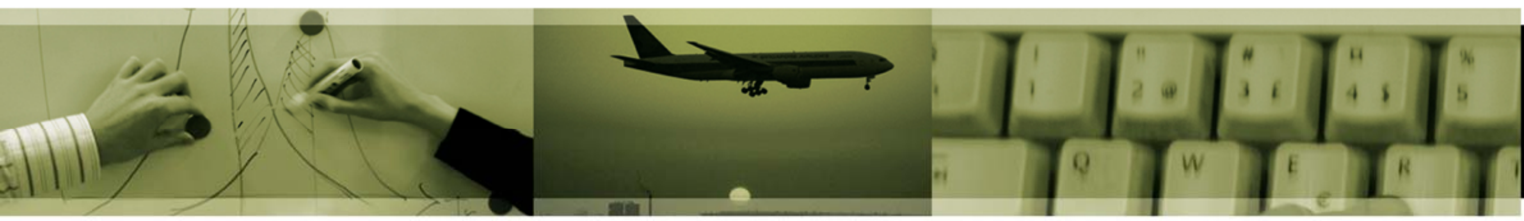
EXTERNAL REPORT ON THE EFFECTS OF THE NORWEGIAN COMPETITION AUTHORITY'S ENFORCEMENT

SUMMARY REPORT | 28 SEPTEMBER 2007

INFORMED DECISIONS



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THE EFFECTS OF COMPETITION LAW ENFORCEMENT BY THE NORWEGIAN COMPETITION AUTHORITY

The Norwegian Ministry of Government Administration and Reform has asked Copenhagen Economics to prepare a report on the effects of the Norwegian Competition Authority's enforcement. The task is to "*undertake empirical analyses of the Norwegian Competition Authority's core activity in the form of intervention against mergers, abuses of dominant position and illegal cartels. Furthermore, the report tries to describe the Norwegian Competition Authority's existence value.*"

In this English-language summary report, Copenhagen Economics presents some of the main results of the report, corresponding to chapter 1 as well as the introductions in chapters 2 and 3 in the Norwegian-language main report.

The report focuses on the economic effects of the Competition Authority's interventions. By this, we understand the difference between the overall economic welfare before and after an intervention on a market. Take for example an intervention against a cartel. In this case, the effects of the intervention correspond to the difference in welfare in a situation with a cartel and in a situation without any cartel in which the market has found a new equilibrium. Thus, *the effects of the intervention* are not necessarily equivalent to (and typically smaller than) *the effects of the cartel* which are typically measured as the difference in economic welfare between a cartel market and a market with full competition. The point is that the Norwegian Competition Authority's intervention may indeed create a market with more competition, but not necessarily a market with full competition.

We divide the economic effects into two types: direct and indirect effects. The direct effects are the effects on the market on which the specific intervention is made. The indirect effects are partly the spill-over effects on other markets than the market on which the intervention takes place, and partly the deterrence effect which is due to the Norwegian Competition Authority's pure existence and not necessarily to the specific interventions.

We conclude that the total effects of the Norwegian Competition Authority's intervention are very probably strongly positive and exceed by far the costs that are associated to the authority's operation as well as to private firms' internal and external costs related to competition compliance. However, in this calculation, it is not taken into consideration whether the firms have refrained from carrying out socio-economic fruitful actions, because they have assessed (perhaps mistakenly) that the Norwegian Competition Authority would have prohibited these actions.

The assessment is based on a thorough review of a large number of international studies including measurements of competition authorities' results.

Direct effects of competition policy

The direct effects of an intervention are the effects on the market on which this intervention is made. It is important to make the distinction between two ways of estimating and visualising the economic effects. One can assess the expected effects (*ex ante*) and one can assess the actual effects (*ex post*).

The expected effects (ex ante) are the effects assessed before, during or immediately after the intervention is carried out. As an intervention is decided because one expects positive economic effects, the expected effects of a specific intervention are always positive. Consequently, one presupposes that the assumptions on which the intervention is based are correct, and thus that the intervention itself is correct.

The actual effects (ex post) are the real measured effects of the intervention, and these are assessed at a reasonably long time after the intervention. The actual effects are as they are, and can be both positive and negative: They are positive if the intervention was correct and negative if it was wrong, i.e. if the conditions on which the intervention was based were wrong.

International experience shows that most countries mainly carry out assessments of the expected effects, i.e. *ex ante* assessments, either during or rather shortly after the case-handling. Though more limited, the assessments of the actual effects have been made in the latest years in countries such as the US, Denmark, the UK and the Netherlands, especially, in merger cases. Most of the assessments of actual effects are confined to assessing whether the main assumptions which were the basis of the competition authorities' original decisions turned out to be correct. If this is true, one can to a certain extent argue that the original measurements of the expected effects would be the best assessments of the actual effects.

