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Panel III: (Excessively) High Pricing: What's the role for Competition Authorities?

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1. Conclusion

Excessive pricing is for most stakeholders the archetypical example of an abusive practice. It is therefore very frustrating for them to realise that there are not many decisions by competition authorities sanctioning excessively high pricing. The reluctance or inability of competition authorities to deal with these cases is illustrated by the fact that the EU Commission limited the scope of its guidance in respect of the application of article 102 TFEU to exclusionary practices (OJ 2009, C 45/7–20).

Competition rules should be distinguished from price regulation. But I am afraid that the inability to respond adequatly to the expectations of stakeholders in respect of excessive pricing complaints jeoapardises the credibility of competition authorities and the acceptance of competition rules as the ‚default' instrument for market regulation. Especially in the inflationary period in 2008 and in the present economic crisis, we saw a clear tendency for policymakers to turn to regulatory instruments that offer immediate relief.

Price regulation may offer temporary relief in case of unusual developments, and may be justified in respect of markets where we can not expect genuine competion. But I remain convinced that a general regime of regulated prices leads in the medium term to a higher price level than a sustained enforcement of the rules of competition, if only because maximum prices need to be adjusted regularly. They tend to be set a level that allows less efficient operators to stay in the market and become a disincentive for the more efficient operators to price their goods or services lower than neccesary to appear attractive in comparison the regulatory approved (imposed) maxima.

Competition authorities should therefore make an effort to deal in a convincing way with excessive pricing complaints, sanctioning when justified and possible, and explaining their refusal to do so in other cases.

2. Excessive pricing in Belgian competition rules

Belgian competition rules are in respect of excessive pricing similar to the EU rules of competition.

We can therefore only act against exccessive pricing in case it can be qualified as an abuse of a dominant position (article IV.2 of the new Code of Economic Law, and article 3 of the previous competition act).

3. Excessive pricing in the case law of the Belgian competition authority

The Belgian Competition Council (the decision making tribunal under the previous competition act) did not take a decision establishing an excessive pricing abuse.

The directorate general obtained in its informal settlement policy in 2012 the commitment of an operator with dominant position on the relevant market to alter significantly the tariffs it offered to larg users for online payment services for the online underwriting of financial instruments.

The authority is at present engaged in a similar discussion concerning a different sector.

4. The (limited) role of the Belgian competition authority under the price regulation rules

Book V of the new Code of Economic law (introduced together with the new competition rules by the act of 3 april 2013) brings an in-depth reform of Belgian price regulation rules. The Minister abandoned most of his autonomous regulatory powers which are replaced by a regime in which:

- The Price observatory, a service in the ministry of economic affairs of which the reports must be validated by the Institute of National Accounts (a joint venture of the central bank, the planning bureau and the ministry), can indicate in a report problems with prices or margins, abnormal price developments or structural market problems.
- Such report is automatically submitted to the competition authority that needs to decide on provisional measures in a procedure that is inspired by the provisions on interim relief in the competition rules. Provisional measures may have a period of validity of no more than 6 months. The decisions of the competition authority can be appealed before the Brussels Court of Appeal.
- The decision of the competition authority is submitted to the Minister who must report within 6 months to the Cabinet on the more structural or regulatory measures he deems necessary.

Annexe

Belgian Competition Autority

Directorate general

Memo prepared by Bart Vermeulen, 2 April 2009

Dominance and excessive pricing

Article 82 of the Treaty of Rome prohibits abuses of a dominant position. The concept of abuse covers three types of conduct: exclusionary, exploitative and discriminatory abuse (unless discriminatory is qualified as either exploitative or exclusionary). The Commission focuses on exclusionary abuse in their enforcement priorities of art. 82. Stakeholders insist however that we respond more convincingly to their complaints about exploitative abuses. The failure to do so risks to force governments to reactivate price regulation as a key tool for market management in case of a new period of accelerating inflation.

This note attempts to contribute to the debate on a framework and methodology to detect exploitative abuses, and more specifically, to analyze excessive pricing and dominant positions requiring an intervention of the competition authorities. After an introduction, we discuss the economic background of the arguments pro and contra an intervention in case of excessive pricing. Then follows an overview of the case law on excessive pricing. In the next section, a general framework is proposed to analyze excessive pricing. This framework consists of two parts: a first part to demonstrate the excessive character of a pricing practice and a second part to prove the causal relationship between the dominant position of a company and the practice of excessive pricing.

