

Estimating the impact of competition enforcement by the Spanish Competition Authority

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1. INTRODUCTION

Impact assessments are becoming more widely used by competition authorities, in an attempt to quantify the benefits of their activities at a time when the effectiveness of competition laws and the economic impact of competition policies are under increasing scrutiny. However, as pointed out by Van Sinderen and Kemp (2008), quantifying the costs of their activity is easier than calculating the benefits, which might lead politicians to conclude that they are too expensive to maintain, even though the benefits are indisputable. This increased interest in the effectiveness of competition authorities may result in a legal requirement to monitor the effects of their decisions in some way and, as Ilzkovitz and Dierx (2015) remark, most authorities are already required to report on their annual activities. The International Competition Network (ICN) also recommends *ex post* studies to improve the effectiveness of interventions by competition authorities (Delgado et al., 2016).

Due to this situation, it was felt that the CNMC should also start to carry out such assessments, so that the Spanish competition authority might be able to show how its interventions in different sectors of the economy benefit consumers. As well as their obvious usefulness, these studies are not resource-intensive, at least in their most basic form, as they require information which is already available in the enforcement files or, failing that, the use of general rules; also, it is only recommended that these assessments be carried out once a year (Davies, 2013).

This study includes a brief reference to the different types of assessments that can be carried out to quantify the effect on society of the enforcement activities of competition authorities. A simple methodology with prudent assumptions, which can be used as the basis for wider-ranging studies in the future, was selected from the many possible forms of assessment. The main assumption when applying this methodology refers to the positive effect of interventions by competition authorities; in other words, it is assumed that their interventions help avoid direct adverse effects on consumers in the form of higher prices. It should also be emphasised that only the direct effects of the interventions are included, so that the estimated impact on welfare ignores a large part of the actual effect of the Spanish competition authority's activity. For example, neither deterrent effects nor positive effects on innovation are included.

This methodology was used to assess the benefits for society of the enforcement activities of the Spanish Competition Authority from 2011 to 2016. The average total savings for consumers in this period was estimated at 548.5 million euros a year, of which 531.0 million euros were due to cases in which infringements of competition law had been stopped and fined, and the rest to decisions relating to merger control. The annual savings for consumers produced by the enforcement actions of the CNMC are shown in the form of an annual moving average over three years, as it was felt that the positive impact on consumers does not correspond exclusively to the year of publication of the decision, but should be attributed also to subsequent years. According to this method, the savings for

consumers range from 151.8 million euros in 2014 to a maximum of 889.4 million euros in 2015.

These results clearly show the significant positive effect on consumers of the activity of the Spanish competition authority. It is clear that prosecuting anticompetitive infringements, especially breaking up cartels, has a greater impact than merger control. However, it should be kept in mind that the assumptions used here to estimate the impact on welfare of decisions relating to mergers are extremely conservative, while the specialized literature shows that the effects on prices after a merger are higher than those used here as a reference.

The rest of the document is structured as follows. Section 2 contains the OECD's recommendations on assessments and then reviews the available proposals for different impact studies, as well as the choices made by the CNMC. Section 3 deals with the specific methodology for assessing the impact of cases involving anticompetitive practices, comparing it to that used by the five competition authorities with the most experience performing these studies, while Section 4 does the same for merger cases. Section 5 sets out the estimated savings, while Section 6 includes a sensitivity analysis to ensure that results are robust. Finally, Section 7 presents the conclusions of the study.

2. GENERAL METHODOLOGY

The first step in any impact study, before establishing a methodology, is to establish a series of stages that must be followed, for which it is fundamental to decide on the objective of the assessment. The main objective of impact assessments carried out by competition authorities is to examine the situation of consumers after their decisions, or what that situation would have been if they had not intervened. Therefore, their objectives include measuring the effectiveness or impact of such interventions (to be able to maximise the impact), obtaining comments or criticisms in order to improve their activity and increasing transparency (Delgado et al., 2016).

In recent years, various authors have described a series of stages to be followed in these studies. According to the European Commission (Ilzkovitz and Dierx, 2015), impact assessments should be based on a continuous cycle in which the evaluations should complement each other. The cycle is thus divided into three blocks: policy design, which includes *ex ante* impact studies (identifying problems, setting objectives and choosing the best indicators); monitoring, once policies have been introduced; and *ex post* evaluation, which compares what was expected in the *ex ante* study with the actual results.

However, other authors establish a more linear, although very similar, methodology, also divided into three main blocks. Hüscherlath and Leheyda (2010) distinguish between the preparation stage (identifying the objectives, context and moment of the assessment), the execution stage (definition of criteria

and of the counterfactual², and selection and application of the indicators) and the reporting stage (interpretation of the results and their importance and conclusions of the study). On the other hand, Delgado et al. (2016) also distinguish three steps: first, identifying and classifying the phenomena which could have an impact on markets or on social welfare; second, designing the indicators, with varying degrees of complexity, ranging from quantifying the activity of the competition authority to measuring the effect of that activity on social welfare; and third, calculating the indicators, gathering the necessary data and obtaining conclusions regarding the effectiveness or impact of the activity.

The objective determines both who carries out the evaluation and its level of sophistication, as generally accepted assumptions or more complex econometric methods may be used (Davies and Ormosi, 2012). In our case, our choice will be a linear methodology, first defining the objective, which is to measure the impact of the CNMC's activity in the form of savings for consumers, and then establishing the indicators to be calculated for a quantitative estimation of that impact.

The results of these estimates will not be compared with any cost-benefit objective, as occurs with the United Kingdom's Competition and Markets Authority (CMA), which is obliged by the government to generate at least £10 of benefits for every £1 of its funding. The United States' Federal Trade Commission (FTC) also compares its performance with previously set targets or with the resources which have been devoted to mergers or other anticompetitive practices (see Delgado et al., 2016). The problem is that this type of target can be completely arbitrary, especially if the estimates, as is usually the case, do not include the deterrent or dynamic effects of interventions by the competition authority. In fact, setting targets could lead to a distortion of the authority's incentives, since some interventions take place in very small markets where hardly any benefits are obtained in comparison with other decisions affecting bigger markets; consequently, less resources than necessary might be devoted to studying these smaller markets. There would also be some pressure to find problems in all the markets under investigation and to carry out quick and decisive interventions (fines, remedies), when it might be sometimes preferable to work within a wider time frame, expecting benefits to emerge over time through a more effective competitive process (Lyons, 2016).

Section 2.1 presents the OECD's recommendations on the matter and Section 2.2 explains the different methodologies and types of impact study that can be used to quantify the impact of enforcement actions by a competition authority, before presenting the choice of the CNMC.

² Establishing what the situation would have been if the intervention by the competition authority had not taken place.

2.1 OECD recommendations

2.1.1 Other competition authorities

In 2013, Professor Davies compiled a series of recommendations for the OECD (that were in turn included by the OECD in its 2014 impact assessment guide) based on impact assessments carried out by the five leading competition authorities in this area. Here we have included the most important ones, which can be considered a starting point or a list of best practices which should be adopted by less experienced authorities when carrying out this type of analysis:

- Since 2005, the CMA has published studies evaluating the impact of its interventions³. These studies fall into two main groups: external case-specific assessments and internal assessments focusing on measuring the benefits of the CMA's enforcement actions for consumers, reviewed by an external expert. They also distinguish between the impact of each of their activities, i.e., interventions in cartels, mergers, etc. The final results are published as a 3-year moving average (CMA, 2016; Delgado et al., 2016).
- The Netherlands' Authority for Consumers and Markets (ACM) has published impact assessments since 2004⁴ (Van Sinderen and Kemp, 2008). Its Annual Reports provide information on the savings for consumers generated by its decisions, both for competition cases and for cases involving the regulation of the energy and transport sectors; they also indicate whether their estimates have been externally reviewed (ACM, 2013). However, the complete methodology is published in independent reports, the latest of which was written by Kemp et al. (2014).
- In 2011, the European Commission's Directorate-General for Competition (DG Comp) drew up a methodology for estimating the benefits for consumers of its enforcement interventions in relation to cartels and mergers. This methodology is very similar to that used by the CMA and the ACM.
- The US Department of Justice (DoJ).
- The FTC evaluates the savings for consumers derived from its competition (mergers) and consumer protection decisions, publishing them annually as 5-year moving averages (Davies, 2013).

