoles without games to play on. But no game platform will ever convince game developers to write for its console without the prospect of an installed base of consumers. The same is true of platform search services like Google who compete to acquire “eyeballs” (or attention) from users searching for information, e.g., on products, on one market side and to then match those users to vendors or advertisers on the other side who have services or products to sell. The same is also true of most social media platforms.

The key feature of two-sided markets is therefore that, to succeed, competitors must get both sides of the market on board. This requires solving a typical “chicken-and-egg problem.”²²⁴ Competitors in two-sided industries have to decide which side of the market will be subsidised and which one will be charged to make money. This explains why prices below cost, sometimes zero or even negative prices, are typically observed in multi-sided industries. For example, videogame manufacturers treat the console side as a loss leader and make money on game developers by charging per-unit royalties on games and fixed fees for development kits. Search services and social media platforms are normally free, but monetised through selling advertising. Manufacturers of PC operating systems use the opposite price structure. They aim to make money on end users and do not make or lose money on application developers. The choice of an appropriate business model seems to be the key to commercial success and is, therefore, the subject of significant corporate attention.²²⁵

Two-sided markets raise a series of discrete issues under Article 102 TFEU. As discussed in Chapter Four (Dominance), competition between two-sided platforms, if it close and intense enough, may mean that no single platform is dominant even if users on one or other platform face some switching costs. Chapter Seventeen (Abuses In Digital Platform Markets) deals in detail with the law and economics of two-sided platforms and the decisional practice and case law on abuses in such markets. Such markets can present confounding features under Article 102 TFEU. For example, a zero price by a dominant firm is normally predation. But in a two-sided market, it may be inherent that one side pays nothing or next to nothing and that a customer group on the

²²³ C Rochet and J Tirole, “Platform Competition In Two-Sided Markets,” (2003) 1(4) *Journal Of The European Economic Association* 990–1029. In practice, there may be more than two sides but the two-sided paradigm is useful for ease of exposition.

²²⁴ See B Caillaud and B Jullien, “Chicken & Egg: Competition among Intermediation Service Providers,” (2012) *RAND Journal of Economics* 34(2): 309-328.

²²⁵ See DS Evans and R Schmalensee, *Catalyst Code: The Strategies Behind The World’s Most Dynamic Companies*, Harvard Business School Press (2007).

other side who needs access to those users is the source of monetisation. Similarly, tying is more likely to be prevalent and efficient in such markets given the interdependencies between the two sides.

This chapter is concerned with a relatively narrow issue about how the two-sidedness of such markets affects market definition under Article 102 TFEU. A number of preliminary remarks may be useful. First, whilst it may be possible to avoid defining a relevant market in certain other cases,²²⁶ the definition of a relevant market is an essential prerequisite for the assessment of dominance under Article 102 TFEU.²²⁷ Second, market definition in two-sided markets can raise significant theoretical complications.²²⁸ In practice, many of these issues are likely to be arcane in the sense that provided the effects of the market having two or more sides are taken into account *somewhere* in the analysis—which, in law, they must be²²⁹—the question of market definition should not assume such importance. Third, it is important that the delineation of the relevant market should not become a sort of “guillotine” for the substantive analysis of whether competition is restricted. A good example is *Cartes Bancaires*, where the Court of Justice overturned the Commission’s and General Court’s analysis primarily due to basic errors on the two-sided nature of the markets concerned. The banks operated a card payment system and had introduced measures to try to balance the mix of the activities of: (1) issuing cards on one side of the market; and (2) acquiring merchants to join the payment system on the other. The measures provided for contributions designed to disincentivise the former activity and incentivise the latter. The Commission and General Court held that the benefits in the merchant acquisition side of the market could not be taken into account in assessing a restriction of competition by object, since they were not part of the relevant market. The Court of Justice held that this was wrong:²³⁰

“...the General Court wrongly held...that the analysis of the requirements of balance between issuing and acquisition activities within the payment system could not be carried out in the context of Article [101(1) TFEU] on the ground that the relevant market was not that of payment systems in France but the market, situated downstream for the issue of payment cards in that Member State.

