Competitive distortions and state aid to firms. How to define the relevant market?

Leo Sleuwaegen

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CONTENTS

1. INTRODUCTION

Market integration in Europe has reinforced the need for tight control on State aid for large-scale mobile investment projects, as the distortive effect of aid is magnified when other market distortions are eliminated. To this end the Commission has recently introduced a Multisectoral framework (effective as of 01/09/98) to evaluate large projects with the aim of limiting the level of aid to projects causing possible distortive effects. For this evaluation the Commission has a very short period of two months following the notification of subsidised projects.

In determining the maximum level of aid three criteria are to be taken into account in the new framework:

- the competition factor – mainly structural capacity within the aid's recipient industrial sector, market trends and the market share of the aid recipient;
- the capital-labour ratio factor;
- the regional impact factor – measured mainly through the indirect jobs created by the aided project.

In assessing the distortive effect of a subsidy on competition, the first and most important element of analysis concerns the definition of the relevant markets which might be affected. Borrowing heavily from antitrust practice dealing with mergers and anticompetitive business strategy practice, this study aims at providing some basic guidelines for data collection to come to a better measurement of the relevant market, both in respect of the product and the geographic market. Moreover, in view of the short evaluation period after notification of a large scale subsidy, the emphasis will be on a clear and simple operational methodology.

The study is structured as follows. Section 1 provides a short overview of the possible distortive effects of state aid. Section 2 explains the problem of delineating the relevant market following the practice in antitrust cases dealing with mergers. Next, the

relevance of this practice for application with regard to state aid will be discussed. In addition, several existing techniques to delineate relevant antitrust markets will be summarised, together with their shortcomings. Section 3 links the market delineation techniques from the antitrust literature to the actual criteria used by business strategists to segment markets. This confrontation yields a new instrument that can be used for quick scanning purposes. Informational requirements with regard to the instruments will be discussed against the limitations of existing databases in the last section of the report.

2. STATE AID AND COMPETITIVE DISTORTIONS

The criteria set in the Multisectoral framework to evaluate large projects are chosen such that market distortions from aid to these projects are minimised. This section will point at some important arguments that may explain why state aid might distort competition. These arguments will be related to the criteria used in the framework.

A first argument is called "*the sick industry problem*" (Scherer and Ross (1990)). In a sick industry, capacity is substantially in excess of current and probable future demands and rigidities retard reallocation of capital toward growing industries. Competition has a tendency to become "cut-throat". Through state aid or government sponsored price-fixing programs, inefficient producers can be protected, which under competitive pressure would normally exit. Therefore, when evaluating the competition factor, close attention is paid to the possibility of structural overcapacity. In the EC Communication concerning the Multisectoral framework, point 3.2., it is pointed out that "the authorisation of aid to companies operating in sectors which are in structural overcapacity poses particular risks for the distortion of competition. (…) The competition factor will involve an analysis of whether the proposed project would take place in a sector or subsector suffering from structural overcapacity."

Another possible distortive effect of state aid on competition is more of a strategic nature. State aid can be used to cut costs for the firm. This way, state aid can become a strategic weapon for incumbent firms to cut their prices below the normal competitive

level and thus deter entry of new firms or discourage possible candidate firms to enter the industry (see Dixit (1980)). In the same way state aid can be used to subsidise actions to drive out other firms in the industry. *Predatory pricing* arises when a firm cuts prices below the production cost in a market in order to eliminate smaller rivals and thereby to raise prices and profits in the long run. But such predatory actions require that the firm is financially able to withstand short-term losses. Here state aid can be used as extra fund to support such actions. Also this strategic element can be found in the EC Communication concerning the Multisectoral framework, point 3.8., when considering the capital-labour factor: "Undertakings with a relatively high share of capital in total costs realise an important reduction of their unit cost through the aid and could obtain thereby a considerable competitive advantage over non-aided competitors. The higher the capital intensity of the supported investment project, the more distortive the effects of capital grants on competition are likely to be."

But state aid does not always distort competition. In some cases state aid can even restore competition. A possible effect involves the break-up of *multimarket collusion* among firms. Due to the increasing globalisation, international firms penetrate very often the same market segments. Brander (1981) showed that in a duopoly situation firms end up in a prisoner's dilemma: each firm raises its profits by entry into the other firm's market, but, since both do this, both destroy each other's monopoly profits. Therefore, firms try to overcome this dilemma when they frequently meet each other. The frequent contacts can thus lead to multimarket collusion, i.e. firms develop 'silent agreements' about the partitioning of the market. In such a situation state aid to one of the firms can break down the collusion. Because of the state aid it might become profitable again for the aided firm to penetrate the other firm's market and thus competition could be restored again in that market.

In the context of oligopolistic industries the use of subsidies has also been advocated to make firms in a certain region more competitive and to raise competitive pressure in the wider market. However, as D. Collie (1998) argues, taking into account the real opportunity cost of government revenue used for the subsidy, in most cases multilateral prohibition of subsidies increase aggregate welfare.

It follows that in evaluating the relation between state aid and competition, there should be a basic knowledge about strategic behaviour in the relevant market. To get a clear picture, Bolton (1998) argues in favour of building up various kinds of evidence of strategic behaviour. He argues that in contrast to working with only pieces of knowledge, one should make an as strong as possible case by collecting many pieces of evidence. The cumulative knowledge has to give a global view of the strategic behaviour of the firms and of the possible distortive effects of state aid on competition.

Again in order to come to a meaningful analysis of strategic behaviour, there is a need for a clear understanding of the relevant market to which this behaviour relates.

3. HOW TO DEFINE THE RELEVANT MARKET?

3.1. Conceptual framework

The definition of the relevant market, given in the EC Communication 98/C 107/05, point 7.6., concerning the notification of subsidised large scale projects, remains rather vague:

> "The relevant product market(s) for determining market shares comprises the products envisaged by the investment project and, where appropriate, its substitutes considered by the consumer (by reason of the products' characteristics, their prices and their intended use) or by the producer (through flexibility of the production installations). The relevant geographic market comprises usually the EEA (…)", but may also be, where appropriate, considered as smaller or larger.

For purposes of Community law in the context of concentrations, the delineation of the relevant antitrust market is based on the abstract concept of the *hypothetical monopolist* (EC Communication 97/C 372/03, point 17). This approach focuses on the ability of companies to exercise monopoly power over a well-defined product and geographic space. A candidate market is called the relevant antitrust market if the

hypothetical monopolist can set a price in that market which is significantly higher than the competitive price (in the range of 5% to 10%), without major loss of sales.

This concept of the relevant antitrust market can also be very useful for defining the relevant market to evaluate the competition factor in the Multisectoral framework. The purpose is to ensure that through the granted state aid the company does not obtain a position that enables it to distort competition. To evaluate this distorting power the relevant market as used in antitrust cases appears as a useful concept. However, there are at least two major differences between antitrust analysis and the evaluation of state aid. First, when evaluating the effect of state aid for large investment projects, the possibility of cross subsidisation should be taken into account. Cross subsidisation allows the company to use state aid not only for the specific project, but to employ it across all its operations and all the markets in which it competes. Even if the state aid itself is allocated specifically to one project, the state aid allows the company to free money for other purposes, and thus provides indirect possibilities to cross subsidise. Therefore, it is necessary to assess possible competitive distortions at the level of the corporate group. In principle, this means that not only the relevant antitrust market for the specific project is important, but also the relevant antitrust markets for all other products in which the group is involved. This broader view on the relevant market in state aid cases can also be found in Fingleton et al. (1998), who even argues that not only the market of the project should be included but also the upstream, downstream and horizontal markets in general. However, for obvious practical reasons such analysis is too broad to handle and an efficient control of cross subsidisation is not an easy task. A minimal control could consist in asking to provide with the notification documents some verifyable statements showing the necessity of the state aid for the project (see 8.1.).

A second distortion concerns the use of potential supply substitutability in defining the relevant market. Different from merger cases, the granting of state aid is not likely to lead to higher prices set by the recipient firm, at least not in the short run. Predatory pricing becomes more likely. Therefore, in order to assess the possible distortive effect of state aid, a narrower market definition excluding potential supply substitution may be more appropriate (see Fingleton et al. (1998)).

In the next paragraphs several methods used in antitrust analysis for delineating relevant markets are discussed.

3.2. Methods used in antitrust analysis

The concept of the hypothetical monopolist as defined in the EC Communication appears rather abstract and does not lend itself to easy use in practice. Less abstract methods used in the economic literature to delineate relevant antitrust markets, unfortunately, all suffer from major shortcomings. Many of these tests are actually based on the principle of an economic market rather than on the principle of a relevant antitrust market, which is a major drawback. An *economic market* is based on the principle of arbitrage, whereas a *relevant antitrust market* is based on the principle of market power. This entails that the delineation of the economic market can be completely different from the delineation of the relevant antitrust market; Although none of the alternative methods may provide the optimal solution, in combination , the different methods may lead to a reasonable determination of the size and scope of the relevant antitrust market.

3.2.1. Residual demand estimation

This first method is probably one of the best methods for market delineation, because it is one of the few methods which is most directly built on the definition of a relevant antitrust market instead of on the definition of an economic market. Nevertheless, although the method is most close to the definition of an antitrust market, it is very difficult to use in practice.

