A Framework for Effective Public Enforcement of Cartels:

A Study of Four Nordic Countries

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April 2026

Abstract:

We present a framework for analyzing cartel enforcement which focuses on (i) detection, (ii) investigation, prosecution and conviction, and (iii) penalization. The framework is used to evaluate the cartel enforcement in the four Nordic countries Denmark, Finland, Norway and Sweden. Our findings demonstrate that those countries have shortcomings in all three stages of enforcement. To improve the identified weaknesses, we propose policy changes that can strengthen the public enforcement of cartels.

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1. Introduction

It is well known that collusion harms consumers, for example through price-fixing that leads to higher prices. A critical role for competition authorities is to detect and then shut down collusive practices, as well as to deter firms from engaging in such practices.

In recent decades, many competition authorities have actively enforced competition laws against collusion. The fight against cartels involves three essential stages: (i) detection; (ii) investigation, prosecution, and conviction; and (iii) penalization. Enforcement success depends on performance across all of these stages. For example, the prospect of detection can deter firms from forming cartels, but only if the sanctions for violations are sufficiently severe. To fully understand the fight against cartels, it is therefore necessary to consider how these elements interact to ensure effective enforcement.

In this article, we present a framework for describing how cartel enforcement is carried out and for analyzing its effectiveness across the three stages. We then apply this framework to evaluate enforcement in the four largest Nordic countries: Denmark, Finland, Norway, and Sweden. The analysis is based on original surveys conducted by the authors, combined with publicly available data. The primary contributions of this analysis are to take stock of the state of enforcement in these countries, identify areas for improvement, and offer recommendations based on broader enforcement practices.

In Section 2, we discuss the framework for effective cartel enforcement. Against this background, Section 3 describes the cartel enforcement systems in the four Nordic countries, with an emphasis on public enforcement. To identify best practices, we have collected and analyzed data from each of the three enforcement stages, highlighting similarities and differences between the countries and comparing them with selected other jurisdictions on key policy issues. Finally, Section 4 presents recommendations for improvement and concludes with some final remarks.

2. Framework

This section describes the framework within which an anti-cartel enforcement policy can be understood and evaluated. Section 2.1 describes the normative objective of a competition authority along with the constraints and limitations associated with achieving that objective. Section 2.2 lays out the three stages of anti-cartel enforcement which are finding cartels, investigating, prosecuting, and convicting cartels, and penalizing cartels. This framework guided us in the design of the survey of the Nordic competition agencies and will be the lens through which the survey's results will be summarized and interpreted.

2.1 Objective and Constraints

When it comes to battling collusion, the objective of enforcement from an economic point of view, which is underpinning the cartel prohibition from a legal point of view, should be to minimize the harm created by cartels while taking into account enforcement and error costs subject to an (inevitably binding) resource constraint. Enforcement costs comprise the resources used to pursue a cartel case or engage in some preventive activity and is typically the opportunity cost of using those resources in some other enforcement activity. Error costs refer to pursuing a case when there is not collusion, or at least not unlawful collusion, and comprise wasted resources and unnecessarily interfering with the competitive process by causing firms to engage in a burdensome and disruptive legal process. Analogously, there are error costs in not pursuing a case when there is collusion, and takes the form of consumer harm continuing unabated.

The focus of this study is on the effectiveness of enforcement in terms of reducing cartel activity. In assessing the performance of a competition authority, we would ideally want to know how many cartels it has shut down, how many cartels it deterred from forming, and the reduction in harm either by preventing a cartel from operating (due to shutdown or deterrence) or while operating (e.g., by not setting as high a price or the cartel not being as inclusive of a market's suppliers). Such an assessment requires observing the cartel rate (how many cartels are operating at any moment in time) and a measure of cartel effect such as the overcharge (how much higher price is but for collusion). An inherent challenge is that these key variables are typically unobserved. We may observe how many cartels are discovered (and convicted) but not how many cartels go undiscovered. The population of cartels in an economy is latent and what is observed – discovered cartels – need not be a good proxy. For example, if a competition authority discovers and convicts few cartels, it could be because there is a low cartel rate (and thereby enforcement is effective) or a high cartel rate and it is bad at catching cartels (and thereby enforcement is ineffective). The best we can do is to use what measures are available – such as the number of convicted cartels and levied penalties – while recognizing they are imperfect and the real variable of interest – the presence of cartels in the economy – is not directly observed.

Ideally, a competition authority should act to minimize the harm caused by cartels and, towards that end, try to minimize how many cartels exist. However, there are two impediments to such an outcome: career concerns and resource constraints. Career concerns refer to when a member of an organization acts in a self-interested manner that promotes their career even though it departs from what is best for the organization. In the current setting, a member of a competition authority may not act so as to minimize the harm caused by cartels and instead act to enhance their own perceived performance and thus their future career prospects, whether it means advancement within the agency or a job outside of the agency. For example, difficult cartel cases may not be prosecuted because of the prospect of losing them and harming one's personal reputation.

The issue of career concerns ties in with the measurement challenge mentioned above because competition authorities should be presumed to care about observable (not ideal) performance metrics and that is pertinent to properly interpreting a competition authority's conduct and considering alternative policies. A competition authority may focus on how many cartels it discovers and convicts, the magnitude of fines it levies, how many people it puts in jail, and other observable outcomes. All these measures provide relevant information to assess performance but a focus on them alone could lead to skewed priorities. In particular, a competition authority may give higher priority to shutting down cartels than deterring them – though both contribute to reducing the cartel rate and consumer harm – because we can observe cartels that are caught and not cartels that are deterred from forming. Consequently, there could be systematic underdeterrence.[4]

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[4] A discussion of the underdeterrence problem is provided in Joseph E. Harrington, Jr., "Developing More Vigorous Anti-Cartel Enforcement by Promoting Deterrence," (August, 2022) (1), *Competition Policy International Antitrust Chronicle.*

The other impediment to an effective enforcement policy – which we suspect is the more significant one – is the resource constraint a competition authority faces. It is rare to hear of a competition authority that is not underfunded especially when one compares them to the defendants they go up against. This resource constraint can affect many decisions, as will be seen in the ensuing discussion. Note that by «decisions» we are not merely referring to an agency decision, i.e. an administrative decision, but more broadly to the stage where an infringement is established followed by the imposition of sanctions, whoever holds that power, whether it is the administrative authorities, the civil court or the criminal court. This means that if it is the court that has the initial power to impose sanctions, formally this will be decided in a judgment and not in an administrative decision. When considering possible departures from the ideal, we should be mindful that they could either be explained by career concerns or resource constraints (or both). Which of those is the driving force matters because if it is a lack of resources, the solution is obvious: a bigger budget. If it is career concerns then it requires altering incentives for which the solution is not obvious and would certainly be more subtle than adding resources.

2.2 Overview of Enforcement Stages

Anti-cartel enforcement involves laws set by legislators and interpreted by judges and policies designed and implemented by a competition authority. Laws define what is illegal collusion (and, to be clear, collusion is the economic phenomenon of coordinating to reduce competition, which may or may not be legal), what evidence is required to prove a violation, who has standing to sue for damages, what penalties can be imposed, and the like. Policies include the criteria used in case selection, penalty formulas, leniency programs, cartel screening, and so on.

Laws and policies operate through three enforcement stages to determine the presence and effect of cartels: 1) detection; 2) investigation, prosecution, and conviction; and 3) penalization. The initial step in shutting down a cartel is detecting it. Upon having discovered a suspected cartel, a competition authority engages in an investigation, which will provide the information needed to decide whether to prosecute, and prosecution will result in an administrative or judicial determination of a violation of competition law (i.e., conviction). Finally, convicted cartelists are penalized.

We will elaborate on each of these three stages and in doing so provide the rubric for evaluating the policies and conduct of competition authorities in the Nordic countries. But before moving to that task, let us note an additional dynamic stage of enforcement: innovation and evaluation. Effective enforcement requires developing and implementing new ideas (innovation) but also measuring the effect of adopted policies and laws and using that information to determine whether to modify or continue with a program or law (evaluation). A competition authority can contribute by devoting resources to innovation and evaluation (which is no easy task given there is often a lack of adequate resources to pursue existing cases) and having an organizational structure that encourages the development and adoption of new ideas. In our discussion, we will mention some past innovations including leniency programs, whistleblower rewards, a damages directive, and cartel screening.

As a preview for what will be covered, Table 1 states the three enforcement stages along with the goals, instruments, and performance metrics for each of them.

2.2.1 Detection

Enforcing competition law's prohibition against some forms of collusion involves many steps but it all begins with first finding a cartel. One of the most common avenues through which a competition authority learns of a cartel is by the filing of a complaint by a customer, a current or former employee of a cartel member, or a competitor (i.e., a firm in the cartel's market who is not a member of the cartel). A competition authority can also learn of a cartel through another investigation such as a prospective merger. A merger review may uncover documents indicating the existence of a cartel, or a merger partner may, through due diligence, learn of the other party's participation in a cartel and report it. Detection has also come from investigation by independent parties such as journalists, who found collusion in the interbank loan market[5], and scholars, who found collusion in a stock exchange[6] and very likely in government procurement auctions in Japan.[7]

After the Antitrust Division of the U.S. Department of Justice (DOJ) revised the corporate and individual leniency programs in 1993 to great effect, leniency programs have proliferated with leniency applications becoming a critical source of detection in many jurisdictions. Here, it is a cartel member who is informing the competition authority of the existence of a cartel. In recent years, cartel screening is a method of detection which is increasingly being performed by competition authorities. Data screening involves examining bids at auctions or prices in markets to look for collusive patterns.[8] Recently, screening has been expanded to reviewing text in companies' public statements such as earnings calls.[9] In the US, another source of detection is private litigants who commonly bring cases that are not pursued by the public enforcer.[10]

While competition authorities can and do actively engage in detection, a critical government role is to incentivize other agents to detect and report suspected cartels. One can view many programs through this lens. A leniency program incentivizes cartel members to report a cartel by providing reduced penalties in exchange for their cooperation. A whistleblower program incentivizes uninvolved employees and competitors to report by providing anonymity, protecting whistleblowers (especially employees) from retaliation, and even offering financial

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[5] Carrick Mollenkamp and Mark Whitehouse, "Study casts doubt on key rate; WSJ analysis suggests banks may have reported flawed interest rate data for Libor," *Wall Street Journal*, (29 May 2008).

[6] William G. Christie and Paul H. Schultze, "Why do NASDAQ Market Makers Avoid Odd-Eighth Quotes?," *Journal of Finance*, (1994) 49(5), 1813-1840.

[7] Kei Kawai and Jun Nakabayashi, "A Field Experiment on Antitrust Compliance," (April 2024), working paper available at: *http://www.nber.org/papers/w32347*.

[8] For an overview of data screening, see Joseph E. Harrington, Jr. and David Imhof, "Cartel Screening and Machine Learning," *Stanford Computational Antitrust*, (2022) 2(7), 133-154.

[9] See two recent studies: Tomaso Duso, Joseph E. Harrington, Jr., Carl Kreuzberg, and Geza Sapi, "Public Communication and Collusion: New Screening Tools for Competition Authorities," *Journal of Competition Law & Economics*, forthcoming; Eduardo Azevedo, Joseph E. Harrington, Jr., and Ioan Rusu, "Collusive Content in Corporate Communications, " working paper, March 2026, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=6357778.

[10] In a study of 60 large private US antitrust suits, 40% of them were initiated by plaintiffs and not the competition authority; Josh Paul Davis & Robert H. Lande, "Defying Conventional Wisdom: the Case for Private Antitrust Enforcement," *Georgia Law Review*, (2013) 48(1), 1-81.

rewards, as is done in Hungary, Pakistan, South Korea, Taiwan, the United Kingdom, and, as of 2025, the United States. Customer damages incentivizes a cartel's buyers (or sellers when the cartel is among input suppliers) to file a complaint or pursue private litigation so that they can collect compensation for the harm they incurred.

In addition to incentivizing others to detect, a competition authority can support the detection activities of other agents. Of particular note is assisting government procurers in uncovering bidding rigs at tenders that they oversee. A notable recent program is the DOJ's Procurement Collusion Strike Force which supports federal, state, and local government procurers in discovering and prosecuting bidding rings. Since 2019, it is reported to have assisted in almost 200 investigations which have yielded more than 75 guilty pleas and convictions with fines exceeding US$70 million.[11]

2.2.2 Investigation, Prosecution, and Conviction

Having learned of a possible cartel, a competition authority decides whether to investigate it and, upon completion of that investigation, whether to prosecute the engaged firms. This critical stage of enforcement involves deciding which cases to pursue (case selection), how to pursue a case (e.g., whether to conduct a dawn raid), and how much resources to commit to a case. These decisions are made in the context of often highly incomplete information about whether there is a cartel with challenges coming from the firms defending themselves, often with far more resources than the competition authority, and procedural hurdles associated with administrative and judicial processes.

There is little public knowledge about how a competition authority engages in case selection, perhaps appropriately so as they do not want firms to be able to game the system by colluding in a manner not to induce prosecution (just like a tax authority does not want accountants to know what triggers an audit). Nevertheless, we can speculate about relevant factors in the case selection process.

Based on the initial evidence associated with discovery (e.g., a complaint), first and foremost is a competition authority's perceived likelihood that there is a cartel and, if there is, of obtaining a conviction. This likelihood is quite high if there is a leniency application and could be relatively low if there is just a customer complaint based only on suspicious price movements. However, even an investigation that fails to result in convictions can be of value because the opening of an investigation could induces firms to shut down a cartel.

Relevant to the case selection decision is the candidate theory of collusion. If firms are suspected of engaging in direct, express, and private communications to coordinate prices (or bids) or institute a market allocation scheme then there is potentially compelling evidence to be discovered, which makes it a promising case to pursue. If instead the more likely theory involves indirect, non-express, or public communications – such as advance price announcements or communicating through a third party – then there needs to be an assessment of whether it is a prudent use of scarce resources. Here, career concerns can also intervene as the high likelihood of losing the case may deter its pursuit even when harmful collusion is viewed to be likely. More broadly, concerns over the pursuit of only straightforward cases

[11] These numbers are as of September 30, 2025. Updated numbers are available at: *https://www.justice.gov/atr/procurement-collusion-strike-force.*

involving explicit collusion have been expressed for some time, especially since the adoption of leniency programs.[12]

Cases should be more likely to be pursued when the magnitude of consumer harm is greater, because society gains more from the collusive conduct ending. The size of harm is largely determined by two variables: market size and overcharge. At the time that an investigation is being considered, market size is easy to measure but the overcharge would generally not be known and can be difficult to measure even after all the evidence is in. However, if the cartel is suspected to have been operating for some time, it is appropriate to assume it must be delivering sufficient value to cartel members to justify engaging in a risky, illegal activity; hence, the overcharge is likely to be non-trivial.