Direct effects of the competition authorities' intervention

In total, we conclude that the Norwegian Competition Authority's enforcement of competition law within the three core areas most probably has significant, positive, direct socio-economic effects.

On the whole, international experience shows that consumer savings following competition authorities' intervention are significant. With few exceptions, it is concluded in all the studies that the authorities made the right choice and this resulted in significantly lower consumer prices and increased welfare. The quantitative studies show that the prohibition of mergers has led to lower prices in the magnitude of up to 10 percent, cartels up to 30 percent, and abuse of dominant position up to 1 percent, cf. Table 1.

By far, most of the international results are based on assessments of the expected effects. Only a minority of the studies are based on assessments of the actual effects. In most cases, the studies on the actual effects have consisted of a qualitative study on whether the assumptions on which the intervention is based have been correct or not. Nevertheless, most of these assessments agree that the competition authorities' interventions have on the whole been correct with some exceptions as regards remedies.

Table 1 International experience in the effects of competition policy intervention

Case type	Assessment type	Policy variable	Tool	Expected effects	Actual effects
Mergers	Quantitative, Absolute	Prohibition of mergers or mergers approved with remedies	Rule of thumb, simulation model	+Millions	
	Quantitative, relative	Prohibition of mergers or mergers approved with remedies	Simulation model, rule of thumb	5-30%	
		Prohibition of mergers	Rule of thumb	1%	
	Qualitative	Authorisation of mergers	Interview, market studies, event study		Mainly positive effects
		Authorisation of mergers with remedies	Interview, market studies		Mainly positive effects
	Qualitative	Authorisation of mergers	*Ex post* versus *ex ante*	Correct intervention, but significant differences in gains	
Agreements restricting competition	Quantitative, absolute	Intervention against cartels	Rule of thumb, Simulation model	+Millions	
		Intervention against cartels	Statistics		+€1.2 mill.
	Quantitative, relative	Intervention against cartels or abuse	Simulation model	2–30%,	
		Intervention against cartels	Rule of thumb	10%	
	Qualitative	Intervention against cartels	Before and after		Correct intervention
Abuse of dominant position	Quantitative, absolute	Intervention against refusal of supply and loyalty arrangements	Before and after, benchmark	+1-2 billion NOK	+1.5 billion NOK
	Quantitative, relative	Intervention against abuse of dominant position	Rule of thumb	1 % in 1-3 years	

Information on the economic effects is a simplified overview over relevant cases (in the case assessments, the assessment of the economic effects is more complete).
Source: Copenhagen Economics (2007).

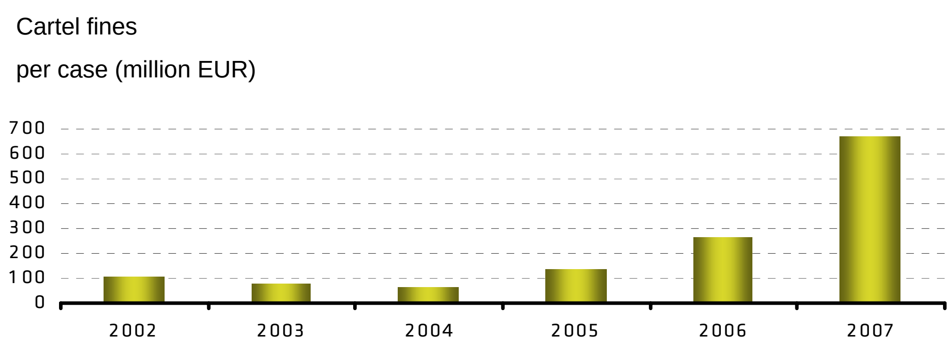
The conclusion is supported by the assessments of the direct effects in three specific Norwegian cases which the Norwegian Competition Authority has dealt with. Also here, we conclude that the interventions have led to significant expected and actual consumer savings.

According to our studies, these three cases alone have resulted in expected consumer savings of about NOK 1.5 billion. This corresponds to a financing of the Norwegian Competition Authority's annual budget of NOK 80 million for almost 20 years.

Besides, the law enforcement of the competition policy, especially at a European level, shows that the size of the fines has systematically increased with time, cf. Figure 1. The most obvious explanation for this development is an increasing acknowledgement of the fact that competition policy infringements can imply a significant socio-economic loss.