Method

Baker and Bresnahan (1985, 1988) and Scheffman and Spiller (1987) present a method which is directly meant to estimate the residual demand elasticity. More specifically, Baker and Bresnahan (1985, 1988) develop a product differentiated oligopoly model in which residual demands facing firms or groups of firms can be derived and estimated without estimating the Marshallian demand curves. Their analysis is intended to

determine how market power possessed by the parties to a merger would be affected by an eventual merger. Additionally, Scheffman and Spiller (1987) consider the estimation of these residual demand curves for use in market delineation in a geographic context. The method of residual demand estimation is actually fairly simple and straightforward. By using marginal costs as an instrument, an estimated residual demand elasticity is simply a measure of the extent to which cost shocks are passed through to prices. If cost shocks are largely passed through to price with relatively little effect on the quantity, then the residual demand is fairly inelastic. If cost shocks are not passed on or are passed on but quantity falls by a proportionately large amount, then the residual demand is fairly elastic.

Problems

There are several shortcomings to this method. Froeb and Werden (1991, 1992) indicate several limitations and problems associated with the residual demand approach, such as problems of extrapolation and problems related to nonstationarity. They also point out some problems that arise with the estimation procedure to be used. Finally, they notice that the model only considers a static equilibrium and that the dynamic process is not taken into account.

One of the main disadvantages for practical use of this method is the need to collect detailed micro data. Firm data are required, and good instruments should be available. In addition to price and quality information, cost information is also needed. The cost information must also vary between the different proposed markets. Whenever these data are not available, a different approach becomes necessary.
Further, the method as it stands now, only takes the consequences of price changes into account. Consequences due to changes in other variables, such as advertising or other marketing instruments, are not considered. In some sectors or industries this is particularly a major drawback.

3.2.2. Demand elasticities

If data were sufficiently available, the residual demand estimation method would be ideal for relevant market delineation. However, as already mentioned, in most cases the

necessary data are not available. As an alternative, Sleuwaegen (1994) decomposes the residual demand elasticity into several different elasticities. The elasticity of residual demand actually consists of two parts: first, the *partial demand elasticity,* which constitutes the most direct influence on the residual demand elasticity and second, the *competitive reaction elasticity*. Examining these different elasticities in detail also provides information about the size of the residual demand elasticity.

As the latter elasticities are also not readily available, the same reasoning can be used. Instead of directly estimating the different elasticities, different factors related to the elasticities could be examined, which could provide a rough estimate of whether the residual demand elasticity in a specific situation is low or high.

Sleuwaegen (1994) identifies many elements that influence the magnitude of the residual demand elasticity. First, the *partial demand elasticity* tends to be larger (which makes monopoly power lower) whenever:

1. There are more good substitutes available at competitive prices;
2. The good is less important for the consumer;
3. The good is more sensitive to purchasing power (income);
4. The breadth of the usability of the product is larger;
5. The product is less durable;
6. It takes less time for the consumer to react to price changes.

The second important elasticity is the *competitive reaction elasticity*. This elasticity is larger (which again makes monopoly power smaller) whenever:

1. The number of competitors increase;
2. Demand for the products is growing slowly;
3. Competitors are tempted to use price cuts or other competitive weapons to boost unit volume;
4. The products of competitors are not so strongly differentiated that buyers incur high switching costs;
5. The size of the pay-off from a successful strategic move is larger;
6. It costs more to get out of a business than to stay in;
7. Firms differ more in terms of their strategies.

Further, competitive reactions and equilibrium responses for competing products crucially depend on the *supply elasticity* or the ease with which similar products can be supplied by other producers. A larger supply elasticity will of course form a larger competitive force and it will thus decrease the monopoly power. Two different situations can be distinguished: supply substitution from actual competitors and supply substitution from potential competitors.

Regarding *actual supply conditions*, the supply elasticity is larger whenever:

1. The opportunity to buy from other suppliers is large;
2. The goods can be transported easily;
3. Switching costs are relatively low;
4. Transportation costs are relatively low.

The supply elasticity with respect to *potential supply conditions* is larger whenever:

1. Sunk costs are low;
2. Certain similar industries are in the position of overcapacity;
3. Government policies (like tariffs, quotas, and price controls) are not present;
4. Barriers to entries created by the distribution system are low;
5. The amount of R&D investments, the length of the development period, patents, etc. do not limit new entrants that much;
6. Economies of scale are low
7. There is no risk of strong retaliation if a new firm enters;
8. Market demand is growing.

Evaluation

Investigating all these different influences on the residual demand elasticity may provide a better understanding of the different disciplinary forces and therefore on the market power of a specific firm or a group of firms. Since, however, it is impossible to estimate the size of all these effects, it is not possible to delineate the relevant antitrust market exactly by use of this method. It may however provide enough information in a specific situation to decide whether a firm or a group of firms does not have enough market power to control a market. Whenever several forces can be identified, which clearly limit the firm or group of firms in its/their price increasing actions, this may

already be enough evidence to conclude that this group of firms does not constitute an antitrust market on its own. In order to determine the exact size of the relevant antitrust market however, more detailed estimates are needed.

3.2.3. Price tests

Whereas the first two methods follow closely the definition of a relevant antitrust market, they are both very difficult to use in practice due to a lack of adequate information. Therefore, many methods have been developed based on the definition of an economic market.

Price correlation

Many scholars (e.g. Kottke (1960), Areeda and Turner (1978), Stigler and Sherwin (1985)) advocate the use of price correlations to delineate antitrust markets. Stigler and Sherwin (1985) even argue that price correlations should be *the* test for delineating antitrust markets. According to them, the similarity of price movements captures the essential role of competition in dominating the price movements within each part of the market. Whenever closely parallel price movements are found between 'various' markets, the products should be placed in the same antitrust market. Similarly, whenever significant nonparallel price movements are found, the products are not in the same market.

However, as Stigler and Sherwin (1985) state, there exists no unique criterion for determining whether a correlation is large enough to place one product or area in the relevant market delineated for the other.

Moreover, Werden and Froeb (1993) indicate that the use of price correlations to delineate antitrust markets is incorrect and involves many problems. The most fundamental problem is that products that must be placed in the same market, because they are close substitutes, do not necessarily have prices that are highly correlated.

In a similar vein, Bishop and Walker (1996) address the issue of price correlation in the presence of different exchange rates between the markets to make the approach applicable to the European situation. Their conclusion is that, "except where exchange rates are very stable and so approximate to fixed exchange rates, price correlation should not be used for market definition across exchange rate areas (p. 1)".

Another remark by Bishop and Walker (1996) regarding price correlation tests deals with stationarity. They argue that in order to avoid spurious correlation it is very important to use price correlation analysis only after price series have been made stationary.

Price equality tests

A second price test is the price equality test (see e.g. Shrieves (1978) and Horowitz (1981)). This test is based on the proposition that if two geographic areas are to be considered a single market, then the price at which the product sells in the two areas cannot be different. A closely related test to this would be to use normalised prices to correct for differences in the products (see e.g. Spiller and Huang (1986)). However, Werden and Froeb (1993) remark that the fact that the prices of two products or areas differ significantly is neither a necessary nor a sufficient condition for either product or area to be in or not to be in the relevant market delineated for the other.

Speed of adjustment tests

A third price test is the speed of adjustment test (see e.g. Mathis, Harris and Boehlje (1978), who discuss relative speeds of adjustment, and Horowitz (1981), who discusses absolute speed of adjustment). This type of tests considers the adjustment process through which the difference between any pair of prices would converge to its equilibrium level. If the speed of adjustment parameter is close to zero, then there is fast convergence to the equilibrium.

However, this test also has many shortcomings and problems as pointed out by among others, Werden and Froeb (1993) and Uri, Howell and Rifkin (1985). Werden and Froeb (1993) even suggest that the use of relative speeds of adjustment is incorrect. They argue that it is irrelevant that the price of a substitute responds to shocks in the candidate market more slowly than do prices of products in the candidate market if both respond very quickly.

Granger causality, exogeneity and measures of feedback

Starting in 1985, tests for antitrust market delineation were developed that made use of modern time series methods, such as Granger causality[1], exogeneity[2] and measures of feedback (see e.g. Klein, Rifkin and Uri (1985), Uri and Rifkin (1985), Uri, Howell and Rifkin (1985), Cartwright, Kamerschen and Huang (1989), Slade (1986)). These methods are actually refinements of the test proposed by Horowitz (1981).

However, Werden and Froeb (1993) show that the problems with using measures of feedback to delineate relevant markets are essentially the same as those with using price correlation, while the other two tests are subject to much the same criticism as the speed of adjustment tests.

Cointegration

Cointegrated series[3] can be described by models, known as error correcting, that allow long-run components of variables to obey equilibrium constraints while short-run components have a flexible dynamic structure (see Engle and Granger (1987)). Whalen (1990) argues that if two geographic locations comprise a single geographic market, their price series should be found to be cointegrated.

However, as Werden and Froeb (1993) state, cointegration is not a sensible test for relevant market delineation when series do not have unit roots, and they often will not.

Evaluation

[1] Granger causality measures precedence and information content but does not by itself indicate causality in the more common use of the term. Klein, Rifkin, and Uri (1985, p. 111) describes Granger causality as follows: "A time series X_t 'causes' another time series Y_t , in the sense defined by Granger if the present Y can be predicted better by using past values of X than by not doing so".

[2] Slade (1986, p. 294) explains that this test "seeks to determine whether price movements in one regions have repercussions in another; that is, it seeks to establish if price determination in one market is exogenous to price formation in another and vice versa".

[3] A group of non-stationary time series is cointegrated if there is a linear combination of them that is stationary; that is, the combination does not have a stochastic trend. As an example, consumption and income are likely to be cointegrated.

The idea behind all these tests is that prices of two goods that belong to the same market should move together. These tests are thus actually based on the definition of an economic market instead of the definition of a relevant market.

