



ARTICLE

The Impact of the More Economic Approach on EU Merger Decisions

Lea Bernhardt* & Ralf Dewenter**

Abstract. We analyse all final merger decisions by the European Commission from 1990 to 2019 with a novel dataset, containing information about 6245 merger cases from all economic sectors and combining all types of decisions, including withdrawn and prohibited cases. Using text analysis techniques such as a keyness analysis and a dictionary approach, we find that terms associated with the More Economic Approach (MEA) are used increasingly, whereas the concept of dominance has decreased since 2004. The tonality of decision documents is predominantly positive, especially for cleared cases, and shows variation under different merger regulatory frameworks. Accounting for differences in the usage of competition-related terms and by using ordinary least squares and logit regressions, we find that the impact of the 2004 merger regulation, the 2007 guidelines for non-horizontal mergers, and the 2013 merger simplification package on the duration of investigations is evident in terms of procedural duration. While the 2004 merger regulation has extended the review period, the subsequent guidelines have shortened it. Changes in the probability of prohibition are minor, likely within one percentage point.

* Hamburg Institute of International Economics (HWWI), Hamburg, Germany. ORCID: 0000-0002-0804-0731. Corresponding author: bernhardt@hwwi.org.

** Helmut Schmidt University Hamburg, Department of Economics, Germany, dewenter@hsu-hh.de.

JEL-Codes: K19, K21, L1

Keywords: Merger control, Competition policy, Regulatory reform, EU Commission

Declarations: The authors have no relevant financial or non-financial interests to disclose.

Acknowledgements: The authors would like to thank all participants of the Hohenheimer Oberseminar at the Duesseldorf Institute for Competition Economics in June 2022, especially Wolfgang Kerber, Oliver Budzinski, Justus Haucap, Jörn Sickmann and Benedikt Schmal for their valuable comments and suggestions.

I. Introduction

The implementation of the new merger regulation in 2004 represented a “radical reform” of the merger control procedure in the EU.¹ A greater focus on efficiency-related arguments and on economic analysis, consumer welfare and quantitative price and quantity effects are some of the same elements of the new merger regulation 139/2004.² This approach emphasizes both stronger theoretical economic analysis and the application of more elaborate empirical methods, commonly known as the more economic approach (‘MEA’). Due to these significant changes, the 2004 reform has therefore had a substantial influence not only on the procedure but also on the outcome of merger decisions. This massive shift in methodological and theoretical analysis has likely also influenced the wording and language of the decisions. Examining these decision documents allows us to assess whether the reform’s intended goals are reflected in practice, signalling the successful implementation of the policy in regulatory decision-making.

To shed some light on the impact of the 2004 reform, this paper analyses all final merger cases from the beginning of 1990 up to the end of 2019. After providing some simple descriptive statistics on the merger cases, we use text analysis techniques to discover any potential changes in the wording of the merger decision documents due to the implementation of the MEA. We focus on detecting trends regarding topics of structural market parameters or terms specifically associated with the 2004 reform. Furthermore, we analyze the overall tonality of the decisions, which refers to the measured sentiment and evaluative language within the texts, and determine the impact of the 2004 merger regulation on the course of tonality over time. Subsequently, we examine the impact of the 2004 merger regulation on the duration of merger reviews as well as on the likelihood of a merger being prohibited. Given that we lack specific competition parameters, which we assume have a significant influence on the decision, such as market shares and concentration ratios, we instead focus on the frequency of competition-related terms (see Table A2). This approach enables us to generate insights based on the information available in the European Commission’s decision documents, which reflect the underlying market analyses.

Starting with the text analysis, our results show that after 2004 there is a greater emphasis on questionnaires for competitors, consumers or other third parties to the merger. As expected, we find that terms regarding efficiency defences, the

¹ Mario Monti, *Merger Control in the European Union: A Radical Reform* (2002), https://ec.europa.eu/commission/presscorner/api/files/document/print/en/speech_02_545/SPEECH_02_545_EN.pdf.

² Oliver Budzinski, *Wettbewerbsfreiheit und More Economic Approach: wohin steuert die Europäische Wettbewerbspolitik?*, No. 2007 Marburger Volkswirtschaftliche Beiträge (2007), <https://hdl.handle.net/10419/29859>.