Even if the size of the fines is influenced by many factors and hardly by the effects of the competition authorities' interventions themselves, the development can still be interpreted as an increasing acknowledgement of the fact that the right competition policy intervention can have a significantly positive socio-economic significance.

Figure 1 Fines set by the European Commission for the period 2002-2007.



Source: *European Commission (2007)*

Tools to visualise the effects of the competition authorities' interventions

The international studies show that many different tools can be used to assess and visualise the direct effects of a specific competition intervention.

The most common tools are probably interviews in which clients and competitors are asked about their assessment of the development before and after carrying out a competition policy intervention. Beyond this, five different economic and quantitative tools are used. The name of these tools often varies, but they are best known as the 'before and after' method, the benchmark method, the cost structure method, the statistical method and the simulation method, cf. Table 2.

Table 2 Quantitative tools to assess competition policy effects

Method	Short description
Before and after	Compare the market before and after a competition policy initiative
Benchmark	Compare the market with other comparable markets, but without the same competition policy initiative
Cost structure	Predict how the market would have looked like without the competition policy initiative based on cost structure, observed costs and profit level
Statistical	Predict how the market would have looked like without the competition policy initiative, based on a statistical relationship between prices and other data that can explain the price setting on the market
Simulation	Simulate the market price without the competition policy initiative based on modelling the price setting on the specific market.

Source: Copenhagen Economics.

Finally, many competition authorities use the so-called rules of thumb, for example that a merger prohibition implies gains for the consumers in the relevant sector of one percent in two years. Rules of thumb are conservative assessments of the average effects of a specific intervention, such as a merger prohibition. Rules of thumb are problematic, especially when assessing an individual intervention because they disregard the particular characteristics of the cases. Thus, the effects depend exclusively on the market size, and not on the character of the intervention.

In the light of a review of the international experience, we recommend that the Norwegian Competition Authority should systematically try to visualise the effects of the competition policy interventions in two different manners.

Firstly, the Norwegian Competition Authority should assess the *expected effects* of an intervention in connection with the case-handling (before the intervention is done). This assessment should, as far as possible, be quantitative.

Secondly, the Norwegian Competition Authority should assess after a few years the *actual effects* of the intervention, mainly by assessing to what extent the assumptions on which the assessments of the expected effects (and therefore of the decision) are based, have turned out to be true. If the assumptions are to a large extent confirmed by the actual development in the market, it is highly probable that the expected effects correspond to the actual ones.

The conclusion is based on the fact that it is during the case-handling that the case-handlers are in contact with the market players and acquire the market information and data which are necessary in order to make a quantitative assessment of the effects of the specific intervention. At the same time, it is difficult and time-consuming to make independent assessments of the actual effects 5-10 years after an intervention.

Generally, we conclude that the choice of method when assessing the direct effects depends on whether we are going to assess the expected or the actual effects, and whether we are going to make qualitative or quantitative assessments, cf. Figure 2.

Figure 2 Tools for the different scenarios

	Expected effects (*ex ante*)	**Actual effects (*ex post*)**
Qualitative assessments	Benchmark	Interview Benchmark
Quantitative assessments	Simulation Benchmark (Rules of thumb)	Before and after Benchmark Cost structure Statistical Interview

Source: Copenhagen Economics

Qualitative assessments of the expected effects should be based on comparisons with corresponding situations in other industries or countries, and at the same time be based on a consistent economic theory. Such assessments should form an integral part of the ordinary case-handling when it is assessed whether a particular behaviour is infringing the competition rules.

In *the quantitative assessments of the expected effects*, there are several alternative methods. As a starting point, we recommend using a simulation model since such a model is based on a consistent economic model of how competition works in the relevant market, for instance the form of competition and the price elasticity of demand. In the appendix, there is a theoretical review of the economic models that are most relevant for a simulation of the competition policy effects. It should be underlined that a simulation can be, but does not necessarily need to be, advanced. The deciding factor is rather that the assessment of the effects is based on consistent economic theory.

However, not all cases are suited for simulation in a model. In several cases, it is difficult to get a simulation model to recreate the relevant market. In such situations, we recommend, as long as it is possible, using *benchmark methods* to assess the expected effects. Such methods can for example have their starting point in economic analyses of corresponding interventions, or in previous episodes on the relevant market that can be assumed to tell something about the effects of the specific intervention.

Finally, in certain cases, it can be valuable to use very simple *rules of thumb*. Here, we recommend using the same rules of thumb as abroad, for example that an intervention against a merger has an expected effect of one percent of the turnover in the relevant market in one year. However, these rules should be used with much caution since they are activity-based and not results-based, i.e. the effects depend on the number of interventions and on the turnover on the market on which the intervention is made. This means that using these rules actively can give wrong incentives to the competition authorities so that they do not focus on the quality of the assessments they make.

