DG Enterprise

The internal market and the relevant geographical market

The impact of the completion of the Single Market Programme on the definition of the geographical market

Executive Summary

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Preface

This is an executive summary of a report "The internal market and the relevant geographical market" prepared by Copenhagen Economics for the European Commission. The executive summary summarises the findings from the main report, which has been prepared by a team consisting of Mr. Thorben Velling, Mr. Tobias Koebke, Ms. Catharina Dreyer, Ms. Nina Poulsen, Dr. H. Peter Mollgaard, Dr. Per Baltzer Overgaard, and Dr. Niels Haldrup, all affiliated to Copenhagen Economics. Ms. Katja Jin Kristensen and Ms. Gisin Ma have provided excellent research support. The team leader has been Dr. Claus Kastberg Nielsen, CEO and co-founder of Copenhagen Economics.

The main report has also benefited from detailed comments and observations from Dr. Miguel de la Mano, Dr. Stefano Vannini, and Head of Division Mr. Geert Dancet, all of the European Commission, DG Enterprise, as well as from anonymous referees.

Copenhagen, Monday, 03 February 2003

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Executive Summary: The Single Market Programme and the relevant geographical market

The European Commission represented by DG Enterprise has asked Copenhagen Economics to analyse the relationship between the completion of the Single Market Programme and the definition of the relevant geographical market for consumer products in EU merger cases.

The Single Market Programme refers to the completion of the internal market, the ambitious European initiative to reduce regulatory barriers to trade between member states launched in 1987 and still proceeding. The goal of the Single Market Programme is to create an integrated European-wide market with effective competition reaching across national borders.

The relevant market is a key concept in EU merger cases. The relevant market comprises all companies (and their products) within a specific geographical area, which are connected to each other in such a way that they constrain the competitive behaviour of each other. Among other things, the competition authorities use the relevant market to calculate market shares for merging companies in order to assess whether the merger threatens to create a dominant position.

If the Single Market Programme succeeds, it must be expected that the definition of the relevant geographical market in EU merger cases gradually becomes broader, although we do not expect that the relevant geographical market ends up being European in all merger cases. The reason is that there are other barriers to market integration than barriers being affected by the Single Market Programme.

If, on the one hand, the above expectations come true, we can count the widening geographical market in EU merger cases as yet another empirical documentation of the success of the Single Market Programme with great practical and economic value for European enterprises and for society as such.

If, on the other hand, the expectations do not come true, we have a paradox to explain. One immediate explanation could simply be that the Single Market Programme is not successful and, hence, widening geographical markets cannot be expected. A second explanation could be that the Single Market Programme is successful, but only in markets not well represented in the sample of cases. Another explanation could be that national regulators and businesses create new barriers at the same pace as other barriers are being torn down by the Single Market Programme, hence, nullifying the impact on market integration from an otherwise successful Single Market Programme. Yet another explanation could be that the Single Market Programme is indeed successful, but that the current practice of market definition applied by

the Commission is somehow biased in favour of narrow geographical markets. And there may be yet other explanations.

Our analysis proceeds in a number of stages.

First, in chapter 1 we review the most recent empirical evidence on the progress of the Single Market Programme. The aim is to get a thorough empirical foundation for the claim that the Single Market Programme works, that trade increasingly flows across EU borders, and that effective competition within the European area is on the rise.

Secondly, in chapter 2 we review the most recent theoretical evidence on barriers to market integration. The Single Market Programme aims to reduce a particular kind of barriers to economic integration, regulatory barriers, and we need to understand how these regulatory barriers relate to other barriers, be it natural, other regulatory barriers or even barriers created by businesses. Furthermore, we need some understanding of the origins of these barriers, especially those barriers that may be under the control of the businesses themselves.

Thirdly, in chapter 3 we analyse the actual definition of the relevant geographical market in a large sample of EU merger cases in the period from 1990 until 2001. We evaluate whether the size of the relevant geographical market defined in these merger cases has grown during the period. In addition, we review the methodology that the Commission has applied to define the relevant market, the barriers to integration identified during the investigation, and the empirical indicators chosen to document and verify the actual definition of the relevant market. We pay some attention to the question whether there is a significant difference between the methods applied for defining a relevant product market and a relevant geographical market. The database and merger cases are documented in appendices 1 and 2.