1. Introduction

In the 'Guidance on the Commission's Enforcement Priorities in Applying Article 82 EC Treaty to abusive Exclusionary Conduct by Dominant Undertakings', the Commission mainly focuses on exclusionary conduct and pays no attention to exploitative abuses. Nevertheless, the number of complaints about exploitative abuses has increased sharply in the period of accelerating inflation (second semester of 2007 and 2008). It increased also in the context of the liberalization of network industries. Moreover, the role of national competition authorities becomes more important given the fact that the focus of the European Commission on exclusionary abuses (which indeed deserve specific attention) tends to orient complaints about exploitative abuses towards national competition authorities.

2. Government intervention or intervention by competition authorities in case of excessive pricing

In this section, we take a brief look at the economic arguments for and against a direct government intervention or intervention by competition authorities in respect of excessive pricing by a dominant undertaking.

As consumer welfare is the key objective of a competition policy, the main argument in favour of an intervention is obviously that it leads to lower prices and will increase consumer surplus. Customers will benefit in a direct way and in the short term from price reductions. Excessive prices harm also competition among manufacturers downstream: when a company is dominant in the supply of input and sets excessive prices, companies downstream depending on such supplier are obstructed to compete vigorously or to enter new markets.

Nevertheless, there are a number of arguments which plead against a direct intervention. First, excessive prices result in high, or even excessive, profits, and will attract new entrants to the market. The new entrants will increase the competition in the market and a downward price movement will commence. Because of this phenomenon, the distortion in the market will be solved by a self-correcting mechanism. However, this mechanism will not be observed when there are high entry barriers (such as high investments, advertising costs, …) preventing new players entering the market. In this particular case, an intervention may be desirable. It is therefore important to distinguish excessive prices requiring an intervention from high prices which are a part of the competitive process.

Second, a direct price intervention may negatively affect investments and innovation. Investments and innovation are closely related to each other. Low prices reduce the incentive to innovate. A company making high investments in technological innovation expects to obtain an equitable rate of return for its efforts. When this is prevented by an excessive pricing intervention, the incentive to invest further might be diminished. In this case, an intervention would have negative consequences on the longer term.

Third, proving the excessive character of prices is a very complex matter. It is based on cost calculations which raises questions concerning allocation of (fixed) costs, consequences of accounting methods, the way of measuring profits, …

The decision to intervene will be a trade-off between these pros and cons and might be appropriate in case of:

- The presence of high entry barriers;
- Monopolies (or near-monopoly) following from exclusive rights in the past;
- The lack of a sector regulator (or the presence of a weak one).

Possibly, high prices may occur for short periods: e.g. when there is an extraordinary temporally high demand or when production capacity is temporally reduced. These cases of high prices are a part of the competitive process and do not require any pricing intervention.

3. Case law overview

In general, three main streams in the methodology to demonstrate excessive pricing can be distinguished:

- Price comparison;
- Cost price calculations;
- Price determined by supply and demand.

Excessive pricing occurs when the price charged to customers is above the competitive level. To determine the competitive level, several strategies can be followed. First, the price of the dominant firm is compared to the price charged for identical or similar products. Second, the price is compared with the costs involved in the production or with the production assuming an efficient production process and similarity of products. Finally, the price is compared with the price obtained by determining supply of and demand for a product. This last strategy has only been applied in the gas sector.

3.1 Price comparison

There are numerous possibilities of comparing prices:

- Price comparison with competitors on the same relevant product market;
- Price comparison with similar products of the dominant firm (although traded on a different market: e.g. export market), etc.

The first European case of excessive pricing was 'United Brands' where UBC charged substantial different prices for the same product to distributors in different Member States. In this case, the Commission compared the product price in different countries to prove the excessive character of the price in certain Member States. The Commission imposed a fine which was annulled later by the Court. They decided that this methodology was insufficient as a cost calculation underlying the different prices was lacking.

When it is impossible to perform a cost calculation, an extensive comparison of the prices of the dominant company in several dimensions is another possible strategy. Substantial price differences for similar (or even identical) products with the same cost structure points towards excessive prices. As an example, General Motors (Commission Decision of 19 December 1974, General Motors, O.J. 1975 L 29/14) charging substantially different prices for issuing conformity certificates can be mentioned. It is important to show that the lowest price is already profitable and so, that the highest price is excessive. Equivalent prices for similar products with substantially different production cost

may also indicate excessive pricing. In these two price comparisons, there are two aspects to be demonstrated:

- Unfair pricing: the difference between the prices of the dominant firm and its competitors cannot be explained based on economic arguments and the prices are all profitable;
- Discriminatory pricing: setting different prices has discriminatory effects and harms competition.