In *the qualitative assessments of the actual effects*, we recommend checking whether the main economic assumptions on which the decision is based have turned out to be correct. For example, if one prohibited a merger because entry barriers were assessed to be high, it is obvious to assess in future whether this assumption has proven to be correct. In such a case, we recommend first of all two tools: interviews and the benchmark method.

As a main rule, we recommend simply making *quantitative assessments of the actual effects* in cases in which the intervention leads to changes on the relevant market. In principle, we recommend looking at the price effects of the specific intervention. Furthermore, it can be particularly relevant to study the effects on innovation, mobility and product quality. The most suitable tools depend on the specific situation, but the five economic standard tools will be obvious candidates, i.e. the before and after method, the benchmark method, the cost structure method, the statistical method and simulation models. In certain cases, interviews may also provide quantitative assessments of the effects of an intervention.

Effects of interventions in merger cases

Mergers are the core activity in which by far most studies have been carried out internationally. Most of the studies focus on the expected effects and are most often based on simulation models, benchmark methods or rules of thumb. The conclusion of the studies is that the competition authorities' interventions against mergers have large positive effects for the consumers and for society as a whole. The Netherlands, the UK and the US are among the countries that have carried out such studies.

As a starting point, we recommend using simulation models to assess the expected effects in merger cases. Simulation models can be particularly useful when one wishes to compare an approval of a merger without remedies and a prohibition of a merger. This will especially be relevant when a simple and standardised simulation model, such as the Bertrand model with differentiated products or a Cournot model, can give a good picture of the competition on the relevant markets (see English-language appendix in the Norwegian main report).

In cases where a simulation model is difficult to use, we recommend using benchmark methods which take advantage of specific properties of the individual case and market. If it is also difficult to find a benchmark method that can be used, it can be relevant to use rules of thumb to assess the expected effects of interventions against mergers.

Studies on the actual effects of mergers have also been made. These are mainly made by competition authorities, and moreover, they are less quantitative than the assessments of the expected effects. In the studies, it is assessed whether the intervention was correct and sometimes how large the positive effects have been. This is normally done by checking whether the main assumptions in the decision have turned out to be correct in practice. The method mainly consists of interviews with the main market players in the industry, clients and industry experts. Such studies have been carried out in the latest years by, among others, the European Commission and the competition authorities in Denmark, the UK and Sweden.

Studies on the actual effects of mergers can be divided into two groups. The first group of studies looks at approved mergers without remedies. These mainly conclude that the authorities made the right choice by authorising the merger. For example, a study made by PwC Economics shows that there was still effective competition on the markets where 10 mergers took place. However, two independent Swedish studies have concluded that the competition authorities underestimated the effects restricting competition of two approved mergers.

The other group of studies looks at approved mergers with remedies. These also conclude on the whole that the remedies have had positive effects. However, there seems to be some challenges with how to best design these remedies. Particularly, it seems difficult to design divestment of assets. For instance, it is referred to that the merger parties have acted strategically and sold assets to firms that are supposed to be less effective.

We have not seen studies on the actual effects of the competition authorities' prohibition of mergers. Neither quantitative nor qualitative assessments are conducted. This really adds up with the fact that a merger prohibition does not lead to changes on the relevant market, which makes it difficult to assess the actual effects.

Effects of interventions in cartel cases

A relatively limited number of studies have been carried out on the effects of interventions in cartel cases. This probably adds up with the fact that a cartel is a so-called *hard core* infringement which is by definition illegal. This makes it less urgent to visualise the cartels' economic effect.

As for merger cases, mostly studies on the expected effects of these interventions have been carried out. These studies are based on simulation models, *ad hoc* methods and often rules of thumb. Studies carried out, among others, in the Netherlands, the UK, the US and Denmark show that the interventions have significantly positive effects.

We recommend as a starting point using simulation models to measure the expected effects in cartel cases. Since such a model tries to incorporate the economic characteristics of the relevant market, one obtains an expected effect which takes into account the characteristics of the market.

Studies on the actual effects of interventions against cartels have also been made. Both the Norwegian and Dutch competition authorities have carried out assessments showing that the authorities' interventions have led to lower consumer prices. This was done within the fields of books and shrimps, respectively. For instance, the assessments show that the dissolution of the international shrimp cartel can have led to consumer savings in the order of billions of euros.