In so doing, the General Court confused the issue of the definition of the relevant market and that of the context which must be taken into account in order to ascertain whether the content of an agreement or a decision by an association of undertakings reveals the existence of a restriction of competition ‘by object’ within the meaning of Article [101(1) TFEU].

²²⁶ For some object infringements under Article 101 TFEU it may be unnecessary to define the relevant market. See, e.g., Case T-62/98 *Volkswagen v Commission*, [2000] ECR-I 180.

²²⁷ See Case 6/72, *Europemballage Corporation and Continental Can v Commission* [1973] ECR 215, para. 32 (“the definition of the relevant market is of essential significance”).

²²⁸ For a detailed treatment, see J-U Franck and M Peitz, “Market Definition And Market Power In The Platform Economy,” *Centre on Regulation in Europe*, May 2019.

²²⁹ This is well established under Article 101 TFEU: see Case C-67/13 P, *Groupement des cartes bancaires v Commission*, EU:C:2014:2204 and Case C-228/18 *Gazdasági Versenyhivatal v Budapest Bank Nyrt. and Others*, EU:C:2020:265. Not only is there no reason to think that the position would be different under Article 102 TFEU but it is surely *a fortiori* given the market positions and unilateral practices of many two-sided platforms.

²³⁰ *Ibid.*, paras. 76-79 (citations omitted).

In order to assess whether coordination between undertakings is by nature harmful to the proper functioning of normal competition, it is necessary...to take into consideration all relevant aspects – having regard, in particular, to the nature of the services at issue, as well as the real conditions of the functioning and structure of the markets – of the economic or legal context in which that coordination takes place, it being immaterial whether or not such an aspect relates to the relevant market.

That must be the case, in particular, when that aspect is the taking into account of interactions between the relevant market and a different related market...and, all the more so, when, as in the present case, there are interactions between the two facets of a two-sided system.”

The final point is that it is important that there should be at least tolerable clarity as to how market definition is approached in two-sided markets under Article 102 TFEU. An unduly narrow market definition will, all else equal, make it more likely that a firm is found dominant, which will then automatically engage its “special responsibility” not to abuse its position. Equally, an unduly broad definition may allow genuinely abusive conduct to escape scrutiny. On a more prosaic level, firms, and their advisers, are entitled to have some tolerable degree of legal certainty so that they can advise their principals and the businesses can react accordingly if necessary.

Effect of two-sidedness on market definition: economic theory. In two-sided industries, if a firm (a two-sided platform in the jargon of those businesses) raises the price it charges to one group of customers (group A), it will not only lose sales made to those customers, but also will experience a reduction in the volume of sales to the other group of customers (group B), since the members of group B value the product offered by the firm more when it attracts more group A customers. That is, when a two-sided platform raises the price charged to the A side of the platform, it negatively impacts the B side of the market, which then causes an additional negative impact on the A side and so on. For example, consumers may have an expectation that they can receive search services or social media access free of charge. This pricing structure can make sense if access to those users can be monetised through advertising on the second side of the market. But if users on the first side were charged a positive price, their number may reduce, which in turn would reduce significantly the attractiveness of that platform to advertisers. A good example is the rise of Facebook and demise of MySpace: as soon as users started leaving in large numbers, the economics of MySpace ceased to make sense.

A paper by Evans and Noel argues that the standard techniques used to test for a relevant competition law market are incorrect when the firms under scrutiny operate two-sided platforms.²³¹ In particular, they claim that applying standard (one-sided) critical loss analysis to a two-sided business would lead to excessively narrow market definitions. This is because the one-sided formulation when applied to a price increase for group A consumers fails to take into account the loss in volume (and hence on profits) on the B side of the platform, as well as the subsequent reduction of activity on both sides of the business. The authors have extended the standard (one-way) critical loss analysis formulas to the case of two-sided platforms,²³² which allegedly

²³¹ DS Evans and MD Noel, “Defining Antitrust Markets When Firms Operate Two-Sided Platforms,” *Columbia Business Law Review* (2005), Vol. 3.