Another rationale for pursuing a case is to establish legal precedent regarding some form of collusive practice. Determining whether a specific practice is in violation of competition law (or bringing clarity as to the evidence required to establish a violation) is intrinsically of value to both the enforcement of competition law and the functioning of the competitive process. If the practice is shown to be a violation then it will serve to deter future use of that practice and make it easier to prosecute such cases, both of which will avoid consumer harm. When it is shown not to be a violation, it supports the competitive process as firms can act in a less constrained manner knowing they will not be mired in litigation.

An example of a practice in need of such clarity is advance price announcements. In spite of cases going back to the US airlines market in 1994[13] and more recently in the EU container shipping market in 2016,[14] their legal status remains unresolved because those cases were settled by consent decree or commitment. While such an outcome may prevent continued consumer harm in that particular market for a few years, it fails to clarify the legal status of advance price announcements. Another practice in need of legal clarity are public announcements by a firm regarding rival firms' or industry conduct.[15] As these cases are inherently risky and their value comes from resolving their legal status and not necessarily obtaining a conviction, career concerns could be determinative as a competition authority may want to avoid difficult and risky cases.

2.2.3 Penalization

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[12] "The fear or apprehension - in other words, the deterrent effect of past prosecution - is what drives the Leniency Program at the end of the day. And my concern is that most of the cases that are brought today … are generated exclusively from firms that have decided to come forward and seek leniency applications. … I am worried that the success of the Leniency Program combined with budget constraints that your Division faces will in effect give you incentives to pursue only the companies that come forward. ... [A]s I know from personal experience, some of the most egregious and harmful of the cartels may have nobody coming forward." Senator Bill Blumenthal. U.S. Senate, Committee on the Judiciary, "Cartel Prosecution: Stopping Price Fixers and Protecting Consumers" Hearing before the Subcommittee on Antitrust, Competition Policy, and Consumer Rights (statement of Senator Bill Blumenthal). 113th Cong., 1st sess., November 14, 2013.

[13] Severin Borenstein, "Rapid Price Communication and Coordination: The Airline Tariff Publishing Case (1994)," in *The Antitrust Revolution*, 4th ed., (J. E. Kwoka, Jr. and L. J. White, eds., 2004).

[14] Lily Fielder and Nicholas Frey, "Price Signaling: Deciphering the Shipping Forecast," (2016) 1(1). *Competition Policy International*.

[15] For many examples of this practice, see Joseph E. Harrington, Jr., "Collusion in Plain Sight: Firms' Use of Public Announcements to Restrain Competition," (2022) 84(2), *Antitrust Law Journal*, 521-563.

Judge and scholar Frank Easterbrook noted: "Deterrence is … the first, and probably the only goal of antitrust penalties."[16] While deterrence may be the primary purpose, penalties can also be instrumental in detection – as the incentive to apply for leniency is enhanced when it means avoiding larger penalties – and prosecution – as a competition authority has greater leverage in negotiating guilty pleas when it can threaten more severe penalties. With the rise of litigation to collect customer damages, private litigants have increasingly become part of the penalization equation. Though the intended purpose in the EU and many other countries is compensating harmed customers, damages add to the financial cost of collusion to firms and thereby also serve to deter cartel formation.

There are several dimensions to consider when assessing the contribution of penalties to enforcement. First and foremost are their size and severity. Obviously, larger penalties enhance deterrence which supports raising the maximum penalty allowed by law. However, a competition authority must decide on the magnitude of the penalty it will set in any case, while recognizing that higher penalties will make firms more inclined to appeal and courts to question those penalties. Consequently, a competition authority could be inclined to settle on lower penalties in order to close a case, perhaps justified to save resources that could be used on other cases or instead motivated by a desire to declare victory and move on. However, any reduction in penalties will reduce the deterrence of future collusive conduct by other firms. It is not clear that competition authorities consider the effect on deterrence when determining penalties.

A second relevant dimension is how the penalty is determined and to what extent it is predictable. The goal is to have prospective penalties feed into a manager's calculus regarding whether to form and participate in a cartel and hopefully dissuade them from doing so. That is best done by calibrating the penalty to the incremental profit from collusion. However, basing penalties on the incremental profit makes them less predictable compared to when they depend on a firm's revenue (or turnover). How a penalty is determined is also essential to having it approved by the courts who want to see proportionality and other criteria satisfied. With regards to customer damages, courts will require the calculation of overcharges to be based on accepted economic and empirical methods and appropriate data, which is always a source of contention between plaintiffs and defendants.

A third dimension is the bearer of the penalty. Is it shareholders (who profit from collusion) or managers (who either engage in it for the benefit of shareholders or to enhance their own perceived performance)? Taking into account the probability of ultimately incurring penalties, effective deterrence either requires corporate penalties large enough to make collusion ex ante unprofitable or individual penalties large enough that a manager does not want to collude even when collusion benefits shareholders.

Corporate financial penalties comprise government fines and customer damages. In most jurisdictions, government fines are related to a firm's revenue with a cap of 10% of revenue being quite common. While it is straightforward to calculate, this formula fails to directly link the fine to the incremental profit from collusion which undermines its potential to deter

[16] Frank H. Easterbrook, "Predatory Strategies and Counterstrategies," (1981) *University of Chicago Law Review*, 48(2), 263-337; p. 318. Available at: *https://chicagounbound.uchicago.edu/uclrev/vol48/iss2/3*

collusion.[17] While the awarding of leniency reduces the government fines paid, it augments deterrence by enhancing cartel detection. However, this feature starts to become a bug when leniency is given to too many members of a cartel in which case penalties are reduced without a compensating benefit in detecting and prosecuting a cartel. This concern appears to be growing as a recent study found the average leniency reduction per individual fine has risen significantly in the last 20 years.[18] Competition authorities may be overly generous with leniency to get firms to admit their guilt and close cases but in doing so penalties are reduced and deterrence is weakened. It is also reducing the power of the leniency program as there will be less of a race to be the first to apply if a firm knows it can get partial leniency even when it is late to the competition authority and has little to offer in terms of additional evidence.

Until a significant rise in government fines starting in the 1990s, the primary corporate penalty in the US was customer damages. Even with the subsequent rise in government fines to hundreds of millions of dollars in some cases, customer damages remain the bigger financial threat to a cartel. Aiding in that is the rule of treble damages. Should a court find firms guilty of violating Section 1 of the Sherman Act then damages are determined and firms are required to pay triple their amount. US courts have expressly recognized that a basis for more than single damages is deterrence because, given there is always a chance that firms will not be caught, collusion would not be deterred if a convicted firm was only required to return its ill-begotten gains. However, in practice, a very high fraction of cases are settled and damages are closer to being single.[19] Still, it is the prospect of going to court and facing treble damages which gives plaintiffs the leverage to induce defendants to agree to single damages. In the EU, single damages is the standard on the grounds that their purpose is compensation and while they do contribute to deterrence, that goal is primarily served by government fines.

Customer damages have been growing in importance internationally and especially in Europe since the EU's Damage Directive in 2014. While there are many benefits from the collection of customer damages, it has also been viewed as a possible reason for a declining number of leniency applications.[20] A firm who is first to receive leniency will avoid all government fines but still be liable for customer damages, which makes it less attractive to report a cartel to the competition authority.[21] In the US, the Antitrust Criminal Penalty Enhancement and Reform Act of 2004 (ACPERA) sought to deal with this problem by reducing a leniency awardee's liability from treble to single damages (with the missing double damages to be covered by the other cartel members). However, firms seem to rarely avail themselves of the protection of ACPERA.[22]

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[17] For a study of how different penalty formulas perform from an enforcement perspective, see Yannis Katsoulacos, Evgenia Motchenkova, and David Ulph, "Penalizing of Cartels – A Spectrum of Regimes," (2019) 7(3), *Journal of Antitrust Enforcement*, 339-351. Available at: *https://academic.oup.com/antitrust/article/7/3/339/5511742*

[18] Catarina Marvão and Giancarlo Spagnolo, "Leniency Inflation, Cartel Damages, and Criminalization," (2023) 63(2) *Review of Industrial Organization*, 155-186. Available at: *https://link.springer.com/article/10.1007/s11151-023-09920-2*

[19] John M. Connor and Robert H. Lande, "Not Treble Damages: Cartel Recoveries Are Mostly Less Than Single Damages," (1997) 100, *University of Iowa Law Review*, 1997-2023.

[20] OECD, "The Future of Effective Leniency Programmes: Advancing Detection and Deterrence of Cartels," (2023), Competition Policy Roundtable Background Note.

[21] While this may be a contributing factor to the decline in leniency applications, more must be going on because the US has also experienced fewer leniency applications without firms experiencing a rise in exposure to customer damages.

[22] Eric Mahr and Sarah Licht, "Making ACPERA Work," (2015) 29(3) *Antitrust*, 31-36.

In addition to variation in the damage multiple, legal regimes differ regarding the breadth of customer damages and, more specifically, whether only direct purchasers from the cartel have standing to sue. Indirect purchasers have standing in the EU and some states in the US but not at the federal level. There is also the volume effect[23] – consumers harmed by the units they did not purchase because of the higher collusive price – and the umbrella effect[24] – purchasers from non-cartel suppliers harmed by the higher prices they paid because non-cartel suppliers responded by also raising their prices. Though various courts have recognized the volume and umbrella effects, collecting damages on them is apparently rare.

In concluding our coverage of corporate penalties, two other types of penalties will be mentioned. For a bidding ring at a government procurement auction, bidder exclusion is sometimes an option. This penalty excludes a ring member from participating in government tenders for some specified period. While shutting a firm out of a market is clearly a serious penalty, it causes collateral consumer harm as competition is weaker with the firm's absence. Finally, it has been suggested that competition authorities ought to consider structural remedies – such as asset divestiture - for particularly egregious cartels or when there is a concern of recidivism.[25]

For the individual employees involved in unlawful collusion, there is a wide array of penalties used by various jurisdictions. There are individual fines though, anecdotally, they do not seem large in practice. A more significant penalty is director disqualification whereby an individual is prohibited from serving as a manager. As this strikes at an individual's livelihood, it has the potential to be quite severe. The United Kingdom's Competition & Markets Authority has the right to impose director disqualification for up to 15 years and has been actively using this power. Beginning with its initial use in December 2016, the CMA has secured 25 disqualifications through February 2023.[26] An employee's company may also choose to penalize them through dismissal or imposing a monetary penalty. In association with a cartel among four insurance companies in Japan, 132 employees found their pay reduced including a 50% pay reduction for three months for the presidents of Tokio Marine & Nichido Fire Insurance and Mitsui Sumitomo Insurance and six months for the chairman of Sompo Japan Insurance.[27]

Of course, the most severe penalty for individuals is incarceration. Criminalization of collusion has been growing and now 38 countries have the power to impose prison sentences.[28] However, criminalization is necessary but not sufficient for price fixers to find themselves behind bars. Outside of a few countries such as the US, Israel, and Germany (for bid rigging), incarceration

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[23] Franziska Weber, "The Volume Effect in Cartel Cases – A Special Challenge for Damage Quantification?," (2020) 9(3), *Journal of Antitrust Enforcement*, 436-458.
[24] Roman Inderst, Frank P. Maier-Rigaud, and Ulrich Schwalbe, "Umbrella Effects," (2014) 10(3), *Journal of Competition Law & Economics*, 739-763.
[25] Joseph E. Harrington, Jr., "A Proposal for a Structural Remedy for Illegal Collusion," (2018) 82(1), *Antitrust Law Journal*, 335-359.
[26] Terry Calvani and Rory Jones, "Why Do Countries with Criminal Antitrust Sanctions Fail to Incarcerate Price Fixers?" (2024) 12(3) *Journal of Antitrust Enforcement*, 438-478
[27] "Four Japanese Insurers Penalize Officials Over Price-Fixing Scandal," *Competition Policy International* (17 June 2024). Available at: *https://www.pymnts.com/cpi-posts/four-japanese-insurers-penalize-officials-over-price-fixing-scandal*
[28] Calvani and Jones, "Why Do Countries with Criminal Antitrust Sanctions Fail to Incarcerate Price Fixers?"

is rare. Prison sentences are common for cartelists in the US where the average sentence over the last twenty years is around 18 months.[29]

Table 1: Summary of main elements of the three enforcement stages

	Enforcement Stages		
	Detection	Investigation, Prosecution, Conviction	Penalization
Goals	Achieve a high probability of discovering a cartel	Achieve a high probability of convicting a discovered cartel, especially the most harmful cartels	Achieve high penalties on convicted corporations and individuals
Enforcement instruments for achieving those goals	Complaints Private investigations such as by journalists and scholars Discovery through other investigations by the competition authority Leniency programs Whistleblower programs Data and text screening	Case selection Dawn raids Resource allocation Plea bargaining	Corporate fines Customer damages Divestiture Individual fines Director disqualification Prison sentences
Observable metrics for evaluating performance	Number of cartel investigations Number of dawn raids Number of leniency awardees Magnitude of affected sales	Number of convictions and guilty pleas Fraction of investigations that result in a conviction or guilty plea	Magnitude of corporate and individual financial penalties Number of directors disqualified Number and length of prison sentences

[29] U.S Department of Justice Antitrust Division, *Criminal Enforcement Trend Charts,* available at: *https://www.justice.gov/atr/criminal-enforcement-fine-and-jail-charts*

3. Public enforcement of cartels in four Nordic countries

How is cartel enforcement carried out in Denmark, Finland, Norway, and Sweden? What enforcement instruments are available at each stage of the enforcement process, and how have these been used by national competition authorities since the decentralization of EU competition law enforcement in 2003?

Section 2 outlined the objectives and constraints of public cartel enforcement and introduced the analytical framework guiding this study. The framework distinguishes between three key enforcement stages: (1) detection; (2) investigation, prosecution, and conviction; and (3) penalization. Each stage involves distinct challenges and enforcement tools, which together provide insight into how competition authorities identify, assess, and sanction cartel conduct. See Table 1, where we link goals discussed in Section 2 with corresponding instruments and performance measures we will discuss in this Section.

