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COMPETITION DISCUSSION PAPER

# Market definition under product migration

Dr Ewa Mendys-Kamphorst / June 2020

In markets with substantial technological progress, there appears to be some confusion about the proper definition of the market when consumers migrate from older to newer products. Key questions are whether migration is a sign of substitution and whether substitution in these cases is asymmetric, and what this means for the market definition. Given the important role of market definition in competition cases and regulation, this may lead to suboptimal regulatory decisions. We discuss in this note how market definition should be approached under product migration.

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## Introduction

In many markets, consumers migrate from traditional to more advanced products as the latter can satisfy their needs better, or prices are lower. When such markets are under competitive or regulatory scrutiny, it is sometimes unclear whether old and new products exert a competitive pressure on each other and, if so, whether the pressure is sufficient to include both products in the same market. Given the important role played by the market definition in competition and regulation, a market definition that does not properly reflect the competitive pressures can lead to incorrect decisions, harming social welfare.

The Commission's market definition notice (currently under revision) points to migration as possible evidence of substitution: "launches of new products in the past can also offer useful information, when it is possible to precisely analyse which products have lost sales to the new product."<sup>1</sup> However, in a number of cases, competition or regulatory authorities stated that migration can be "autonomous", reflecting

changing consumer preferences and that it does not necessarily imply consumers would switch from the old to new product in response to price or quality changes. For example:

- The UK's CMA in its Ladbroke/Coral merger decision decided that, despite the evidence of migration from brick-and-mortar betting offices to online gambling, the two segments do not belong to the same relevant market.<sup>2</sup>
- In the Netherlands, ACM concluded in its market review of the postal market that the substitution from post to digital means of communication is largely "autonomous" and not influenced by price changes.<sup>3,4</sup>

Moreover, migration is sometimes as a sign of "one-way" or "asymmetric" substitution, leading to defining separate markets. For example, in an abuse of dominance case against France Telecom (Wanadoo Interactive) the Court of First Instance of the European

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<sup>1</sup> Para.38 "Market Definition Notice", the European Commission,1997.

<sup>2</sup> Report on the anticipated merger between Ladbrokes plc and certain businesses of Gala Coral Group Limited, CMA, 26 July 2016.

<sup>3</sup> Marktanalysebesluit 24-uurs zakelijke partijenpost, ACM, 21 December 2018.

<sup>4</sup> "Common sense or non-sense? The 'migration vs. substitution' paradigm in the market definition", Sam MacMahon Baldwin, Kluwer Competition Blog, June 3, 2019.

Commission agreed with the Commission that as the substitution between high-speed and low-speed broadband was asymmetric as consumers who use high-speed internet would be unlikely to switch back to low speed in response to a small price increase.<sup>5</sup> According to the Commission, “if the products were perfectly substitutable from the point of view of demand, the rates of migration should be identical or at least comparable.” More recently, in its 2018 Business Connectivity Market Analysis, Ofcom defined separate markets for services of 1GB and 10GB as consumers of 10 GB service would be unlikely to switch to 1GB after a price increase. On this basis Ofcom concluded that the substitution between high and low speed services is weak and asymmetric.<sup>6</sup> Similarly, the European Regulatory Framework for Electronic Communication states that substitution between narrowband and broadband is in one direction as “evidence shows that once customers have migrated from narrowband to broadband access, they are unlikely to switch back, even in response to a small but non-transitory increase in price.”<sup>7</sup>

### Autonomous migration?

According to the “autonomous migration” concept, migration can be driven by changes in consumer preferences and unrelated to the changes in quality and prices. However, a closer look at the drivers of product migration usually reveals that consumers switch from

old to new products because the new product offers them increased value, for example, because of a higher quality (as in the case of high versus low speed broadband), a lower price (as in the case of digital versus traditional mail), or a lower transaction cost (as in the case of switching from brick and mortar to online purchase). It would appear unlikely that in such cases changes in the relative value, caused by changes in price or quality, would have no influence on switching patterns. And if changes in quality and price influence switching between the old and new patterns. And if changes in quality and price influence switching between the old and new product, they also impact the incentives of a hypothetical monopolist producing the old or the new product to increase the price. This is the core of the SSNIP test used to define markets.