As well as these five leading authorities in the area of impact assessment, other authorities took part in the OECD's questionnaire (2014), revealing that most of them also carry out these studies, but not regularly or with such extensive scope. They include the authorities of Hungary, Mexico, Germany and Japan, whose

³ The CMA is the result of the 2013 merger of the Office of Fair Trading (OFT) with the Competition Commission (CC).

⁴ Until 2013, the assessments were performed by the former Netherlands Competition Authority (NMa, from its name in Dutch), before the merger of competition and regulation authorities to create the ACM.

methodologies use similar assumptions, and New Zealand, which has considered to apply the methodology of the British CMA but decided not to carry out periodical analyses due to the impossibility of measuring indirect effects (Davies, 2013).

As Mudde (2012) indicates, while the methodologies of these authorities are very similar, there is not a commonly accepted international standard. It is, therefore, especially important to compare the specific methodology used by these five leading authorities, both in this section on general methodology and in the following sections which are specifically dedicated to the impact of interventions relating to infringements and mergers.

2.1.2 Best practices based on the experience of other authorities

First, it is advisable to carry out these evaluations annually, so that it is possible to compare results over time and also to continue refining the estimation process. Besides, the chosen methodology should not be resource-intensive either in terms of time or information. Specifically, when estimating the impact of competition decisions, it is advisable to use *ex ante* data, as there will not be enough information for an *ex post* impact evaluation when the analysis is carried out during the year following the interventions.

Second, it is assumed that no action by the competition authority has a negative impact. Third, the estimates must use conservative assumptions and, more specifically, must exclude dynamic effects benefiting consumers (improved productivity or innovation), since, while there is a great deal of consensus regarding their importance, there is as yet no tested methodology for estimating them. For the same reason, the deterrent effects of fines – the infringements they prevent – or of merger control – the anticompetitive operations which are ruled out before being proposed to the competition authority – are also excluded. In fact, it is fundamental that those carrying out these impact assessments are aware of the factors limiting the analysis (Delgado et al., 2016), since the evaluations will never be complete due to the exclusion of these variables (deterrent effects, business and consumer confidence, productivity, competition advocacy, the reputation of the institution, etc.), which are quite difficult to measure.

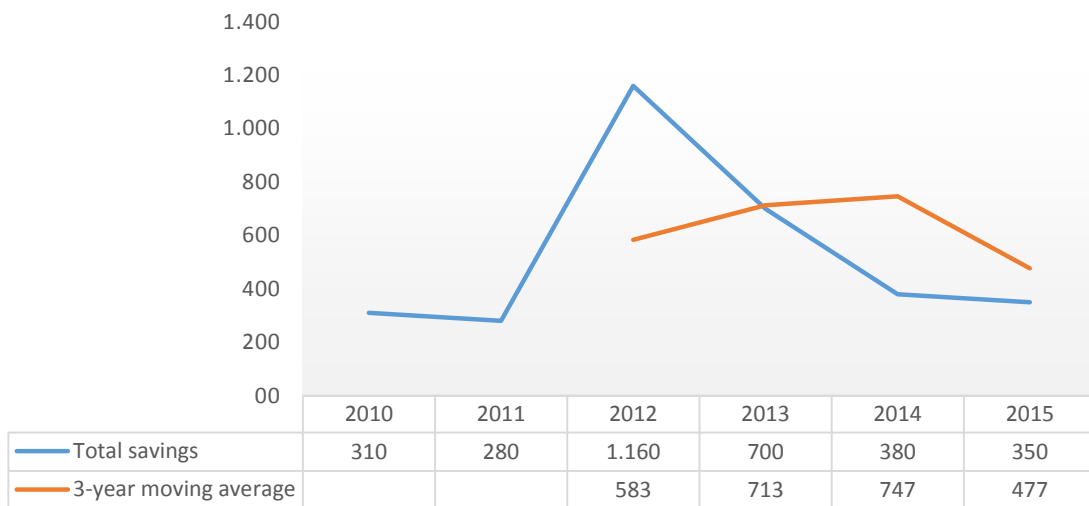
Finally, it seems advisable to assume that some of the positive effects of competition interventions take place in the year when the competition authority's decision is published and that others take place over the following two years. To reflect this effect over time, it is more adequate to use annual moving averages of the estimated results for the current year and the previous two years, so that the estimated savings for consumers assigned to the relevant year will depend partly on that year and partly on the previous two years.

For example, the estimated impact for 2015 would be an average of the effects of interventions in the period 2013-2015. This methodological decision seems to be the correct one if we take into account that the effects of decisions made in a specific year have usually been generated over the previous two years, so that it does not make much sense to attribute them exclusively and arbitrarily to the year of the decision. Furthermore, assigning these effects to years in the past would

create uncertainty as annual estimates would have to be corrected every year. At the same time, this methodological choice has the added advantage of avoiding excessive annual fluctuations in estimated savings produced by short-term factors. As pointed out by Davies (2013), this last argument is the main objective of the leading competition authorities when choosing to show only moving averages. They consider that comparing consumer savings between years with exceptionally big and small results in a high volatility that is smoothed by using moving averages.

Figure 1 shows an example comparing the annual estimated impact with three-year moving averages using fictitious data. It is clear that the use of moving averages distributes the impact of interventions over time and smooths out temporary changes.

FIGURE 1. IMPACT SIMULATION AND MOVING AVERAGES (MILLIONS OF EUROS)



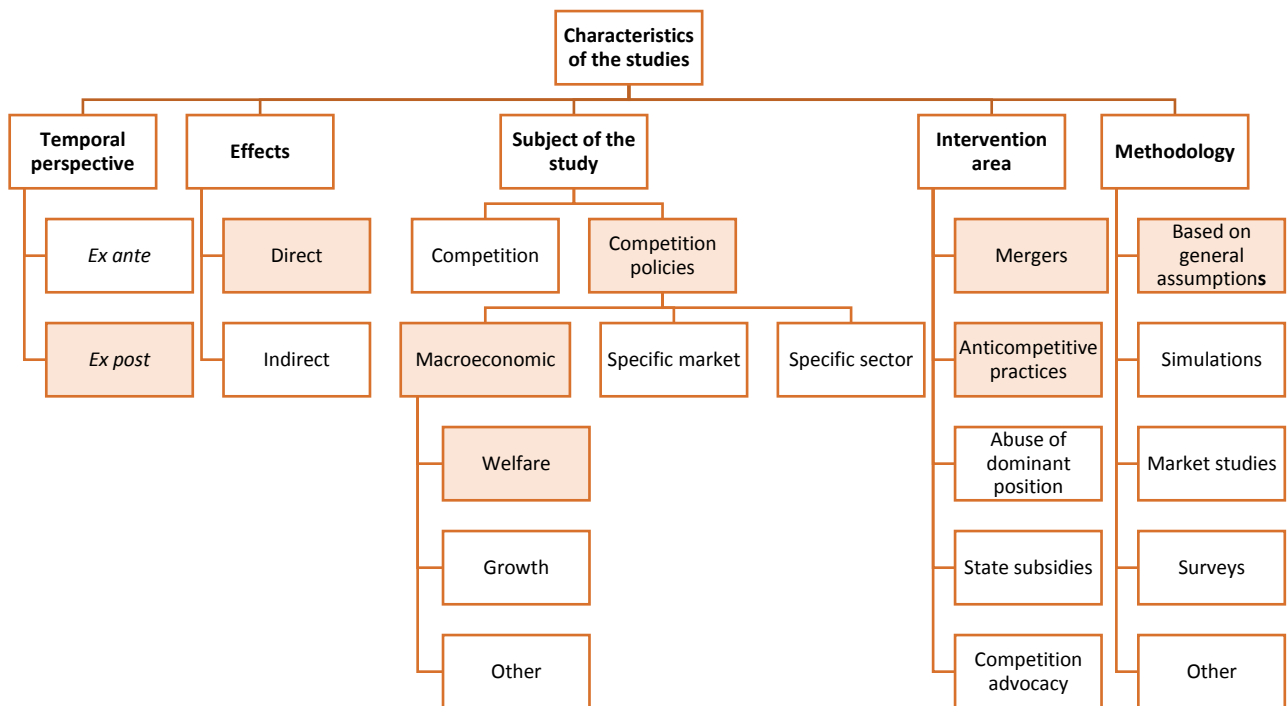
Competition authorities carrying out these analyses regularly publish only total annual savings figures (normally in the form of moving averages), distinguishing where appropriate between activities (decisions relating to anticompetitive practices, mergers, etc.)⁵, but do not provide data broken down by cases or companies. The CNMC will also use this criterion, publishing total consumer savings as 3-year moving averages, as well as savings broken down by type of activity (fining decisions for anticompetitive practices or merger control decisions), so that they are easier to compare with other competition authorities.