In the following sections, we apply this framework to examine the laws and policies employed by the four Nordic competition authorities in their efforts to combat cartels. This analysis is integrated with our empirical findings on how enforcement instruments have been used across the three stages in Denmark, Finland, Norway, and Sweden.

It should be noted that some of the relevant laws and policies have evolved since the period covered by our data. In particular, the ECN+ Directive—aimed at strengthening the powers of national competition authorities—has had a significant impact on public cartel enforcement in Europe.[30] Although considered EEA-relevant, the Directive has not yet been made part of the EEA Agreement and therefore does not apply to Norway. . Its implementation has nonetheless led several EU Member States to expand the powers of their competition authorities and to adjust the design and use of enforcement instruments.[31]

3.1 The Nordic enforcement as part of the European enforcement

As Member States of the EU, the competition authorities of the Nordic countries Denmark, Finland, and Sweden participate in the decentralized enforcement of the EU cartel prohibition under Article 101 of the Treaty on the Functioning of the European Union (TFEU), together with the European Commission (the Commission). Where there may be an effect on trade between Member States, this provision is triggered. Accordingly, most of the cases examined in this study concerns the enforcement of either the national cartel prohibitions in Article 6 of the Danish Competition Act, Article 1, Chapter 2, of the Swedish Competition Act, or Article 5 of the Finnish Competition Act, *together* with the corresponding provision in Article 101 TFEU.[32] Note that the cartel prohibitions referred to here are not limited to what is often understood by the term "cartel", but also cover other forms of horizontal coordination between undertakings as well as vertical coordination that is considered anticompetitive. This study is, however, limited to horizontal anticompetitive conduct between undertakings, such as price fixing, market sharing, information exchange, and bid rigging, which often takes place in secrecy. This system in which national competition authorities fully participate in EU anti-cartel

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[30] Directive (EU) 2019/1 of the European Parliament and of the Council of 11 December 2018 to empower the competition authorities of the Member States to be more effective enforcers and to ensure the proper functioning of the internal market, OJ L 11, 14.1.2019, p. 3–33.

[31] The ECN+ Directive will not be elaborated on as such in this article.

[32] See Article 3 of Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty, [2003] OJ L 1/1 (Regulation 1/2003).

enforcement was introduced by Regulation 1/2003, which also gave rise to the European Competition Network (ECN).[33]

Since Norway is not a member of the EU, but of the European Free Trade Association (EFTA), and is thus only a party to the Agreement on the European Economic Area (the EEA Agreement), it does not participate in this decentralized enforcement system and has only an observer status within the ECN. EFTA was established in 1960 and today consists of four countries: Norway, Iceland, Liechtenstein and Switzerland. The EEA Agreement entered into force in 1994 and integrates Norway, together with the two other EEA/EFTA states, Iceland and Liechtenstein, into the internal market of the EU without requiring them to transfer sovereignty to EU institutions in the same manner as EU Member States. The EEA Agreement allows the EEA/EFTA States to participate in the EU internal market, where the free movement of goods, capital, services and persons creates the world's largest common market. Pursuant to Article 1A of Protocol 23 to the EEA Agreement, Norway is only permitted to participate in network meetings of public authorities referred to in recital 15 of Regulation 1/2003 for "the purposes of discussion of general policy issues only".

A similar decentralized enforcement system applies, however, where the Norwegian competition agency enforces its own cartel prohibition under Article 10 of the Competition Act together with Article 53 EEA (both mirroring Article 101 TFEU), the latter being enforced by the EFTA Surveillance Authority (ESA) and the Commission. Although Regulation 1/2003 is considered EEA-relevant and has been made part of the EEA Agreement, decentralized enforcement of Articles 53 and 54 EEA, which mirror Articles 101 and 102 TFEU, does not derive from that Regulation but from Protocol 4 to the Surveillance and Court Agreement (SCA). The Commission deals with infringements of the EEA competition rules that have an appreciable effect on trade between EU Member States, whereas ESA deals with cases where only trade between EFTA States is affected or where the effect on intra-EU trade is not appreciable. As regards enforcement against public authorities, however, ESA has exclusive jurisdiction to take action against any EEA/EFTA State that enacts or maintains in force measures that are contrary to Articles 53 EEA.

A parallel decentralized enforcement regime therefore applies among the four Nordic countries, albeit without cross-pillar cooperation between the EU and EFTA pillars.[34] In addition to the European Competition Network, there is also a Nordic Competition Network, which to some extent compensates for this separation. This network enables, inter alia, the competition agencies of Norway, Iceland, Sweden, Denmark, Finland, the Faroe Islands and Greenland to exchange information and conduct inspections in a similar manner to that provided for under Regulation 1/2003. The Nordic cooperation began between Norway, Iceland and Denmark in 2001, with Sweden joining in 2003 and the remaining members in 2017.[35]

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[33] About the network, see *https://competition-policy.ec.europa.eu/antitrust-and-cartels/european-competition-network_en*, [last accessed 10/04-2026].

[34] For more information about this, see Franklin CNK, Fredriksen HH and Barlund IMH, "the Norwegian Report in Bándi G et al.", (2016). Gjendemsjø R, 'Article 56 EEA', in Arnesen F et. al (editors), Agreement on the European Economic Area: A Commentary, (C.H. Beck/Hart/Nomos/Universitetsforlaget, 2018), pp. 555-560.

[35] For more about the collaboration see*: https://konkurransetilsynet.no/norwegian-competition-authority/cooperation-with-other-organisations/?lang=en* [last accessed 10/04-2026].

The enforcement systems relating to cartels in the Nordic countries have thus converged, both as a result of European and Nordic cooperation. Although the substantive cartel prohibitions are largely identical and all Nordic competition authorities participate in the enforcement of competition law in Europe, differences remain between the four countries as regards enforcement rules. These differences are largely attributable to the principle of procedural autonomy, under which Member States are free to design their own procedural systems for enforcing EU (and EEA) law—here, the implementation of the cartel prohibitions in Article 101 TFEU and Article 53 EEA—provided that those rules comply with the principles of effectiveness and equivalence. The principle of effectiveness seeks to prevent national procedural rules from rendering the exercise of rights derived from EU law impossible or excessively difficult. The principle of equivalence requires that Member States do not treat claims based on EU law less favorably than similar claims based on national law.[36] It should be noted, however, that the ECN+ Directive (and the Damages Directive) limit this procedural autonomy by further harmonizing public and private enforcement across Member States. For most of the project period, however, these directives had not yet been implemented across the Member States and have still not been made part of the EEA Agreement.

3.2. The observed public enforcement towards cartels from 2004 to 2022

In this section, we apply the framework presented in Section 2 and summarized in Table 1 to compare the public enforcement of cartels in four Nordic countries. The differences between the four countries concern both laws and policies. More specifically, there are differences in how the competition authorities are organized (for example, which public body has the power to determine whether a cartel infringement has occurred and to impose sanctions), as well as in the enforcement instruments available at each stage (for example, leniency programs and penalties). We highlight such differences where relevant in presenting information on the three enforcement stages across the four countries. The information is drawn partly from public sources and partly from a survey in which we asked the competition agencies of Denmark, Finland, Norway and Sweden a range of questions relating to their anti-cartel enforcement. Unfortunately, not all four countries responded to every question, which explains why, in some instances, data are reported for only a subset of countries.

We identify both similarities and differences between the four Nordic countries. It is also of interest to assess whether these countries differ from other comparable jurisdictions. Accordingly, where comparable data is available, we refer to such jurisdictions. We primarily focus on countries of similar size and economies, such as the Netherlands and other smaller European countries. In some instances, however, only data at the EU, European, or US level are available; such data are used where they help to assess whether the Nordic countries deviate from broader patterns.

3.2.1 How are cartels detected?

Figure 1 reports how potential cartel cases were detected in Norway and Finland during the period 2004-2022. To assess whether the patterns in these two countries differ from those in other jurisdictions, we compare them with a corresponding, albeit older, study from the US (1963-1972) and a study of international cartels covering the period 1990-2007. We apply the

[36] Case-33/76, *Rewe-Zentralfinanz eG and Rewe-Zentral AG v Landwirtschaftskammer für das Saarland*, EU:C:1976:188; [1976].

same categories as in the US study, except that we include leniency, which was not available prior to the late 1970s. Note that, for Norway, the data include both investigations that resulted in a decision and those that were closed without a decision, whereas the three other studies are limited to cases in which a cartel decision was adopted.

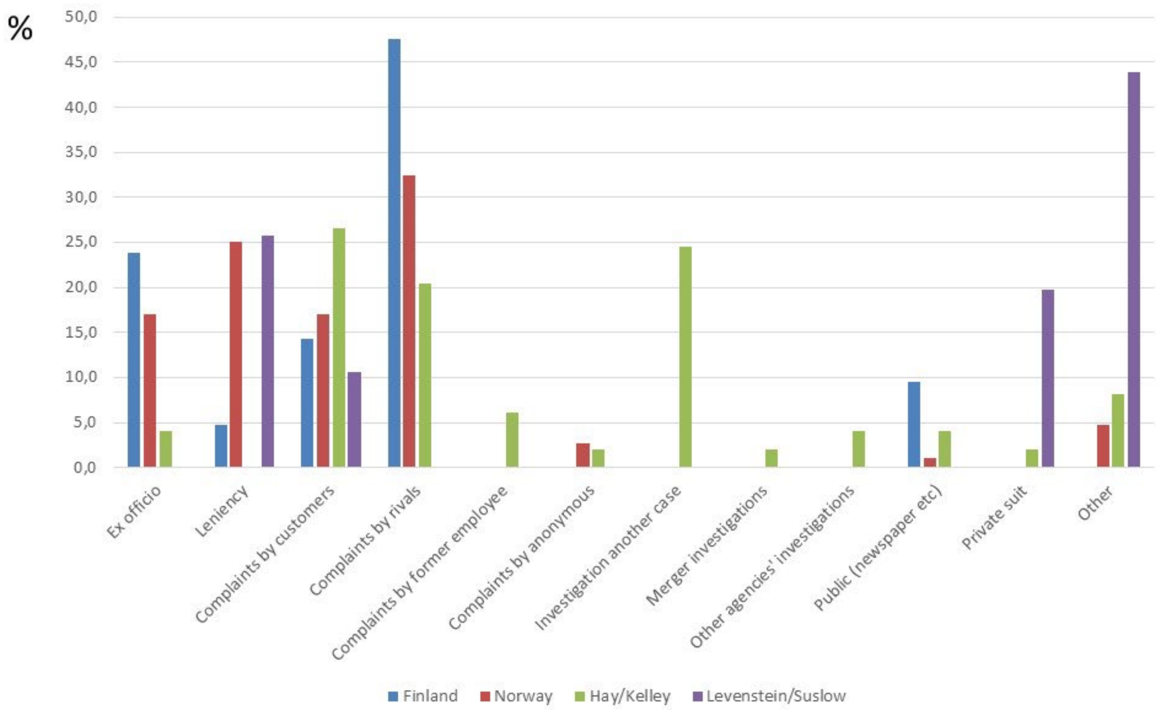

Figure 1: Sources of investigations and cartel detection
Norway: 188 potential cartels detected 2004-2022 (source: survey)
Finland: 22 convicted cartels 2004-2022 (source: survey)
Hay/Kelley: 49 convicted cartels in the US 1963-72[37]
Levenstein/Suslow: 81 international EU/US convicted cartels 1990-2007[38]

In line with the findings of the US study, there are multiple channels through which potential cartels are detected in the two Nordic countries. This broad approach to cartel detection is, at the outset, a positive feature, as it implies that cartelists face a risk of detection through several avenues. By contrast, it could be problematic if a large majority of cases were initiated through leniency, as this might signal to cartel participants that avoiding detection primarily requires preventing self-reporting. In this respect, it is notable that a larger share of potential cases in the Nordic countries is initiated ex officio compared to the United States in the 1960s and 1970s. It should be noted, however, that "ex officio" is defined more broadly in the Nordic context than as merely economic screening (i.e. the analysis of prices or other market data). It may also include, for example, market monitoring, where agency officials observe industry meetings and other forms of joint activities. That said, the precise definition of the ex officio category may not be fully comparable across the studies. On the other hand, there appears to be limited

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[37] See George A. Hay and Daniel Kelley: 'An empirical survey of price fixing conspiracies', (1974) 17(1), *Journal of Law & Economics*, Table 1.
[38] See Margareth C. Levenstein and Valerie Y. Suslow: 'Breaking up is hard to do: Determinants of cartel duration' (2011) 54(2), *Journal of Law & Economics*, Table 2.

spillover from other investigated cases or from investigations conducted by other agencies, compared to what has been observed historically in the United States.

Two important channels for detecting potential cartels are complaints from customers and from rival firms. These sources differ in important respects, as price-fixing cartels typically harm customers while benefiting rivals, except in cases where the cartel also seeks to exclude competitors. Accordingly, one might expect complaints from customers to be a more common trigger for investigations than complaints from rivals. While this pattern is observed in the United States, the opposite appears to be the case in the Nordic countries.

In both Finland and Norway, complaints from rival firms constitute the most common source for detecting potential cartels, whereas in the United States they rank only as the third most common source. This pattern in the two Nordic countries is somewhat surprising, as rival firms are normally not harmed by cartel formation, and we have no evidence indicating that cartels are used to exclude competitors. Consequently, we question whether it is effective for the agencies to prioritise such complaints, rather than allocating resources to other detection activities. We return to this issue in Section 5 in the context of our policy recommendations. The role of competitors' complaints thus warrants further investigation.

Leniency

Leniency is one mechanism through which cartels may be detected, and it has been available in the Nordic countries for the past 15–20 years. It was introduced in 2004 in Norway and Finland, in 2007 in Denmark, and in 2009 in Sweden. Although this enforcement instrument is largely inspired by the EU antitrust enforcement system, the leniency programs of the four countries differ with respect to eligibility (i.e. whether both undertakings and/or individuals may apply) and the scope of immunity (i.e. corporate fines, individual fines, and/or imprisonment). These differences reflect the fact that leniency operates within distinct national enforcement systems. During the period under study, public enforcement of cartels in Denmark was largely the responsibility of the Danish Prosecuting Authority. In Denmark, this authority has held exclusive competence to prosecute cartel cases and to bring claims for both individual and corporate penalties before the courts, which has influenced the design and operation of leniency.