²³² See also OECD, *Rethinking Antitrust Tools for Multi-Sided Platforms* (2018), Chapters 1 and 2.

demonstrates that the bias from the misuse of one-sided formulas in a two-sided setting can be very large.

These views have been supported by a number of academics and practitioners²³³ and, overall, taken on board by the US Supreme Court in the controversial *Ohio v Amex* ruling.²³⁴ Amex is a credit card platform that links cardholders with merchants. A key question in this case was whether Amex operates: (1) in two separate antitrust markets, facing cardholders in one market and merchants in the other; or (2) instead operates in a single product market. The Court concluded, by a tight majority (5 to 4), that Amex was a two-sided platform supplying only one product—the transaction.

This conclusion is not universally shared.²³⁵ In addition to the four US Supreme Court Justices that disagree with the majority in *Ohio v Amex*, several other economists and practitioners, as well as the Commission (see below),²³⁶ consider that, while the demand from both sides of the platform may be linked by (indirect) network effects, and hence the prices charged on one side may have an impact on the other side's demand, that does not imply that the multi-sided platform faces the same competitive constraints on both sides of the market. It may (in which case whether we define a single market or not is irrelevant) or it may not (in which case we should consider separate product markets).

Some appear to consider that—unlike non-transaction platforms, such as Google Search or Facebook—transaction platforms, such as Amex, the NYSE and other stock exchanges, face the same conditions of competition on both sides of the market because their product is the transaction.²³⁷ This is, however, unclear. It may depend on whether both sides of the market single home (i.e. use a single platform, e.g. a single credit card) or multi home (i.e. they use multiple credit cards). If one side of the market single homes, the other is likely to multi home, and *vice versa*. Platforms will compete very aggressively for the single homers, but will be able to exploit the multi homers. In fact, each platform with a customer base of single homers on one side of the market, will be able to charge monopoly prices on the multi homing side of the market. This is because from the view of the users on the multi-homing side, each platform is a gatekeeper to its single-homing customers on the other side. Thus, while users on the single-homing side

²³³ See L Filistrucchi, D Geradin, E van Damme and P Affeldt, “Market Definition In Two-Sided Markets: Theory And Practice,” (2014), *Journal of Competition Law and Economics* (2014), Vol. 10(2), 293-339. See also J-U Franck and M Peitz, “Market Definition And Market Power In The Platform Economy,” *Centre on Regulation in Europe*, May 2019.

²³⁴ *Ohio v. Am. Express Co.*, 138 S. Ct. 2274 (2018).

²³⁵ For discussion of the case see HJ Hovenkamp, “Platforms and the Rule of Reason: The American Express Case,” (2019) *Faculty Scholarship at Penn Law*, 2058. Competition Policy International devoted an entire volume to the case: see “*Ohio v. American Express: A Year Later...*,” *Competition Policy International*, Spring 2019, Volume 3, Number 2.

²³⁶ See e.g., M Katz, “Platform Economics And Antitrust Enforcement: A Little Knowledge Is A Dangerous Thing,” *Journal of Economics and Management Strategy*, (2019), Vol. 28, 138-152. See also T Wu, “The Supreme Court Devastates Antitrust Law,” *The New York Times*, 26 June 2018.

²³⁷ See DS Evans and R Schmalensee, *Antitrust Analysis of Platform Markets: Why the Supreme Court Got It Right in American Express*, CPI-Books 2, 2020.

can force platforms to compete with each other; those on the multi-homing side face a number of monopoly platforms.²³⁸

Effect of two-sidedness on market definition: case law and decisional practice. The Commission's practice on market definition in two-sided markets under Article 102 TFEU can be simply stated: the Commission has to date simply applied its standard (i.e., one-sided market) product substitution analysis and has not factored into that analysis the consequences of the two-sidedness of the markets concerned. In the context of market definition, there has been no serious consideration of the extent to which the pricing structure and price levels across the two market sides affects market definition or consideration of issues of substitution between alternative two-sided business models. The most that can be said is that, in Article 102 TFEU cases, to the extent that the Commission has taken into account competition from other two-sided platforms, it has only done so at the stage of assessing dominance. Even then, as discussed in Chapter Four (Dominance), its assessment has tended to be perfunctory.