Another key criticism against all these tests is that the notion of supply substitution is not taken into account. Next to demand substitution, supply substitution can be a competitive restraint that prevents a firm from raising its prices. Therefore, careful analysis of the industry should be added in order to minimise possible errors in using price test. In spite of all the limitations, price tests can yield valuable information. As Bishop and Walker (1996) argue, "given its relatively low information requirements and ease of use, it would be foolish to ignore a technique that is potentially information bearing" (p. 1), and "an understanding of the potential weaknesses and pitfalls in the use of price correlation analysis should allow the investigator to maximise the usefulness of the procedure (p. 17)".

3.2.4. Shipment data

Similar to the price tests, the shipment data method also tries to provide a good alternative indication of the partial demand elasticity. Elzinga and Hogarty (1973, 1978) present a method that is only applicable in delineating geographic markets. They argue that the presence of shipments between two geographic areas is an indication of the fact that the areas should actually be regarded as one single market. The method is constructed by the application of two tests: the LOFI ("Little Out From Inside") and the LIFO ("Little In From Outside") test. The LOFI test concerns the supply side and poses the question: 'What is the smallest geographic region required to account for nearly all shipments from a given producing area?' The LIFO test deals with the demand side and poses the question: 'Of total purchases within the region identified by the LOFI test, do nearly all emanate from within that region itself?' If both 75% (or alternatively 90%) of the consumption of a product is produced within a specific area, and 75% (or 90%) of the production within this area is consumed within this area, then a distinct geographic market has been identified.[4]

Evaluation

[4] Shrieves (1978) extends the test developed by Elzinga and Hogarty by including price data.

Werden (1981) criticises the approach of Elzinga and Hogarty (and also the method suggested by Shrieves (1978)). In his paper he identifies two important situations in which the proposed test will produce erroneous results. On the one hand the method fails to identify the concept of cross-price elasticities of demand, on the other hand, the method cannot evaluate the hypothetical reactions after a possible merger. Stigler and Sherwin (1985) also have some reservations about the method.

Nevertheless, the pattern of shipments can certainly provide information about the size of the geographic relevant market. In line with the arguments of Elzinga and Hogarty (1973,1978), it is essential to take both the LIFO test and the LOFI test into consideration. After all, there can be disciplinary forces from both the demand side and the supply side.

However, in the case of a relatively large product differentiation, this could imply that the disciplinary forces on the prices may be too small. Further, one should be very careful in making the opposite statement. It may well be the case that although there is no (or very little) movement of goods between regions or countries, the outside region does constitute a disciplinary force on the inside region, especially in situations where products are rather homogeneous.

3.2.5. Diversion ratio

Shapiro (1995) defines the diversion ratio as the fraction of sales lost by firm A to competitor B due to a price increase by firm A. Whenever econometric estimation of elasticities is not possible due to lack of sufficient good data, there still may be relevant consumer survey data that can be used to directly estimate the diversion ratio (Shapiro, 1995).

The diversion ratio is closely related to the cross-elasticity of demand. Willig (1991) notes that the ratio of the cross-price elasticity to the own price elasticity measures the share of the marginal sales of one brand that will divert to another in response to a price increase.

4. MARKET DELINEATION TECHNIQUES USED BY BUSINESS STRATEGISTS

So far little use has been made of the market segmentation techniques used by the business strategists to get an indication of the relevant anti-trust market. These are concentrated around the competitors' reactions and can provide a good alternative for the direct estimation of both partial demand elasticity and the competitive reaction elasticity.

One of the primary tasks managers face in formulating competitive strategy consists of defining the business, including the relevant arena of competition: What businesses are we in? Where are we competing? Who are our competitors?

4.1. Conceptual approach

When trying to define a business, two possible perspectives emerge (Day (1997)): either in terms of its served market (*demand-side definition*) or in terms of the products or services of which it is comprised (*supply-side definition*). Within both perspectives patterns of substitution can be examined. Substitution can be viewed from a demand-side perspective to account for all the ways customers can satisfy their needs, or a supply-side perspective to include all the competitors with the capabilities to serve these customers. These two perspectives are closely intertwined and should be integrated when defining a business.

But although integration of both supply- and demand-side perspective is promoted, in many studies emphasis is placed on only one perspective. In the next paragraphs the supply- and demand-side view will be discussed separately. In a later stage both perspectives will be integrated into one framework.

4.2. Product-oriented supply perspective

The supply-side approach starts with the group of competitors who could possibly serve the needs of a group of customers. It explicitly considers technological similarity, relative production costs and distribution coverage.

This supply-side perspective addresses the following questions (Day (1990)):

- Which competitors are serving related product classes with the same technology, manufacturing processes, material sources, sales force and distribution channels?
- What is the geographic scope of the market? Is it regional, national or global?
- Which competitors should be included – only those presently serving the market or potential entrants with a capacity to compete?

These questions are vital to an understanding of the relative cost standing of a business, and degree of transferability of experience into related arenas.

To draw the boundaries of the competitive arena, the supply-side approach looks for significant discontinuities in the patterns of costs, capital requirements and margins along the product and customer dimensions. These discontinuities create barriers that insulate prices and profits within a product market from the activities of competitors outside the market. They also discourage easy entry by potential competitors. When boundaries are properly defined, the relative profitability of competitors within a market can meaningfully be compared.

The criteria used in this supply-side perspective form the basis of the Standard Industrial Classification (SIC) or European NACE system and have generally wide acceptance because they appear easy to implement. They lead to seemingly stable and clear-cut definitions, and importantly, involve factors largely controllable by the firm; implying that the definition is somehow controllable as well. They are also helpful in identifying potential competitors, because of similarities in manufacturing and distribution systems.

Nevertheless, this approach has been criticised to be arbitrary and based exclusively on managerial judgement and intuition (Curran and Goodfellow (1989)). Especially marketing-planners argue that this approach seldom gives a satisfactory picture of either the threats or the opportunities facing a business. Therefore, considerable attention has been directed toward defining product-markets from the customers' perspective.

4.3. Customer-oriented demand perspective

In the customer-oriented approach, customer needs and requirements are at the forefront. This approach is mainly based on two assumptions. First, it is assumed that individuals seek the benefits that products provide, rather than the products per se. Secondly, consumers consider the available alternatives from the vantage point of the usage contexts with which they have experience or the specific applications they are considering; it is the usage requirement which dictates the benefits being sought.
On the basis of these two premises a product-market is defined as follows:

> 'the set of products judged to be substitutes, within those usage situations in which similar patterns of benefits are sought, and the customers for whom such usages are relevant' (Day, Shocker and Srivastava (1979), p. 10).

From this definition, substitutability implies that the purpose or application, rather than the product features as such, becomes the organising theme for considering alternatives. This means that this approach encompasses more than just *substitutes-in-kind*, it also includes *substitutes-in-use*[5].

Analytical methods for customer-oriented product-market definitions:
Customer-oriented methods for identifying product-markets can be classified by behavioural or judgmental data.

Behavioural methods are based on inference of actual substitutability from buyer behaviour (Day, Shocker and Srivastava (1979)). It provides a good indication of what people actually do, but not necessarily what they might do under changed circumstances. Behavioural techniques are particularly suited for the study of established and relatively stable markets. Well-known behavioural methods are cross-elasticity of demand, similarities in behaviour and brand switching (Day, Shocker and Srivastava (1979)). Unfortunately, the lack of suitable data often puts a heavy restriction on the application of the behavioural techniques.

[5] Substitutes-in-kind: all the products that look alike and represent the same application of a distinct technology to the provision of a distinct set of customer functions.
Substitutes-in-use: the products serve the same functions, but may do this in a very different way.

In the *judgmental methods*, data are primary collected following the buyer's perceptions of substitutability between products and it constructs market structures accordingly. In Day, Shocker and Srivastava (1979), four important analytical approaches within the judgmental methods approach are analysed: decision sequence analysis, perceptual mapping, technology substitution analysis and customer judgements of substitutability. Thus far judgmental techniques probably offer the most potential and this is reflected by the emergence and development of new techniques during the last ten years.

4.4. Market definition: an integrative approach

To avoid myopic market definitions, an integrative analysis should adopt both supply- and demand-side perspective, as there are inherent deficiencies to each approach. Otherwise, shifts in customer requirements and needs that may create new segments will be overlooked, and competitive threats from different technologies which can serve the same functions or satisfy similar needs will not be appreciated. In the same sense should the customer perspective not overwhelm the economic realities that dictate the ability to compete profitably. Perceptions of opportunities may be distorted where the competencies and experience base of the company can be effectively employed. Levitt (1975) drew attention on this danger for 'marketing myopia' when he noticed that "railroads let others take customers away from them because they assumed themselves to be in the railroad business rather than in the transportation business. (…) They were product-oriented instead of customer-oriented."

4.4.1. Scope and differentiation

To get a global and complete definition of a business it is necessary to define the business in terms of its 'product-market' strategy, rather than in terms of either products or served markets alone. Abell (1980) describes products and served markets following a three-dimensional conceptualisation: the customer group dimension or WHO is being served; secondly, the customer function dimension or WHAT NEED is being satisfied; and finally the technological dimension or HOW customer functions are

being satisfied. The final dimension is felt necessary as it is often possible to satisfy a need group using different technologies. All three dimensions play an important role in the business definition.

In order to define an organisation's activity along the three dimensions discussed by Abell, the concepts of scope and differentiation are used. Scope defines the level of activity along each of the three dimensions whilst differentiation defines how an organisation participates along each of the three dimensions, and in particular the degree of variation in its marketing strategy. In an earlier work, Abell (1979) also uses the concept of segmentation alongside scope and differentiation.
Using these concepts, Abell abandons traditional 'demand-side' and 'supply-side' criteria for defining market boundaries and distinguishes between markets, businesses and industries as follows:

- A *business* is defined by a selection of customer groups and functions and is normally based on one primary technology.
- An *industry* is defined by the boundaries of several businesses but is still usually based on a single technology.
- A *market* is defined by the performance of given functions in given customer groups, and includes all the substitute technologies to perform those functions.