2.2 Characteristics of impact studies

Given the many different approaches that can be used for impact studies, Figure 2 summarises the main characteristics which these studies can have. These features are explained in more detail in the following sections.

⁵ The CMA, for example, breaks down its results by type of activity. In fact, its evaluations show a major imbalance in the benefit each area produces for consumers (market studies and research represented approximately 75% of the total in 2015/16), making it necessary to distinguish between them (Davies, 2010).

FIGURE 2. MAIN CHARACTERISTICS OF IMPACT STUDIES



Note: options chosen by the CNMC are shown in shaded boxes.

Source: adapted from Ilzkovitz and Dierx (2015).

2.2.1 Temporal perspective of the study

First, it is necessary to define the temporal perspective of the study. A distinction is made between *ex ante* and *ex post* evaluations. The main difference stems from the time to which the information used refers: before or after the intervention takes place and its effects on the economy can be identified. Competition authorities, such as the CMA, use both types of studies, although *ex post* studies are usually reserved for a few relevant cases (CMA, 2016).

According to the framework used by the DG Comp, Ilzkovitz and Dierx (2015) establish the main differences between these two types of studies: *ex ante* impact assessments are prospective and carried out before the intervention takes place, so their objectives are to analyse the expected effects and, where necessary, carry out the intervention; *ex post* assessments, which are retrospective and take place after the intervention, are based on real evidence and determine whether the effects are as predicted in *ex ante* studies.

Hüschelrath and Leheyda (2010), however, distinguish between three types of evaluations: *ex ante*, *ex post*, and “accompanying”. They note that the *ex post* evaluation is the most important, while *ex ante* evaluations take place in all cases where a competition authority has to study possible mergers. The third type is used to assess the effects of competition, competition policy or competition laws,

as – strictly speaking – activities without a defined ending point cannot be studied *ex post*.

Finally, Davies (2013) describes assessments in a slightly different way, taking the view that impact assessments are carried out after the competition authority has intervened, but using *ex ante* information, as it is still too soon to observe the real effects of the intervention. This will be the definition used for the CNMC's estimates, as it fits in with the objective of identifying and transmitting the benefits of the competition authority's activity, which can be evaluated the year after the publication of the decisions without the need for hard-to-obtain data, as occurs in the case of *ex post* analyses.

2.2.2 Effects

Impact studies focus only on cases where an intervention has taken place or been considered. According to Davies and Ormosi (2012), this can lead to selection bias when quantifying the impact of competition policies, although there is little research on the extent of this problem.

Apart from the problem of bias, the effects measured with these impact evaluations may be direct or indirect. Direct effects are due to interventions by the authorities through, for example, merger control, thus preventing situations which would have reduced competition and increased prices. On the other hand, indirect effects are divided between those which affect productivity, innovation and growth and the deterrent effects associated with interventions by the authorities (for example, detecting and fining collusive agreements not only puts an end to the infringement in question, but also discourages other companies from committing the same infringement). In neither case is there a consolidated methodology which might allow them to be estimated without controversy. Therefore, indirect effects are usually excluded from impact studies, even though there is a consensus regarding the undeniable benefits of deterrent effects (Davies and Ormosi, 2012; Davies, 2013; Ilzkovitz and Dierx, 2015).

Some authors have attempted to measure indirect effects, among them Van Sinderen and Kemp (2008), who completed the impact estimates for the NMa in the Netherlands (precursor of the current ACM) by applying a model including not only static effects but also dynamic effects, such as the benefits that can occur as a "side effect" in other sectors, and the differences between short- and long-term effects. To do this, they used a general model of long-term equilibrium and calculated the positive effect of the NMa's policies from 1998 to 2007 on production, employment and labour productivity in the Netherlands.

For now, the CNMC will follow the example of the five major authorities mentioned above, which include only direct effects in their static estimates, i.e., they do not distinguish between short and long term and they focus on effects on prices.

2.2.3 Subject of the study

When evaluating the impact of the competition authorities' activity, it is essential to distinguish between the impact of competition and of competition policies. In this case, we are only interested in measuring the latter, which mainly refers to competition laws and their application, leaving aside the effects of trade liberalisation or regulation (Ilzkovitz and Dierx, 2015).

According to the European Commission (DG Comp), it is possible to distinguish between the effects of these competition policies according to levels:

- a) Impact on specific markets.
- b) Impact on specific sectors.
- c) Macroeconomic impact, which may refer to welfare, employment, etc.

Impact studies tend to take a macroeconomic approach, especially those which measure effects on consumer welfare, so the CNMC will focus on this type of study, in line with other competition authorities. For example, the CMA's main external advisor on the subject clarifies that estimates are not carried out for total welfare, but only consumer welfare, as otherwise it would require a dynamic analysis which the chosen methodology would not allow (OFT, 2010).

2.2.4 Intervention area

In the course of their activity, competition authorities intervene in different areas:

- Merger control
- Anticompetitive infringements/cartels
- Abuse of dominant position
- State subsidies
- Competition advocacy

In the case of the last three, the methodology for carrying out evaluations remains scant. Instead, there is a more established methodology for evaluating the effects of ending collusive agreements and merger control. In fact, there is a predominance of studies focusing on specific markets and macroeconomics, but which measure the impact of the activity only in the areas of anticompetitive conducts and mergers (Ilzkovitz and Dierx, 2015). These are the areas included in this study.

2.2.5 Methodology

According to the framework proposed by Ilzkovitz and Dierx (2015), the main methodological approaches which can be applied in impact studies are described briefly below:

- a) Methods based on general assumptions with regard to effects on prices and their possible duration. The main variables considered are the size of the relevant or affected market and the duration of the price increase which would have happened if the infringement had continued or the merger had

gone ahead without the intervention of the competition authority. This is the type of study which will be carried out by the CNMC and which is explained in depth in this document.

Wherever possible, the information used will come from the various cases which have resulted in CNMC's decisions, both in relation to anticompetitive practices and mergers. For the time being, a reference value for prices will be used based on the literature and the best practices of other competition authorities.

- b) Simulations based on econometric models are a more elaborate way of estimating the impact of competition decisions than the above method. Although the difference in differences method (DiD) is not based on a specific model of the market under study, to some extent simulations are used because they compare what really happened with the counterfactual which did not. However, econometric simulations are usually based on models which specify demand (and even supply, in the case of oligopolies). There are two large groups of models: AIDS (Almost Ideal Demand System) models, which are discrete choice demand models used by the CMA; ALM (Asset and Liability Models); and PCAIDS (a version of the AIDS model), used by the European Commission.

Simulations require a large amount of data (including an estimate of the price elasticity of demand), as well as very specific assumptions, although they have the advantage of having a theoretically established counterfactual. No competition authority regularly publishes estimates based on simulations, although, as mentioned above, Van Sinderen and Kemp (2008), from the ACM's Chief Economist Team, used models for more advanced studies including effects on growth, productivity and employment in both the medium and long term.