In *Google Shopping*, the Commission defined markets for general search services and comparison shopping services.²³⁹ But there is virtually no discussion of the interrelationship between the search and advertising sides of the market, and how this affects pricing structures and levels for purposes of market definition. Whilst there is some discussion as to competition between general search services and social networking sites, the analysis starts and ends with the trite observation that general search services and social media platforms perform difference functions. This of course is true, but how advertisers on the other side of the market decide whether to advertise on Google Search or Facebook (or both) is an unavoidably important issue also.

In *Google Android*, the Commission defined individual markets for: (1) the licensing of smart mobile OSs; (2) the market for Android app stores; (3) the market for the provision of general search services; and (4) the market for non OS-specific mobile web browsers.²⁴⁰ In so doing it rejected the argument that these products were part of a single market involving mobile platform-to-platform competition between Android and other OSs like Apple's iOS. Among the reasons for this conclusion were: (1) app stores and smart mobile OS are only components of the smart mobile device and the spending on apps is small compared to the costs of a smart mobile device; (2) a user's choice of an app store is determined by its choice of a smart mobile device and the corresponding mobile OS and a user cannot, for technical reasons, install an app store that has not been developed for that OS; app stores and smart mobile OSs are separate products satisfying different user needs; (4) Google gives access to Android without the Play Store; and (5) there are several players that offer only one of these products (e.g., Aptoide, LG Electronics, Opera, SFR and Yandex offer an app store but not a smart mobile OS).²⁴¹ This conclusion forms an important part of Google's appeal

²³⁸ For a discussion of the importance of multi-homing on market definition, see J-U Franck and M Peitz, "Market Definition And Market Power In The Platform Economy," *Centre on Regulation in Europe*, May 2019.

²³⁹ Case AT.39740, *Google Search (Shopping)*, Commission Decision of 26 June 2017, Section 5.

²⁴⁰ Case AT.40099, *Google Android*, Commission Decision of 18 July 2018.

²⁴¹ *Ibid.*, paras. 299-305.

Finally, in *Google AdSense*, the Commission defined two markets for: (1) general search services; and (2) online search advertising constitute.²⁴² It accepted that these were the two different but interlinked sides of a general search engine platform: online search advertising involves the matching by search advertising platforms of user queries with relevant search ads. But its analysis concluding that the market for online search advertising constitutes a distinct product market was based on fairly traditional single market product substitution analysis (e.g., offline versus and online advertising, online search advertising versus online non-search advertising). There is virtually no consideration of the economic implications of the price structures and levels across the two market sides.

To be clear, the issue is not that the Commission should necessarily put complementary products on two market sides into a single market: market definition, after all, is mainly about product *substitution*. But as discussed above in the context of aftermarket and tying, there is a well-developed body of economic literature on how market definition should be applied in situations where there are two potentially inter-dependent products. In the case of two-sided markets, there is an equally well-developed body of literature explaining how pricing structure and pricing levels on one market side can affect the other and, therefore, market definition.²⁴³ The Commission thus far has taken virtually no account of this in Article 102 TFEU cases. As discussed in Chapter Four (Dominance), this omission makes it all the more important that, when it comes to assessing dominance, the traditional indicators such as market shares are not given undue weight in the case of two-sided markets without also considering both the constraints *within* the market defined under Article 102 TFEU and the *out-of-market* constraints, notably competition from alternative business models or platforms.