Together with Abell, many other studies point out this need for an integrated approach (Day (1981), Abell and Hammond (1979)), but only few studies come to the actual elaboration of an integrated framework. Taking a closer look at revealed business strategies and the competitive landscape, useful information can emerge about the relevant market.

4.4.2. Relevant competitors and relative market shares

An interesting perspective in the integrative approach has been given by Brooks (1995). He argues that the relevant market for a firm can be identified through the use of information on the firm's competitors. A competitor then is a firm that not only produces similar goods, but also targets the same customers. The same reasoning can be found in Koch (1995) who develops a methodology that is based on the position of

a firm's relevant (actual and potential) competitors in apparently different business segments. Following this methodology, if competitors are the same in product segments and market share vis-à-vis these competitors is the same, then both segments are probably actually one. Based on these principles, he proposes two very simple and practical 'segmentation tests', which can be applied to a list of possible business segments.

The first test is a very short test that provides a good first indication. It is based on two questions:

(1) Are your competitors in the two potential business segments different or the same? If the answer is 'different', then they are probably separate segments, and you do not need to answer question 2

(2) If the answer to question 1 is 'the same', do the competitors (including yourself) have roughly similar market share positions in the two potential business segments, i.e. if competitor A is the leader in one potential segment, followed by B, followed by C, is this the same ranking in the other potential segment? If so, the two areas are probably one single segment; if not, they are probably separate segments.

The second test is longer and more formal (see table I). It contains 12 questions to which a YES/NO answer has to be given. When adding the scores of the different answers together, the result can be either positive or negative. If the result is positive, the two products or areas should be treated as separate segments. If the result is negative, both products or areas are currently the same. The further away from zero the answer is, the more certain is the result.

Table I: segmentation test

		Column A Score	Column B Score
1	Are the competitors in the two products or areas the same?		

	YES: Column A / NO: Column B	-30	+30
2	Are the Relative Market Shares (RMS) of the firm and the leading competitors roughly the same in the two products or areas?		
	RMS similar: Column A / RMS different: Column B	-50	+50
3	Are the customers the same in the two products or areas?		
	YES: Column A / NO: Column B	-20	+20
4	Are the customers' main purchase criteria and their order of importance roughly the same in the two products or areas?		
	YES: Column A / NO: Column B	-30	+30
5	Are the two products substitutes for each other?		
	YES: Column A / NO: Column B	-10	+10
6	Are the prices of the two products (for equivalent quality) or in the same areas roughly the same?		
	YES: Column A / NO: Column B	-20	+20
7	Is the firm's profitability roughly the same in the two products or areas?		
	YES: Column A / NO: Column B	-40	+40
8	Do the two products or areas have approximately the case need for capital per dollar of sales, i.e. similar capital intensity?		
	YES: Column A / NO: Column B	-10	+10
9	Are the cost structures in the two products or areas similar (i.e. roughly the case proportion of cost in raw materials, manufacturing, marketing, selling,…)?		
	YES: Column A / NO: Column B	-10	+10
10	Do the products or areas share at least half of their costs (the use of common labour, machines, premises and management resources for at least half of their total costs)?		
	YES: Column A / NO: Column B	-30	+30
11	Are there logistical, practical or technological barriers between the two products or areas that only some competitors can surmount?		
	NO: Column A / YES: Column B	-20	+20
12	Is it possible to gain an economical advantage by specialising in one of the products/areas by gaining lower costs or higher prices in that product/area as a result of focussing on it?		
	NO: Column A / YES: Column B	-30	+30

4.4.3. Strategic group mapping

Since the formulation of competitive strategy starts with defining the relevant market, the implemented strategy of a firm may in a recursive way provide a good definition of the relevant market on which a firm concentrates. One may for instance infer the extent of globalisation of the market through analysis of the global strategies adopted by firms in that industry. To evaluate whether firms actually have a global strategy, Yip (1995)

formulates five dimensions, the *global strategy levers*. As a first indicator he mentions market participation. When firms are really global players, they are active in many countries worldwide on a significant base, i.e. they possess a significant more or less equivalent market share in several countries. This in contrast to a traditional multinational firm, where market shares differ between countries in which it operates. Secondly, a global player will offer the same products worldwide. Not only completely standardised products are meant, but also related products from a market-based view or a technological view (i.e. related diversification). In the same sense, as a third indicator, standardised marketing, where the same brand names, advertising, etc. are used, also points to a possible global strategy. A fourth indicator of a firm having a global strategy, is the location of value-adding activities. Whereas a traditional multinational duplicates many value-adding activities, a truly global firm locates each individual activity in only that country which is most appropriate for that activity. As a last dimension, Yip considers the competitive moves of a firm. In a global strategy, competitive moves have to be integrated across countries rather than making distinct moves by country. Integrated competitive moves also affect all the previous global strategy levers of global market participation, global products, global marketing and global activity location. When several of the indicators point in the direction of a global strategy, from an anti-trust point of view it can be said that the world is the relevant anti-trust market. If the levers all apply to a region in the world, e.g. the EU, the firm has a regionally differentiated strategy, indicating for instance the EU as a relevant market.

A more general technique for getting an indication about the relevant market when analysing a firm's strategic behaviour is *strategic group mapping* (Porter (1980)). The formation of strategic groups is based on the boundaries drawn by both customers and competitors, as well as the history and capabilities of the firm and competitors (Day (1997)). Within such strategic groups firms look alike in their scope of activities and market coverage, follow similar strategies and compete much more intensely with each other than with firms in other groups. Moves by firms in the same group will be quickly countered, while initiatives of firms from other groups do not result in a reaction. An industry may contain only one strategic group, as all sellers approach the market with essentially identical strategies, or at the other extreme, there may be as

many strategic groups as there are competitors when each rival pursues a distinctively different market approach.

A strategic group map is constructed by plotting the market positions of the industry's strategic groups on a two-dimensional map using two strategic variables as axes. Porter (1980) indicates five important guidelines for constructing a strategic group map, which he summarised as follows:

- Identify the broad characteristics that differentiate firms in the industry from one another;
- Plot the firms on a two-variable map using pairs of these differentiating characteristics;
- Assign firms that fall in about the same strategy space to the same strategic group;
- Draw circles around each strategic group, making the circles proportional to the size of the group's respective share of total industry sales revenues.

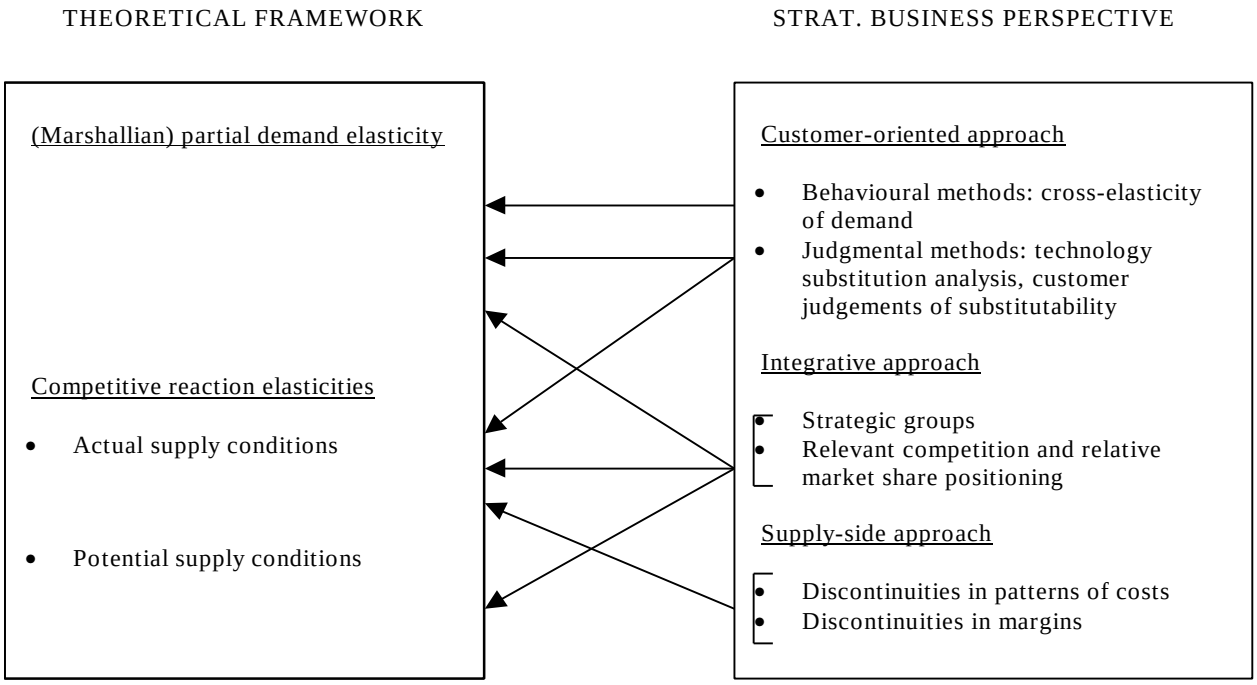
As Day (1997) pointed out, one should note that strategic groups are not fixed over time. They are in constant evolution and it is important to have a well-reasoned point of view on how they are likely to change.

Also Boardman and Vining (1996) use strategic groups as the best synthesis between both approaches. In their study an explicit framework has been developed to come to strategic groups starting from firm specific product-customer matrices. Figure 1 gives a schematic overview of the different steps in determining strategic groups.