- d) Market studies. They assess how a specific market develops after an intervention relating to competition policies⁶. They may be either *ex ante* or *ex post*.
- e) Other methodologies. The most notable are surveys, case studies and event studies. The last type mainly analyses how the share prices of rival companies react when a merger is announced or a cartel is detected. It is, therefore, a financial analysis that measures whether the market considers that the decision promotes competition and, therefore, prices are likely to fall and returns on shares are likely to be lower. Its main advantage is that it is tested empirically, trading price data are readily available and the analysis is quick. However, the result can be influenced by other variables, such as the companies' reputation.

⁶ This impact study methodology should not be confused with the market research undertaken by competition authorities to determine whether or not there are competition problems in a market.

The following two sections discuss the specific methodology used by the CNMC to assess the impact of its competition decisions in cases of anticompetitive practices and in reviewing merger proposals.

3. METHODOLOGY FOR EVALUATING THE IMPACT OF ENFORCEMENT ACTIONS AGAINST ANTICOMPETITIVE PRACTICES

First, all the decisions by the competition authority for infringements of article 1 of Law 15/2007, on Defence of Competition (LDC)⁷, during the year to be evaluated are gathered together. This applies even where appeals were later brought against the decisions, as it is our view that the action of initiating the proceedings and reaching a decision will effectively interrupt the infringement. This differs from the system in the United Kingdom, which includes cases that have been appealed until the decision is upheld or invalidated, and in this second case the estimate is revised to exclude them (Office of Fair Trading, 2008).

The following information can be extracted from cases relating to anticompetitive practices:

- 1) Date of the CNMC's decision.
- 2) Infringing companies involved in the case, including leniency applicants.
- 3) Affected market turnover (AMT): the total turnover of infringing companies in the market affected by the infringement during its whole duration.
- 4) Duration: duration of the infringement, expressed in years.

From this information we have the dimension of each company's infringement measured as the size of the affected market (affected consumers), which, alongside the price effect (the price increase avoided by the CNMC intervention) and the duration of the price effect (the time for which the practice would have continued without the intervention), is used to estimate the impact as indicated below:

$$Impact_t = \sum_{i=1}^N [Affected\ consumers * Price\ effect * Duration\ of\ price\ effect]$$

Where t is the year for which the analysis is carried out and the case being studied is designated by the sub-index i (with a total of N cases in year t). This way, consumer savings are the result of multiplying, for each case and year, the volume of sales in the market affected by the price effect and its duration, and then adding

⁷ Although infringements of article 2 of the LDC, prohibiting the abuse of a company's dominant position, are also anticompetitive practices, they are not included in the estimate, as the methodology to evaluate the impact of these cases on consumers is not sufficiently well developed (see Section 3.4).

the results across all cases to obtain the impact of decisions by the competition authority that year.

Although each of the parameters used in the calculation is explained in detail in the following subsections, it must be emphasised that the values assigned to the price effect and its duration are not extracted from each of the case files, but are reference values chosen using conservative criteria and applied equally in all cases. As will be seen immediately, the selected values are in line with those used by the five competition authorities with the most experience in this type of analysis.

Table 1 shows a broad comparison of the assumptions considered by the CNMC and the other five competition authorities regarding the values of the parameters needed to estimate consumer savings.

TABLE 1. COMPARISON OF THE ASSUMPTIONS CONSIDERED IN CASES OF ANTICOMPETITIVE PRACTICES

	CNMC	CMA - UK	ACM - NL	DGComp - EU	DoJ - US	FTC - US
Affected consumers	Affected market turnover	Affected goods turnover	Affected markets turnover (companies involved)	Size of relevant market (value of affected products or markets)	Volume of trade in the relevant market	-
Price effect	10%	10-15%	10%	10-15%	10%	-
Duration (years)	1	6	3	1/3/6 depending on the stability of the cartel	1 year or, when less, number of months	-

Note: DG COMP and CMA discount future savings at a 3.5% rate

Source: OECD (2014), Ilzkovitz and Dierx (2015).

The following sections evaluate the methodological options of the other competition authorities we are taking as a reference and justify the choice of the parameter values which will be used in assessing the impact of enforcement actions by the Spanish competition authority.

3.1 Affected consumers

It was deemed appropriate that the most suitable method for estimating the size of the market affected by the infringement (affected consumers) was to calculate the average of the annual affected market turnover (AMT) from the data available in the case files, that is:

$$\text{Average annual AMT} = \frac{\text{Total AMT}}{\text{Duration (in years)}}$$

It should be noted that calculating the average annual AMT means considering a comparable estimate of the affected market for all entities, to which the values of the price effect and its duration will then be applied. Therefore, if the available AMT value refers to less than a year, the average annual AMT used will be larger.

Other competition authorities use similar concepts to define the affected market. The CMA also uses a simple formula which includes the turnover of the relevant market for the affected companies (CMA, 2016), while the ACM defines it as the turnover of the affected markets for the companies found guilty and fined, in the period in which the cartel is proven to have existed (Mudde, 2012). The European Commission uses the value of the products or markets affected by the cartel (European Commission, 2015a), while, in the United States, the DoJ calculates annual sales (or sales in the months the cartel was active, if its duration was less than a year) in the relevant market (OECD, 2014).

Some cases decided years ago by the Spanish competition authority do not contain information on AMT. Therefore, two different methods have been considered before choosing the most appropriate:

a) Method A

If we do not have the AMT we will use total turnover (TT), but only when a high percentage of the company's business is involved in the market where the collusion took place, i.e., when the company can be considered a single-product company. Where the percentage is not high enough, 50% of TT will be used instead to avoid overestimation.

b) Method B

In all cases where the annual AMT is not available, we could estimate it using the total turnover (TT).

After several trials, the results obtained with both methods turn out to be the same in most years. However, in years when results differ, method A is more conservative, hence the CNMC will use this method.

3.2 Price effect (price increase removed or avoided)

In line with most competition authorities, we will use an estimated avoided price effect of 10%⁸, although several studies have estimated that price increases are usually higher⁹.

⁸ A sensitivity analysis was carried out using also 8% and 12%, but 10% was ultimately chosen, which is a percentage similar to that used by the other authorities.

⁹ Combe and Monnier (2011) concluded, based on a survey, that average cartel price increases on average exceeded 20% throughout their duration; the simulations of Allain et al. (2013) use increases of 5% to 30% as the most probable values, and Lianos et al. (2014) find an average price increase of between 10% and 20% in their review of the estimates of other studies. Boyer and Kotchoni (2015) base their work on Connor (2010), while also correcting it, as the latter's database

This percentage is also used by the ACM (Mudde, 2012) and the DoJ in the USA, although the DoJ clarifies that some of its estimates are based on public information on the real effect of the cartel (Werden, 2008).

Meanwhile, both the CMA and the European Commission use a general rule of choosing between 10% and 15%. In the case of cartels in financial markets, the DG Comp calculates the price effect using a different methodology which assumes less benefits for consumers than if the decision had affected other markets (CMA, 2016; European Commission, 2015a).

3.3 Expected duration of the price effect

Finally, we must estimate the future duration of the infringement (and also of the price increase) if the CNMC had not intervened, i.e., the expected duration of the price effect. Our estimates assume that, in the case of anticompetitive conducts, the price effect lasts for 1 year. This is a very conservative hypothesis, especially when compared to the CMA, which, when specific information on the case is not available, assumes that the price effect will last for 6 years (CMA, 2016).

However, the CMA's hypothesis is not in line with the other competition authorities. The ACM has until recently assumed a duration of 1 year, like the CNMC, but its latest methodology, published in 2013, assumes that these savings, calculated with a price-effect duration of 1 year, are assigned to the present year and also to the next two years unless it has specific information pointing to a shorter duration (Ilzkovitz and Dierx, 2015). The US DoJ of the US assumes 1 year and, in cases of cartels less than a year old at the time of detection, the future duration is expected to be the same number of months as the cartel had been active when detected (Werden, 2008).