Whilst scant consolation, the situation under US antitrust decisional practice currently fares no better either. As explained above, the US Supreme Court found that Amex compete in a single multi-sided market in *Ohio v Amex*.²⁴⁴ The Court's opinion was motivated by Amex's particular two-sided business model, whereby it intermediates between merchants and cardholders. This precedent was recently quoted in *US v Sabre and Farelogix*,²⁴⁵ where the District Court concluded that while Sabre (a Global Distribution System that intermediates between airlines and travel agents) and Farelogix (a technology provider that is sold to airlines so that they can establish direct connections between airlines and travel agents) compete *in practice*, they do not compete as a *matter of law*, since Sabre operates a two-sided business whereas Farelogix is a one-sided business.

This ruling demonstrates the problems of delineating markets according to the business model employed by the firms whose conduct is being analysed. Because firms with different business models often impose a competitive constraint on each other, a market definition that segregates firms according to their respective business models is bound

²⁴² Case AT.40411, *Google Search (AdSense)*, Commission Decision of 20 March 2019, Section 6.2.

²⁴³ See sources at footnote 233 *supra*. See also DA Crane, "Market Power Without Market Definition," 90 *Notre Dame L. Rev.* 31 (2014).

²⁴⁴ *Ohio v. Am. Express Co.*, 138 S. Ct. 2274 (2018).

²⁴⁵ US District Court, District of Delaware, *US v Sabre and Farelogix*, C.A. No. 19-1548-LPS, (April 2020).

to be under-inclusive. At the very least, these potential competitive constraints have to be assessed at the stage of dominance. But the concern of course is that market definition is supposed to define the most immediate price and non-price constraints. If these are defined narrowly under market definition, the scope to bring them back in under dominance is, in practice, probably more restricted.

“Free” services and non-price competition and market definition. Two-sided platforms raise a specific issue concerning how to define relevant markets when products or services are free. As discussed above, the usual test for market definition is whether a small but significant non-transitory increase in price (SSNIP) would be profitable for the firm concerned. This test uses data on prices and sales volumes to assess whether a hypothetical monopolist could profitably increase the prices of the products in the candidate market by 5–10% during a sustained period of time. But this test cannot be applied, easily or at all, to a zero price on one side of the market.

This issue has led policy-makers and competition authorities to focus on quality-related vectors of competition as a means to define relevant markets (and likewise the degree of independence from normal competitive forces for purposes of dominance). For example, search engines compete on producing relevant and useful search results and returning such results with the minimum delay or latency. But using quality as a metric of market definition is not without its issues. One obvious problem is how to define quality for areas that are not susceptible to a simple cardinal. For example, whilst the latency of search results can be measured in time, there is no objective definition of a relevant and useful search result, still less what degree of (ir)relevance users might tolerate before getting fed up and switching to something else.²⁴⁶ As the OECD notes:²⁴⁷

“Identifying a single exhaustive definition of quality is a challenging endeavour. Quality is a multidimensional concept that encompasses, inter alia, the durability, reliability, location, design and aesthetic appeal, performance and safety of a product. Product choice can also be treated as a quality attribute, although it remains dissociable from the individual product itself. In essence, quality is a relative concept, insofar as the level of quality found in any one product is defined by reference to the quality levels of other products. Quality incorporates a significant element of subjectivity, because certain quality aspects may be valuable only to some consumers, or more valuable to some than others. Consumers may also disagree as to ranking of product characteristics that are each viewed as desirable to a certain extent. Accordingly, while some quality attributes are certain, objective and observable (for example, the engine power of a car), others are subjective, unobserved and dependant [sic] upon the perceptions of consumers (for example, the prestige associated with a particular automobile marque). The multifaceted and indistinct nature of quality thus complicates the task of providing a robust definition of this concept.”

In place of the SSNIP test the significant non-transitory decrease in quality test (SSNDQ) test has been proposed.²⁴⁸ The SSNDQ test is similar, as the name itself

²⁴⁶ Likewise, even if latency can be measured in time, it may be unclear *how much* latency users might tolerate before switching.

²⁴⁷ Organisation for Economic Co-operation and Development, *The Role and Measurement of Quality in Competition Analysis* (28 October 2013), Executive Summary, p.6.