The competitor has to be active on the same relevant product market, although possibly in an other geographical area (e.g. other Member State). In the case of 'Parke Davis' (Parke Davis 24/67 1968 ECR 55), the question was raised whether a firm can charge a higher price in a country where its product is protected by a patent compared to a competitor active in a country where this is not the case. A similar question was the topic of an investigation at Renault (Renault 53/87 1988 ECR 6039). The final conclusion of these two cases was that a price comparison of patent-protected and patent-unprotected products is unfair as the incentive to innovate has to be taken into account. However, the price difference might be an indication. Other applications can be found in 'Deutsche Grammophon' (Deutsche Grammophon 78/70 1971 ECR 487) and 'SACEM II' (Lucazeau/Sacem 110/88, 241/88, 242/88 1989 ECR 2811). When comparing prices charged by different companies offering similar products, quality differences have to be taken into account! A final example of comparing prices of identical products offered in different geographical markets has to be mentioned. In Bodson (Bodson 30/87 1988 ECR 2479), the prices of this company holding a concession for funeral services in a particular area are compared with prices in other areas.

3.2 Cost price calculations

Making a profitability analysis by comparing the production cost and the price of a product is another option to demonstrate excessive prices. Significantly larger profit margins for a particular product of the dominant firm than the margin for similar products of the dominant firm (e.g. sold on an export market) or similar (or identical) products of competitors might indicate exploitative behaviour. In this respect, this method might be considered as a two-step process. First, the cost of producing one unit has to be calculated or estimated and compared with the price. In a second step, the decision has to be made whether the price is excessive or not. However, using this strategy raises several questions. First, the costs used in the calculation have to reflect the cost structure of an efficient production unit. The definition of 'efficient production unit' is vague and is difficult to determine in a clear definition. Second, the allocation of fixed costs over the product range of a firm may influence considerably the production cost per unit, and so the outcome of the exercise.

The most recent case (2001) handled by the European Commission was 'Deutsche Post II' (Deutsche Post II O.J 2001 L 331/40) and concerned mail coming from abroad although with a reference to Germany (e.g. a German reply address). German Post Services stated that this type of mail circumvented the more expensive domestic tariffs by posting mail outside Germany. Based on

estimations of the cost, the Commission argued that the domestic tariff was 20% too high to deliver mail from abroad. Numerous other cases of excessive pricing are known but did not result in formal decisions as they were settled in an informal way. Most of the cases are related to liberalized network industries.

There were also a number of cases handled by the national competition authorities. In 2000, the Dutch Competition Authority (NMa) investigated the pricing practice of KLM on its flights to the Antilles and Surinam. The cost and the profit margin of providing these services in case of a lack of competition were compared with those when different companies competing on these flights. The issue of allocating costs was solved by using the concept of 'Activity Based Costing Method' which means that fixed costs are allocated according to the extent the source of these fixed costs are used to produce a particular product. Based on the cost estimation in the two scenarios, profits were compared with the weighted average cost of capital (WACC). This cost of capital represents a threshold that investors expect according to the method of capital asset pricing. Determining which costs are variable was solved by stating that all costs which could be influenced in one year are considered as being variable and are allocated directly to the particular product. The fixed costs are allocated according to activity based costing method. The NMa considered these rules as being appropriate and reasonable[1]. As there are clear rules of profit benchmarks and the allocation of costs, transparency is an important advantage of this way of working. However, applying this method by a dominant company may lead to rigid prices [2].

In 2001, Napp, a company specialized in the production of morphine products, was accused of charging excessive pricing (Green, 2003). Napp mainly had two distribution channels (hospital and community distribution channel) and used excessive pricing in one channel to subsidize extremely low prices in another channel. The channel with low prices (namely the hospital distribution channel) was the main market for the morphine products. So, the dominant position of Napp on this market was financed with the excessively high prices of the second channel and prevented other players to enter the market. A combination of several methodologies was used to prove excessive (high and low) pricing:

- Comparison of Napp's prices with its production cost;
- Comparision of Napp's prices with the production cost of Napp's competitors;
- Comparison of Napp's prices with the prices of its competitors;
- Comparison of Napp's prices with the price it charges when exporting similar morphine products.

[1] Decision of the Director General of the NMa (8/11/2000) related to cases 273 and 906 concerning tariffs charged by KLM for flights to the Antils and Surinam.

[2] The consultation document (8/11/2000) states that the cost allocation method of Schiphol is insufficiently transparent. For further discussion of this method, the reader is referred to the article of E.H. Pijnacker Hordijk and Y. de Vries.

In 2003, the Dutch Competition Authority (NMa) examined an increase in tariffs for providing services for radio and television broadcasting (Nederlandse Mededingingsautoriteit, 2003a and 2003b). For this purpose, an extensive cost calculation was used. The main problems encountered during the investigation were an appropriate allocation of the costs over the product range offered by the company. Based on this cost price calculation, an internal rate of return was obtained which provided insight whether the price charged to the customer leads to excessive profits or not.