It is possible that future analyses will use a methodology closer to the one used by the European Commission's Directorate-General for Competition, which classifies cartels, according to a case by case analysis which takes into account market conditions and how easy it is to renew agreements, among other aspects, and applies a longer duration (1, 3 or 6 years) depending on their level of stability (European Commission, 2015a).

3.4 Excluded cases

For the moment, cases investigated by the regional competition services, cases that ended by conventional termination¹⁰ and cases relating to abuse of a dominant position, as provided for in article 2 of the LDC, are excluded.

includes only estimates, not observations. In their review, they obtain an average corrected price increase value for the entire sample of 17.52%.

¹⁰ Conventional termination is a formula provided for in article 52 of the LDC and refers to legal proceedings relating to collusive agreements where the alleged infringers propose commitments to remedy the effects on competition of the infringing practices and to make sure that the public interest is sufficiently safeguarded.

Individual companies for which information is not available are also excluded. Entities that act as facilitators and associations which are fined at the same time as their member companies will also be excluded, in this second case in order to avoid double counting.

On the other hand, the analysis does not include cases in which fines have been imposed on executives of the infringing companies, except cases where individuals were fined for their activity as self-employed business owners (identified in the case files both by their own names and by their company names).

Finally, cases relating to infringements where rival companies agree to act in a coordinated way towards their upstream counterparts (for example, distributors towards the product producers) will not be included in the analysis if the direct effect on consumers is not clear. Although the CNMC's intervention in these cases benefits society as a whole by improving competition conditions for the upstream operators, it is not usually possible to estimate the direct effect in terms of savings for consumers. However, there is undoubtedly a favourable effect for the producers who were under pressure to lower their prices due to the collusive agreement. As the CNMC is also obliged to deal with these cases¹¹, as an illustration, we will quantify the benefit for the upstream producers, assuming that they would have benefited from a 10% increase in prices without the infringement, although this figure will not be added to the savings estimated for consumers.

Thus, even if anticompetitive practices extend to a greater number of cases, for the various reasons already stated, some of them as well as some companies were excluded from the analysis. This means that the impact assessment can be regarded as the lower limit of the savings produced by the CNMC's decisions in relation to anticompetitive practices.

4. METHODOLOGY FOR EVALUATING THE IMPACT OF MERGER CONTROL DECISIONS

We will only include in our analysis cases in which the Spanish competition authority has blocked the mergers or in which mergers have been approved with remedies, in either first or second phase.

The following information can be extracted from merger case files:

1. Date of the decision by the CNMC.
2. Companies and subsidiaries involved in the merger.
3. Relevant market turnover (RMT), which is the sum of the turnovers of the different relevant markets affected by the merger (only the relevant part of the companies involved).

¹¹ The CNMC also acts in cases where competition is reduced even though they do not affect consumers directly but rather "other economic operators".

Again, as in the case of anticompetitive conducts, from this information we know the relevant market (affected consumers), which, alongside the price effect (the price increase avoided by the CNMC intervention) and the duration of the price effect (the time during which the price increase would have continued without the intervention), is used to estimate the impact as indicated below:

$$Impact_t = \sum_{i=1}^N [Affected\ consumers_{i,t} * Price\ effect * Duration\ of\ price\ effect]$$

As before, *t* is the year of the analysis and the sub-index *i* indicates the case being studied (with a total of N cases a year). This way, the saving for consumers is the result of multiplying, for each case and year, the volume of the relevant market affected by the avoided price increase and by the duration of the price effect, and then adding the results across the different mergers to obtain the total impact of merger control activity for that year. Also as before, although the parameters used in the calculation are explained in detail below, it must be emphasised that the values assigned to the price effect and its duration are not extracted from each case file, but are reference values applied equally to all cases.

Table 2 shows a broad comparison of the assumptions considered by the CNMC and the other five large competition authorities regarding the values of the parameters needed to calculate consumer savings.

TABLE 2. COMPARISON OF ASSUMPTIONS CONSIDERED IN MERGER CASES

	CNMC	CMA - UK	ACM - NL	DGComp - EU	DoJ - US	FTC - US
Affected consumers	Turnover of the relevant market	Affected goods turnover	Affected markets turnover (entire market)	Size of the relevant market	Volume of trade in the relevant market	Volume of trade in the relevant market
Price effect	1%	Simulated for the case; if not, average of previous simulations	Simulated for the case; if not, 1% as a general rule	3-5%	Simulated for the case; if not, 1%	1%
Duration (years)	1	2	3	2 or more, depending on barriers to entry	1	2

Note: DG COMP and CMA discount future savings at a 3.5% rate.

Source: *Mudde (2012), OECD (2014), Ilzkovitz and Dierx (2015).*

The following subsections evaluate the methodological options of the leading authorities and justify the choice of the parameter values which will be used in assessing the impact of interventions by the CNMC.

4.1 Affected consumers

In merger cases, affected consumers are identified by the turnover in the relevant market (RMT) of the companies taking part in the merger operation¹²; in other words, our calculations do not include the turnover of rival companies, although, in the absence of an intervention by the competition authority, the prices of their products could certainly rise due to the umbrella effect of the merger.

Although this second option is chosen by many of the other competition authorities when evaluating their merger control activity, we thought it more advisable to use the more conservative definition in order not to overestimate the impact (Davies, 2013). Specifically, the ACM uses the turnover of the affected goods, although it should be emphasised that, in the end, the entire effect of merger interventions is not always considered: if the merger was approved unconditionally or the companies withdraw the proposal, it will not be taken into account (unless the withdrawal is the result of the merger being questioned by the authority, in which case 70 or 100% is taken into account, depending on the phase the investigation had reached at the time of withdrawal); if approved with conditions, 100%; if blocked in the first phase, 70%; and if blocked in the second phase, 100% (Mudde, 2012). Meanwhile, the DG Competition considers the size of the relevant market (Ilzkovitz and Dierx, 2015). The ACM emphasises that the selected relevant turnover is usually that of the entire market (Mudde, 2012), while, in the United States, both the DoJ and the FTC use the turnover of the relevant market (OECD, 2014).

The figure of the relevant market turnover is not annualised as in the case of anticompetitive practices, because it always refers to a specific year. Finally, if we do not have the RMT, we estimate it from the total turnover (TT) of the relevant market, or find an approximation to one of these two values from the data in the case files.

4.2 Price effect

Like other competition authorities, our analysis is based on the hypothesis that a merger control intervention avoids a 1% price increase. However, it must be stressed that this assumption is extremely conservative, as several studies show

¹² For example, to estimate the RMT relating to a merger in which company A buys out company B entirely (both companies are in the same business and operate throughout Spain), we first take into account the remedies established in the Decision. If, when analysing the relevant markets, the CNMC only finds competition problems in a single region, the remedies could oblige company A to make divestments in that place only (or exclude it from the purchase of B). In that case, only the turnover of companies A and B in that location will be taken as RMT to avoid overestimation.

that even mergers where competition authorities had intervened produced a greater effect on prices¹³.

The great majority of competition authorities use simulations to estimate the price effect in merger cases and 1% is simply the default percentage used if a simulation was not carried out. The CMA carries out simulations based on case-specific characteristics in terms of price elasticity, market shares and relative prices. Using different models, it computes the equilibrium before and after the merger, and the difference obtained is the estimated effect of the merger on prices if the competition authority does not intervene (Mudde, 2012). The ACM also uses simulations and resorts to a default 1% price effect only when its case files do not provide the necessary information (Mudde, 2012). The DoJ also uses simulations based on Bertrand and Cournot models¹⁴ to establish the price effect and, when it is not possible to carry them out, it predicts a 1% increase (Werden, 2008). Finally, the European Commission considers a price effect of between 3% and 5% (Ilzkovitz and Dierx, 2015) and the FTC one of 1% (OECD, 2014).