Fourthly, in chapters 4 and 5 we draw up a set of concrete step-by-step recommendations for how to define the relevant geographical market in EU merger cases. The recommendations build on the insights obtained in the first chapters and on concrete experiences from the definition of the relevant geographical market in five hypothetical merger cases involving consumer goods: salmon, beer, tobacco, electricity, and facial tissue. The hypothetical merger cases are reviewed in chapter 5 and, more thoroughly, in appendix 3.

Fifthly, in chapter 6 we investigate the criteria for referral of merger cases with a community dimension to the national authorities in EU member states. In the light of the review of EU merger regulation, we argue in favour of a set of alternative criteria for referral of merger cases and draw up a concrete proposal. We end by evaluating the extent to which it would have changed the distribution of merger cases between EU and the national authorities, if these criteria, hypothetically, had been applied to actual merger cases with a community dimension in the period 1990-2001.

This summary highlights the key findings and the main lessons and results derived from each of the five stages outlined above. We focus on lessons that may be of relevance to competition practitioners.

1. The progress of the Single Market Programme

We measure the progress of the Single Market Programme using two complementary methods. The first method measures the legislative impact by looking at the share of directives implemented in member states: the higher the share the larger the legislative success. The second method measures the economic impact by looking at the change in trade flows and price dispersion between member states: the larger the increase in trade and the decrease in

price dispersion, the larger the economic success. Clearly, it is the latter method that matters the most for the size of the relevant geographical market.

In terms of legislative impact, the Single Market Programme has been a clear-cut success. The share of directives implemented in national legislation is already large and still growing. As of 2002, no member state has a share of implemented directives less than 97 per cent.

In terms of economic impact, the Single Market Programme is still successful, but the success is not as clear-cut. Trade between member states relative to GDP has increased by 4 percentage points since 1993, trade border effects have decreased significantly in the same period, and price dispersion between tradables in member states has decreased. However, trade *within* member states is still at least 6 times larger than trade *between* member states, even when accounting for distances and other explanatory variables. Even though similar analyses based on US data show that trade tend to be larger within political borders than across political borders, also in well-integrated economies, it seems as though the Single Market Programme still has some distance to go.

2. Barriers to market integration

The evidence shows that the Single Market Programme has been a moderate, but non-trivial, success. We now ask the question why the Single Market Programme has not been an even larger success?

There can be several answers to this question. *First*, it could be that the Single Market Programme has been targeted at regulatory barriers that are less important or less binding than other barriers. The three pillars of the Single Market Programme have been the removal of border costs, the opening up of public procurement, and harmonisation of technical standards. However, even with a highly successful implementation of these provisions, market integration may still be limited if customers in EU member states systematically favour local goods to foreign goods. This is the argument of, among others, Geroski (1995).

Secondly, it may be that new barriers have been created at a pace that partly offsets the removal of barriers targeted by the Single Market Programme. Governments may have created new barriers to promote legitimate political goals but with the (presumably) unintended side effect of erecting new barriers to trade between member states. Private businesses may also have tried strategically to create new barriers with the (presumably) intended effect of perpetuating the protected status of their home markets even in the presence of the Single Market Programme. If this is the case, market integration may still be limited even with a formally successful Single Market Programme.

In order to investigate the latter question in more detail, we survey in chapter 2 the theoretical literature on barriers to integration with emphasis on the endogenous creation by businesses of strategic barriers to (market) entry. We pay special attention to barriers associated with contractual relations in distribution channels, also called *vertical agreements*, since they may be the key to understanding the prospects of European market integration for consumer goods in the light of the continued implementation of the Single Market Programme.

The theoretical survey identifies a large number of barriers to integration created by businesses, which may serve the goal of discouraging foreign competitors from entering a market within a member state. Some examples of vertical agreements are: Long-term contracts, exclusive dealing, selective distribution, and exclusive territories.

The survey shows that, in theory, there are ample possibilities for companies to strategically erect (new) barriers to entry that may hinder market integration in reality, even if the Single

Market Programme successfully removes other regulatory barriers to market integration. The identified barriers by far exceed the barriers mentioned in the Commission Notice on market definition (European Commission, 1997b), both in terms of scope and quantity. However, whether companies are able turn these theoretical possibilities into real world phenomena with significant economic impact is still unclear and awaits an empirical assessment.

In any concrete merger cases involving *vertical agreements*, an economic analysis is required to decide whether the vertical agreement enhances economic efficiency and stimulates entry, or reduces economic efficiency, dampens competition and discourages entry. However, most vertical agreements should be of limited concern to competition authorities, if horizontal competition is vibrant.