Figure 1: Strategic group mapping based on product-customer clusters

5. RELATIONSHIP BETWEEN THE BUSINESS PERSPECTIVE AND ANTITRUST ANALYSIS

It is interesting at this point to relate the different methods used within strategic business perspective to the concept of the residual demand elasticity used in antitrust analysis.



The figure above shows how the different approaches that exist in the strategic management literature can be matched with one or more of the different components from the residual demand approach.

In the customer-oriented approach two groups of methods emerge: the behavioural methods and the judgmental methods.

From a behavioural perspective, the cross-elasticity of demand could be a particularly useful measure for demand substitution. The measure can accurately identify a product's substitutes and thus be linked easily to the Marshallian partial demand elasticity. Unfortunately, practical use of this measure gives rise to several problems (Sleuwaegen (1994)).

The second group of judgmental methods (Day, Shocker and Srivastava (1979)) contains analytical methodologies that can be linked to the partial demand elasticity as well as to the competitive reaction elasticity.

Of the supply-side approach methodologies, discontinuities in patterns of costs or margins can be used to divide different products into segments. These methodologies can point out where the actual competitors are situated and thus give an indication about competitive reactions.

The integrative approach tries to combine both previous approaches. The determination of strategic groups (Porter (1980), Boardman and Vining (1996)) as well as the methodology based on the relative market shares and competitors (Koch (1995)), contain elements that are related to all the different components of residual demand elasticity. An analysis of the market presence of competitors can provide indications of partial demand elasticities and competitive reaction elasticities as explained below.

The logic of relevant competitors test and strategic group test can also be grounded in economic theory. Firms that are selling a good that is highly substitutable with another good have a clear incentive to sell both goods and raise joint profits above the level obtained by two firms selling the goods separately. With the joint supply they eliminate the externality, i.e. diversion effect, and raise prices above the stand-alone levels. Formally, assuming constant costs,

$$\Pi_i / R_i = 1 / \varepsilon_{ii} + R_j \varepsilon_{ij} / R_i \varepsilon_{ii}$$

where Π_i = profit for good i

R_i = revenue for good i

R_j = revenue for good j

ε_{ii} = (absolute) own elasticity of demand for good i

ε_{ij}= cross-elasticity of demand for good j

In case the firm would only sell good i and maximise following the first part of the equation, there may be substantial loss in profitability.

Clearly, in an oligopolistic setting, this incentive for joint production is reinforced as firms which do not offer the highly substitutable products become more vulnerable to aggressive or predatory actions from multiproduct competitors. The consequences of possible asymmetries in product supply have been formally studied and has led to the formal development of multimarket competition theory. One central result implies that firms that are more equal competitors across products or geographic markets, will refrain from taking unbalanced aggressive competitive actions (Marc van Wegberg (1993)). Additionally, from a supply side perspective, resources that can be shared give rise to synergy and spill-overs across products, including fixed capacity, experience, R&D, advertising and brand names, distribution bring firms to widen their competitive scope. The more similar the resources the more similar will be the choice of products and geographical spaces in which firms compete. These factors change the supply substitution possibilities and as such affect the competitive reaction elasticity of firms across the same products and geographical spaces (Barney (1986)).

In sum, competitors using similar technologies and selling highly substitutable goods have an incentive to be significantly present in the different market segments of goods to countervail competitive moves and excessive transfer of sales and profits. However, in reality, barriers to resources can be present such that competitors cannot profitably be present in every relevant market segment. These mobility barriers can lower the supply elasticity in such a way that the segments should be considered as separate markets.

The two methods from the integrative approach will be illustrated in the next paragraph where the methods will be combined to identify the relevant market in the truck industry, both in terms of product space as well as geographical space.

6. APPLICATION: THE TRUCK INDUSTRY

A description of the situation and developments in the European truck industry in the late 80's may serve to illustrate the use of strategic group mapping and market share and competitors analysis in determining the relevant market.

The European truck industry, anno 1989

In 1989 seven major producers were active in the truck industry in Western Europe. This industry usually was segmented according to Gross Vehicle Weight (GVW) into three segments: light GVW (3.5T-4.9T), medium GVW (5T-16T), heavy GVW (>16T). The manufacturers could differ significantly in segment scope.

Most players were active in several European countries, although also here differences emerged between those seven producers.

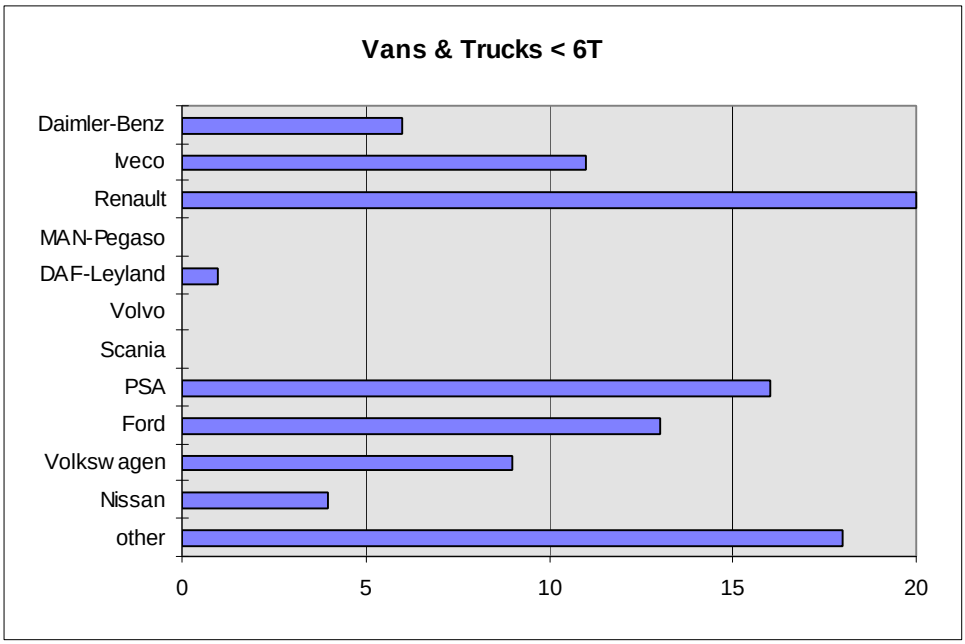
Overall, in 1988 the West-European manufacturers produced 1.250.000 vans and 400.000 trucks. Of the vans, 12% were destined for exports. The rest covered 80% of the West-European demand. The remaining 20% were imported. The heavy truck sector had almost no imports (2%), but quite significant exports (22%).

The relevant market

The research question in this application is whether in the late 80's one could speak of one market for trucks, independent of GVW segments, and of a Single European Market as the relevant market for the truck industry.

1. *Relevant competitors and relative market share positioning*

When considering the segments light weight trucks (<6T) and heavy weight trucks (>6T) it can be seen from figure 2 that very different players dominate both segments. This indicates that both light and heavy weight trucks should be considered as separate groups for relevant market delineation purposes.



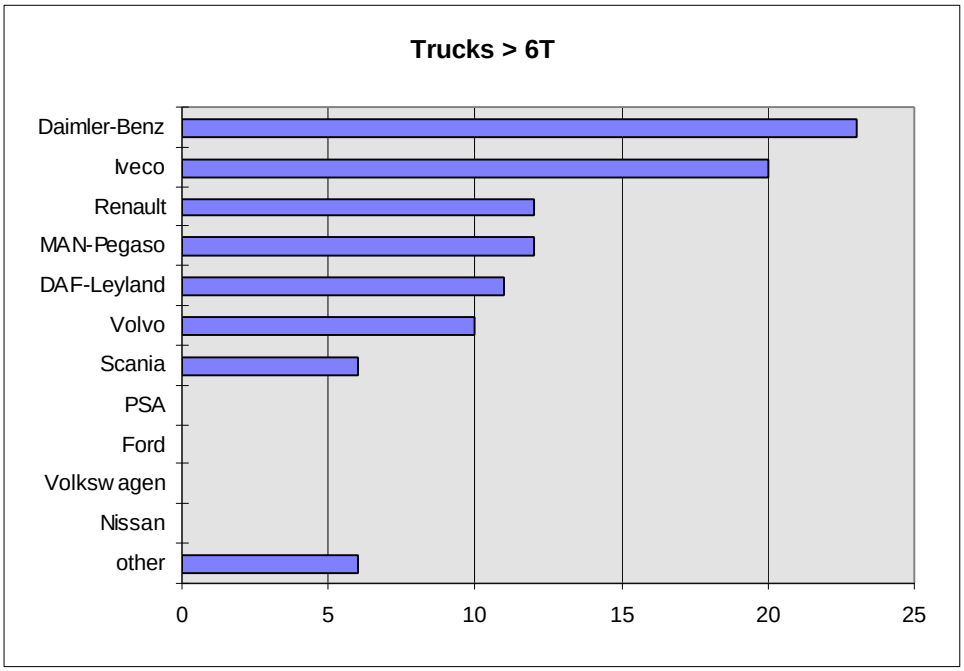
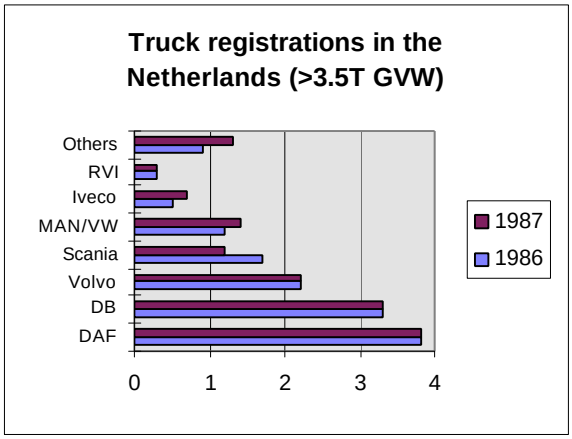
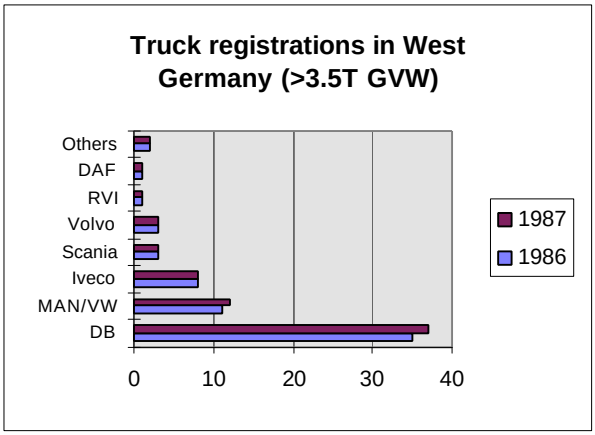
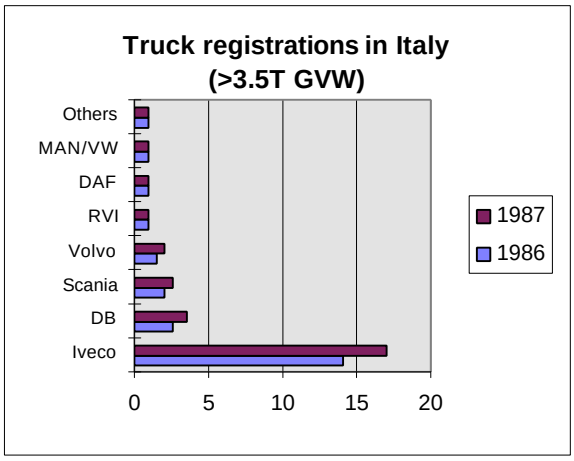