4.3 Expected duration of the price effect

In this case, the most conservative hypothesis – as in the case of anticompetitive conducts – assumes an expected duration of 1 year; i.e., we consider that the price increase would have remained only for a year without the CNMC's intervention. In the future, this assumption should be adjusted for cases where the remedies accepted by the companies have a different duration and that duration is specified in the case file.

Finally, it should be noted that our estimates do not include the unrecoverable loss of efficiency that authorities such as the DoJ or the CMA do take into account when calculating the avoided price increase. This is because of the need to keep the assumptions uncontroversial and to simplify the study as much as possible. However, in theory it should be included, as the avoided price increase would not only benefit consumers who remain in the market, but also those who decided to leave it (Davies, 2013).

For other accepted criteria, the DoJ maintains the 1-year hypothesis it uses in relation to cartels (Werden, 2008) and both the CMA and the FTC assume a duration of 2 years (Mudde, 2012; OECD, 2014). Finally, while the ACM maintains the criterion it uses in relation to anticompetitive conducts and assumes that the effects last 3 years, the European Commission assumes 2 years or more, depending on the identified barriers to entry (Ilzkovitz and Dierx, 2015).

¹³ For example, Davis (2013) estimates that the average price increase in these cases is 3%. For cases of mergers in the United States, Kwoka (2013) estimates an average price increase of 7.2%, although the results vary with the conditions imposed (“remedies”) for the approval of the mergers. In contrast, the European Commission (2015b) reproduced this study for cases in the EU and found average price increases of 3.7% (4.7% for mergers approved without conditions and 1.6% for those approved with conditions).

¹⁴ Bertrand for non-homogeneous products and Cournot for homogeneous products.

5. ESTIMATED SAVINGS FOR CONSUMERS (2011-2016)

5.1 Total results

After choosing the methodology for estimating the savings for consumers, the data needed for the calculation were collected from the CNMC's decisions from 2011 to 2016. The total savings for consumers thanks to enforcement actions by the CNMC in both merger and infringement cases from 2011 to 2016 was an **annual average of 548.5 million euros**. A total of 116 case files were included in the calculation, with a similar number of files each year except in 2012 and, especially, 2014, when there were fewer decisions.

TABLE 3. TOTAL CONSUMER SAVINGS DUE TO ENFORCEMENT ACTIONS BY THE CNMC (IN EUROS)

Year	Annual savings in euros (3-year moving average)	Case files included
2016	861,110,430	19
2015	889,359,542	22
2014	151,764,333	12
2013	235,921,186	22
2012	-	18
2011	-	23

In 2013 and 2014, annual consumer savings amounted to 235.9 and 151.8 million euros respectively, with both years being below the average for the 2011-2015 period. In 2015, savings added up to 889.4 million euros and in 2016, 861.1 million, both above the average. As mentioned above, these years' savings are measured in 3-year moving averages, i.e., they include part of the impact of the competition authority's decisions in the previous two years, while part of the money saved each year is projected into the future. This method means that results cannot be obtained for 2011 and 2012.

5.2 Results of cases of anticompetitive infringements

The following data were taken into account for the analysis of cases of anticompetitive infringements:

TABLE 4. NUMBER OF CASE FILES AND COMPANIES INVOLVED

Year	Case files included	Companies included	Companies excluded	Total companies (*)	Average duration of the infringement (years)
2016	14	90	8	98	7.07
2015	19	270	33	303	4.28
2014	9	59	14	73	5.88
2013	17	139	27	166	7.27
2012	15	58	15	73	7.80
2011	19	146	17	163	3.57

(*) The term "companies" here also refers to associations and self-employed business owners.

A total of 876 companies were analysed, of which 762 – involved in 93 cases – were finally included in the calculations to estimate the savings for consumers. Of the 114 companies excluded from the analysis, in most cases it was due to lack of data needed for the estimation (mainly the affected market turnover), while some associations or facilitators were excluded to avoid double counting. The rest referred to cases with no clear direct effect on consumers.

In the last category, four cases (involving 31 companies) were excluded because the practices involved upstream effects and had no clear direct effect on consumers. Although the CNMC's intervention in these cases benefited society as a whole by improving competition conditions for the producers, the direct effect in terms of savings for consumers was ambiguous. Assuming that the producers would have been able to set sale prices 10% higher in the absence of anticompetitive agreements between the buyer companies, it is estimated that the average benefit for society over the period analysed would have been above 20.1 million euros¹⁵.

The average duration of the infringements shown in Table 4 varies considerably from year to year. The average duration between 2011 and 2016 was 5.5 years; while in three of those years it was over seven years, in 2011 it was only just over three and a half years. This directly affects the calculation of the average AMT and therefore the final estimate of consumer savings.

The estimated savings generated for consumers are presented in the following table¹⁶:

TABLE 5. ESTIMATED CONSUMER SAVINGS DUE TO CASES OF ANTICOMPETITIVE PRACTICES (IN EUROS)

Year	Annual savings in euros (3-year moving average)
2016	835,695,419
2015	868,139,527
2014	135,424,387
2013	226,209,887

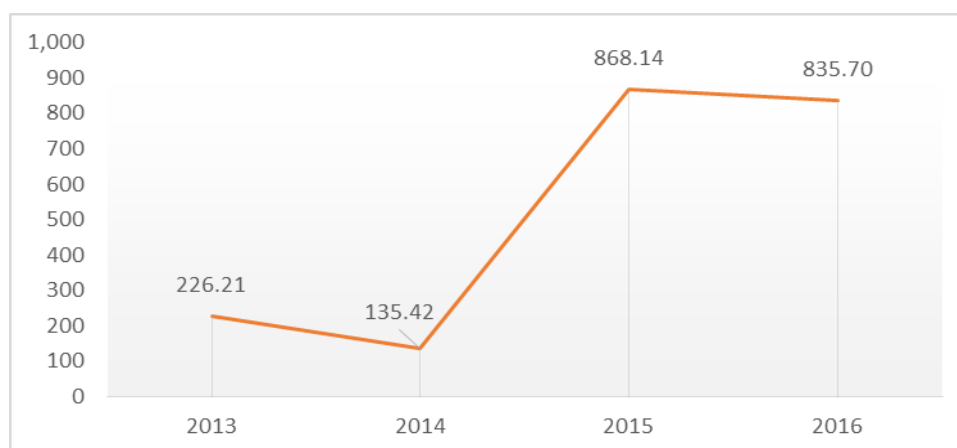
The interventions of the Spanish competition authority in cases of anticompetitive infringements between 2011 and 2016 produced an average annual savings for consumers of **531.0 million euros**. The annual figures ranged from 135.4 million euros in 2014 to a maximum of 868.1 million in 2015. As before, the annual figures were calculated as three-year moving averages, so that savings can be assigned not only to the year in which the decision was published, but also to the following two years.

¹⁵ The cases are from 2012, 2013 and 2015, but the average savings are calculated for the entire 6-year period.

¹⁶ Again, estimation in the form of 3-year moving averages makes it impossible to obtain the savings for 2011 and 2012.

Figure 3 shows the evolution of annual consumer savings. Part of the 835.7 million euros saved in 2016 can be explained by the impact of the decisions approved by the CNMC's Board in 2015. The savings in 2015 were higher than in both previous years and in 2016 because several of the decisions in that year referred to cases relating to practices involving an unusually large market turnover (over 1,000 million euros) and the average duration of the infringements (4.3 years) was only slightly lower than the average duration for cases decided between 2011 and 2016 (5.5 years), meaning that the average annual affected market turnover (AMT) and the savings were higher.

FIGURE 3. SAVINGS DUE TO CASES OF ANTICOMPETITIVE PRACTICES (3-YEAR MOVING AVERAGES, MILLIONS OF EUROS)



It should be emphasised that the estimated savings generated by the CNMC do not coincide with the fines imposed, which are usually lower. While the fines are intended to deter companies from engaging in anticompetitive practices, the impact is estimated by calculating the benefit for consumers of the CNMC's intervention in these cases.

5.3 Results of merger control cases

The merger cases that were used in our analysis are shown in Table 6. As can be seen, the Spanish competition authority intervened in relatively few cases (around 5% of total reported mergers), and the number is fairly stable over the 6 years analysed.