Among the Nordic countries, only Norway and Denmark have criminalized cartel conduct.[39] At the outset, all three NCAs have aligned their systems with the requirements set out in Articles 10 (1) and 13 (1) of the ECN+ Directive. This means that today, all three Nordic NCAs in EU Member States have the power to terminate a cartel and, where appropriate, impose structural or behavioral remedies. The Norwegian NCA also holds such powers under Article 12 of the Norwegian Competition Act. Two of the four Nordic NCAs have power to impose administrative corporate fines. Norway has held such powers since 2004, whereas the Swedish NCA was granted this competence in the aftermath of the ECN+ Directive. The Finnish and Danish NCAs have also aligned themselves with Article 13, but it remains for the courts to impose such fines. Finland already operated such a system prior to the ECN+ Directive and therefore did not introduce changes in response to it, whereas in Denmark corporate fines are now imposed in civil proceedings brought by the Danish NCA rather than in criminal

[39] See Article 30 of the Norwegian Competition Act and Article 23 of the Danish Competition Act.

proceedings prosecuted by the Prosecuting Authority. As a result, the Prosecuting Authority's exclusive sanctioning powers in cartel cases in Denmark have come to an end.

It is interesting to note that, according to the Finnish survey response, discussions have taken place on granting the Finnish NCA judicial powers to act as a first-instance decision-making body, similar to the Swedish model. The response further states that such a reform "could create more robust and efficient decision-making processes to combat cartels". A similar view is reflected in the Swedish response, where it is noted that, prior to the ECN+ Directive, Sweden operated a system comparable to Finland, in which the NCA had to bring actions for fines before the Patent and Market Court. The advantages and disadvantages of shifting to a system in which the Swedish NCA itself could impose fines were heavily debated, as it would give the agency combined functions as investigator, first-instance decision-maker, and prosecutor with the power to impose corporate fines.

In contrast to the (previous) one channel system of Denmark, Norway operates a two-channel system: corporate fines are imposed in an administrative track by the competition agency, while individual fines and imprisonment fall under the criminal track handled by the Norwegian Prosecuting Authority. In both countries, individual sanctions have been used only to a limited extent, whereas corporate fines are common and subject to leniency. In Denmark, however, leniency applies not only to corporate fines but also to individual criminal fines and imprisonment.[40] In Norway, by contrast, leniency is limited to administrative corporate fines.[41]

While Denmark has recently reformed its sanctioning regime to allow for civil corporate fines following the ECN+ Directive,[42] Norway considered the possibility of introducing individual administrative fines in 2023, but this option was not taken up by the expert committee revising the Norwegian Competition Act in 2025.[43] The committee instead proceeds on the basis that the criminal individual sanctioning regime should be maintained. If the ECN+ Directive were incorporated into the EEA Agreement, Norway would need to update its leniency programme to include protection of individuals covered by corporate immunity applications pursuant to Article 23 of the Directive. Irrespective of the ECN+ Directive, the expert committee has in any event suggested introducing such protection.

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[40] See Article 23 a) of the Danish Competition Act.

[41] See Articles 29, 30 and 31 of the Norwegian Competition Act.

[42] See Article 13 of Directive 2019/1 to empower the competition authorities of the Member States to be more effective enforcers and to ensure the proper functioning of the internal market [2018] OJ L 11/3 (the ECN+ Directive)

[43] To access the 2023 report, see (in Norwegian): https://www.regjeringen.no/no/aktuelt/ny-utredning-vil-la-konkurransetilsynet-botelegge-enkeltpersoner/id2970762/. The 2025 proposal for revision of the Norwegian Competition Act is available (in Norwegian) at: https://www.regjeringen.no/contentassets/c1ab5d93071948599136fbd091a97ff5/no/pdfs/nou202520250011000dddpdfs.pdf. The consultation period for the proposal ended in March 2026, and the matter is currently under consideration by the legislator (last updated 10 April 2026).

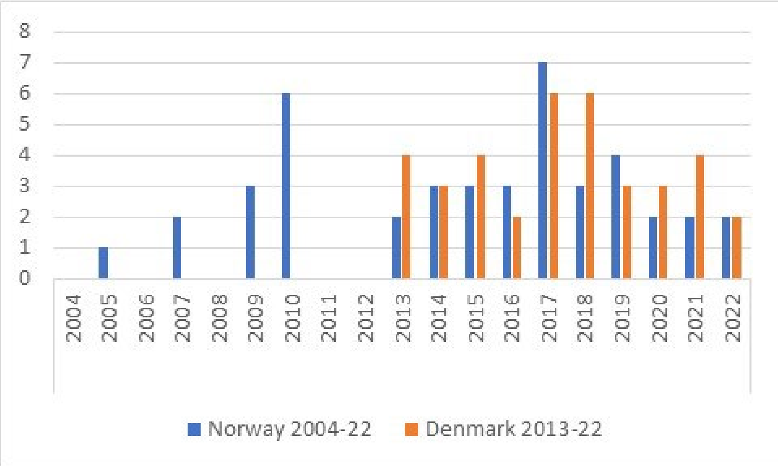

Figure 2: Leniency applications in Norway and Denmark
Denmark: Survey. Note that 2007-11 it is reported that there are 6 leniency applications, and they are not included in Table 2.
Norway: Annual report and survey

Figure 2 reports the number of annual leniency applications in Denmark (2013-22) and Norway (2004-22).

Finland and Sweden have leniency programs similar to that in Norway, in that leniency applies to corporate fines imposed through civil and administrative procedures, respectively (during the project period, both countries operated with civil corporate fines). By "civil fines", we refer to fines imposed through civil proceedings before the courts (as opposed to criminal proceedings). By "administrative fines", we refer to fines imposed by a competition agency.

Since its introduction and up to 2022, 43 leniency applications have been submitted in Norway and Denmark, with an average annual rate of 2.4 and 2.5, respectively. For comparison, the average number of leniency applications in a European jurisdiction was 9 in 2015, falling gradually to 3 in 2021 and 4 in 2022.[44] This indicates that, compared to other European countries, the number of leniency applications in the Nordic countries has been relatively low.

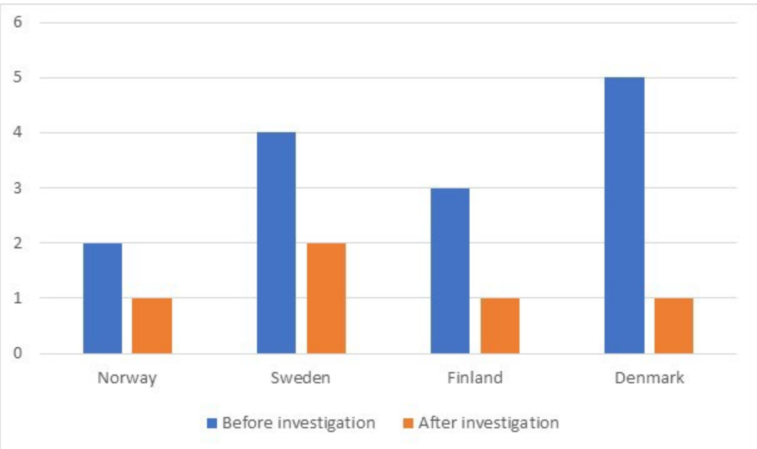

Figure 3: Leniency applications submitted before and after investigation in cases with a decision
Sources: Survey as well as home pages

[44] See the background data for OECD Competition Trend 2024, available at: *https://www.oecd.org/en/publications/oecd-competition-trends-2024_e69018f9-en.html*

More interestingly, Figure 3 shows a relatively low number of cartel decisions in all four countries that were initiated by leniency applications. During the period 2004–22, the number of cartel decisions initiated by leniency applications in each of the four Nordic countries ranges from 2 to 5, with the lowest number in Norway and the highest in Denmark. The difference between Norway and Denmark is surprising, given that the number of leniency applications received was identical in the two countries during this period. However, this may partly be explained by differences in prioritization, as fewer than 20% of leniency applications in Norway were investigated, compared to almost 80% in Denmark.[45] An important feature to bear in mind when reporting the Norwegian figures is that the Norwegian leniency programme does not only target cartels, but applies to all horizontal and vertical anti-competitive coordination. This broader scope, compared to the Danish leniency programme, may help explain the striking difference in these percentages, as the Norwegian authority is likely to receive a larger share of leniency applications that are not pursued.

If we compare the number of leniency applications that led to cartel decisions with the total number of cartel decisions in each of those four Nordic countries, the share ranges from 13 % (Norway) to 26 % (Denmark). Even the higher figure for Denmark is low compared to other jurisdictions. For example, in the EU, more than 80 % of cartel decisions in 2006-2010 and more than 90 % in 2011-2016 stemmed from leniency applications.[46] In the Netherlands—a country of comparable size to the Nordic countries—30% of cartel decisions in the period 2004–2013 were initiated by leniency applications.

All four countries allow for leniency applications to be submitted after an investigation has been initiated, for example following a dawn raid. However, very few such leniency applications are received after a dawn raid in the Nordic countries; Figure 3 reports only one in each of the four countries since 2004 (except for Sweden, which has two). The fact that few firms apply for leniency even after a dawn raid provides indirect evidence that penalties may be insufficiently deterrent. When turning to penalization, fines are, in some periods and/or in some countries, documented to be relatively low, which supports this interpretation.

Ex officio investigations

As explained in Section 2.2.1, an alternative to initiating an investigation on the basis of complaints or leniency applications is for a case to be initiated ex officio.

Figure 1 shows that almost one in five investigations leading to a decision in Finland was initiated ex officio, while in Norway the corresponding figure is one in seven investigations (regardless of whether they led to a decision). This is higher than the corresponding figure for the United States in the 1960s and 1970s (see Figure 1), which is the only comparable study we have identified. However, when considering the absolute number of ex officio investigations, the picture is different. While Norway had fewer than two ex officio investigations annually during 2004–2022, the corresponding figure for European jurisdictions was between 9 and 16

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[45] The figures are based on survey responses from Denmark and Norway, respectively. The Norwegian figure is drawn from a subsample of 27 leniency applications, while the Danish figure is based on a subsample of 39 leniency applications.

[46] See Wouter P. J. Wils: 'The use of leniency in EU cartel enforcement: An assessment after twenty years' (2016) 39(3), *World Competition*, 327-388

per year in the period 2015–2022.[47] Given the relatively low number of leniency applications in the Nordic countries, there is both scope and a strong rationale for increasing cartel detection through this channel.

One specific form of ex officio investigation is screening. Cartels may be detected by analyzing market data for indications that a cartel is operating (behavioral screening) or that cartel formation is likely (structural screening). All four countries report having devoted resources to screening, particularly in the context of public procurement. Denmark has, for several years, maintained a dedicated data unit and has used public procurement data to develop methods for identifying suspicious bids and potentially coordinating undertakings.[48] However, a challenge in the three remaining Nordic countries has been that public procurement data are incomplete making them difficult to use for screening purposes. All the Nordic NCAs have, however, cooperated with public bodies responsible for procurement, both to improve data availability and to inform public procuring entities how to detect bid rigging.

Despite these screening activities in all four countries, we have no evidence of cartel investigations (ultimately leading to a decision) that were initiated though screening. Finland and Sweden report that they have no such cases, while Denmark and Norway have not disclosed this information.

As explained in Section 2.2.1, NCAs have the ability to incentivise other actors to report cartels and to support other authorities in cartel detection. However, such instruments are rarely used in the Nordic countries. Although anonymous complaints are possible, there is no whistleblower reward programme for individuals who are not involved in the infringement. Exclusion of bidders from future public procurement procedures is not an instrument available to competition authorities in the Nordic countries. However, in Sweden and Norway, the authorities responsible for public procurement have applied exclusion in individual tender procedures. Furthermore, there is no reduction in damages liability for firms granted leniency, which may reduce firms' incentives to apply for leniency.

To summarize, a primary concern regarding detection is that leniency programs are not as active a source of cases in the four Nordic countries as they are for competition authorities in many other jurisdictions, such as the European Commission. The fact that a key method for detecting cartels is, in practice, relatively underused raises concerns that detection may be less effective. Furthermore, the limited number of leniency applications is not offset by a higher number of ex officio investigations, as these are also of limited importance. Although screening has been used in all four Nordic countries, there are, to our knowledge, few if any cartel decisions in which the original investigation was initiated through screening. This is despite the strong presence of bid-rigging cases, where screening would be expected to be particularly effective.

3.2.2 Investigation, prosecution and conviction

Competition agencies inevitably face resource constraints. Their prioritization criteria can therefore be crucial in the fight against cartels, as they influence whether an investigation is initiated. In all four countries, the prioritization criteria are relatively broad. In the survey, each

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[47] See background data for OECD (2024), available at: *https://www.oecd.org/en/publications/oecd-competition-trends-2024_e69018f9-en.html*

[48] Their method is described in Konkurrence- og Forbrukerstyrelsen: 'Kontrolundersøgelser', Report 16, 2018, available at: *https://kfst.dk/media/50736/16_kontrolundersøgelser.pdf.*

of the four Nordic countries reports several factors that are taken into account when setting priorities. These factors are rather general, for example, the suspected cartel's effects on consumers, leaving considerable discretion to the competition agency.

Case selection

The sectors investigated may provide an indication of which types of markets are prioritized by competition authorities. Table 1 reports data on the markets investigated. The data for Norway and Sweden concern dawn raids during 2004-2022. For Norway, the pre-1992 data are based on registered cartels (when collusion was legal). To assess whether the pattern in Norway and Sweden differs from that typically observed in other countries, we compare it with the OECD average based on cartel decisions in 2022.

If we consider Norway and Sweden after 2004, Table 2 shows that construction is the most investigated sector. In OECD countries in 2022, by contrast, manufacturing and wholesale and retail trade are more frequently investigated than construction. In Norway, during the period when cartels were still legal, manufacturing was the sector with the largest share of registered cartels. When compared with two related studies, the prevalence of manufacturing cartels is consistent with findings from the EU and the US (although these refer to illegal cartels). In the period 1961–2013, almost 80% of cartels investigated and convicted in the US were in manufacturing. In the EU between 1957 and 2004, more than 60% of antitrust decisions concerned manufacturing.[49] Note that the EU figure includes both abuse of dominance and cartel decisions, although the majority of decisions concern cartels.