²⁴⁸ This was first mentioned by R Hartman, D Teece, W Mitchell, and T Jorde, “Assessing Market Power in Regimes of Rapid Technological Change,” 2 *Industrial and Corporate Change* 317 (1993),

suggests, from a functional perspective, to the SSNIP. It seeks to measure whether an undertaking could permanently and profitably decrease the quality of the product or service it offers for free to consumers but which it monetises in a different way or if this will be defeated by users switching to a different product or service. But, as noted, measuring the volume effect of a price increase under the SSNIP test is in principle much easier than assessing the impact of a hypothetical quality change on switching under the SSNDQ. The OECD summarises the concept of test as follows:²⁴⁹

“The primary question...is whether ‘a change in the performance attributes of one commodity would induce substitution to or from another. If the answer is affirmative, then the differentiated products, even if based on alternative technologies, ought to be included in the relevant product market.’ Rather than the five percent price increase that is typically used in the SSNIP test, the authors propose a 25 percent decrease in a major performance attribute for their SSNDQ test. So the idea is that if an existing manufacturer were to reduce quality to that extent, holding all else equal, and no substitution to other products occurs, then the first type of product is a relevant market. If substitution takes place, then the other products are in the relevant market, too.”

As its proponents themselves conceded, applying this test in practice is not without its challenges. Indeed, in a submission to the OECD, the Commission itself noted that “[a]lthough quality considerations play an important role in the definition of relevant markets or closeness of competition, the difficulties with a precise definition and quantification of quality do not speak in favour of using quality parameters instead of price in economic-driven tools such as the SSNIP test.”²⁵⁰

Commission practice on quality-based assessments in two-sided markets. The Commission’s application of quality-based assessments of market definition in two-sided markets under Article 102 TFEU bears out many of the above difficulties and controversies. In *Google Android*, the Commission found Google dominant in markets for: (1) the licensing of smart mobile OSs; (2) Android app stores; and (3) general search services. In reaching this conclusion it applied the SSNDQ test and other qualitative assessments when considering demand-side substitutability.²⁵¹

The most controversial aspect of this conclusion was the suggestion that the market was confined to licensable smart mobile OSs. In reaching this conclusion, the Commission concluded that non-licensable smart mobile OSs, such as iOS and BlackBerry OS, do not belong to the same product market as licensable smart mobile OSs.²⁵² Given that Google was for practical purposes the only real major global licensor of licensable smart mobile OSs, the Commission’s conclusion on market definition effectively made the conclusion of dominance unavoidable.

albeit not, at the time, in the context of digital platforms (which did not then exist). More recent articles include A Ezrachi and ME Stucke, “The Curious Case Of Competition and Quality,” *Oxford Legal Studies Research Paper No. 64/2014* and D Mandrescu, “The SSNIP Test and Zero-Pricing Strategies: Considerations for Online Platforms,” *European Competition and Regulatory Law Review*, 2018, 2(4), p. 244.

²⁴⁹ Organisation for Economic Co-operation and Development, *The Role and Measurement of Quality in Competition Analysis* (28 October 2013), Executive Summary, p.15.

²⁵⁰ *Ibid.*, European Union Contribution, p.80.

²⁵¹ Case AT.40099, *Google Android*, Commission Decision of 18 July 2018, para. 286.

²⁵² *Ibid.* para. 238.

In reaching this conclusion, the Commission made a number of points. First, the Commission noted that “OEMs cannot obtain a licence to use iOS or BlackBerry OS because Apple and BlackBerry do not grant licences to third parties” and that “neither Apple nor BlackBerry has licensed or announced its intention to license its smart mobile OS to any third party.”²⁵³ But this is trite: if one defines a candidate market for licensable OSs, by definition non-licensable products are not a substitute. This point thus assumes what the Commission must prove.