When assessing the actual effects of interventions against cartels, we recommend distinguishing between cases that lead to interventions and cases that do not. In cases that do not lead to interventions, no change occurs in the market. In the same way as for prohibited mergers, we thus recommend carrying out qualitative assessments in which we examine whether the main assumptions on which the decision was based have turned out to hold good. In cartel cases leading to interventions, it can be possible to use the cartel situation as a proxy for the 'but for' situation. If there does not appear to be other factors that may influence for instance the price development on the relevant market, one can use the before and after method or the benchmark method.

Effects of interventions in cases of abuse of dominant position

Among the three core interventions, abuse of dominant position is clearly the kind of cases where the least number of assessments on interventions have been carried out. As for merger and cartel cases, by far the most abuse cases concern assessments of the expected effects of interventions. Such studies have been carried out, among others, in the UK and the US and are mainly based on rules of thumb.

We assess that interventions against abuse of dominant position constitute the most difficult of the three types of core interventions when assessing the expected effects. This is due to the fact that interventions against abuse of dominant position are often more complex than the other types of interventions. In practice this means that it is often more difficult to model the effects of interventions against abuse of dominant position using a standard simulation model.

We recommend using a simulation model to the extent this is possible and this is thought to give a theoretically consistent assessment of the effect of the intervention. However, in practice we realise that the most realistic tool probably is the benchmark method. For instance, the Norwegian competition authorities have used a benchmark method to assess the effects of the Norwegian Competition Authority's intervention against the SAS' frequent flyer programme on domestic flights. In the decision, the Norwegian Ministry of Government Administration and Reform referred to a study made by the Swedish Competition Authority in 2002, which shows that a frequent flyer programme increases prices by at least 10 percent. Supposing the same would happen in Norway, a conservative assessment of the intervention would be consumer savings of about NOK 1.5 billion per year. If it is not considered to be possible to use the benchmark method, it can also be relevant in abuse cases to use a rule of thumb.

There is only a very limited number of *ex post* studies in which the authorities have looked at the actual effects of interventions against abuse of dominant position. In our study, we have only observed one study dealing with same bonus case as referred to above. This study deals with the actual effects of the competition authorities' intervention against SAS' frequent flyer programme on domestic flights. The competition authorities conclude that the intervention against SAS' frequent flyer programme has led to savings for the Norwegian consumers in the order of billions. However, this is a conclusion SAS does not agree with.

Also in cases of abuse of dominant position, we recommend distinguishing between cases that lead to interventions and changes on the relevant market and cases that do not. In cases that do not lead to interventions and changes on the relevant market, we recommend carrying out qualitative assessments in which we examine whether the main assumptions hold. In cases that lead to interventions and changes on the relevant market, we recommend using the situation of abuse of dominant position as a proxy for the 'but for' situation. If there does not seem to be other factors that may influence for instance the price development on the relevant market, the 'before and after" method or the benchmark method can be used.

Indirect effects of competition policy

Beyond the direct effects of specific interventions, there are two indirect effects of competition policy. Firstly, the specific interventions have often some spill-over effects on other markets than the market on which the intervention takes place. Secondly, the combination of a competition authority and a competition law has a deterrence effect which prevents infringements of the competition law.

Spill-over effects

What the competition authorities have done to visualise the spill-over effects of interventions in the three types of core interventions is very limited. Several competition authorities, among others, authorities in the UK and the US, have underlined the importance of not only assessing direct effects, but none of them has carried out specific assessments.

We conclude that one would underestimate the effects of the competition policy when focusing exclusively on the direct effects. Particularly, this is the case as regards sectors where interventions can have significant effects in other sectors. Typically, this would be sectors that either buy many inputs from other sectors, or manufacture products which are used as inputs in other sectors. Moreover, the spill-over effects will be more important for a product which can easily be substituted for other products.

We argue that an applied general equilibrium model can be used to illustrate and visualise the spill-over effects of interventions within the three core areas. An applied general equilibrium model can encompass the total effects of specific interventions, i.e. both the direct and indirect effects of an intervention. Furthermore, such a model can give an indication on the relative importance of the direct and indirect effects of the intervention.

As a concrete illustration, we have used a general equilibrium model, the CET-Model, to assess that a 10 percent price decrease within the Norwegian sector of air transport can lead to over NOK 7 billion in increased economic wealth (GDP), that is NOK 0.8 billion in direct effects and NOK 6.2 billion in indirect, spill-over effects. The results illustrate that the indirect effects can be very large and depend on how important the players on the relevant market are as subcontractors for other markets.

However, we underline that an applied general equilibrium model is based on several assumptions. Thus, we underline that it is only an illustration of the extent of the spill-over effects, not an assessment of the actual effects.