Table 2: Types of markets investigated (percentage)

Sectors:	Norway -1992		Norway 2004-22		Sweden 2004-22	OECD 2022
Primary		12		0	3	8
Manufacturing	24	40	15	16	11	21
Electicitry and heating		0		3	11	1
Water and waste		0		8	5	5
Construction	7	7	9	24	18	14
Wholesale and retail	17	26	8	11	13	16
Transport and storage	17	12	7	19	13	7
Accommodation and food		2		0	5	3
Information and communication		0		5	0	4
Finance and insurance		0		3	3	4
Media		0		5	5	2
Admin and support		0		5	8	6
Health and social work		0		0	5	3

Numbers in green: Sector's share of GDP[50]
Norway 2004-22: Markets with dawn raids (37). Survey 2004-16 and www.kt.no 2017-22

[49] See Margaret C. Levenstein and Valerie Y. Suslow: 'Price fixing hits home: An empirical study of US price-fixing conspiracies' (2016) (48), *Review of Industrial Organization,* see table 2 and Maarten Carree, Andrea Günster and Maarten Pieter Schinkel: 'European antitrust policy 1957-2004: An analysis of Commission decisions', (2010) (36), *Review of Industrial Organization*, 97-131

[50] See Statistics Norway, 'National Account 1954-70', from which we use figures for 1960 (for the period prior to 1992), and Statistics Norway: 'National Account 2013', for the figures used for the period 2004-2022.

Norway before 1992: Data from registered cartels[51]
Sweden 2004-22: Markets with dawn raids (38). From www.kkv.se
OECD 2022: OECD Competition Trend 2024, Figure 2.9 (from cartel decisions)

If we control for each sector's share of GDP (see green numbers in Table 2), manufacturing is overrepresented in Norway when cartels were legal, while construction is overrepresented when cartels are illegal. Of course, a standard caveat applies: during the illegal regime, we observe only detected cartels. Hence, inter-industry heterogeneity in detected cartels may reflect differences in detection rates as well as differences in the underlying (unobserved) cartel incidence.

In light of the importance of construction procurement, Figure 4 reports the share of cartel decisions that involve bid rigging.

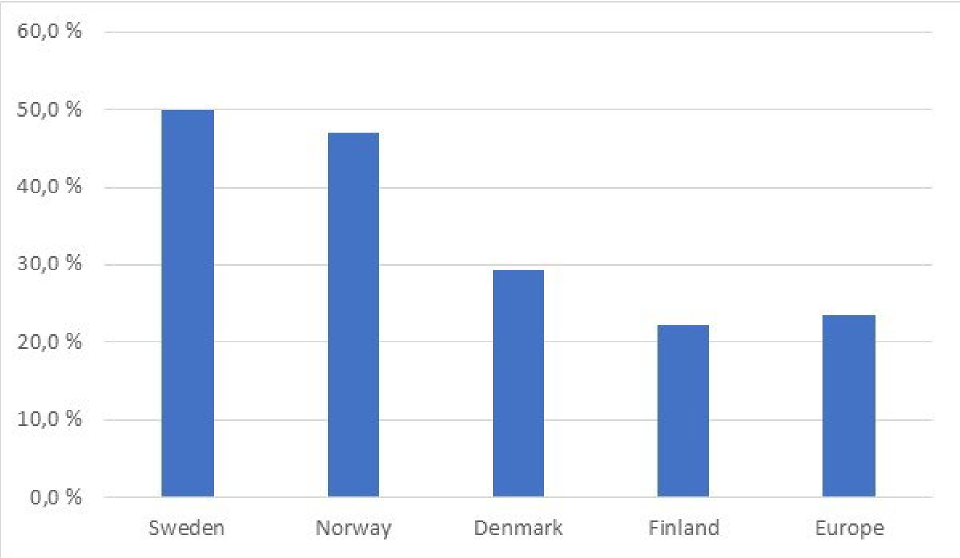

Figure 4: Fraction of cartel decisions that are bid rigging cases
Source: Nordic countries: Master thesis for the Nordic countries and home pages
Europe: Data for Europe 2021/2022[52]

We observe that the relative number of bid-rigging cases is rather high in Sweden and Norway, and also above the average for Denmark and, more broadly, OECD countries. However, public procurement is often organized at the national level and is therefore less directly comparable in an EU context.[53] Bid-rigging cases may involve straightforward infringements of competition law, for example where firms engage in explicit communication prior to submitting bids. There are also examples of so-called open bid-rigging cases in both Denmark and Norway, where bidders are transparent about their direct communication and coordination. These cases have

[51] See Ari Hyytinen, Frode Steen and Otto Toivanen: 'Norske karteller: de var mange og de var fremdeles lovlige så sent som i 1992' (2020) (1), *Samfunnsøkonomen*, Table 2.
[52] See OECD Competition Trend 2024, Figure 2.8, available at: *https://www.oecd.org/en/publications/oecd-competition-trends-2024_e69018f9-en/full-report.html*
[53] Martin Hellwig and Kai Huschelrath: 'Cartel cases and the cartel process in the European Union 2001-15: A quantitative assessment' (2017) 62(2), *Antitrust Bulletin*, 400-438 (2017) report that in EU only 4 out of 113 decisions 2001-15 are bid rigging cases (less than 4 %).

been disputed; for example, one Norwegian case was appealed to the Supreme Court, which requested an advisory opinion from the EFTA Court.[54]

Dawn raids

Figure 5 reports the annual number of dawn raids in Norway and Sweden since 2004, and Denmark since 2017. In total, the numbers are broadly comparable in Norway and Sweden: 42 dawn raids in Norway and 38 in Sweden, corresponding to an average of approximately two per year in each country. The trend is also broadly similar in the two countries. Denmark recorded a total of 66 dawn raids over the period 2006-2023 corresponding to an average of 3,7 dawn raids per year. Of these, 32 occurred during 2006-2016 and 34 during 2017-2023. Annual figures for Denmark prior to 2017 are not available. Finland reports between 2-5 dawn raids per year.

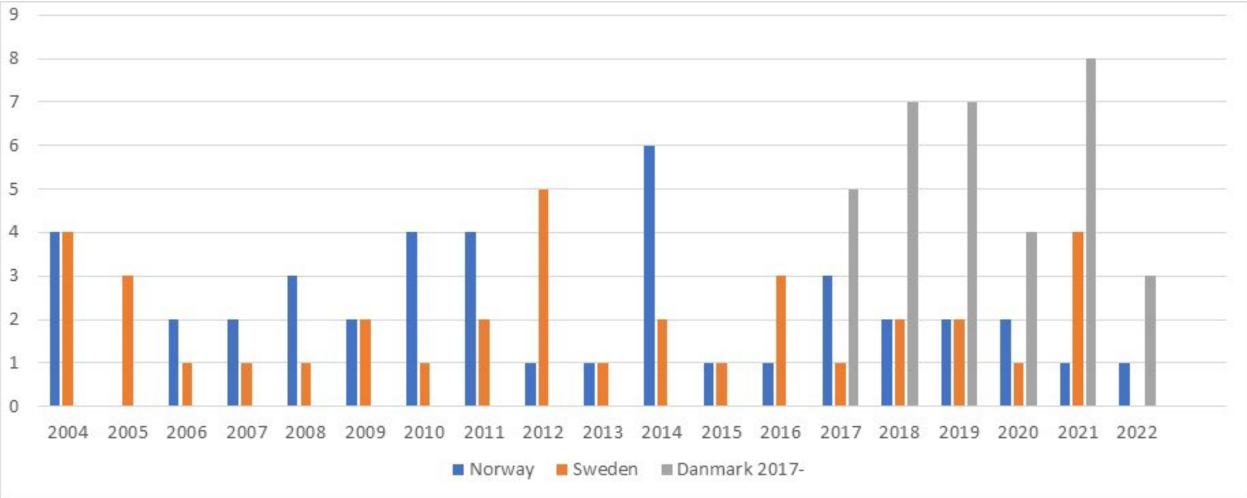

Figure 5: Annual number of dawn raids in Norway, Sweden and Denmark
Norway: Survey and web page (after 2016)
Sweden: web page
Denmark: Survey

If we compare with other comparable countries, we see that during the period 2017-23 the average annual number of dawn raids is below one in some small European countries.[55] Norway and Sweden had an average of 1.8 dawn raids per year during the same period. In contrast, large European countries had, on average, more than four dawn raids per year during that period.[56] The Netherlands conducted 130 dawn raids over the period 2005–2023, corresponding to an

[54] See Rt. 2011 s. 410 (SkiTaxi), following an advisory opinion in Case E-03/10 *Ski Taxi SA and Others v Norwegian Competition Authority* (EFTA Court).
[55] These small countries are (ranked after number of dawn raids 2017-23, see parenthesis): Slovakia (16), Portugal (9), Austria (8), Belgium (8), Cyprus (7), Bulgaria (6), Hungary (6), Switzerland (5), Netherlands (4), Latvia (2), Slovenia (2), Estonia (1) and Lithuania (1). Source: White & Case, available at: *https://www.whitecase.com/insight-our-thinking/dawn-raid-analysis-quarterly.*
[56] These large countries are (ranked after dawn raids 2017-23): Greece (39), Spain (36), Germany (31), Poland (25), Romania (25), France (24), EU (22), Italy (21 and UK (8). Source: White & Case, available at: *https://www.whitecase.com/insight-our-thinking/dawn-raid-analysis-quarterly*. See also OECD 2023, which reports on average 4 dawn raids annually for each jurisdiction in Europe 2015-21.

average of 6.8 per year. Denmark also had a relatively high number of dawn raids, even compared to large European countries, with almost six dawn raids per year during 2017–2023.

We do not have detailed information on whether dawn raids led to cartel decisions. However, the Danish competition authority reports that the share of dawn raids that led to a case increased from 40–60% during 2006–2009 to more than 70% during 2013–2017.[57] They argue that this was the result of the establishment of a special investigation and cartel unit in 2009. We do not have comparable data for the other Nordic countries, but in both Sweden and Norway, a comparison of the number of dawn raids with the number of cartel decisions suggests that the rate of dawn raids leading to a cartel decision is lower than in Denmark. If we compare the number of cartel decisions over 2004–2022 with the corresponding number of dawn raids in the same period, we find that the number of dawn raids corresponds to 38% and 45% of the number of cartel decisions for Norway and Sweden, respectively, over the period 2004–2023. Since some cartel decisions are not preceded by dawn raids, these figures overestimate the share of cartel decisions preceded by a dawn raid.

Cartel decisions

To contextualize some of our findings below, it is useful to begin with a simplified account of how decisional powers were organized with respect to findings of infringement and the imposition of corporate fines during the period covered by our data.

During the period covered by our study, it is only the Norwegian agency had the power to adopt decisions finding infringement and to impose administrative fines. The other agencies were required to bring actions before the courts to achieve the same during this period, and some still are. As already noted, the Danish agency has a long tradition of leaving the prosecution of criminal corporate fines to the National Prosecuting Authority, with one important exception: a firm may admit its participation in a cartel and accept a fine from the agency (in agreement with the Prosecuting Authority) in order to settle the case and avoid trial. The Finnish and Swedish competition agencies have themselves brought actions for civil corporate fines before the courts. In Sweden, there was also a settlement option under which a firm could accept a fine to avoid trial; this option was available from 2008 to 2021.

Following the ECN+ Directive, Denmark has moved away from the criminal track for corporate fines (while individual fines and imprisonment remain within that track), and the competition authority now brings actions for civil corporate fines before the courts. The settlement option remains, however (without the need for consent from the Prosecuting Authority), although legislative amendments have aligned the calculation of fines with the Commission's fining guidelines, potentially making this option less attractive going forward. These amendments entered into force in the summer of 2024.
Following the ECN+ Directive, Sweden has adopted a system similar to that in Norway, under which the authority has the power to adopt decisions finding an infringement and to impose administrative corporate fines. The settlement option (fine order) has been removed in Sweden.
We distinguish between settlements where the undertaking accepts a fine to avoid trial, and so-called "cartel settlements", where, in addition to avoiding trial, the undertaking receives a 10% reduction in fines. The cartel settlement procedure was introduced by the Commission in 2008

[57] Se Koncurrence- og Forbrukerstyrelsen: 'Kontrolundersøgelser', report 16, 2018, Table 2, available at: *https://kfst.dk/media/50736/16_kontrolundersøgelser.pdf.*

as an enforcement tool aimed at streamlining case handling, thereby freeing up resources to pursue additional cases and, in that respect, contributing to increased deterrence.[58] The cartel settlement procedure complements leniency in that undertakings not eligible for immunity, but only for a reduction in fines under the leniency programme, may additionally receive a 10% reduction in fines through settlement. Among the four Nordic countries, only Norway offers cartel settlements. It should be noted that Denmark still offers settlements in which fines are not reduced but are instead accepted by the undertaking in order to avoid trial.

As shown in Figure 6, three of the Nordic countries had, on average, slightly fewer than one cartel decision per year (with averages of 0.89 for Sweden and 0.84 for Finland and Norway), while Denmark exceeded one decision per year during the same period (1.3). This represents a lower annual number of cartel decisions than in many other jurisdictions. For example, in the period 2015–2022, European jurisdictions issued almost five cartel decisions per year on average.[59] In the Netherlands, a jurisdiction of comparable size to the Nordic countries, the number of cartel decisions averaged 3,4 per year over the period 2004-2023.