Second, whilst the Commission accepted that “non-licensable mobile OSs may exercise a degree of constraint on Google’s position...because of possible competition between iOS/BlackBerry devices and Google Android devices both at the level of users of smart mobile devices and of app developers,” it concluded overall that they were an “insufficient indirect constraint,” which confirmed that Apple’s iOS should not be included in the relevant market for licensable smart mobile OSs.²⁵⁴

This is the most controversial of the Commission’s conclusions, and forms an important part of Google’s appeal. To most people, it is very surprising to conclude that Android OS smart phones would be considered not to compete with Apple iOS smart phones. These two “ecosystems” are engaged in intense competition in respect of their OS performance, quality, and innovation through rapid and successive updates trying to outdo each other. Indeed, it is clear that the quality of the OS is one of, if not the, most important aspects of quality in a smart phone so to suggest that users would pay insufficient regard to quality differences seems surprising. Equally, the notion that two of the world’s largest and most profitable companies would be unable to exercise a material constraint on each other in an area of direct overlap seems surprising.

Third, the Commission makes various claims about Google’s ability to degrade Android, thus addressing the SSNDQ-type issues.²⁵⁵ But the Commission is notably vague about what exactly a deterioration of quality is or how should it be interpreted. Instead, it alludes to various possibilities for degradation but provides no benchmark against which they can be compared or tested. For example, proponents of the SSNDQ have argued for a 25% quality degradation test.²⁵⁶ By contrast, the Commission proposes no cardinal or other benchmark at all. Equally, the notion that “users of Google Android devices are not sensitive to variations in the quality of their smart mobile OS and would not change their device purchasing behaviour in the event of a small but significant, non-transitory deterioration of the quality of Google Android”²⁵⁷ seems dubious. The amount of public, free information on the relative performance of and improvements in smart phone OSs is overwhelming, and it can only logically exist in such form and scale if users are interested in it.

Fourth, the Commission argues the Android users face a degree of “lock-in” in seeking to switch to iOS, including “the need to download and purchase existing apps for the

²⁵³ *Ibid.* paras. 239-240.

²⁵⁴ *Ibid.* paras. 242-243.

²⁵⁵ *Ibid.*, paras. 267, 483, 487, 549, and 552.

²⁵⁶ See R Hartman, D Teece, W Mitchell, and T Jorde, “Assessing Market Power in Regimes of Rapid Technological Change,” 2 *Industrial and Corporate Change* 317 (1993).

²⁵⁷ *Ibid.*, para. 487.

new smart mobile OS, the need to learn and become familiar with a new interface and the need to transfer a large amount of data through often inconvenient and imperfect mechanisms.”²⁵⁸ But the assessment conducted in this regard is perfunctory. As discussed in Section 3.4.2 above, it is necessary but not sufficient to point to switching costs when considering potential “lock-in” issues. Other issues that need to be considered include, e.g., whether consumers factor in these issues at the point of purchasing the smartphone and whether mobile operators facilitate switching through subsidised handsets.

Fifth, the Commission disregards the point that Android is an open source licence which allows licensees to develop their own versions of Android. Accordingly, even if Google sought to degrade Android, the limitless availability of non-degraded versions from non-Google sources would make it pointless to do so.

Finally, the Commission did not apply the SSNIP test. It stated that “the Commission considered user switching behaviour in the event of a small but significant, non-transitory deterioration of the quality of Google Android because Google is unlikely to increase the price of Google Android, given that its business model is based on OEMs accessing Google Android on the basis of a royalty-free licence.”²⁵⁹ The Commission added that: (1) the SSNIP test is not the only method available to the Commission when defining the relevant product market; (2) the Commission is required to make an overall assessment of all the evidence and there is no hierarchy between the types of evidence that the Commission can rely upon; and (3) a SSNIP test would not have produced a different outcome because OEMs cannot switch to non-licensable smart mobile OSs, regardless of the magnitude of a potential price increase or quality degradation in licensable smart mobile OSs.²⁶⁰

²⁵⁸ *Ibid.*, paras. 522-523.

²⁵⁹ *Ibid.*, footnote 488.

²⁶⁰ *Ibid.* paras. 264-266 (citing Case T-699/14, *Topps Europe Ltd v Commission* EU:T:2017:2).