Deterrence effects

The deterrence effect is a result of the competition authorities' enforcement and the competition law, and not of a specific intervention. The effect in question arises because the existence of the competition policy leads to changes in the behaviour of the firms. For example, the deterrence effect means that some mergers are not carried out, or that the firms do not carry out any increases in price as they would have done in a situation without competition policy.

A very limited number of empirical studies on the deterrence effect show that the effect is positive and significant. It should also be underlined that the studies are superficial as regards the possibility for the firms to abstain from carrying out initiatives, because the company misinterprets the intention of the competition authorities. If this happens to a large extent, the deterrence effect can become negative.

The American and British competition authorities estimate that the deterrence effect of the competition policy is at least as important as the effects of the specific interventions made by the competition authorities. But their assessments have so far not been based on empirical studies.

On the other hand, interviews made in the Netherlands among lawyers and companies show that there exists a significantly positive effect. Whether the competition authorities have been active in the relevant industry does not seem to have significant importance. In contrast, there is a significant difference between industries regarding how much the firms take into consideration competition compliance when making decisions. In the paper industry in the Netherlands, only six percent take into consideration competition compliance, while more than 40 percent in industries such as road work, insurance and pension as well as passenger transport do take competition compliance seriously.

We recommend using interviews to reveal the importance of the deterrence effect of the competition policy. Since there are many common features between the Norwegian and the Dutch economies and competition legislations, the Dutch studies probably give a fairly good covering picture of the deterrence effects in Norway. However, it is also certain that the optimal solution would be to carry out some specific studies on the deterrence effect of competition policy in Norway.

As a supplement to interviews, an applied general equilibrium model can be used to illustrate and visualise the importance of the deterrence effect. However, it is important to be aware that the equilibrium model is based on several assumptions. Therefore, the results should only be presented as illustrations, not as actual effects.

We have carried out two illustrative studies on the deterrence effect of competition policy in Norway. Together these two illustrations show that the economic gains of the deterrence effects of the competition policy are likely to be larger than the total costs of the competition policy in Norway.

In the first study, we illustrate the value of the deterrence effect when it implies a general decrease in prices by 2 percent in the Norwegian economy. Based on our applied general equilibrium model, we conclude that such a decrease in prices will increase the Norwegian GDP by 3 percent in the long term. In 2001, such a decrease in price would have corresponded to a gain in welfare at about NOK 28 billion.

In the second study, we illustrate how large the decrease in prices must be in the Norwegian economy in order to recover the costs of the competition policy. We estimate the total annual costs of a competition authority to about NOK 250 million. We conclude that the necessary decrease in prices is quite moderate. Our calculations show that an average decrease in prices of 0.25 percent is sufficient.

Economic literature on empirical effects of competition policy initiatives

The economic literature shows relatively clearly that competition policy seen in a broad sense is beneficial to a country's economic wealth.

Broadly speaking, competition policy includes all forms of regulation which is intended to secure increased competition as well as well-functioning and efficient markets. Of course, these regulations comprise competition policy, but also the most important forms of regulations in trade and business policy, cf. for instance Krakovski (2005).

In the latest years, several empirical studies have shown that countries with an open trade policy and an effective business policy, including an effective competition policy, have a higher economic growth than other countries. Several of the empirical studies illustrating this point come from the OECD or economists linked to the OECD, such as OECD (2005, 2007), Nicoletti and Scarpetta (2003, 2005, 2005a) and Conway et al. (2006).

In this report, we deal with empirical studies on the economic effects of competition policy in a narrower sense. Competition policy in a narrow sense means what is normally related to a competition regime, i.e. the combination of a competition law and of a competition authority in charge of enforcing the competition rules. In other words, competition policy in a narrow sense is a subset of competition policy in a broad sense.

There has been a discussion on the economic effects of an effective competition regime since the beginning of competition law and competition authority. The discussion concerns whether a competition regime leads to overall economic gains and how a competition regime, concretely, influences the economy.

In recent years, attention has been increasingly drawn to the empirical effects of competition policy in a narrow sense. This is, in particular, due to a growing interest in the economic literature, in which there is a special focus on how the competition authorities' interventions influence the relevant markets.

Usually, the attention is drawn to the competition authorities' specific interventions against actions restricting competition. However, this does not mean that only specific interventions create positive economic effects.

Competition policy also includes other dimensions that can have the same effects as or larger effects than the specific interventions. For instance, competition authorities often use a lot of time giving advice on competition issues. Moreover, the deterrence effect of the mere existence of the competition authorities may be just as important as the specific interventions they carry out.

Two groups of articles
Literature and articles about the effects of competition policy can roughly be divided into *two* groups.