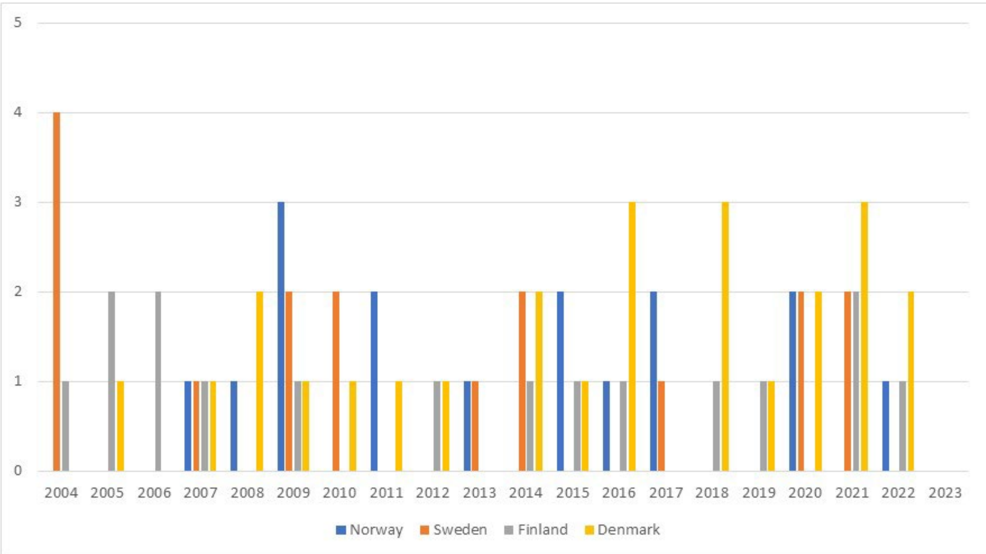

Figure 6: Annual number of cartel decisions
Source: Collected from master thesis as well as home pages

A closer look indicates changes over time in some of the countries. First, we observe that there were no cartel decisions in Norway in the early years of the period. This may be explained by two factors. In 2004, the prohibition of abuse of dominance was introduced in Norway, which led to a substantial numbers of complaints in the following years. The resulting investigations may have diverted resources away from cartel cases. In the period 2004-2006, the agency was gradually relocated from Oslo to Bergen. An almost complete turnover of staff during those years may also have reduced the agency's effectiveness. Due to the limited number of cartel

[58] Commission Regulation (EC) No 622/2008 of 30 June 2008 amending Regulation (EC) No 773/2004, as regards the conduct of settlement procedures in cartel cases [2008] OJ L 171/3. Commission Notice on the conduct of settlement procedures in view of the adoption of Decisions pursuant to Article 7 and Article 23 of Council Regulation (EC) No 1/2003 in cartel cases, [2008], OJ C 167/1.

[59] See background data for OECD (2024), where it is reported 4.7 average number of cartel decisions per country in that period, available at: *https://www.oecd.org/en/publications/oecd-competition-trends-2024_e69018f9-en.html*

decisions, the Ministry stated in its annual allocation letters ('tildelingsbrev') in 2008 and the following year that the agency should, on average, stop two antitrust infringements per year over a three-year period. When examining the period 2008-2011, we observe several cartel cases in relatively small markets, and the majority of these decisions were not appealed by the parties. One interpretation is that, during this period, priority was given to relatively small and straightforward cases in response to the expectation that a certain number of antitrust decisions be delivered.[60]

Second, we observe that Sweden experienced lower growth in the accumulated number of decisions in two periods: the years following 2004 and those following 2013/2014. In 2004 and 2013, respectively, three proposed decisions were overturned by the courts. It is possible that such reversals in the court system had a negative impact on the number of cartel decisions in the subsequent years. The Swedish Competition Authority commissioned two researchers to analyze the reasons for these decisions being overturned on appeal. Among other things, they suggested that the NCA should refer more extensively to case law from the European Court of Justice (ECJ) and request preliminary rulings from the ECJ on the applicable standard of proof, in order to safeguard the effectiveness of EU competition law.[61]

Third, as shown in Figure 6, Denmark has a higher number of decisions from 2015 onwards than the other three Nordic countries. One possible explanation for the larger number of cartel decisions in Denmark after 2017 is that they investigated more cases by having dawn raids and that the authority is more effective in selecting cases that ultimately result in findings of infringement. This explanation is consistent with statements made publicly by the Danish Competition Authority.[62] An alternative explanation is that the underlying population of cartel cases is larger in Denmark than in the other Nordic countries.

Win/loss ratio

In Figure 7, we show the share of cases upheld in each country during 2004-2022. Note that this includes cases that were not appealed to the courts. In particular, 36 % of cases in Denmark were resolved through settlement, whereby all parties accepted the fine (without a court judgement). This may indicate that fines are at a relatively low level in Denmark (as shown below), since a high share of cases are not brought before the courts by any of the parties.

Between 85% and 91 % of cartel decisions were upheld in the Nordic countries, except in Sweden, where only 65 % of cartel decisions were upheld. The decisions that were overturned by the courts did not meet the applicable evidentiary standards.

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[60] See Lars Sørgard: 'Måling og prioriteringer i konkurransepolitikken' (2013) 16(4), *Magma*, 60-71

[61] See Torbjørn Andersson and Magnus Strand: 'Konkurrensverkets domstolsprocesser', (2021) *Konkurrenseverket,* available at: *https://www.konkurrensverket.se/informationsmaterial/rapportlista/konkurrensverkets-domstolsprocesser/*

[62] See Koncurrence- og Forbrugerstyrelsen (2018): 'Kontrolundersøgelser', report 16, 2018, Table 2, available at: *https://kfst.dk/media/50736/16_kontrolundersøgelser.pdf.*

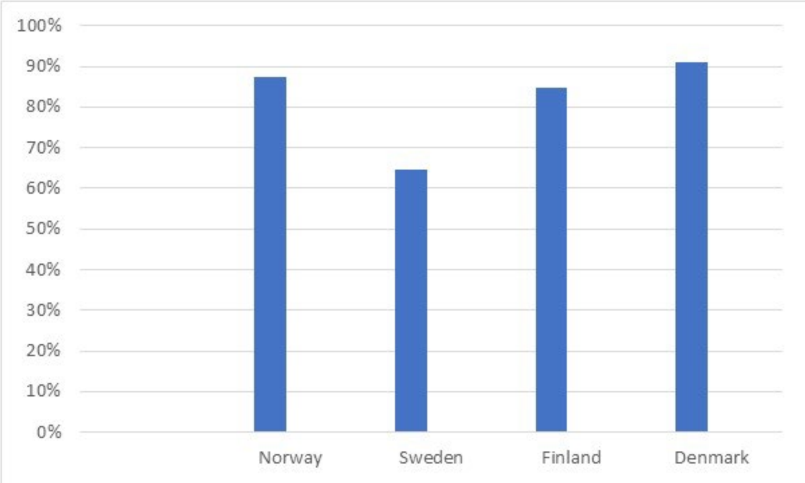

Figure 7: Percentage of decisions upheld
Source: Master thesis and home pages

However, it is of interest to examine the share of firms that appeal decisions, as shown in Figure 8.

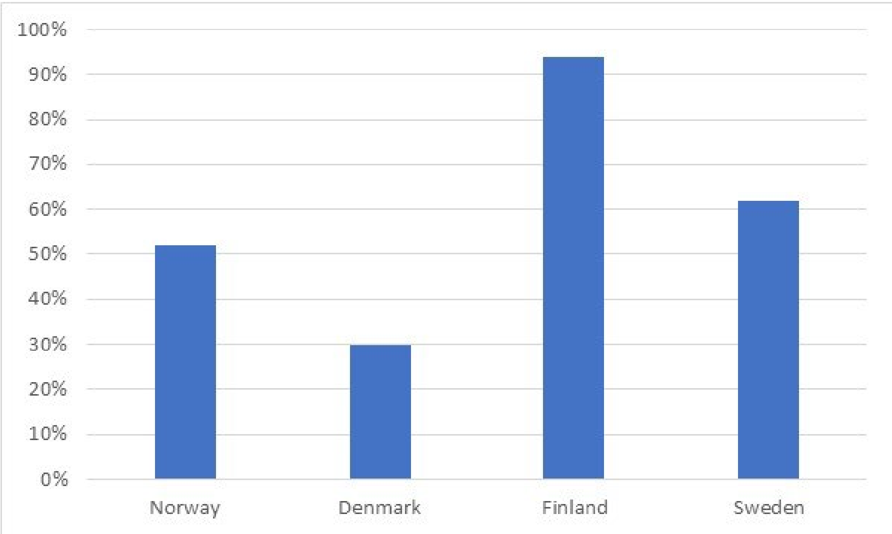

Figure 8: Percentage of convicted firms that appeal
Source: Master thesis and home pages

We observe that Denmark and Finland stand out, with a low and high appeal rate, respectively. As discussed below (see Section 4.1), this may be due to very low fines in Denmark, and relatively high fines in Finland compared to the Nordic average. When comparing this with a related study for the EU, we find that the share of cartelists appealing decisions varies considerably over time. While 60 % appealed during 2001-2010, only 21 % appealed over 2011-2015. This decline has been attributed largely to the increasing use of the cartel settlement procedure in the EU.[63] Note that the 10 % cartel settlement procedure in public antitrust

[63] See Michael Hellwig and Kai Hüschelrath: "Cartel cases and cartel enforcement process in the European Union 2001-2015: A quantitative assessment," (2017) 62(2), *Antitrust Bulletin*, 400-438. In particular, see the discussion concerning Figure 29.

enforcement has not been used in the Nordic countries. Denmark, Finland and Sweden do not have cartel settlements as an available instrument, while in Norway the instrument has not been used since its introduction in 2017. Sweden previously had its own settlement procedure, which, to the best of our knowledge, was used only in three cases.[64] The only study we have found that is related to ours covers ten European jurisdictions for the period up to 2018, and reports that appeal rates vary from 30 % (Germany) to more than 80 % (the Netherlands and Croatia). Note that the data include both horizontal and vertical cases and that the time periods differ across countries; therefore, the study is not directly comparable to ours.[65]

Turning to whether firms that appeal succeed in court, Figure 9 shows the share of appealed decisions that are upheld.

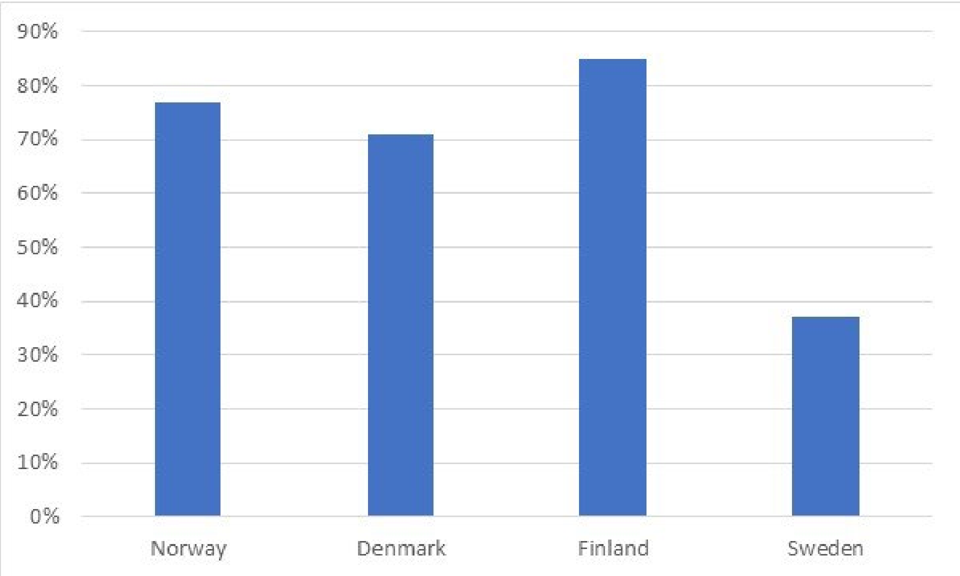

Figure 9: Decisions upheld as a percentage of cases appealed
Source: Master thesis and home pages

Sweden stands out with an upheld rate of less than 40 %, which is partly explained by the fact that the Swedish Competition Authority has struggled to build sufficiently robust cases to convince the courts, inter alia due to budget constraints.[66] In contrast, the other three Nordic countries have upheld rates of 70 % or higher. The study of ten European countries found that only one country (Germany) had an upheld ratio higher than 70 %.[67] This suggests that the

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[64] See Annalies Outhuisje: "Effective public enforcement of cartels: rates of challenged and annulled cartel fines in ten European member states" (2019) 42(2), Josè Rivas (ed.): *World Competition Law and Economics Review*, Kluwer Law International, 171-204
[65] See Annalies Outhuisje: "Effective public enforcement of cartels: rates of challenged and annulled cartel fines in ten European member states" (2019) 42(2), Josè Rivas (ed.): *World Competition Law and Economics Review*, Kluwer Law International
[66] See Torbjørn Andersson and Magnus Strand: 'Konkurrensverkets domstolsprocesser', (2021) *Konkurrensverket* English summary found on p. 7., available at: *https://www.konkurrensverket.se/informationsmaterial/rapportlista/konkurrensverkets-domstolsprocesser/*
[67] See Annalies Outhuisje: "Effective public enforcement of cartels: rates of challenged and annulled cartel fines in ten European member states" (2019) 42(2), Josè Rivas (ed.): *World Competition Law and Economics Review*, Kluwer Law International.

upheld rate in three of the four Nordic countries is relatively high compared to other jurisdictions.

Summarizing the investigation, prosecution and conviction of cartels, it is encouraging that dawn raids are commonly used in the four Nordic countries, and that their use even exceeds that of the European Commission. Furthermore, with the notable exception of Sweden, relatively few decisions are overturned on appeal. The high rate at which appealed cases are overturned in Sweden is a concern, as it may weaken enforcement and reduce incentives within the competition agency. In the case of Denmark, however, the fact that very few cases are appealed may reflect relatively low penalties, with convicted firms being more likely to accept the outcome and move on. We return to this in more detail in the next section.

3.2.3 Penalization

All the Nordic countries' anti-cartel enforcement rules are harmonized with EU rules (see Section 3.1). Despite this, there are some notable differences between the four Nordic countries concerning which instruments that are available. The main instruments available in each country during the period of investigation are shown in Table 3.

Table 3: Enforcement instruments in the Nordic countries in 2022

	Norway	Sweden	Denmark	Finland
Administrative corporate fines	✓			
Civil corporate fines		✓		✓
Criminal corporate fines			✓	
Corporate fines from turnover	✓	✓		✓
Individual criminal fines and imprisonment	✓		✓	
Individual administrative fines				
Director disqualification		✓		
Leniency for firms	✓	✓	✓	✓
Leniency for individuals			✓	
Settlements	✓	✓	✓	
Damages directive		✓	✓	✓

As seen from Table 3, various instruments are available in each of the four countries. However, it turns out that the main instrument in all four countries is corporate fines.

Corporate sanctions

Figures 10 and 11 report the fines per firm in each of the four countries, as well as fines as a percentage of a firm's turnover.