Significant Impediment to Effective Competition SIEC ('SIEC') test or coordinated effects occur only after the 2004 reform. The concept of dominance is steadily declining in importance, whereas the mentioning of foreclosure does not follow such a clear trend. Entry barriers are becoming less influential, as well as market shares.

To assess the impact of the 2004 merger regulation on the duration of merger reviews, we employ regression analyses. This approach allows us, first, to control for various factors that may influence review durations, thus isolating the specific effects of the reform. Our findings indicate a significant increase in review durations post-reform. Additionally, we observe changes in review durations following the introduction of other regulations, such as the 2007 merger guidelines and the 2013 merger simplification package. Although the use of dummy variables related to competition-relevant terms sharpens our results, it does not lead to significant changes. However, when analyzing the impact of the merger regulation on the probability of a merger being prohibited, we find only minimal statistically significant and no economically significant changes post-2004.

The paper is structured as follows. Section II reviews the theoretical foundations of merger reviews and the different merger regulation reforms in the EU. Section III describes the dataset in detail, focusing on the different decisions, economic sectors and Commissioners. In Section IV, the regression results as well as the findings of the semantic analysis are shown and discussed. Section V concludes.

II. Literature Review and Theoretical Background

In this section, we focus on specific concepts related to the MEA, explain some terms such as 'collective dominance' or 'efficiency defence', and review the latest research on the impact of the 2004 reform on the EC merger control.

A. The More Economic Approach

By implementing the 2004 merger reform, the European Commission (EC) introduced a MEA, explicitly taking efficiency gains into account and assessing coordinated and unilateral effects.³ The previous test for dominance has been replaced by an analysis of a SIEC.⁴ As the SIEC standard also considers unilateral effects, a merger can be challenged if a reduction in effective competition is seen as

³ Arndt Christiansen & Wolfgang Kerber, *Competition Policy with Optimally Differentiated Rules Instead of "Per Se Rules vs Rule of Reason,"* 2 J. OF COMPETITION L. & ECON. 215, 215-44 (2006)

⁴ Council Regulation (EC) No. 139/2004 of 20 January 2004 on the Control of Concentrations Between Undertakings, 2004 O.J. (L 24) 1.

likely, even without the assumption of a dominant position after the merger⁵. For example, structural market parameters, such as high market shares, are no longer necessary to challenge a merger. This new substantive test is therefore broader than the previously used test for dominance. If a SIEC is established, non-coordinated effects in oligopolistic setting can lead to a prohibition, without single or collective dominance.⁶ Some argue that the introduction of a MEA can be seen as the EC's attempt to reach more case-specific decisions, which resembles the US approach of applying the 'rule of reason' in antitrust evaluations, thereby allowing for a more nuanced analysis of competitive effects.⁷ In a comparative study of European and US merger regimes, Bergman, Coate, Mai, and Ulrick find that the implementation of the SIEC test has brought US and EU merger policies closer together, diminishing the differences between the two.⁸ They suggest that the policy of unilateral effects has led the two regimes to converge.

The reasons underpinning the 2004 policy revision have been extensively discussed in the literature.⁹ One perspective relates to some disputed court decisions in the early 2000s. In 2002, three final merger decisions of DG Comp were overruled by the Court of First Instance (CFI, now known as the General Court of the Court of Justice of the European Union). In the first case, the British company Airtours challenged the prohibition of its merger with one of its competitors, First Choice, established by the Commission in April 1999.¹⁰ The CFI focussed its criticism on the lack of economic evidence which was supposed to prove a collective dominant position created by this merger in the market for tour operators.¹¹ It therefore annulled the decision in June 2002.¹² Two other cases were overruled by the CFI in October 2002: the merger of the French manufacturers Schneider/Legrand in the market for electrical equipment and the merger of the companies Tetra Laval BV and

⁵ Daniel Zimmer, *Significant Impediment to Effective Competition: Das Neue Untersuchungskriterium Der EU-Fusionskontrollverordnung*, 2 ZEITSCHRIFT FÜR WETTBEWERBSRECHT 250 (2004).

⁶ ALISON JONES & BRENDA SUFRIN, *EU COMPETITION LAW: TEXT, CASES, AND MATERIALS* (2014).

⁷ Christiansen & Kerber, *supra* nt 3.