### SSNIP under product migration and asymmetric substitution

To assess how substitution may occur under product migration, consider the following stylised example. Consider a market with  $N$  consumers. Initially, all consumers use the old product from which they derive value  $v_o$ , which is the difference between the product quality  $q_o$  and its price  $p_o$ ; i.e.  $v_o = q_o - p_o$ . Suppose a new product is developed with value  $v_N = q_N - p_N$ . If  $v_N > v_o$ , all consumers would gain from switching to the new product. However, consumers generally face switching costs. These include the administrative cost of switching suppliers, the cost of learning to use the new product, or the cost of purchasing new equipment. Switching costs may be higher for some consumers than for others, and so consumers with the lowest switching

<sup>5</sup> Judgement of the Court of First Instance in Case T-340/03, France Telecom vs. Commission, 30 January 2007.

<sup>6</sup> Volume 1, “Business connectivity market review”, Ofcom, 2 November 2018 [Updated on 19 December 2018].

<sup>7</sup> Page 177, “Regulatory framework for electronic communications in the European Union Situation”, December 2009.

cost would be expected to switch first.

Further assume that one group of consumers, say  $N_N$ , had already previously switched to the new product, while  $N_O$  consumers continued to use the old product. *Figure 1* depicts the segment of the market which still uses the old product, where consumers are arranged from left to right according to increasing switching cost.  $v_N - v_O$  is the value that consumers gain when switching from the old to the new product, when both are sold at competitive prices and qualities. In that case,  $x$  consumers whose switching cost is lower than the gain from switching  $V_N - V_O$

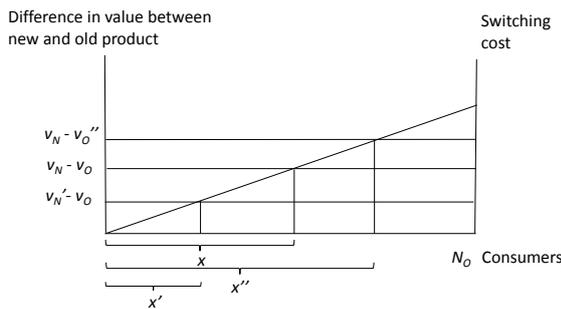


Figure 1. Price changes

switch to the new product, while while  $N_O - x$  consumers continue using the old product. The producers of the new product earn  $(p_N - c_N) (N_N + x)$ , where  $c_N$  is the unit cost of production. The producers of the old product earn  $(p_O - c_O) (N_O - x)$ .

To determine whether the new product is within the relevant market, we need to consider the incentives of a hypothetical monopolist supplying the new product to raise the price by 5-10%. Let  $p_N'$  be the price of the new product after a 5-10% price increase. The value of the new product to consumers is now  $v_N' = q_N - p_N'$ , which is lower than  $v_N = q_N - p_N$  because

$p_N' > p_N$ . Consumers now gain less by switching which means that the number of consumers for whom the gain from switching will exceed the switching cost becomes lower. The number of consumers switching to the new product is now  $x'$  rather than  $x$ . The profits of the hypothetical monopolist are now equal to  $(p_N' - c_N) (N_N + x')$ . To find out when the price increase is profitable, we compare the hypothetical monopoly profits at the initial price  $p_N$  and the increased price  $p_N'$ . The price increase is profitable if:

$$(p_N' - c_N) (N_N + x') > (p_N - c_N) (N_N + x)$$

We can rearrange and simplify this expression by denoting the percentage price change by  $\% \Delta p_N = (p_N' - p_N) / p_N$  and the percentage margin earned on a unit of the new product by  $m_N = (p_N - c_N) / p_N$ . The condition for the price increase to be profitable is therefore:

$$(x - x') / (N_N + x) < \% \Delta p_N / (m_N + \% \Delta p_N)$$

The price increase is profitable if the resulting decrease in sales is not too large. The decrease in sales in this case is the change in the increase in sales, that is the difference between the sales increase at the initial price of the new product ( $x$ ) and the sales increase at the higher price ( $x'$ ).

Note that in our example, consumers still switch from the old to the new product even though the price of the new product increased. This however does not imply that raising the price of the new product has no negative consequences for the hypothetical monopolist. When the price of new product increases, the speed of migration decreases, lowering profits of the producer of the new product as compared to the situation without the price increase.

Similarly, raising the price of the old product speeds up migration and decrease the profits of a hypothetical monopolist producer of the old product applying this price increase, relative to the situation in which the relative prices remain unchanged. For a hypothetical monopolist producing the old product, assuming that raising the price by 5-10% increases the number of switching consumers from  $x$  to  $x''$ , the condition for the price increase to be profitable is:

$$(x'' - x) / (N_o - x) < \% \Delta p_o / (m_o + \% \Delta p_o)$$

Therefore, again a price increase is profitable if the additional decrease in sales (as compared to the decrease of  $x$  that would have happened anyway) is not too large.