In January 2009, the NMa published a report in which they calculate the cost of providing gas on a wholesale level to examine the tariffs of distributors (Frontier Economics, 2008). Three approaches were considered to determine the excessive character of wholesale gas prices:

- Cost price for providing similar services for an entrant;
- Prices following from demand and supply in a hypothetical market;
- Prices in a comparable market.

In the first approach, three types of entrants are assumed to provide similar services as those currently offered by the existing firms. The entrants are new on the Dutch market, although they are already active on a closely related product market, possibly different in geographical terms. The three types of entrants considered are: a German gas producer exporting to the Netherlands, a trading company located in the UK and a Dutch entrant using a mix of gas produced in the Netherlands and imported gas. For these three new market players, cost price of providing gas to the Dutch market is computed. Based on these estimations, the wholesale gas prices are compared with the prices of the Dutch provider.

In the second approach, the NMa constructed a merit order curve to set the price occurring in a competitive market where supply and demand are the decisive factors. This methodology is further explained in the next section as it is an application of price determination by supply and demand.

In the third approach, prices are considered in a comparable market. In this study, this approach was not used in practice as there were considerable differences between the products and distribution networks between the Member States. This method can only be used when all underlying factors (such as products, production method, target public, …) are equal in the markets which are compared. By using this method, the assumption is made that the comparable market is a competitive one.

The three major problems encountered in this gas study of the NMa are:

- Which costs have to be taken into account: long or short term costs, variable costs, fixed costs, etc.. If long term costs are taken into account, the obtained cost price calculation

reflects a conservative approach and is only useful if the price is also valid for a long period (> 1 yr).

- The definition of comparable products;
- Availability and quality of the data.

The case of KLM handled by the NMa could have offered clearer guidelines related to the first problem.

3.3 Supply and demand

The price in a competitive market is set when demand and supply are equal. By our knowledge, the NMa study related to wholesale gas prices is the only application of this way of determining the product price. In this case, a merit-order curve was constructed. In this curve, the firms providing a product are ranked in a decreasing order of production capacity and their cumulative capacity is represented. When demand and supply are equal, price is determined. This concept is illustrated in Figure 1.

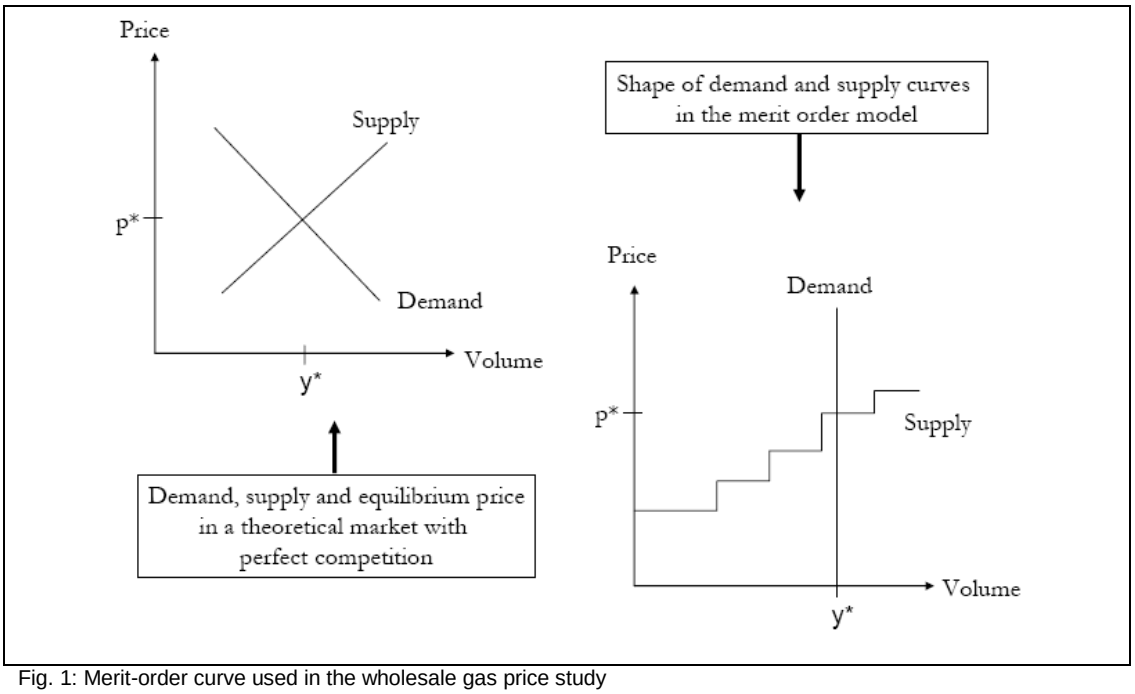

Fig. 1: Merit-order curve used in the wholesale gas price study

4. Proposed framework

Examining excessive pricing due to a dominant position entails two different aspects:

- The price charged to a customer is significantly higher than the production cost or the value of the product,
- Causal relationship with the dominant position of a company, and so the lack of competition, and the excessive character of the price.