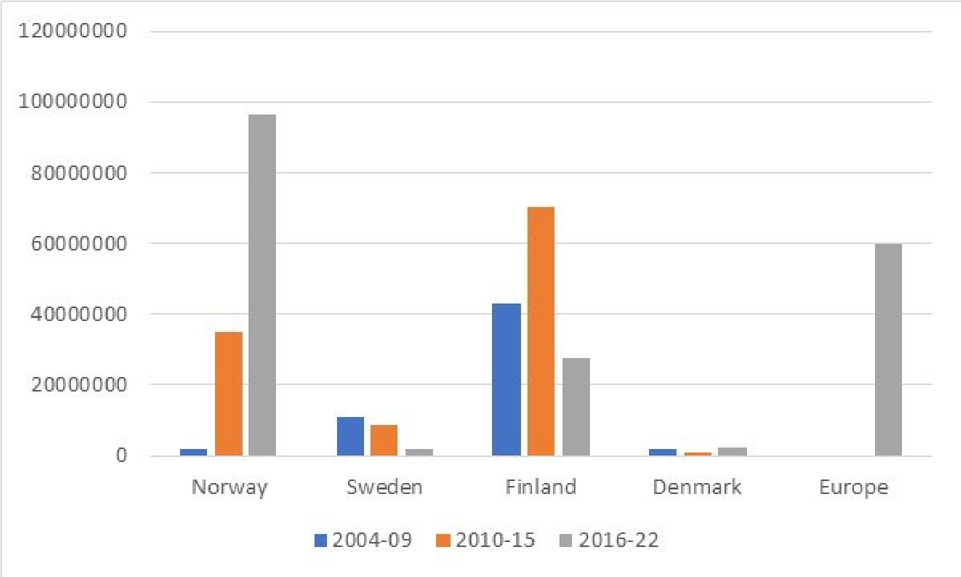

Figure 10: Absolute fine per firm
Source: Master thesis and home page. Absolute number in kroner except for Finland (Euro), where 1 Euro = 0.1 krone. For Europe, data from OECD.

Figure 10 shows the average fine paid by each firm and reveals substantial variation across countries and, in some cases, over time. The absolute level of fines is very low in Denmark over the entire period, while it has been declining in Sweden over the past twenty years. In contrast, in Norway, the absolute level of fines has increased over time, reflecting its alignment with the Commission's fining practice and, more recently, is higher than in the other Nordic countries.

In Denmark, the level of fines depended on whether a cartel infringement was categorized as less serious, serious or very serious. For each category, relatively low fine ranges were set, although these were increased in 2012. Until 2012, the maximum fines were 0,4 MDKK for less serious infringements, 0,4-15 MDKK for serious infringements, and above 15 MDKK for very serious infringements. In 2012, these ranges were increased to a maximum of 4 MDKK, 4-20 MDKK, and above 20 MDKK, respectively. In contrast to the fine-setting approach in the other three Nordic countries, fines were not linked to the value of relevant sales or annual turnover. In those three countries (and in the EU), fines are typically set as a percentage of the value of relevant sales per year (typically 15-20 %), multiplied by the number of years (duration of infringement). However, total fines are subject to a cap of 10 % of annual turnover.

For comparison, each firm in Europe that was fined during 2016-2022 was subject to an average fine of €6.3 million, which corresponds to slightly more than NOK 60 million.[68] This amount is approximately 60 % of the corresponding average fine per firm in Norway during the same period, and slightly less than half of the average absolute fine per firm in Finland. In contrast, the average fine per firm is approximately 30 times higher in European jurisdictions than in Denmark and Sweden. Note, however, that the European data include both large countries and EU-level cases, and are therefore not directly comparable to the smaller Nordic jurisdictions.

[68] See background data for OECD (2024), where we have divided the total nominal fines with the number of cartel members that were fined, available at: *https://www.oecd.org/en/publications/oecd-competition-trends-2024_e69018f9-en.html*

Let us contrast the fine-setting regimes in the Nordic countries with the harmonization with EU rules. As explained above, Denmark stands out during the project period under review due to its fine-setting system not being linked to turnover. In 2013, Norway introduced rules on fine setting that were fully harmonized with those of the EU.[69] When examining cartel decisions in Norway, we find that in all cases prior to 2013 there was no reference to EU case law concerning the setting of fines, either in the initial decisions or in subsequent court judgments, whereas the opposite is true for cartel decisions after 2013. In Sweden, as noted above, it has been suggested that greater reliance on EU case law could have been made. More recently, Sweden introduced rules on fine setting that are very similar to those introduced in Norway in 2013.[70] We observe that fines increased in Norway after 2013, whereas they did not increase in Sweden (not even in relative terms; see Figure 11). However, it remains an open question how far harmonization with EU case law contributed to the change in fine-setting practice over time in Norway.

Since fines in Denmark during the period under review were not based on turnover, we do not have data on fines as a fraction of annual turnover for Denmark. In Figure 11, we present fines per firm as a fraction of annual turnover for the three other Nordic countries, along with the corresponding figures for the EU.

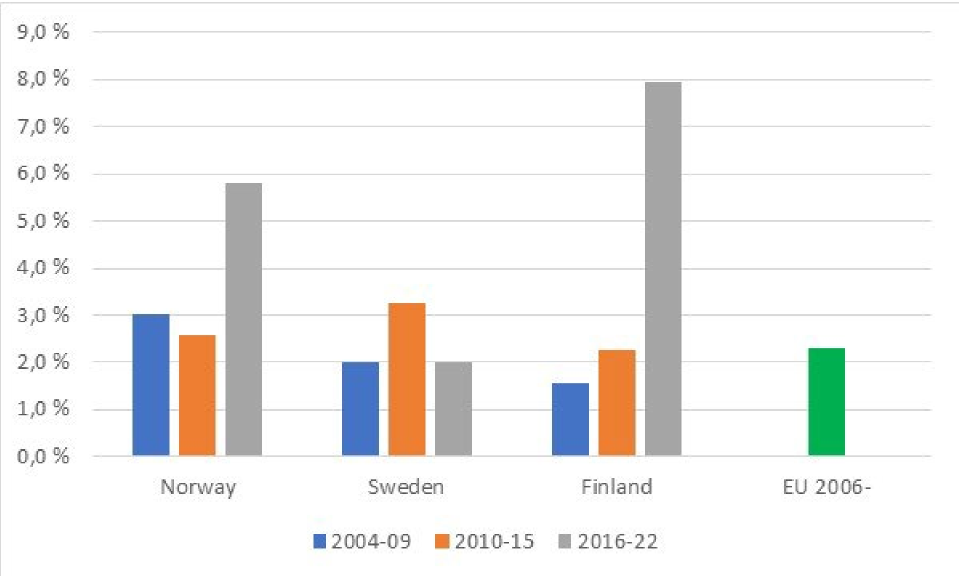

Figure 11: Fine per firm as a percentage of each firm's annual turnover
Data: Master thesis and home page for Nordic countries. For the EU, statistics on cartel decisions[71]

Figure 11 shows that, until 2015, fines as a percentage of annual turnover were broadly comparable in Norway, Sweden, and Finland. However, after 2016, relative fines in Norway and Finland were higher than in Sweden. In particular, Finland has experienced the largest

[69] See the Ministry of Trade, Industry and Fisheries: 'Forskrift om utmåling og lempning av overtredelsegebyr', December 11 2013.
[70] See Konkurrensverket: 'Method for determining the administrative fine', *Policy Statement.* 2021:2.
[71] See European Commission: 'Cartel Statistics', available at: *https://competition-policy.ec.europa.eu/document/download/b19175c3-c693-410b-b669-27d4360d359c_en?filename=cartels_cases_statistics.pdf*. Calculated from last Table on page 10 (excluding immunity applicants), by taking the average fine in each interval weighted with the number of firms in each interval.

increase in relative fines. It should also be noted that the EU average after 2006 is comparable to the Nordic countries until 2015, whereas after 2015 relative fines are higher in Norway and Finland than in the EU.

However, there is considerable variation in fine-setting outcomes. Figure 12 reports the percentage of firms receiving a fine equal to the cap (10%) and the percentage of firms receiving a fine of less than 1% of their turnover.

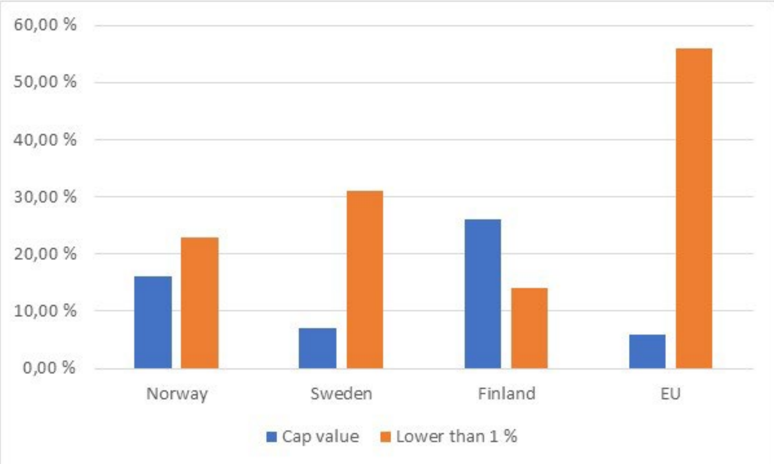

Figure 12: Percentage of firms with fines equal to 10 % cap (blue) and less than 1 % (orange)
Source: Master thesis and home pages for Nordic countries. Cartel statistics for the EU.

We observe that the relatively low average fine reported in Figure 11 for the EU is largely driven by the large number of firms receiving fines below 1% of annual turnover. As a result, comparisons of average fines in Figure 11 may not be very informative regarding the strictness of fine setting in Finland and Norway for the most serious cartel cases, since the composition of cases may differ between the EU and the Nordic countries.

The outcomes of the appeal system are important for deterrence. As shown above, a fraction of decisions is overturned on appeal (see Figure 7). In addition, even where decisions are upheld, fines may be adjusted during the appeal process. It turns out that in all four countries, appeals lead on average to substantial reductions in fines, as shown in Figure 13.

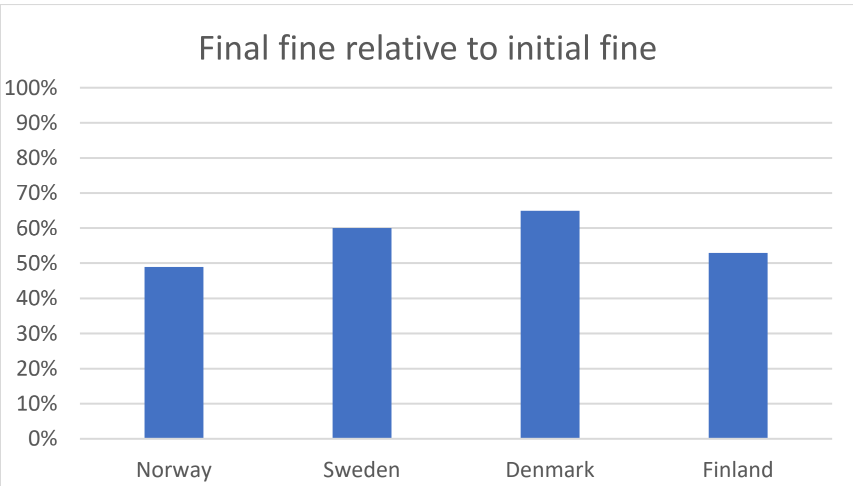

Figure 13: Final fine (final court decision) as a percentage of initial fine (set by agency, or first court)

Source: Master thesis and home pages

The average fine reduction is above 50% in Norway, and also relatively high in the other Nordic countries. The two countries with the highest initial fines—Norway and Finland—also experience the largest reductions on appeal. However, even in Denmark, where initial fines are very low, the reductions are substantial. This suggests that, regardless of the initial level of fines, the appeal system tends to reduce fines in cartel cases, even though it may in principle also increase them. One example of an increased fine is the asphalt cartel case in Norway, where the Court of Appeal increased the fine from 140 to 150 MNOK. The reason was that the court took into account that the firm had previously infringed competition law.[72] Cartel cases are often complex and resource-intensive, and factors such as the application of substantive law, economic evidence, case duration, and evidentiary requirements may help explain these fine reductions. In a related study of the EU, it was found that fine reductions are lower in the EU than in the Nordic countries. For the period 2001–2012, they were below 15% in nine out of twelve years.[73]

Individual sanctions

For a long time, individual fines and imprisonment have been available in Norway and Denmark, whereas they are not available as instruments in Sweden or Finland. Unlike in the US, individual penalties are not commonly used in European cartel cases. In the period 2015–22, individual fines were imposed in fewer than 20% of cartel cases in Europe.[74]

In Norway, both individual fines and imprisonment are available enforcement instruments. From the late 1980s to the late 1990s, individual fines were imposed on 61 individuals in eight cartel cases. However, since the end of the 1990s, no individual has been sanctioned with fines or imprisonment in Norway. This suggests that the deterrent effect of such provisions has been limited over the past 25 years. Since individual fines are in practice not imposed by the Prosecuting Authority, there have, as noted previously, been discussions on granting the agency the power to impose administrative individual fines and director disqualification.

In Denmark, individual fines have been an enforcement instrument for many years (also prior to 2004) for various infringements of the prohibition on anticompetitive agreements, including hardcore cartels. In 2012, individual penalties were strengthened. First, the basic level of personal fines was increased. Indicative fines were set at DKK 50,000 for less serious infringements, DKK 100,000 for serious infringements, and DKK 200,000 for very serious infringements. In addition, imprisonment of up to six years was introduced.

In total, 63 individuals have received fines in Denmark during this period. Until 2012, fines were very low, with a median value of DKK 25,000. After 2012, the median increased to DKK 100,000, which remains a relatively low amount. The highest individual fines are DKK

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[72] Borgarting Appeal Court, LB-2014-76039, available at: *https://lovdata.no/dokument/LBSIV/avgjorelse/lb-2014-76039?q=LB-2014-76039*

[73] See Michael Hellwig and Kai Hüschelrath: "Cartel cases and cartel enforcement process in the European Union 2001-2015: A quantitative assessment," (2017)

[74] See background data for OECD (2024), which have separate tables for total number of cartel decisions and those cases where individuals were imposed fines, available at: *https://www.oecd.org/en/publications/oecd-competition-trends-2024_e69018f9-en.html*

300,000, but these have only been imposed on two individuals (both in bid-rigging cases). The third-highest fine is DKK 125,000.