We conclude that while it is - in theory - true that businesses can strategically create new barriers to replace barriers torn down by the Single Market Programme thereby impeding trade and effective competition within the EU, it is not at all clear that vertical agreements *per se* have this effect. It depends on a concrete economic evaluation in each specific case. In any case, vertical agreements are likely to be less of a problem as the Single Market Programme advances, stimulating horizontal competition.

3. The relevant geographical market in EU merger cases

We now turn to an investigation into whether the moderate, but non-trivial success of the Single Market Programme and of European economic integration also has been translated into broader relevant geographical markets in EU merger cases.

To answer the question, we carefully go through a large sample of EU merger cases with a community dimension since 1990. For each merger case, we register not only the definition of the relevant geographical market(s), but also the method applied by the Commission to define the relevant market, the barriers to integration identified during the investigation and the empirical indicators chosen to document and verify the actual definition of the relevant market. This allows us to address the above question, but also to identify the most frequent barriers to integration applied, to see which empirical techniques have been used most frequently, and whether there has been a significant difference in the methods applied to define relevant geographical markets compared to relevant product markets.

Our sample, which is further documented in appendices 1 and 2, includes 67 Phase II merger cases from the period 1990-2001, about 70 per cent of all such cases. In these cases, the Commission has defined 208 relevant markets of which 30 per cent are from 1997 or earlier and the remaining 70 per cent from 1998 or later. We have not included any Phase I cases as the descriptions of the relevant markets in theses cases often are very rudimentary. We emphasize that the results of the analysis should be evaluated with caution due to the rather limited size of the sample.

First, we calculate a deceptively simple indicator of the size of a geographical market by attributing different weights to different geographical market definitions ranging from 100 for a market smaller than a member state to 500 for a market larger than the European Economic Area. We find no evidence that the size of the relevant geographical market has increased during the period. The result seems to be robust to changes in the industrial structure of merger cases throughout the period. Clearly, the limited number of observations calls for modesty when interpreting the result. But overall the result is rather surprising given that EU seems to have become slightly more integrated during the implementation of the Single Market Programme.

Secondly, we observe that the SSNIP-methodology is rarely applied, explicitly or implicitly, in the definition of the relevant geographical market and even that the European Commission makes explicit reference to demand and supply substitution in surprisingly few cases, cf. Table 1. It is of particular interest that the methodology applied in the definition of the relevant product market seems to be much better structured than in the definition of the geographical market.

Table 1: The methodology for geographical market definition compared to product market definition, 1990-01

	Geographical market	Product market
	Per cent of markets defined	
SSNIP-method	4	11
Demand substitution	5	61
Supply substitution	6	22
Potential supply	1	15

Source: Own calculations.

Thirdly, we observe that the two, by far, most frequent barriers to geographical integration identified by the Commission are transport costs (a natural barrier) and regulatory barriers, despite the existence of the Single Market Programme. These two types of barriers account for more than 70 per cent of all markets defined; cf. Table 2. Distribution systems are the third most frequent barrier, but are only identified as a barrier in 15 per cent of all markets defined. Also, note that the barriers identified on the product market are different. For comparison, the single most frequent barrier to the integration of product markets is, by far, product incompatibility (product characteristics) applied in more than 60 per cent of all markets defined.

Table 2: The four most frequent barriers to market integration, 1990-2001

	Geographical market	Product market
	Per cent of markets defined	
Transportation cost and delivery time	24	3
Regulatory barriers	36	10
Distribution cost	24	6
National preferences	22	4

Source: Own calculations.

Finally, the Commission typically relies on very simple indicators such as trade flows and differences in price levels as empirical documentation for the chosen market definition. These indicators are used in 70 per cent of all cases, before as well as after 1997. More sophisticated indicators such as price correlation or price elasticities are used in only 2-3 per cent of all markets defined, much less than in the definition of the relevant product market.

4. A framework for geographical market definition

We now turn to the development of a set of guidelines on how to define the relevant geographical market in EU merger cases. Our aim is to develop a set of guidelines that can assure i) a more consistent and transparent geographical market definition; ii) a more sophisticated consideration of an extended list of barriers to market integration; iii) a more frequent use of empirical verification of relevant market hypotheses.