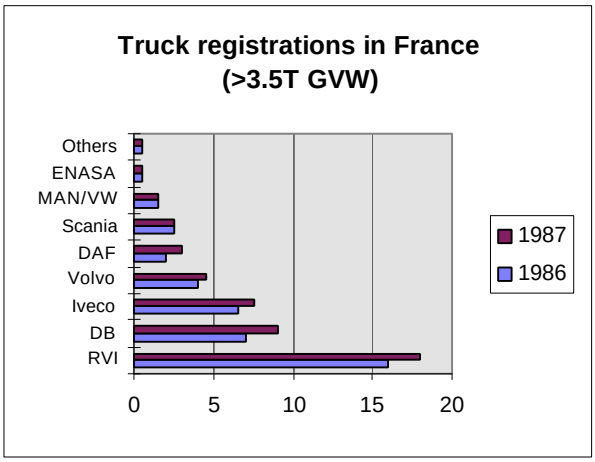
Figure 2: Market share of European new truck unit sales by manufacturer and by segment, 1989 data

Similarly, for delineating the relevant geographical market, market share data for the different truck makers can provide a clear indication. For 1989, data on market shares are available for the UK, France, Italy, West Germany and the Netherlands (see figure 3).









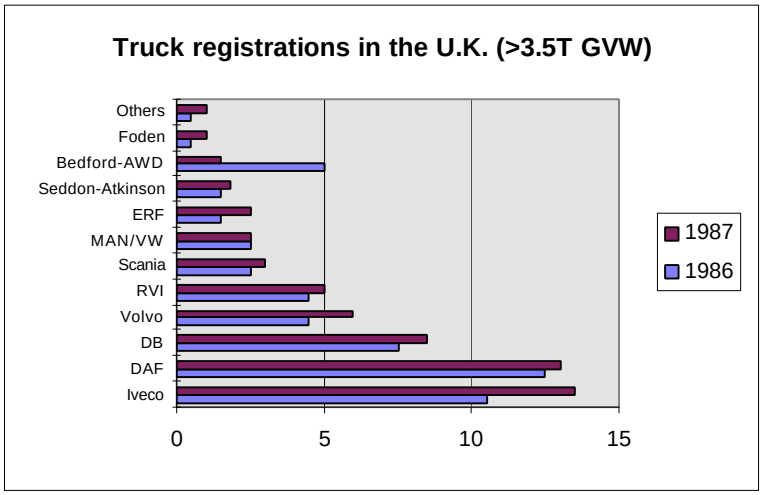


Figure 3: registrations of trucks >3.5T GVW in West Germany, Italy, France, the Netherlands and the UK

In three out of these five countries (i.e. Italy, West Germany and France) one domestic manufacturer heavily dominated the national market. In general one can say that most European truck manufacturers in 1989 adopted a more multinational strategy than a global or European strategy. Most players tried to maintain a number-one position in one country, but had a much smaller market share in the others. Only Daimler Benz made attempts to evolve to a more global European position.

2. Strategic group mapping

In analysing corporate strategy it is useful to look more closely at the decisions truck manufacturers have made with respect to the following aspects of competitive scope:

- Segment scope: in which product segments is the company specialised?
- Industry scope: in which industries is the company active?
- Vertical scope: what is the degree of vertical integration, backward as well as forward?
- Geographical scope: which geographic strategy is followed; in how many countries is the company active?

In the late 80's there were considerable differences in the range of products offered by truck makers in Europe. Some manufacturers (e.g. Daimler Benz, Iveco) offered a wide range of products in all size and weight classes and applications, while others (e.g. Scania, DAF) concentrated only on one segment. Parallel to this difference in segment scope, when mapping the manufacturers along the vertical integration axis, a tendency can be seen for manufacturers with a full line to be more vertically integrated than manufacturers offering only a narrow line (see figure 4).

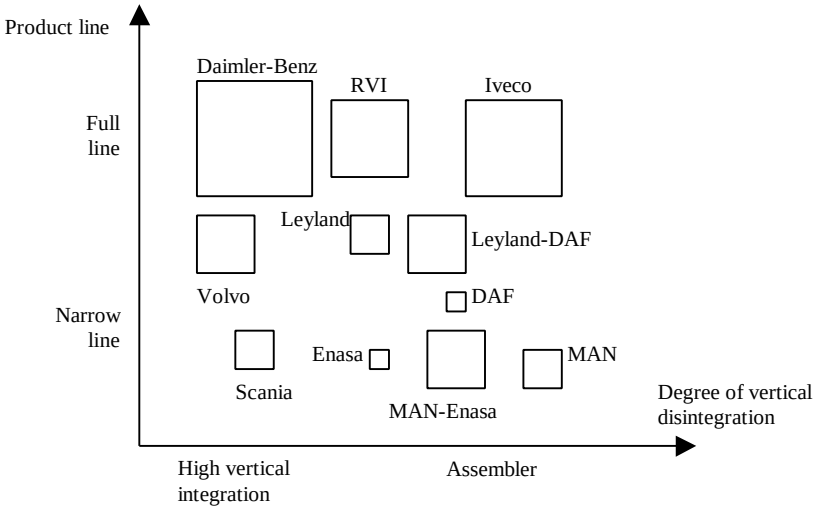


Figure 4: Vertical integration and product line

At the same time, these full line-manufacturers took on a more international oriented position whereas the more focused manufacturers were still very concentrated on national markets (see figure 5).

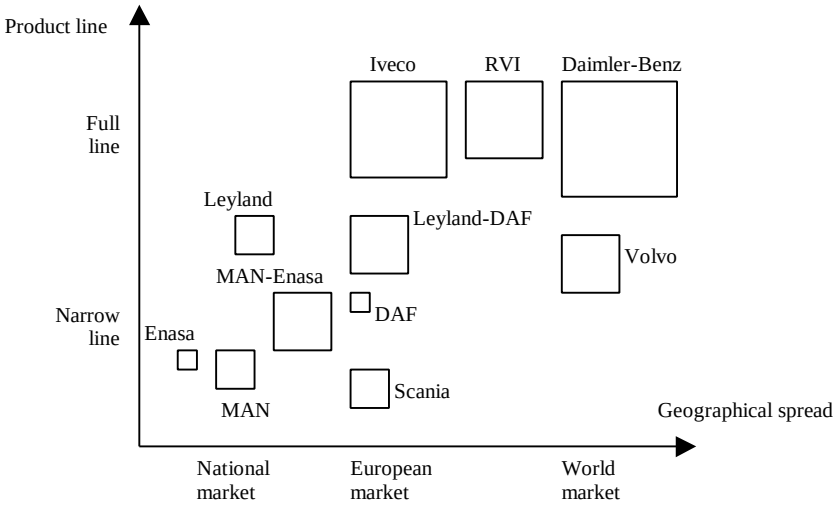


Figure 5: Product line and geographical spread

Combining these differences in geographical segments, vertical and geographical scope, two strategic groups can be identified. A first group of manufacturers focused on one segment that was not highly vertically integrated and concentrated mainly on national markets. The second group took on a broader scope in product range as well as geographical segments, and was usually more vertically integrated.

From the strategic maps it can again be concluded that in the late 80's the relevant market in the European truck industry was definitely not yet the EC. Nevertheless, although several truck manufacturers were still very dependent on their national market, this situation seemed to be changing. Through mergers and acquisitions some of the national players tried to reposition themselves on a more pan-European side following the economic integration of the European Market (e.g. M.A.N., DAF).