Note that the formula for the critical loss analysis we derive above is not different than the standard formula applied in the absence of migration.<sup>8</sup> The SSNIP test is not fundamentally different than in a static market; however care is required when comparing the hypothetical sales under the raised price with expected future sales under the initial price. This implies, for example, that when conducting the SSNIP test based on a consumer survey, consumers should be asked what they are planning to do if the price increases by 5-10%, and what their plans are under current prices (and qualities). A comparison of future sales under a hypothetical price increase with current sales without taking into account the ongoing pressure exerted by the old product on the new product. This may then lead to an incorrect conclusion that the substitution is “asymmetric”.

Isolating the impact of the hypothetical price increase may be complicated further if migration is accompanied by price and quality changes, as is often the case. For example, if consumers expect the price of the new product to decrease relative to the old product or the quality to increase, their answers regarding switching plans may already factor in these expected trends. To take this into account, the survey should explicitly ask about the switching plans in the hypothetical situation in which the prices and qualities of both the old and the new product remain unchanged.

One of the claims brought in in favour of substitution asymmetry is that once consumers have switched to the new product, they will not switch back to the old product. However, as demonstrated by the stylised example, even in the absence of switching back, the presence of the old product makes increasing the price of the new product less profitable, because it slows down migration. Therefore, an absence of switching back does not imply a lack of competitive pressure.

However, note that once the number of consumers that had previously switched ( $N_N$ ) becomes large, a price increase becomes more profitable even if the impact on migration is unchanged. Intuitively, once a large number of consumers have switched, the additional profits that can be earned by raising the price for these consumers become relatively large to the loss of profits due to slowing down migration. Conversely, when the number of consumers that still consume the old product ( $N_o$ ) is still large, increasing the price can be relatively profitable even if it slows down switching. Thus, the extent of competitive pressure from the old to the new product and vice versa is likely to depend on

<sup>8</sup> Page 553, “The Economics of EC Competition Law: Concepts, Application and Measurement”, S.Bishop and M.Walker, 3rd edition, 2010.

the phase of the migration. The competitive pressure can indeed be asymmetric, although it is not necessarily the case that the competitive pressure from the new to old product is always stronger than the reverse. If substitution is asymmetric, the market definition will depend on which product is considered focal, which in turn will depend on the competition problem under analysis. Different focal products can lead to different market definitions.<sup>9</sup>

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## Conclusions

Product market definition under migration is frequently problematic for regulators and competition authorities, as it is not always clear whether switching from an old to a new product is a sign of substitution and when substitution should be seen as asymmetric. Based on a stylised example, we demonstrate that migration does not always imply that the new product exerts more competitive pressure on the old product than the reverse.

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<sup>9</sup> Page 143, "On non-uniqueness of market definitions", S. Bishop and M. Walker, 2010.

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## About the author

Dr Ewa Mendys-Kamphorst is the head of the CEG Rotterdam office. She joined CEG from the Dutch telecom regulator and has expertise in applying economic theory and quantitative techniques to competition, regulation and damages cases. She holds a PhD in industrial organisation from Erasmus University in Rotterdam and has published in international refereed journals.

We would note that in the example, there is no migration that is "autonomous" i.e. independent of price or quality. All migration is driven by the new product offering a lower price or higher quality. The reason why sales volumes change even if prices and quality remain constant is that there is a delay between the changes in prices or quality and the subsequent switching. This is the result of how the example is constructed, where the migration is explained by the difference in price and/or quality. However, the concept of migration implies replacement, and it is difficult to envisage that consumers would replace the old with the new product if the new product did not give them more value. Therefore, when analysing substitutability between the old and new products in the presence of migration, competition and regulatory authorities should either provide a convincing explanation for migration other than one based on higher value offered by the new product, or accept migration as evidence for some degree of substitutability.

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## DR EWA MENDYS-KAMPHORST Senior Advisor

OFFICE: +31 10 282 1265  
MOBILE: +31 614 581 861  
EMAIL: [emendys@ceg-europe.com](mailto:emendys@ceg-europe.com)

Further information on CEG is available at  
[www.ceg-global.com](http://www.ceg-global.com)