TABLE 6. NUMBER OF MERGER CASES INCLUDED IN THE ANALYSIS

Year	Number of case files
2016	5
2015	3
2014	3
2013	5
2012	3
2011	4

As indicated in the methodology, the savings generated for consumers were estimated with the extremely prudent assumption that intervention avoided a 1%

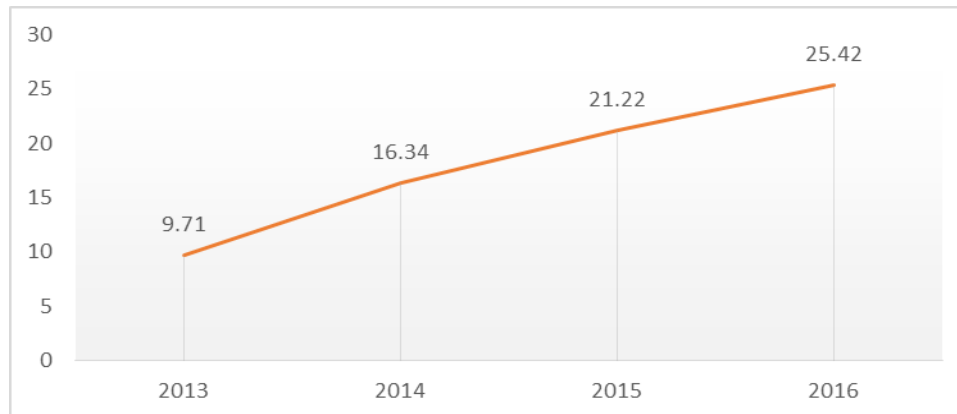
price increase. The result of the estimation in moving averages is shown in Table 7. As with cases involving anticompetitive practices, this method means that savings cannot be obtained for 2011 and 2012:

TABLE 7. ESTIMATED CONSUMER SAVINGS DUE TO CASES OF MERGER CONTROL (IN EUROS)

Year	Annual savings in euros (3-year moving average)
2016	25,415,011
2015	21,220,014
2014	16,339,945
2013	9,711,300

Since 2011, the Spanish competition authority has decided to intervene in 23 merger cases¹⁷ and those actions have saved consumers an average of **17.6 million euros** annually. If we use the results obtained using 3-year moving averages, consumer savings have grown steadily since 2013, reaching 25.4 million euros in 2016, meaning that the cases in which the Spanish authority decided to intervene affected progressively larger relevant markets. This trend can be seen more clearly in Figure 4:

FIGURE 4. SAVINGS DUE TO MERGER CONTROL CASES (3-YEAR MOVING AVERAGES, MILLIONS OF EUROS)



Note: the annual savings are calculated with an avoided price increase of 1%.

Differences in savings can vary significantly from year to year. This is due, on the one hand, to the number of cases analysed and, on the other, to the turnover of the relevant market in each case. For example, the 2013 figure includes part of the savings from 2011, which was significantly lower than the rest of the period analysed due to the Spanish economic crisis. Meanwhile, in both 2014 and 2015 the authority intervened in fewer mergers, but some of them involved very large companies with higher relevant market turnovers. It should also be pointed out that

¹⁷ As indicated in the methodology section, the only mergers used were those which were notified to the Spanish competition authority and which were either blocked or approved with remedies, in either first or second phase.

one of the 2016 companies was an interested party in two of the merger cases and, in the proposed transactions, would acquire shares in the same relevant market, so part of the savings have been excluded from one of the cases to avoid double counting.

6. SENSITIVITY ANALYSIS

Finally, several sensitivity analyses were carried out to check that the assumptions chosen for calculating the impact of the CNMC's actions, in relation to both conducts and mergers, are prudent and that there is no risk of overestimating consumer savings.

This section, then, analyses how the estimated savings vary when the price effect avoided by the interventions, and the duration of this effect, are defined using different assumptions. The values of the parameters shown here, although based on similar assumptions, never match completely those used by other competition authorities. For example, they do not take into account the characteristics of each case, but rather general assumptions are always applied. The affected market turnover was excluded from this analysis, as it was determined by the information in the case files.

First, several values were chosen, based on the best practices of competition authorities, which could be used for the price effect and its duration in estimating the impact of enforcement actions in cases of anticompetitive practices¹⁸.

TABLE 8. ASSUMPTIONS FOR THE SENSITIVITY ANALYSIS: ANTICOMPETITIVE PRACTICES

	Price effect	Duration of the price effect	Discount rate
CNMC	10%	1 year	-
A	15%	1 year	-
B	10%	3 years	3.5%
C	10%	1 year (*)	-
D	15%	3 years	3.5%
E	15%	1 year (*)	-
F	10%	6 years	3.5%
G	15%	6 years	3.5%

(*) In scenarios "C" and "E" we use the same duration of the price effect as in "CNMC" and "A". However, for scenarios C and E the same amount of estimated savings is assigned to that year and the next two, while in scenarios A and B savings are assigned to the year in which the decision is published.

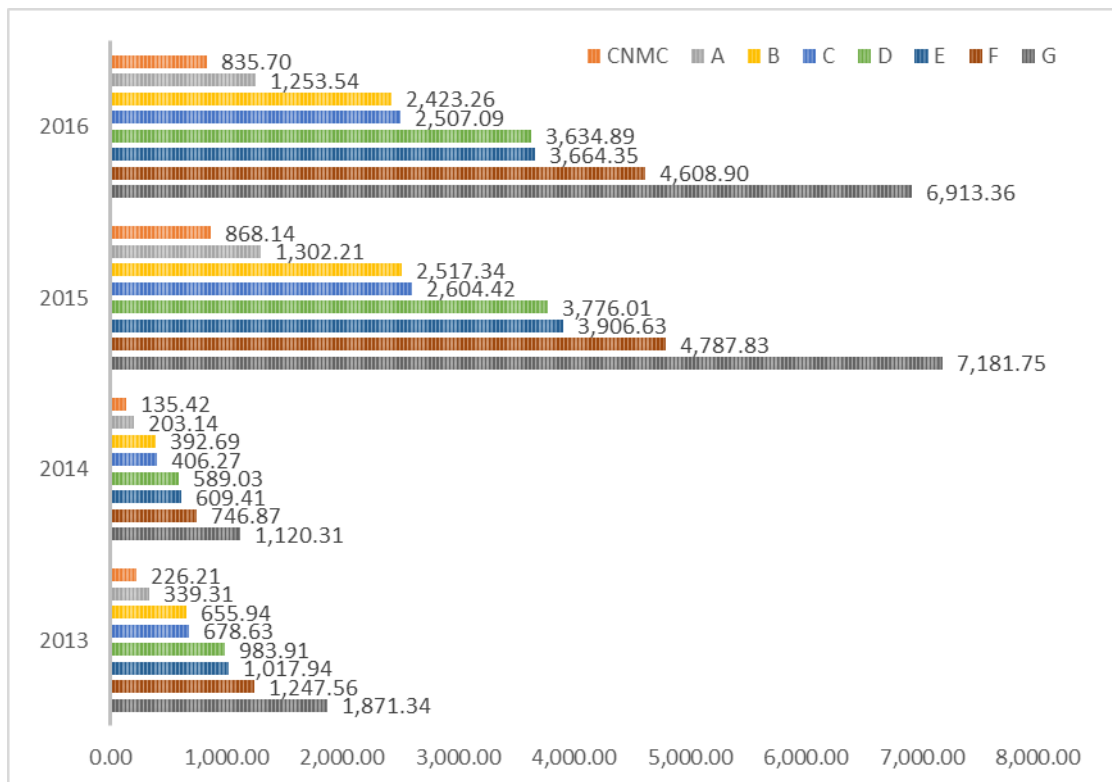
¹⁸ It is important to emphasise that, although based on the methodologies of the competition authorities described above, it was decided to exclude their names and simply identify them with letters, as they are never exact reproductions and always use default values (excluding market turnover).