7. A QUICK SCAN INSTRUMENT FOR EVALUATING THE COMPETITION FACTOR WITHIN THE MULTISECTORAL FRAMEWORK

The different elements to delineate relevant markets developed in the previous sections can be put together in one working scheme for an evaluation of the competition factor within the Multisectoral framework (see fig. 6 and 6a). Ideally both geographical and product market should be determined simultaneously. However, in reality this is impossible. For practical reasons (i.e. use of minimal data) the suggested working scheme therefor starts with the delineation of the relevant geographical market, followed by the delineation of the relevant product market in the second step.

The analysis in figures 6 and 6a starts with the smallest possible definition of the product, and then adds possible substitutes.
The analysis comprises all products envisaged by the project. For every product the relevant market and the competition factor should be determined according to the methodology represented in figures 6 and 6a. The final competition factor allocated to the project should be the lowest competition factor of all products in the project.

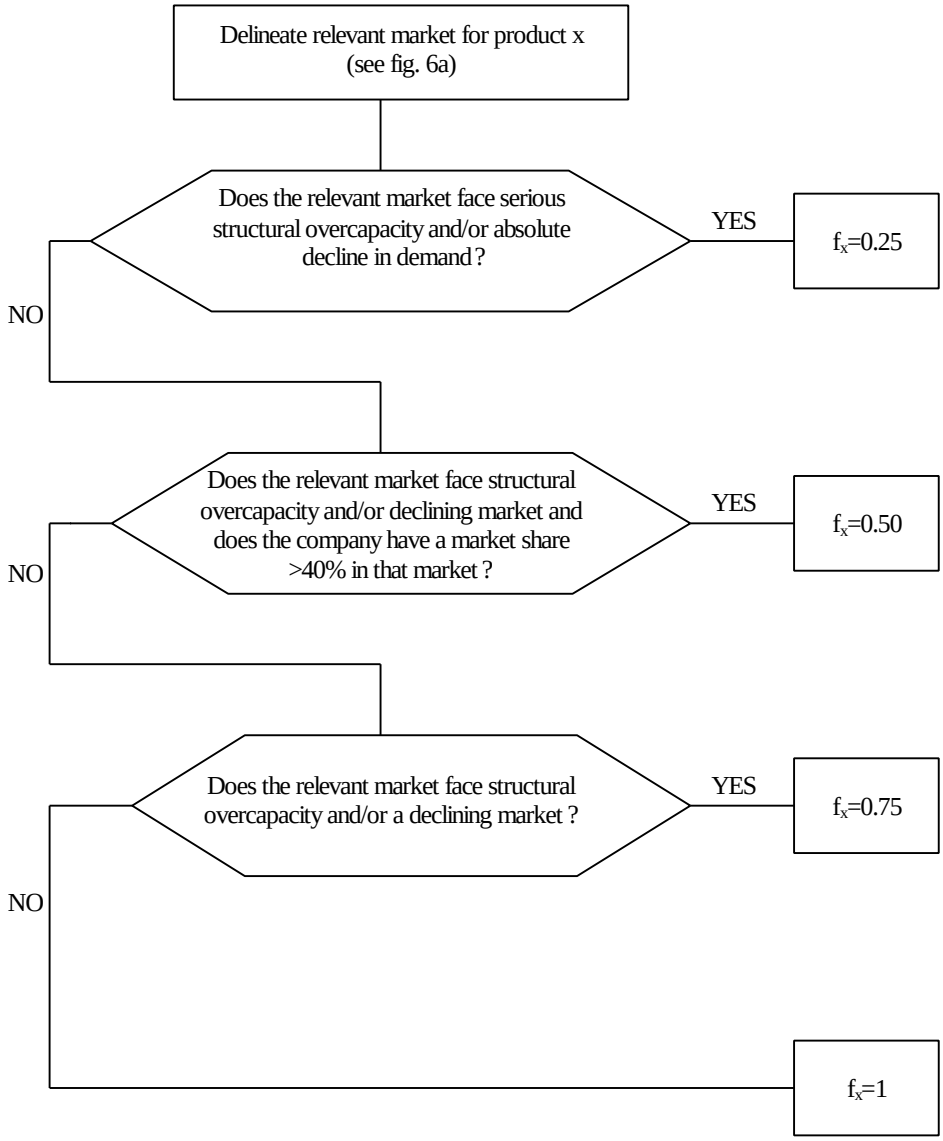


Figure 6: Schematic representation of the determination of the competition factor

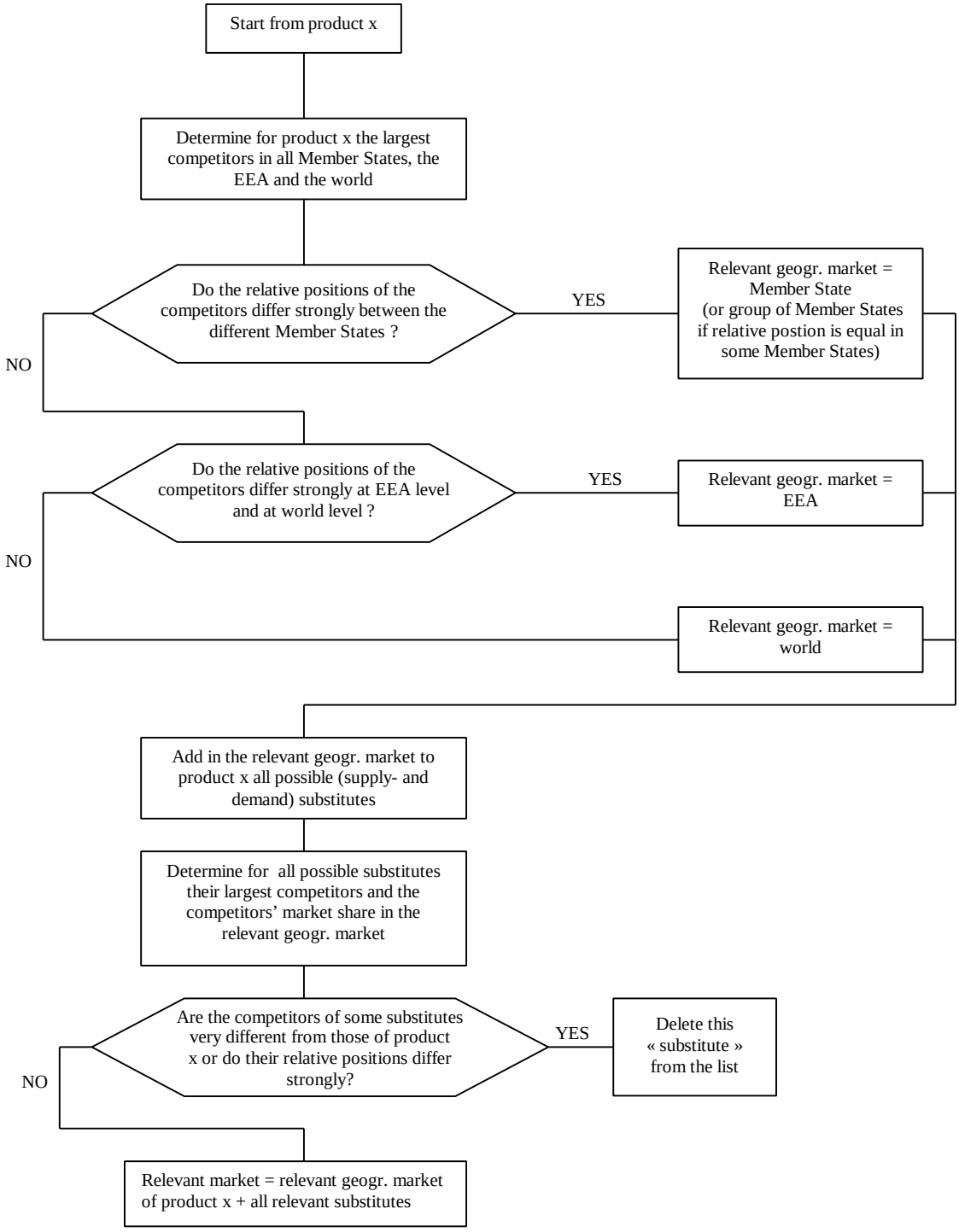


Figure 6a: The delineation of the relevant market

8. INFORMATIONAL REQUIREMENTS

From the working scheme developed in the previous section a good idea can emerge about the relevant market and the competition factor by making use of selective data about the operations of the aided firm and its competitors. However, these data are not always easy to collect. In this section the informational requirements for the analysis will be examined in some detail and linked to information available from the notification documents and existing databases. First the information asked in the notification concerning the competition factor will be scanned for its usefulness with respect to the newly developed working scheme. Next, the different questions in the working scheme will be systematically examined against the background of existing databases.

8.1. Information requirements versus available information of the notification

Starting from the working scheme in figure 6, the appropriate information necessary to evaluate the competition factor can be derived from the following questions:

1. Describe the company group of which the aid recipient is part (i.e. parent and every entity in which it has a majority of shares).
2. Identify all products that will be produced in the aid recipient's plant as well as all products that can be produced in that plant with little or no additional costs.
3. Specify for every product in the project its substitutes from a demand point of view.
4. If the market is considered to be different from EEA, identify for every product group (i.e. own product and substitutes) the major (biggest 5) competitors in the Member States comprising the proposed relevant geographic market and in the EEA, then if relevant in the world.
5. Specify the exact market share of the company group and give an indication of the market shares of the major competitors in the different product groups in the

Member States composing the proposed relevant geographic market and in the EEA, then if relevant in the world.

6. Specify for the last five years the evolution of capacity utilisation in the narrowest possible sub-sector and/or for the last six years the apparent consumption (production+imports-exports) of the various product groups in the proposed relevant geographic market and in the EEA of the different products related to the project.
7. Identify for all products in the project the actual and other potential production locations within the company group and any effects of the new investment on other production sites producing these products.
8. Is there a necessity of state aid linked to the choice of location? If so, explain why in some detail.