As there seems to be two different aspects, the proposed analysis method will consist of two parts. In a first part the excessive character of the price is examined. This investigation can be performed by an extended comparison of the price of the dominant company with its production cost on the one hand and the price charged by competitors or their production cost (assuming an efficient production manner) on the other hand. In a second part, the causal relationship with the dominant position or the lack of competition is proven. Obviously, when the outcome to the first part is negative, the second part is redundant. In this sense, the first part can be considered as a necessary condition which has to be fulfilled to start the second part. This strategy is similar to the strategy followed in case of predatory pricing. In case of predatory pricing, three aspects for research can be distinguished:

- Proving that the production cost is significantly higher than the price;
- The intention of eliminating competitors;
- The former two aspects lead to a recoup of losses incurred by the predatory strategy.

In the following sections, several methodologies to examine the two main aspects of excessive pricing are discussed. The proposed methods are only a draft of a conceptual framework. There might be numerous other ways to demonstrate the same goals. Suggestions and remarks are very welcome. The method used will depend on the availability of data.

4.1 A comparison of prices and costs

To demonstrate the excessive character of prices, an extended price-cost comparison can be performed:

- Comparison of prices charged by the dominant player with those of competitors (or even of the dominant player itself);
- Comparison of the prices charged by the dominant player with its production cost or the cost of competitors assuming an efficient production process.

The most obvious case occurs when the price of the dominant player is compared with the price of its competitors offering similar products. This comparison can be done at a time point t or over a time period T. When data are available only for a time point t, a one-sample t-test could be used to check whether the price of the competitors differs significantly from the price of the dominant player. As an example, consider the price for product at time t of a dominant player equal to 100, while its four closest competitors charges only 75, 80, 82 and 77, respectively. Using a one-sample t-statistic to test the null hypothesis H_0=100 whether the prices of the competitors equals 100 reveals that the mean price of the competitors is significantly different from 100 and indicates the excessive character of the price of the dominant player.

When data are available for a time period T (starting at t_1 to t_n), a descriptive analysis of the data might already demonstrate the price abuse. To demonstrate this concept, consider the case of Napp (UK). The price of Napp in one distribution channel was about 33% to 67% higher than its competitors. Assuming the price of Napp in the first quarter of 1991 equal to 100, Figure 2

demonstrates a clear difference between the price of Napp and its competitors. The competitors' price, on average between 33% and 67% lower than the price of Napp, is situated between the red and pink line on Figure 2.