Besides the values used by the CNMC, explained above, other seven scenarios were considered. All of them assume a price effect of 10% or 15%, while the duration of the effect ranges from 1 to 6 years. Finally, for cases where a price effect duration of 3 or 6 years was assumed, future savings were discounted at a rate of 3.5%.

Figure 3 shows the results of the sensitivity analysis in the cases involving anticompetitive conducts in the form of 3-year moving averages. It can be seen that the values chosen by the CNMC are undeniably conservative compared to the others, as the result derived from the other hypotheses is 1.5 to 8 times greater.

This means that the estimated impact of the competition authority’s activity according to the values chosen by the CNMC can be considered a lower limit, so that it is quite probable that the real figure for the impact of its interventions is significantly higher.

FIGURE 5. RESULTS OF THE SENSITIVITY ANALYSIS FOR ANTICOMPETITIVE PRACTICES (3-YEAR MOVING AVERAGES IN MILLIONS OF EUROS)



For **mergers**, various values were also defined, based on the best practices of competition authorities, which can be used as the parameters needed to estimate the savings generated by competition authorities’ interventions in this area¹⁹. The values are shown in Table 9.

¹⁹ See footnote 17.

TABLE 9. ASSUMPTIONS FOR THE SENSITIVITY ANALYSIS: MERGERS

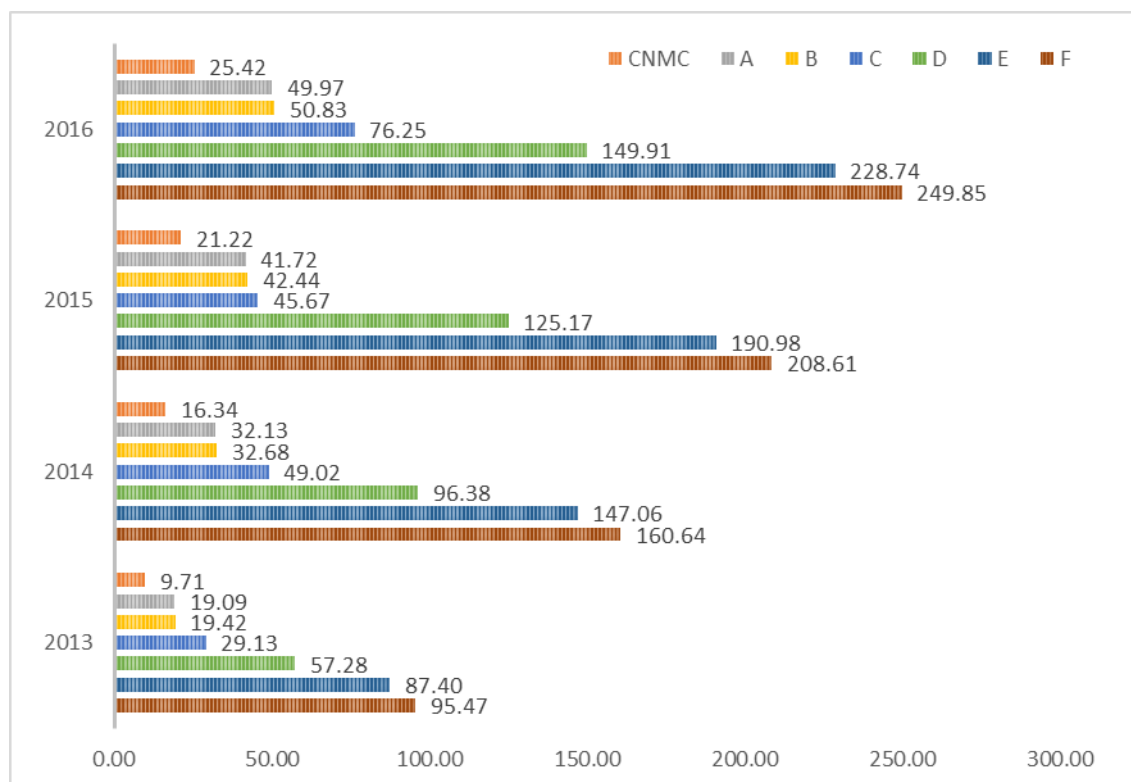
	Price effect	Duration of the price effect	Discount rate
CNMC	1%	1 year	-
A	1%	2 years	3.5%
B	1%	2 years	-
C	1%	1 year (*)	-
D	3%	2 years	3.5%
E	3%	1 year (*)	-
F	5%	2 years	3.5%

(*) In scenarios “C” and “E” we use the same duration of the price effect as in “CNMC”. However, for scenarios “C” and “E” the same amount of estimated savings is assigned to that year and the next two, while in scenario “CNMC” savings are assigned to the year in which the decision is published.

Apart from the values applied by the CNMC, explained above, another six scenarios were considered. All of them assume a price effect of 1%, 3% or 5%, while the duration of the effect may be 1, 2 or 3 years. Finally, for cases where a price effect duration of 2 years was assumed, future savings were discounted at a rate of 3.5%.

Figure 6 shows the results of the sensitivity analysis for mergers, in the form of 3-year moving averages.

FIGURE 6. RESULTS OF THE SENSITIVITY ANALYSIS FOR MERGERS (3-YEAR MOVING AVERAGES IN MILLIONS OF EUROS)



It can be seen that the values of the parameters chosen by the CNMC result again in very conservative estimates, as the results using the other assumptions are 2 to 10 times greater.

7. CONCLUSIONS

The world's leading competition authorities are increasingly producing impact assessments which quantify the benefits to society of their activity. Due to this situation, it was felt that the CNMC should also begin this type of annual assessment, so that it can show to society how its interventions in different sectors of the economy benefit consumers, while at the same time increasing transparency and measuring the effectiveness of its activities.

The study first defines the objective (measuring the impact of the CNMC's activity in the form of savings for consumers) and then establishes the indicators that are to be calculated to obtain the impact estimates. To establish these indicators, it is necessary to review all the available methodologies, both theoretical and used by the five leading competition authorities (CMA, ACM, DGComp, DoJ and FTC), as well as the OECD's recommendations on impact analysis. In this way, the best method can be chosen for estimating the saving for consumers from the CNMC's interventions in relation to practices mergers.

Although conducted *ex post*, the study uses *ex ante* information, and each case is considered to have an effect from the year of publication of the final decision. Only direct effects are included, as indirect effects (improved productivity, innovation, deterrence, etc.) are difficult to quantify and there is no definitive methodology. It was decided to estimate the benefits of competition policies for consumers based on three variables (the affected market, the price effect avoided due to the CNMC's intervention and the duration of the price effect), and according to previously established parameters, rather than more sophisticated methods such as simulation. Finally, only the decisions regarding anticompetitive practices and mergers were included.

This methodology was used to assess the benefits for society of the CNMC's enforcement actions from 2011 to 2016. Total average savings for consumers in this period are estimated to be of 548.5 million euros. However, it was considered preferable to show the annual savings for consumers produced by the CNMC's activity in the form of three-year moving averages. According to this method, consumer savings range from 151.8 million euros in 2014 to a maximum of 889.4 million in 2015. Thus, the positive impact on consumers is considered to extend to the years following the publication of the decision. These results clearly show the significant positive effect for consumers of the activity of the Spanish competition authority, although prosecuting anticompetitive infringements – especially breaking up cartels – has a greater impact than controlling mergers.

However, it should be borne in mind that the assumptions used to estimate the impact on welfare of interventions relating to mergers are extremely conservative, while the specialized literature shows that the effects on prices after a merger are

higher than those used here as a reference. A sensitivity analysis confirmed that the CNMC's assumptions are conservative and ensure that the savings for consumers are not overestimated. Therefore, since the impact was restricted significantly by excluding both indirect effects and activities unrelated to practices or mergers, the estimates published by the CNMC should be regarded as the minimum savings benefiting consumers. Also, in the future, this methodology could be adjusted to improve the estimates and thus comply more fully with the proposed objectives.

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