We have based the guidelines on the lessons learned from chapters 1-3; then we have applied the guidelines to five hypothetical merger cases involving consumer goods as salmon, beer, tobacco, electricity, and facial tissue. Finally, we have incorporated the practical lessons learned in the five cases in the guidelines presented in this chapter.

Our preferred analytical strategy has three key elements:

1. SSNIP-methodology
2. Scientific method
3. Price tests

First, we strongly recommend that market delineation is based on a well-structured guiding framework, and we, specifically, recommend using the SSNIP-methodology as the guiding framework. The recommendation is not inconsistent with the Commission Notice on market definition, but the analysis in chapter 3 showed that the SSNIP-methodology seems to be used explicitly in only a limited number of EU merger cases.

Secondly, we recommend mimicking the classical scientific method and sub-divide the process of market definition into two separate stages, where the competition analyst in the first stage formulates a hypothesis of the relevant (geographical) market, and in the second stage evaluates (or tests) the hypothesis against available data.

Thirdly, we recommend using price tests (tests of price co-movements) as the standard tool for empirically evaluating the extent of relevant markets. We acknowledge that a high degree of price co-movement is neither a necessary, nor a sufficient condition to determine whether two markets belong to the same relevant market, but we maintain that price tests seem to be the most relevant and feasible tool for a quantitative assessment of the relevant (geographical) market. We note, on the one hand, that there exist analytical methods that are superior to price tests, with closer affinity to the SSNIP-methodology, such as residual demand analysis. However, in most cases they remain hopelessly infeasible because of their huge data requirements. On the other hand, very feasible methods, such as price level comparisons and trade flows may be considered, but they are certainly analytically inferior to price tests. See appendix 4 for an analysis of the use of price tests in competition analysis.

We proceed by outlining some of the key issues of relevance for the formulation of a market hypothesis and set up a concrete step-by-step plan for developing a hypothesis of the relevant geographical market, cf. Table 3. We illustrate each step by providing concrete examples from the five case studies in chapter 5 and highlighting the features that seem to be at odds with the current practice of the European Commission. We further document our analysis of the five cases in appendices 3A–E.

Table 3: Formulating the relevant market hypothesis

1a. Define all candidate markets
Set up a gross list of all candidate markets, that is, all markets that are candidates for being or being part of the relevant market(s) in the merger case under review. In some cases the candidate markets may have a temporal dimension in addition to the traditional product and geographical dimension.
1b. Calculate market shares for candidate markets
Calculate market shares for the merging companies on all candidate markets. The goal is to sort out trivial from non-trivial cases with large marginal returns of rigorous analysis.
1c. Determine relevant product markets
Determine the relevant product markets by considering demand and supply substitution in the product dimension.
1d. Demand substitution on the candidate geographical market
First, use the SSNIP-methodology to determine to which degree customers are likely to switch their demand *from* the candidate geographical area *to* other geographical areas. The task is to identify demand side barriers that may prevent or deter customer substitution.
1e. Supply substitution on the candidate geographical markets
Second, use the SSNIP-methodology to determine to which degree potential competitors are likely to switch their supply *to* the candidate geographical area *from* other geographical areas. The task is to identify supply side barriers that may prevent or deter potential competitors from competing in the short-run.
1f. Formulate relevant market hypothesis(es)
Combine the results of the analyses on (geographical) demand and supply side substitution to formulate a hypothesis about the size of the relevant geographical market.

Source: Table 4.1 in chapter 4

We emphasise the need for equal consideration of demand and supply side substitution, as well as the need in specific markets to introduce a temporal dimension in addition to the traditional product and geographical dimension of the relevant market.

Finally, we outline the key issues for an evaluation of the market hypothesis advanced in the previous stage and set up a concrete step-by-step plan for hypothesis evaluation using price tests, cf. Table 4. Some of the key issues we consider are tests of stationarity, purging of common factors, static versus dynamic price tests, bivariate versus multivariate tests, and we include a detailed discussion of criticisms of price tests. The plan is heavily inspired by the concrete application of a large number of price tests in the five case studies described in both chapter 5 and in the appendices.