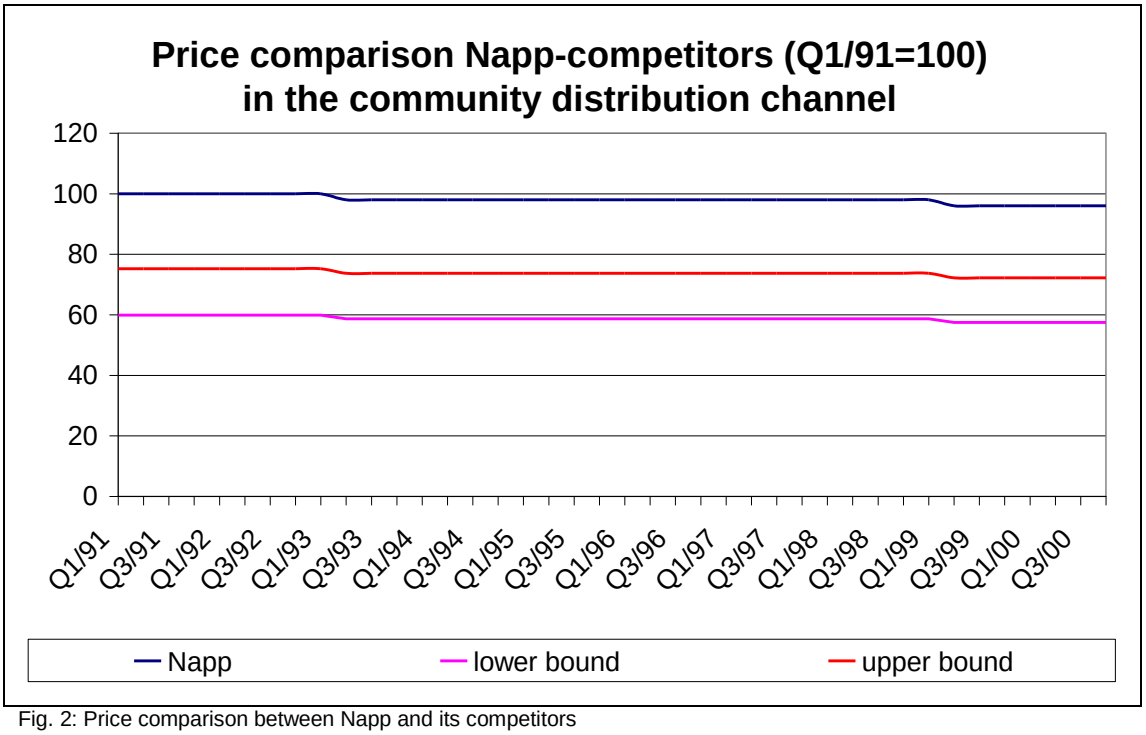

Fig. 2: Price comparison between Napp and its competitors

When data over a time period T are available for the dominant player and its competitors, a significant difference between the dominant and non-dominant player(s) might be revealed by comparing their population means by a (two-sample) t-test. To apply this type of test, the condition has to be fulfilled that the dominant player occupies its dominant position from time point t_1 till t_n. Applying this test on the price data of Napp charged in the community distribution channel and the data constituting the upper bound (and so the most favourable scenario) indicates that the two means differ significantly. This points out that Napp charges an excessively high price to its customers in this channel.

A comparison of prices can also be made between the products of the dominant player itself assuming similarity of these products. For example, the OFT compared Napp's prices in the two distribution channels. Figure 3 clearly demonstrates that the price of the same product in the two distribution channels differs considerably.

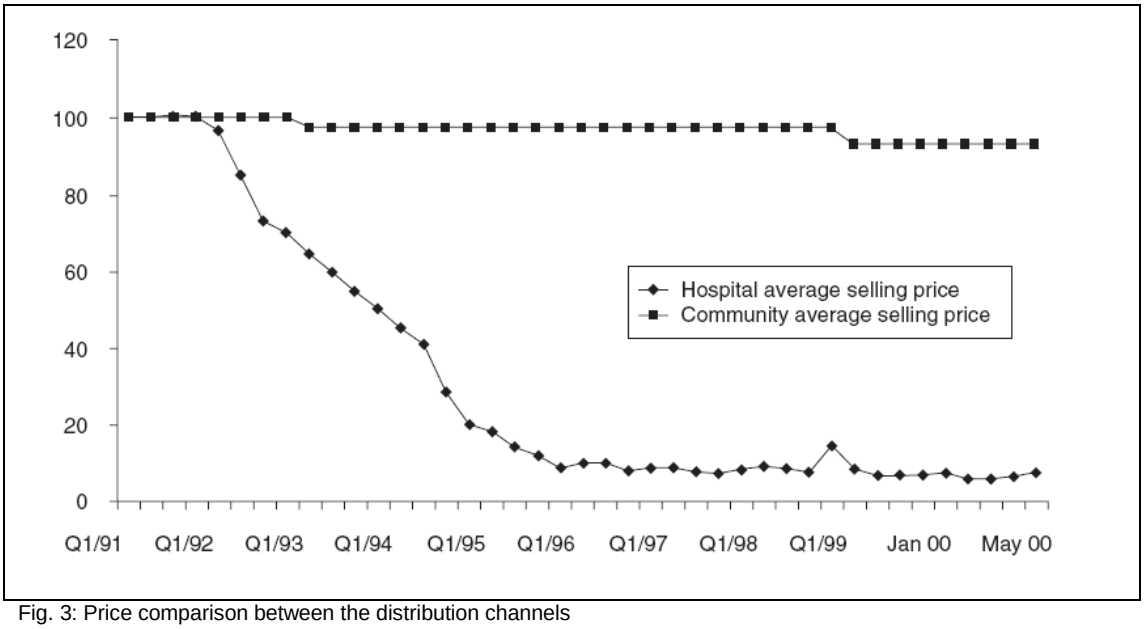

Fig. 3: Price comparison between the distribution channels

If a t-test is performed to test the equality of the means of the prices in the hospital and community distribution channel starting after deregulating the price in the hospital distribution channel (i.e. Q1/92), it would reveal a significant difference between the two series. As the two price series are related to identical products and consequently, have the same underlying cost structure, it is shown that the price charged in the community distribution channel is excessively high (or the price in the hospital distribution channel is excessively low). An alternative for this test could be to examine whether the liberalized price in the hospital distribution channel differs significantly from the price before this time point. Most probably, a significant difference between the mean price of these two time periods would be obtained indicating the excessive low level charged in the hospital distribution channel. The OFT compared as well the prices of the dominant player on its domestic market (i.e. hospital and community) with the prices used for export and concluded a substantial difference between the prices for hospital and export on the one hand, and prices charged in the community distribution channel, on the other hand. If the lower export prices turn out to be profitable, then the conclusion can be drawn that the prices, and consequently the profits, are supra-normal. A similar test could be performed considering the prices of the dominant player and the closest competitors, assuming product similarity.