⁸ Mats A Bergman et al., *Does Merger Policy Converge After the 2004 European Union Reform?*, 15 JOURNAL OF COMPETITION LAW & ECONOMICS 664 (2019).

⁹ See, e.g., Bruce R. Lyons, *Reform of European Merger Policy*, 12 REVIEW OF INTERNATIONAL ECONOMICS 246 (2004); Christiansen & Kerber, *supra* nt 3; Tomaso Duso, Klaus Gugler & Florian Szücs, *An Empirical Assessment of the 2004 EU Merger Policy Reform*, 123 THE ECONOMIC JOURNAL F596 (2013); Anu Bradford, Robert J. Jackson JR & Jonathon Zytznick, *Is E.U. Merger Control Used for Protectionism? An Empirical Analysis*, 15 JOURNAL OF EMPIRICAL LEGAL STUDIES 165 (2018).

¹⁰ *Airtours plc v. Commission of the European Communities*, Case T-342/99, 2002 E.C.R. II-2585 (Court of First Instance, June 6, 2002).

¹¹ *Id.*

¹² *Id.*

Sidel.¹³ The CFI annulled the prohibition decision in the Schneider/Legrand case based on “errors, omissions and inconsistencies [...] of undoubted gravity.”¹⁴ In the second case, the merger between the then world-leader of packaging products for cartons Tetra Laval and the French manufacturer of PET plastic bottles Sidel, the CFI rejected the Commission’s veto even without a detailed examination.¹⁵ In line with previous annulments, the CFI strongly condemned the economic analysis conducted to assess the anticipated anti-competitive effects.¹⁶ Some researchers regard this ruling as one of the driving forces for the development of a revised merger review afterwards in order to avoid future setbacks.¹⁷ However, as argued for example by Lyons (2004), a reform process was already underway before these events, following a formal consultation document published in December 2001.¹⁸ Lyons identifies three other main forces: “maturity in merger regulation; increasing use of economic analysis; and expanding membership of the EU.”¹⁹

B. Coordinated Effects

In the EC’s 2004 merger guidelines, collective dominance is identified as a factor that can potentially impede effective competition in oligopolistic settings.²⁰ Pro-collusive, or coordinated effects, may increase the likelihood of collusion in the industry.²¹ This is due to the smaller number of firms in the post-merger market which can increase the scope for coordination strategies among firms. In the early years of European merger reviews, the EC used to focus solely on single market dominance.²² As Kerber points out, there was no discussion about possible collective market dominance, even though some markets showed high rates of concentration.²³

¹³ Tetra Laval / Sidel, Case M. 2416, European Commission (2001); Schneider Electric SA v. Commission of the European Communities, Case T-310/01, 2002 E.C.R. II-4071 (Court of First Instance, October 22, 2002).

¹⁴ Schneider Electric SA *supra* nt 13.

¹⁵ Tetra Laval BV v Commission of the European Communities, No. Case T-5/02 (Court of First Instance October 25, 2002).

¹⁶ *Id.*

¹⁷ Bradford et al *supra* nt 9; Duso et al *supra* nt 9.

¹⁸ Lyons *supra* nt 9.

¹⁹ *Id.* at 249.

²⁰ EUROPEAN COMMISSION, *Guidelines on the Assessment of Horizontal Mergers Under the Council Regulation on the Control of Concentrations Between Undertakings*, 2004 O.J. (C 031) 5, [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52004XC0205\(02\)&from=DE](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52004XC0205(02)&from=DE).

²¹ Damien J. Neven and Lars-Hendrik Röller, *Consumer Surplus vs. Welfare Standard in a Political Economy Model of Merger Control*, WZB Discussion Paper, FS IV 00-15 (2000).

²² WOLFGANG KERBER, *DIE EUROPÄISCHE FUSIONSKONTROLLPRAXIS UND DIE WETTBEWERBSKONZEPTION DER EG: ZWEI ANALYSEN ZUR ENTWICKLUNG DES EUROPÄISCHEN WETTBEWERBSRECHTS*, IN *SCHRIFTEN ZUR NATIONALÖKONOMIE* vol. 12, 97 (Bayreuth: Verl. PCO, 1994).