The *first* group looks at the total effects of competition policy. Some articles have what can best be called a *top-down* approach. Firstly, they establish a measurement of the efficiency of the competition regimes in different countries. Then, one examines whether there is a link between the efficiency of the competition regimes in the different countries and either competition intensity or the economic growth in the same countries. Other articles have what can be best described as a *bottom-up* approach. They calculate the total gains and costs due to the competition authorities' work, and in this context, the studies touch on the effects of specific competition policy initiatives.

The *second* group of articles is more specific in that they only look at the economic effects of individual and specific competition policy initiatives. For example, there are specific interventions against horizontal agreements, abuses or mergers. Their objective is to assess how efficient the competition authorities' interventions are or how certain types of interventions have influenced consumer prices and/or welfare.

Four conclusions
Based on our review of the economic literature in a narrow sense, we draw *four* conclusions.

Firstly, we conclude that most of the authors are optimistic as regards the total economic effects of a competition regime with a competition law and a competition authority.

Most authors assess that an efficient competition authority is a good investment for the society. This applies irrespectively of whether the authors use a *top-down* or a *bottom-up* approach to visualise the effects of competition policy. They conclude that an efficient competition regime brings significant gains in the form of lower prices and higher welfare. Moreover, they assess that the gains are significantly larger than the costs of operating a competition authority.

However, there are articles that are more pessimistic towards the effects of the competition authorities' work. Notably, the article of Crandall and Winston (2003) has recently drawn increasing attention to the effects of the competition authorities' work. If we believe the conclusions in these articles, competition policy in a narrow sense, i.e. the combination of a competition law and a competition authority, is not good business for society. Instead, the industry policy should be restricted to creating good framework conditions for the companies, and otherwise let the market forces prevail on as many markets as possible.

Secondly, we conclude that there is much more uncertainty around the effects of the competition authorities' specific interventions than around the total effects of a competition regime.

The advocates of competition authorities and their interventions in the market economy believe that the competition policy interventions put a stop to actions restricting competition. Furthermore, they estimate that having a competition authority gives an important deterrence effect. They point out that this deterrence effect stops many competition restricting actions from occurring.

In contrast, the critics of the competition authorities and their interventions emphasise that competition policy interventions especially against mergers and abuses are often both complicated and not timely. Thus, they claim that the effects of the interventions on competition are unclear and uncertain. Moreover, the critics maintain that the competition authorities are often not able to distinguish between actions restricting competition and actions promoting competition, and that this makes companies uncertain and too careful. According to the critics, the competition authorities' mistakes mean that the company abstains from carrying out certain actions enhancing competition and efficiency, because they are afraid of being wrongly sanctioned by a competition authority that does not manage to distinguish between legal and illegal actions.

Thirdly, we conclude that the economic literature has not developed methods that can be used to give a precise assessment of the actual net value of the competition authorities' existence and performance.

The cost of the competition authorities' work is what is best covered, but even here there is an uncertainty. Specifically, there is an uncertainty about the amount of resources used by private companies in competition cases in the form of expenditure on, among others, lawyers, economists and other advisers.

There is a high degree of uncertainty as regards the size of the actual gains. Some relatively simple methods that can assess the expected effects of different competition policy interventions have been developed. But the possibility for these expected effects to become actual effects depends normally on whether several assumptions are correct. Regarding the actual effects, no simple methods have been developed that can be used to carry out quantitative assessments neither of the effects of the specific interventions carried out by the competition authorities nor of the deterrence effect. Firstly, it is necessary to conduct a concrete assessment to establish whether a specific intervention has positive or negative effects. Then, a concrete assessment is required to establish the importance of the positive or negative effects. None of these assessments can be carried out with simple rules such as rules of thumb.

Fourthly, we conclude that most studies on the actual effects of competition policy interventions (*ex post* studies) have been looking at the development of the market before and after different competition policy actions have taken place. Most of these *ex post* studies can first be carried out when a certain period of time has passed by and we can observe some effects of the intervention. However, in some cases, it is possible to carry out *ex post* studies fairly shortly after the specific intervention was made.

VISUALISING THE IMPACT OF COMPETITION AUTHORIES' CORE INTERVENTIONS

In this chapter, we review the most important experience of the authorities as regards the visualisation of the effects of the three core interventions, i.e. interventions against mergers, abuses of dominant position and cartels. Furthermore, we review the same authorities' assessments of and studies on the deterrence effect of competition policy.