Another option is a comparison between the price of the dominant player and its production cost or the production cost of competitors. Similar analyses can be performed for the estimated profit margins of the dominant player and its competitors.

4.2 Causal factors of excessive pricing

The previous section proposes a methodology to demonstrate the excessive character of the prices charged by the dominant firm. However, it does not provide an insight in the causal factors. Charging excessive prices can be caused by several reasons. First, increasing prices for input resources

and/or for production-related factors leads to higher prices. These input prices might include raw materials, wages, etc. Second, excessive pricing may be the consequence of high investments for which the company desires to have an equitable rate of return. High advertising costs, intense research and development activities, etc. are commonly cited forms of investments. Alternatively, excessive pricing might also be the outcome of the company's dominant position. Which one of these reasons causes the excessive prices can be examined by a regression analysis.

This strategy of regression analysis is similar to price-concentration studies. In this type of studies, the relation between price at time t and different variables, such as market concentration ($conc_t$), production cost (pc_t), wages ($wage_t$) etc. , is investigated. By means of the estimated regression coefficients, the effect of a merger on the price of a product is revealed:

$$P_t = f(conc_t, wage_t, pc_t, \ldots).$$

As a measure for the concentration of the market, CR4 or HHI can be considered. Bishop and Walker (2002) states that the technique of price-concentration study is often neglected in EC competition law. Furthermore, they emphasize that the application field of this regression technique is much wider than merely price-concentration studies and that it is an appropriate technique to examine dominance and excessive pricing. However, they do not give any further details concerning this topic. In the following paragraphs, we try to fill this gap by extending the technique of price-concentration studies to excessive pricing and dominance. Nevertheless, the start of each research should be a (graphical) description of the price evolution and market position of a firm and could provide an insight in the relation between excessive pricing and dominance.

In the following section, we discuss how to perform this regression analysis and which variables might be included. The dependent variable has to reflect the price or profit, while the independent variables have to capture the causal factors such as production costs, market position, investments, etc. Finally, in this section, we discuss some pitfalls.

4.2.1 Dependent variable

First, the question raises whether the price or the profit margin has to be studied as a dependent variable. As a firm will increase its prices relative to its cost, the profit margin is a more appropriate variable to study because costs vary across firms. The price as a dependent variable does not take this into account. Besides the value of the profit margin, there are several profit measurements which seem to be appropriate candidates:

- Internal rate of return (or truncated IRR);
- Income after taxes as a percentage of the net value of the company;
- Income after taxes plus interest paid on borrowed capital as a percentage of total assets;
- Tobin's q;
- Return over capital employed;
- Return over equity;
- Return on sales; etc.

An important factor in calculating profit measurements is the allocation of the (fixed) costs and the valuation of the assets. There are several strategies to allocate fixed costs over the different product categories (input-based, output-based and value-based strategies). To value the assets, three main strategies are distinguished (modern equivalent assets, present value, net realizable value). Robustness of the regression results against the method of cost allocation and valuation of the assets is required when performing the analysis of excessive pricing.

4.2.2 Independent variables

The independent variables, representing the causal factors, can be divided into two groups:

- Firm-related variables: such as wages, cost of raw materials, fixed costs, …
- Industry-related variables: such as market position of the firm, presence of competitors, entry barriers, etc..

To represent the firm-related variables, firm-specific accounting data might be used. When these data are missing, general indices used as proxy measures providing an evolution of these variables are appropriate (e.g. The Directorate-general Statistics Belgium provides an evolution of gross wages for several sectors, an overview of energy prices, steel prices, … representing costs of raw materials can easily be found, …).

Economic literature concerning modelling profitability in function of industry-specific and firm-specific indicators provides numerous possibilities to represent the industry-related variables. The market share of a firm is the most obvious solution to describe the company's position on the market. Alternatively, the relative firm size, calculated as the market share over the concentration ratio (MS/CR), can be used. Table 1 illustrates this concept in case of a dominant player and equally sized firms using HHI as concentration measurement.

Firm	Market share	MS/CR	Market Share	MS/CR
A	0,7	0,949612	0,2	0,077519
B	0,08	0,012403	0,2	0,077519
C	0,12	0,027907	0,2	0,077519
D	0,06	0,006977	0,2	0,077519
E	0,04	0,003101	0,2	0,077519

Table 1 : Effect of market share on MS/CR

A dummy variable might represent the presence of a competitor. Not only the presence of a competitor is important, but also its market position. That is why including the market share or the relative firm size of the closest competitor(s) might be useful.