An individual fine may be reimbursed by the firm, in which case the deterrent effect is undermined. We have no information on whether individual fines were directly or indirectly borne by firms. Furthermore, even the highest individual fines (DKK 300,000) are typically very low compared to the potential gains from participation in a cartel for a large firm.

Imprisonment is expected to have a stronger deterrent effect on individuals. In Denmark, imprisonment was proposed as a sanction in only three cartel decisions. These involved either bid-rigging or price-fixing cases. However, all of them were annulled by the courts on appeal. During 2015–22, there were only three cartel decisions in Europe in which imprisonment was imposed as part of the sanctions.[75]

In Sweden, there has been the option to disqualify directors since 2014, although it has not yet been used.

Available sanctions today

In Table 4, we provide an updated overview of the enforcement instruments currently available across the four Nordic countries. Since the end of the project period, there have already been some developments, which we return to in Section 4 on policy recommendations and final remarks.

Table 4: Enforcement instruments in the Nordic countries in 2024

	Norway	Sweden	Denmark	Finland
Administrative corporate fines	✓	●		
Civil corporate fines			●	✓
Criminal corporate fines				
Corporate fines from turnover	✓	✓	●	✓
Individual criminal fines and imprisonment	✓		✓	
Individual administrative fines	H			
Director disqualification	H	✓		
Leniency for firms	✓	✓	✓	✓
Leniency for individuals			✓	
Settlements	✓		✓	
Damages directive		✓	✓	✓
ECN+ Directive		●	●	●

H= Expert report on hearing, but no legislative proposal has been made so far.[76]
● = Legislative change recently

[75] See background data for OECD (2024), available at: *https://www.oecd.org/en/publications/oecd-competition-trends-2024_e69018f9-en.html*

[76] Note that this reflects the enforcement landscape in 2024. More recently, in 2025, Norway considered the possibility of introducing individual administrative fines; however, this option was not taken up by the expert committee reviewing the Norwegian Competition Act in 2025. The committee instead proceeded on the basis that the existing criminal regime for individual sanctions should be maintained. The issue is now on the table of the legislature.

Summarizing penalization in the Nordic countries, we find that this is likely the weakest dimension of enforcement. The primary sanction in all four countries has been corporate fines, while other instruments are either unavailable or very seldom used. Corporate fines have generally been relatively low, with substantial variation between countries in recent years. Fines have been very low in Denmark throughout the period and also relatively low in Sweden, whereas they have increased over time in Finland and Norway, with several cases where the 10% turnover cap has been reached. Furthermore, corporate fines set by the competition authorities are often substantially reduced on appeal. In this context, reductions of already low fines further weaken deterrence against cartel formation.[77]

Furthermore, weak corporate penalties are not offset by strong individual sanctions; indeed, sanctions against individuals are minimal and rarely used. While individual fines are available in Denmark and Norway, they are very low in Denmark and have not been used in Norway for more than two decades. Imprisonment is available in both countries but has not been applied in practice. No prison sentences have been imposed in Norway, and in Denmark the relevant cases have been overturned on appeal. Director disqualification is another form of individual sanction which, although available in Sweden, has not been used.[78] The primary purpose of penalties is deterrence of unlawful conduct; however, the overall level of sanctions appears too weak across all four Nordic countries to ensure effective deterrence of cartel activity.

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[77] The Norwegian Competition Authority had surveys among business leaders in 2017 and 2021 about competition law compliance, where slightly more than 3000 business leaders in 2017 and slightly less than 3000 responded in 2021. While 59 % reported that fines were very or quite important (svært viktig eller ganske viktig) in 2017, the corresponding figure in 2021 was 69 %. One reason for the increased importance of fines for deterrence, according to business leaders, was that between 2017 and 2021 there had been some examples of a substantial increase in the fine level in antitrust cases. Available on *https://konkurransetilsynet.no/tydelig-okt-kjennskap-til-konkurransereglene/*

[78] Note that a minority proposed introducing this in the recent revision of the Norwegian Competition Act. The 2025 proposal for the revision of the Norwegian Competition Act is available (in Norwegian) at: https://www.regjeringen.no/contentassets/c1ab5d93071948599136fbd091a97ff5/no/pdfs/nou202520250011000dddpdfs.pdf.

4. Policy recommendations and final remarks

Given the shortcomings in anti-cartel enforcement identified above, there is scope for improvement across several dimensions.

4.1 The need for an overall evaluation

Although we have distinguished between three different enforcement stages, it is misleading to consider each stage in isolation. Effective enforcement of laws prohibiting collusion requires all three stages to function effectively: detection; investigation, prosecution, and conviction; and penalization. If cartels are not detected, collusion will continue unabated regardless of how effective the competition authority is in prosecuting cases or how severe the penalties are. If cartels are detected but convictions are rare—whether due to a competition authority avoiding risky cases, a lack of resources to prosecute them effectively, or courts' reluctance to enforce the law—deterrence will again be undermined. Finally, even if cartels are detected and convicted, cartels will continue to form unless sufficiently severe penalties are imposed. The complexity of finding an optimal anticartel enforcement is illustrated with Table 1, where we list goals, instruments and performance metrics for all three enforcement stages.

As made clear in the summary of the three sections in Section 3.2, there are clear shortcomings in all four countries' enforcement of cartel prohibitions. When these findings are combined, the overall assessment is not encouraging. There is little reason to believe that detection is effective, particularly given the low number of leniency applications. With regard to investigation, prosecution, and conviction, the main concern is the high rate at which cases are annulled in Sweden. Finally, low corporate penalties and the absence of effective individual sanctions are unlikely to provide sufficient deterrence. In light of these low penalties, it is plausible that cartels are not rare, and that the scarcity of leniency applications reflects a lack of incentives for cartelists to come forward rather than an absence of cartels. Overall, the evidence suggests that anti-cartel enforcement is likely to be weak.

Since there are shortcomings at all three enforcement stages, there is a need to combine several measures. For example, stronger incentives to come forward and apply for leniency will not be effective if penalties are limited, and therefore the expected cost of continuing cartel behavior is low. Similarly, leniency will not function effectively unless firms believe there is a real risk of detection, for example through ex officio investigations.

The contrast between Denmark and the other Nordic countries illustrates the potential interaction between enforcement design and firms' litigation behavior. Denmark used to have a fine-setting system that differed substantially from those of the other Nordic countries, resulting in relatively low corporate fines. At the same time, cartelists appeal cartel decisions less frequently in Denmark than in the other Nordic countries. We interpret this pattern as a hypothesis that lower expected penalties may reduce the incentive to appeal, although the available data are insufficient to test this relationship formally. At the same time, alternative explanations—such as differences in legal culture, litigation costs, or procedural systems—cannot be ruled out, even though we are not aware of clear institutional differences in these respects across the Nordic countries.

Moreover, in Denmark—especially in recent years—there have been more dawn raids and more cartel decisions than in the other Nordic countries. This may be explained by a deliberate policy of conducting more targeted dawn raids, as stated by the authority. On the other hand, it remains an open question whether extremely low corporate fines could lead to a larger population of cartels in Denmark, and thereby to more successful dawn raids. However, we do not have data to test empirically whether lower corporate fines lead, in the long run, to more cartel formation. This is clearly an issue for future research.

4.2. Some recommendations

First and foremost, corporate fines should be increased. Doing so requires identifying where the main constraint lies: with the competition authorities or with the courts. In either case, it is important to recall that the purpose of penalties is to deter unlawful conduct, and there is little justification for maintaining penalties that are not of a magnitude capable of credibly discouraging cartel formation. A possible starting point in this regard could be to grant the agencies the power to impose fines themselves, a power Norway has had for many years and which was recently introduced in Sweden. As the primary enforcers of competition law, the agencies are well placed to appreciate the importance of deterrence, and this may support giving them greater responsibility for setting fines.

Given the increasing role of customer damages following the implementation of the Damages Directive, and concerns that such damages may have contributed to declining leniency applications in the EU and some other jurisdictions, it is recommended that leniency cover both customer damages and public fines. Customer damages attributable to the leniency applicant would then be borne by the remaining cartel participants. This recommendation is in the spirit of the U.S. Antitrust Criminal Penalty Enhancement and Reform Act (ACPERA), which reduced liability for customer damages (from treble to single damages) for firms receiving amnesty. However, ACPERA has not been as effective as intended, and it is important to draw lessons from its implementation.[79] If leniency were also to cover customer damages, increased private litigation could further enhance the deterrent effect of corporate fines imposed by competition authorities.

Cartels are formed by managers rather than shareholders, so it is important to ensure that managers, and not only shareholders, are subject to sanctions for engaging in such unlawful activity. As noted above, individual sanctions are largely absent in the four Nordic countries. Individual fines should be increased. While imprisonment is available in some of the Nordic countries, it has not been used in practice and appears unlikely to be used more frequently in the near future. As noted in Section 2, only a small number of countries, perhaps as few as three, have imposed imprisonment on convicted cartelists, despite criminalization in nearly 40 jurisdictions. If imprisonment is in practice not an effective option and given that there may be limits to the effectiveness of individual fines (especially if firms compensate employees), we recommend the adoption and use of director disqualification. Preventing a convicted cartelist from continuing his or her career as a manager would appear to be a sanction with strong potential deterrent effects. Its use in the United Kingdom provides a relevant model for the Nordic countries.

Turning to detection, it has been documented that leniency programs in the four Nordic countries have not been particularly active. Increasing government fines and extending leniency

[79] For a discussion of the problem along with a proposed fix, see John M. Taladay, “Why ACPERA Isn’t Working and How to Fix It,” (2019) 1(2), *CPI Antitrust Chronicle,* 30-35.

to cover customer damages, as recommended above, would help strengthen leniency programs by enhancing incentives for cartel participants to come forward. We also recommend establishing a framework that gives competition authorities access to public procurement data so that they can engage in screening. The frequent occurrence of bid-rigging in procurement auctions, combined with well-developed methods for detecting such conduct, makes public procurement a particularly suitable area for screening-based ex officio investigations. A challenge in some jurisdictions has been ensuring that competition authorities obtain access to procurement data, and that public procurers collect, retain, and share the data required for screening. A relevant model for the Nordic countries is Spain, where legislation requires public procurers to provide such data, and where this is reported to have contributed to screening success by the Comisión Nacional de los Mercados y la Competencia.[80]

Complaints from customers and competitors have been found to be an important source of cartel cases in some Nordic countries. This source could potentially be strengthened through financial incentives. One option is financial rewards for whistleblowers who are not themselves involved in the illegal activity, as has been adopted in at least five countries and recently introduced in the United States.[81] If such a policy is implemented, the rewards should be of a sufficient magnitude to incentivize employees of cartel participants to report wrongdoing, even at the cost of their employment. An important but less explored source of complaints is competitors of firms engaged in cartel activity. Understanding the motivation behind such complaints could help identify ways to encourage more whistleblowing from this group. In the context of bid-rigging in public procurement auctions, temporary exclusion of cartel members from future tenders would give a significant competitive advantage to non-cartel firms and could substantially increase incentives to report collusive behavior.

Concerning corporate fines, Sweden and especially Denmark have very low fines. It is positive, however, that the procedure for corporate fine setting has been changed in Denmark and harmonized with the EU, and that clearer guidelines for fine setting have been introduced in Sweden. To avoid substantial reductions of corporate fines on appeal, it may be useful to rely more on the guidelines and case law of the Court of Justice of the European Union. Additionally, for EU Member States, in complex competition law cases a useful resource is to request a preliminary ruling from the Court of Justice.[82] For Norway, as an EEA/EFTA state, a comparable mechanism is the possibility to seek an advisory opinion from the EFTA Court, which, unlike preliminary rulings from the Court of Justice of the European Union, does not have the same binding effect but nevertheless serves an important interpretative function within the EEA system.[83]

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[80] As reported by Marisa Tierno Centella (CNMC - General Director for Competition) at the panel on "Cartel Screening and Machine Learning" at the 18th International Conference on Competition and Regulation (CRESSE), Chania, Crete, July 5-7, 2024.

[81] U.S. Department of Justice, Antitrust Division and U.S. Postal Service, "Antitrust Division and U.S. Postal Service Make First-Ever $1M Payment to Whistleblower for Reporting Antitrust Crime," Press Release (29 January 2026), available at: https://www.justice.gov/opa/pr/antitrust-division-and-us-postal-service-award-first-ever-1m-payment-whistleblower-reporting (last accessed 12 April 2026).

[82] See for a similar recommendation Torbjørn Andersson and Magnus Strand: 'Konkurrensverkets domstolsprocesser,' (2021)

[83] Agreement between the EFTA States on the Establishment of a Surveillance Authority and a Court of Justice (Surveillance and Court Agreement), Article 34.

4.3 Some final remarks

Anti-cartel enforcement is active in all four Nordic countries, although it varies between countries and over time. Nevertheless, we argue that there is scope to strengthen public enforcement against cartels along several dimensions in all four countries. Some proposals would require additional resources, while others involve introducing additional enforcement instruments or redirecting existing efforts, and certain challenges could be addressed through organizational changes.

Our recommendations are general and based on developments observed in the four countries over the past two decades. We are therefore not able to fully account for more recent developments in public enforcement against cartels in the Nordic countries. However, we do observe that some recent changes are consistent with our proposals, such as institutional changes in Denmark concerning fine setting, the introduction of more detailed fine-setting guidelines in Sweden, proposals for stronger individual sanctions in Norway, and ongoing discussions in Norway on whether leniency recipients granted immunity from corporate fines should also be protected from customer damages. Overall, we hope that our recommendations may contribute to further strengthening public enforcement against cartels in all four countries.

It could be argued that many of our observations are not unique to the Nordic countries. This does not imply that our recommendations are not relevant for the Nordic countries, but rather that they may also be relevant for other jurisdictions. However, if many jurisdictions face similar challenges, this suggests that it is difficult to redirect public enforcement against cartels. Ideally, each country can learn from practices in other Nordic countries, as described in Section 3, as well as from experiences in non-Nordic jurisdictions, as discussed in Section 2, particularly regarding enforcement instruments that are currently not available or used in the Nordic countries.