Table 4: Evaluating the relevant market hypothesis

2a. Collect relevant price series	The first step is to search for and collect price series that are representative for the relevant market(s) in the relevant market hypothesis.
2b. Exploratory data analysis of the price series	Explore thoroughly the properties of price series with standard statistical tools: Calculate e.g. mean, median, variation, skewness, kurtosis, and standard deviation.
2c. Test for stationarity	Test whether price series are either stationary (integrated of zero order) or non-stationary (integrated of 1st order).
2d. Test for static price correlation	Test whether prices on two (geographical) candidate markets move together simultaneously. A large degree of co-movement between price series may indicate that the two candidate markets belong to the same relevant market. For **stationary time series**, the proper measure for co-movement of prices is the *partial correlation coefficient*, not the ordinary correlation coefficient. For **non-stationary series**, co-movement of prices is measured by a test for con-integration. A number of test methods are available, in all cases involving auxiliary regressions.
2e. Test for dynamic price correlation	Test whether prices on two candidate markets move together with a lag. For **stationary series**, Granger causality test must be used for testing dynamic price correlation. For **non-stationary series** the Johansen method can be used to consider dynamic correlation. The Johansen method implies setting up a simultaneous equation system (an error correction model) of the price series including potential common factor variables and lagged values of all price series.
2f. Test for multivariate price correlation	Test whether prices on several candidate markets move together simultaneously. For **stationary series**, an error correction model can be set up. The set-up is in principle similar to the Johansen method, although adapted to stationary series. For **non-stationary series**, the Johansen method for co-integrated time series can be used. The Johansen method implies setting up a simultaneous equation system (an error correction model) of the price series including potential common factor variables and lagged values of all price series.

Source: Table 4.2 in chapter 4

We emphasize that the traditional method of hypothesis testing may, at times, be flawed when the candidate markets have a temporal dimension. An example is electricity that cannot be stored between periods. Products supplied at different points in time can either be treated as different products or as having a separate temporal dimension in line with the product and geographical dimension.

We argue and demonstrate empirically that multivariate price tests, testing price correlations between several pairs of candidate markets simultaneously, may yield different results than the traditional univariate tests, where pairs of candidate markets are tested in a sequential manner. We expect that using univariate price tests lead to more narrow market definitions than multivariate price tests.

We furthermore argue that benchmarking price correlations between candidate markets on correlations between markets that are known to be either integrated or non-integrated may limit the inherent arbitrariness often involved, when deciding whether a specific test result is an indicator of market integration or not.

Finally, we emphasize the importance of having access to relevant price data for competition analysis. We strongly recommend that Eurostat assign higher priority to collecting and organising such data. It is our practical experience that surprisingly many data are available, but that they may be extremely scattered, only possible to locate with a lot of imaginative thinking and – in some cases – luck, and in some cases only available at prohibitively high costs.

5. Referral to national authorities

We proceed by analysing the procedures for referring merger cases from the European Commission to the national competition authorities. *First*, we describe the current referral rules and the proposal for facilitation of referral put forward by the Commission. *Secondly*, we put forward a proposal for new referral criteria that are based on sound economic theory and evaluate the *hypothetical* consequences if these referral criteria were used in a selection of European merger cases.

The main reason for increasing the number of referrals to member states must be that the national competition authorities in some cases are better positioned to handle the cases. We take for granted that such an advantage exists and that referring more cases to member states – everything else equal - increases *efficiency*.

But it is material that mergers in the EU are treated in the same objective manner independently of which authority will determine the case. However, this is complicated because member states and the Commission may have different goals and interests. Thus, we design the proposal such that under a specific set of assumptions, merger cases may be referred to member states if the interests of the member state and the Commission are aligned, but cannot be referred if it is likely that member states reach a materially different conclusion than the Commission.

Accordingly, we propose the following set of criteria for referral of merger cases to national competition authorities.

> *A merger case with a Community dimension can be referred in full to a national competition authority on the request of the Commission or a member state if…*
>
> - *…the merger affects competition…*
> - *…on a distinct market within a member state…*
> - *…where trade with other member states is not significant, viz. smaller than, say, 10 per cent of total output.*

We, hypothetically, apply these criteria on 32 actual merger cases from the period 1990-2001, with distinct markets within a member state and with the required information about trade flows. The 32 cases were split equally between Phase I and II cases: 16 Phase I merger cases handled by member states and 16 Phase II merger cases handled by the Commission.

If the proposed criteria had hypothetically been applied, we estimate that the number of merger cases handled by the Commission would drop, while the number of cases handled by member states would increase. With respect to the 32 cases, the Commission would have handled 9 merger cases, while national competition authorities would have handled the remaining 23 merger cases.