Entry barriers can be represented by three variables:

- R & D intensity; calculated as R & D expenditures over sales;
- Advertising intensity; calculated as advertising expenditures over sales (a high advertising intensity reflects high cost to inform customers of the availability of alternative products: a high intensity indicates a high entry barrier);
- Economies of scale (a large production necessary to obtain economies of scale suggests a high entry barrier).

High entry barriers might indicate a dominant position. Notice that scale economies are significant if the firm with the lowest unit cost possesses a production capacity equal to a substantial fraction of industry sales and if the unit costs decreases if scale increases. So, the scale economies will be significant if the industry can support only a limited number of firms. This is captured by the concentration measures such as CR4 and HHI.

Table 2 provides a summary of the variables. The analysis proposed in this note can be captured by following representation:

$$profit = f(marketposition, competitor, entrybarrier, wages, input).$$

Data have to be related to firms active in the same relevant product market and can be related to different time points and geographically different markets. Coefficients can be estimated for all players; although they can also be divided into dominant and non-dominant players. If the dominant position affects significantly the profit margin, a significant difference might be revealed when comparing the estimated coefficients of both groups.

If the estimated coefficients related to the market position are statistically significant, then the causal relationship between price and dominant market position is shown. However, attention has to be paid to the interpretation of the estimated coefficient. It is possible that an estimated coefficient is statistically significant, however, in terms of economic effect insignificant. In this case, market position has only a minor effect on price.

	Variable	Described by
Dependent variable	Profit measurement	• Profit margin • (truncated) IRR • Income after taxes as a percentage

		of the net value of the company • Income after taxes plus interest paid on borrowed capital as a percentage of total assets • Tobin's q • Return over capital employed • Return over equity • Return on sales
Independent variable	Market position firm	• Market share • Relative firm size (MS/CR)
	Market position competitor	• Dummy variable 1=presence; otherwise zero • Market share • Relative firm size (MS/CR)
	Entry barriers	• R&D intensity: R&D/Sales • Advertising intensity: Advertising/Sales • Economies of Scale: CR4, HHI
	Firm-specific variables	• Wages, raw materials, production cost

Table 2: Overview of variables in a price-dominance study

4.2.3 Some pitfalls…

The warnings stated in price concentration studies are also valid in our case.

When comparing product prices, it is crucial that the products under consideration are homogeneous. If this is not the case, the results are not meaningful and reflect the differences in products instead of the effect of market position on price or profit. Hedonic price analysis might offer a solution in the case of product heterogeneity. Hedonic price analysis allows taking into account different product attributes. However, exploring this method in the context of excessive pricing and dominance is out of scope of this note.

As can be seen in Table 2, there are several variables to describe the profit margin. The question raises which measurement to use. Only experience in using these variables can give an answer. However, the results should be similar no matter which profit measurement is used. The same question can be stated for the market position of the dominant player and competitors: the researcher has the choice between the market share of the player or its relative firm size.

Performing this type of analysis makes one crucial assumption:, market position affects profitability and pricing and there is no feedback of prices on market position. It might be expected that a high price attracts entrants which weakens the market position of a dominant player and lowers prices. Ignoring this in the analysis might lead to biased estimated coefficients. To check the assumption of

feedback of prices on market position, the technique of simultaneous equations could be used with market position in dependent variable in the second equation.

5. Open questions and future research

This note attempts to extend the methodology of price-concentration studies to the case of dominance and excessive pricing. To our knowledge, this was not extensively discussed before. Obviously, this framework needs to be tested by using real data. Most likely, other factors or extra variables need to be included. Critical remarks, suggestions and real data are most welcome. Further exploring the literature on modelling the profitability will offer numerous ideas to develop better models and consequently a better instrument to detect exploitative abuses.

The availability of data is crucial whether this framework can be applied or not. However, the case of Napp has proven that gathering data in order to have a correct overview of the evolution of pricing practices and market position of firms is possible. If data are not available, estimations of costs, also applied in Napp, are appropriate proxies.

The availability of raw accounting data is insufficient to perform this kind of analysis. Processing these data to perform a pricing-dominance analysis requires a lot of accounting expertise. Indeed, calculating profit measurements and production costs involves a detailed knowledge of accounting principles. So, to perform the proposed analysis, cooperation between statistics and accounting is crucial.

Alternative methods to detect excessive pricing due to dominant position are probably possible, however not yet applied. Future research might develop other strategies like reconstructing the price by demand and supply in case of perfect competition, which was done in the Dutch gas sector. All suggestions to develop other strategies will be welcomed in the field of competition economics!

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