Although some of these questions can be found in the notification (see questions 2.1.1., 2.1.3., 5.1.1., 5.1.2., 5.1.3., 5.4.1.), the recent notification still shows some informational gaps. Firstly, the project should be better placed at the company level. Secondly, more precise information about the competitors should be asked (see questions 4 and 5). Moreover, as suggested in 3.1., some precise questions should be added concerning the necessity of state aid for the project (see questions 7 and 8).

The information from the notification can then be linked with existing databases in order to arrive at a better and objective assessment of the relevant market and the competition factor.

8.2. Availability of company and industry information from existing databases

Published information sources can provide a better understanding of industries and their development worldwide. In addition to official databases of statutory bodies in specific countries, during the last few years extensive information has reached us through the worldwide web and the formation of specialised research companies and information providers. They fill a gap by providing cross-country information collected from the companies themselves and from other media sources, in addition to official

sources. They add value to the basic data by offering analysis and by their method of presentation, for example, ranking tables with easy comparison (e.g. the top 1000 companies in a country or the top 500 companies in a specific industry). However, the quality of information provided by such companies should be carefully checked. Most information research companies offer more or less the same information that is publicly available or that companies are willing to provide. However, strategically sensitive information such as price levels, exact production figures and capacity levels at a desirable disaggregated level is not or very difficult to find.

The next paragraph presents an overview of databases and studies by specialised companies and international institutes that may provide useful information along the lines suggested by the working scheme.

8.2.1. Company level information

Basic information on the aid recipient, its parent company and linkages between subsidiaries are provided by market research organisations such as Dun & Bradstreet or Kompass. Dun & Bradstreet publishes annual information about firms in all sectors. The available information concerns basic data on the company, its parent company, which businesses it is active in, … A list of the top 5000 firms is available ranked per sector. Next to this basic information Dun & Bradstreet also annually publishes 'Who owns whom', which provides information on the corporate structure of a company, its relation to its subsidiaries and associated companies. Apart from the annual publications, Dun & Bradstreet also disposes of the **D&B Worldbase**. This database contains information on more than 52 million businesses in over 200 countries. Given the name of the parent company or subsidiary, Worldbase is able to identify a company's corporate family worldwide. It shows which companies are related, where a corporation has subsidiaries, and where the highest decision-making authority lies. Worldbase is accessible for the European Commission on line via World Vision.

Another useful data source is Kompass. Apart from the basic information on companies in all sectors that is published by Kompass annually, it disposes of a database called Kompass Database. This database contains basic information on companies, their personnel, financial situation and other statistical information. The

database is directly accessible on the Internet (www.kompass.com) after free registration for some basic information or through subscription for more specialised information.

Other research organisations that provide company information are ACNielsen, Fortune and Amadeus. ACNielsen is mostly specialised in the following sectors: food, personal and household products, durables and retailing. The Amadeus database provides mainly financial data on companies.

8.2.2. Product information

Apart from information at company level, the **Kompass Database** is especially useful for product information search. For every major region worldwide, and all Western European countries in particular, the database offers a list of all companies active in a specific product group. The product list used by Kompass is very detailed. However, it does not easily match with more widely used industry classifications such as NACE or SIC.

8.2.3. Industry and competitors information

A good starting point to find industry level information is the "Panorama of EC industry". This annual publication describes 165 manufacturing and service industries in detail. The problem is that these data are aggregated on a sector level and no data on company level are available, although for several sectors the major players are indicated. For accurate and detailed information on a specific industry/business and its major players market research organisations are the most useful information sources.

However, no systematic detailed information on product substitutes, competitors and their market shares exists covering all industries in all European countries, the EU and the world, except maybe for one recent academic initiative. Information on the leading firms at EU12 level in a specific NACE 3-sector is provided by the **"EU market share matrix"**. This matrix includes information of the five leading EU12 producers in nearly 100 EU manufacturing industries. The matrix has been constructed by an academic project team, coordinated by Stephen Davies, Laura Rondi and Alessandro Sembenelli.

The database is capable of generating estimates of various key structural variables: diversification and intra-EU multinationality, but especially interesting in this study, also concentration (i.e. market shares). So far the matrix is available for the years 1987 and 1993. To make it a more useful instrument the matrix should be updated on a more or less regular basis and new member states of the enlarged EU should be included.

Apart from this matrix, there is no clear-cut database that provides systematic market share information on the leading companies in all sectors. However, several market research organisations offer specialised industry reports containing market share information. Well known information companies that offer such information are Frost & Sullivan, Euromonitor, Investext and Globalbase among others. All these different information companies can be consulted directly (see Table II), but most of these companies cover only a selective range of industries and offer a wide variety of unfiltered information.

The latter problem has been addressed by The Dialog Corporation, an organisation that calls itself 'one of the worlds biggest repositories of data in electronic format'. Apart from other very interesting tools offered by Dialog (Globalnews Plus, Profound), it provides an instrument called **DataStarWeb** that scans over 350 market research companies and databases for specific information requested by the user. It presents a list of possibly useful data and articles which can be consulted on the screen. Dialog's 'bluesheets' and 'datasheets' provide details about database content, search features, … (access the Dialog website via www.cc.cec/ext-db/dialog/dialog.htm).

Table II: A selective list of information sources offering competitors information

Name	**Address**	**Branches involved**
Datamonitor	www. datamonitor.com	apparel, banking, communications, cosmetics and toiletries, electrical products, food, insurance, packaging, passenger airlines, petrochemicals, plastics, pharmaceuticals, retailing, software
Euromonitor Market Research	www.euromonitor.com	beverages, consumer health care, consumer electronics, consumer services, cosmetics&toiletries, electronical appliances, foods, household chemicals, leisure goods, retailing, tobacco
Frost & Sullivan Market Intelligence	www.frost.com	aerospace and defense, automotive, data & telecommunications, data processing and office automation, diagnostic equipment & reagents, electro-medical instrumentation, environmental controls, pharmaceuticals, textiles, …
IAC – Information Access Company	www.informationaccess.com	biotechnology, chemicals, computers, construction and civil engineering, electronics, energy, financial services, food and beverages, media and advertising, packaging, paper and printing, telecommunications
Investext Industry Monitor	www.investext.com	active in all industry branches

Although these specialised information companies do provide useful information, there are some important limitations. First of all, in the suggested working scheme for the Multisectoral framework systematic knowledge of the major companies in *several* markets is necessary. However, many studies limit themselves to some countries or provide information on a regional or world level. A second point concerns the role of

diversified companies. Generally, companies are classified following the sector in which they have the largest sales and no account is taken of their other activities. But as the "EU market share matrix" shows, a considerable number of companies are major players in different sectors.

8.2.4. Capacity utilisation and apparent consumption information

Information on capacity utilisation is only available on a very limited basis and most often on a too aggregate level. Each year in January, April, July and October DGII of the European Commission collects data on the degree of capacity utilisation in manufacturing industries. The results of these surveys are published in the **European Economy, supplement B**. Apart from data on the degree of capacity utilisation per country and industrial sector, it also provides data on the average capacity utilisation in manufacturing as a whole. This makes it very useful for the Multisectoral framework where the capacity utilisation in a specific industrial sector has to be compared with the average capacity utilisation of the industry as a whole. However, the data available concern only major sectors and are not available on an acceptable disaggregated level. This makes capacity data generally not useful for in-depth analyses.

Apparent consumption is calculated following the constituting factors consumption=production+exports-imports. Data on production, exports and imports in the EU can be found at 4 digit-level NACE rev.1 in the COMEXT (for exports and imports) and DEBA (for production) databases. However, those databases have a serious time lag of 2 years. At this moment the DEBA database has become part of the NewCronos database of Eurostat. UNIDO also collects data on production at a 4 digit-level ISIC, for EU countries as well as for many other countries. The above mentioned databases are available from Eurostat that integrates the databases within its **Competitiveness Database** (directly accessible via Internet). The Competitiveness Database contains a whole list of indicators subdivided into three areas: macro-economic indicators, performance indicators by industrial activity and cost, price and productivity indicators. Within the second area Eurostat uses apparent consumption in its calculation of the share of domestic market indicator (i.e. (production-exports)/apparent consumption*100). However, apparent consumption as such cannot

be directly consulted. Also, because of problems of confidentiality, the possible available data on apparent consumption are limited to the 3 digit-level NACE rev.1, although it is claimed that export, import and production figures are available at a 4 digit-level NACE rev.1.

9. CONCLUSION

In order to better control the possible distortive effects caused by aid to large investment projects, the Commission has recently introduced the Multisectoral framework. In the framework three criteria are evaluated to determine the maximum level of aid: the impact of the aid on competition, the capital-labour ratio and the regional impact of the project. This study has concentrated on the evaluation of the competition factor, more specifically, the delineation of the markets in which competition may be distorted.

Starting from the definition of a relevant antitrust market suggested in EC Communication 97/C 372/03, the study has suggested a practical methodology to delineate the relevant geographical and product market from the criteria used by business strategists to segment markets. This methodology makes use of strategic information on the relative position of a company and its competitors in well defined product-market combinations. The usefulness of the new methodology has been illustrated for the European truck industry.

The newly developed market delineation method has also been integrated into a new working scheme for evaluating the competition factor in the Multisectoral framework. Finally, the data requirements for the new assessment instrument have been considered against the information available from the notification documents, existing commercial databases and other specialised information sources. Possible informational gaps have been pointed out and suggestions for improvement have been offered in the final section of the report.

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