Firstly, the purpose is to obtain a comprehensive overview of what the Norwegian Competition Authority and other authorities, primarily other competition authorities, have done to visualise the effects of the competition authorities' activities within the three core areas as well as the deterrence effects of having the competition authorities. *Secondly*, the purpose is to describe what methods have been used to visualise the effects. *Thirdly*, the purpose is to indicate how large these effects are. We focus on the actual effects, i.e. *ex post*, since the expected effects, i.e. *ex ante*, are by definition positive.

Main conclusions

Firstly, we conclude that international studies on both the interventions within the three core areas and the deterrence effects have been carried out and published. Our studies indicate that this is an activity in development. The studies that have been carried out, have mainly taken place in the last three to five years. Only during the first half of 2007, while our studies have been carried out, several studies have been published. Moreover, we know that more studies are on their way.

Secondly, we conclude that studies on the effects of competition policy initiatives can be divided into two groups.

The *first* group consists of *ex ante* studies on the expected effects of typical competition policy interventions. These studies are usually carried out in connection with the case-handling or shortly after the authorities' interventions, i.e. before the actual effects of the intervention are visible on the market. The studies that are presented are usually quantitative assessments of the expected consumer savings resulting from a specific intervention. Methodologically, they are based either on simple rules of thumb or on more or less advanced assessments in an IO-model. Some of them are presented in the decisions of the competition authorities, or in connection with the announcement of the intervention, but principally, they are presented in the annual reports of the competition authorities.

The *other* group of studies consists of *ex post* studies on the actual effects of different interventions. These studies are made when it is realistic that the effects of the intervention are observable on the market, and it can be assessed whether the specific intervention has worked according to the intention. Studies on the actual effects are usually qualitative, but there are gradually also several quantitative studies on the actual effects of the competition policy. Methodologically, *ex post* studies are usually based on interviews or relatively simple 'before and after' studies on price developments.

Thirdly, for the time being, we conclude that most studies are on the expected effects of interventions within the three core areas. There are fewer studies on the actual effects, but their number has been growing in the latest years.

The assessments of the expected effects of interventions within the three core areas can be divided into two groups. The first group comprises more or less broader annual assessments of the expected effects of the competition authorities' interventions in the three core areas. Such assessments are usually presented in the annual reports of the competition authorities. According to our study, this is the case today in the US, the UK and the Netherlands. Methodologically, one often uses a rule of thumb to measure the importance of the expected consumer savings on the relevant market over either one or two years. In other cases, specific assessments are used, based for instance on an IO-model. The other group of assessments is generally presented in connection with interventions in larger cases. Methodologically, they are often more advanced than the broader assessments. Here the rules of thumb are not used. In some cases, some quite advanced IO models are used to assess the expected effects of the specific intervention.

Studies on the actual effects of the three types of core interventions have been carried out in the latest years among others in the USA, in Denmark, in the UK and in the Netherlands. Especially in merger cases, there are *ex post* studies focusing on whether the main assumptions of the competition authorities' decisions have been right or not. However, there are also quantitative *ex post* studies in which for example the actual consumer savings are assessed.

Fourthly, the studies on the actual effects show that interventions of the authorities within the three core areas have mainly had a positive socio-economic effect. Most studies have been carried out in connection with merger cases. Mostly, it is concluded in the merger cases that have been approved without remedies that the authorities made the right choice. The same conclusion is reached in cases of abuse of dominant position and cases of competition restrictive agreements.

Fifthly, the studies show that there are some challenges in cases in which mergers have been approved with remedies. Even if the effects following the approval of the mergers have mainly been positive, it is pointed out that it can be difficult to work out optimal remedies on divestiture of assets. For instance, the studies refer to the fact that merger parties have acted strategically and sold assets to firms that are supposed to be less efficient.

Sixthly, none of the studies have had a closer look at the actual effects in cases in which mergers have been totally prohibited. This is in spite of the fact that authorities have investigated a large number of such merger cases. Similarly, there has been no examination of cases where authorities have found that there have been no infringements of the provisions on abuse of dominant position or competition restrictive agreements. These cases have in common that the decisions have not changed the competitive situation on the relevant markets. This means that it is difficult to use simplified methods when we have not experienced anything which can resemble the "but for" situation or the counterfactual situation.

Seventhly, we conclude that the limited number of studies made on the deterrence effect of competition policy show that in total it is significant and positive, from a socio-economic perspective. An important reason why there are so few studies on the deterrence effects is that it is not possible to observe them directly.

Eighthly, we conclude that the US competition authority, the FTC, has referred to studies showing that the general studies, guidance and hearing function of the competition authorities have beneficial effects. However, there are only a limited number of empirical studies on the effects of competition authorities' other actions and on the deterrence effects of competition policy.

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