²³ *Id.*

During the early years, the EC allowed highly concentrated markets in cases when the market shares of the nearest competitor were relatively close to the ones of the industry leader, independent of aggregated, collective market shares.²⁴ For example, in case M.165, the merger of the German cable manufacturer AEG Kabel with Alcatel, the EC cleared the merger although the Bundeskartellamt raised concerns over the highly concentrated market structure.²⁵ The German competition regulatory agency highlighted the aggregated market share of the three biggest suppliers could lead to the emergence of a dominant oligopoly in several power and telecommunication-cables markets in Germany.²⁶ Although the EC dismissed the analysis of collective market dominance, it established the concept one year later in several cases.²⁷ One of them was the landmark case *Nestlé/Perrier* (1992), the acquisition of French manufacturer and distributor of bottled waters Perrier by the Swiss company Nestlé in 1992.²⁸ For the first time, the EC considered an oligopolistic market structure, with three national water suppliers, arguing that price competition was already significantly weakened before the merger and that market transparency was very high.²⁹ The EC further emphasized that reducing the number of suppliers from three to two would facilitate anticompetitive parallel behaviour.³⁰ The merger was only cleared after Nestlé agreed to a modified merger proposal, adhering to a series of commitments.

In the next section, we will explore the use of the concept of coordinated effects over time in the EC’s merger control.

C. Efficiency defense

Shortly after the publication of the 2004 merger regulation, the EC published its first horizontal merger guidelines, explicitly stating that efficiency claims would also be considered.³¹ In the literature, this concept is referred to as the “efficiency

²⁴ *Id.*

²⁵ AEG Kabel/Alcatel, Case No. IV/M.165, European Commission (Dec. 18, 1991).

²⁶ BUNDESKARTELLAMT, *Bundeskartellamt - Tätigkeitsbericht 1991/92: Bericht des Bundeskartellamts über seine Tätigkeit in den Jahren 1991/92 sowie über die Lage und Entwicklung auf seinem Aufgabengebiet* (1993), https://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Taetigkeitsberichte/Bundeskartellamt%20-%20T%C3%A4tigkeitsbericht%201992.pdf?__blob=publicationFile&v=2.

²⁷ For an overview, see Kerber *supra* nt. 22, 101–102.

²⁸ William M. Willis IV, *European Commission-Concentrations-Nestlé’s Bid to Takeover Perrier: A Landmark Merger Restructuring on Duopoly Grounds*, 23 GA. J. INT’L & COMP. L. 141 (1993); Olivier Compte, Frédéric Jenny & Patrick Rey, *Capacity Constraints, Mergers and Collusion*, 46 EUR. ECON. REV. 1 (2002).

²⁹ *Id.* at p.92.

³⁰ *Id.*

³¹ EUROPEAN COMMISSION, *supra* nt 20.

defence,³² where efficiency gains are considered when assessing the potential competitive impact of a merger. As Motta points out, the net effect of a merger could be ambiguous, depending on whether efficiency gains outweigh potential harm to competition.³³ Mergers can sometimes create synergies between the merging companies, leading to lower production costs and higher overall efficiency. If these benefits compensate for the higher levels of market power, then consumer surplus is stabilised by lower prices due to efficiency gains. On the other hand, if a merger does not create any synergies, it could instead contribute to higher prices.³⁴

D. Impact of the reform

Several studies have analysed the 2004 reform's impact on the relevance of certain key concepts in competition policy. For instance, in their seminal paper, Affeldt, Duso, and Szücs focus on specific geographic and product markets, estimating the probability of a challenge by the EC.³⁵ In a comprehensive study, they analyse 5109 merger cases from 1990 up to 2014, excluding referrals and withdrawals in Phase I.³⁶ Furthermore, observations on the product and geographic markets are used to estimate linear probability models, assessing the impact of specific merger characteristics on the decision to intervene by the EC.³⁷ The determinants analysed for potential concerns are concentration, market share, entry barriers and foreclosure. In addition, a causal forest algorithm is implemented in order to uncover heterogeneous effects which can arise due to varying correlations among determinants in different merger settings.³⁸ The authors identify a post-2004 shift toward more complex indicators, such as barriers to entry, while the importance of dominance declines. The relevance of concentration seems to remain stable over time and shows a high correlation for concerns in markets with high market share and entry barriers.

Similarly, Duso et al. examine the merger reform empirically, focusing on different concepts of effectiveness, for example as measured in decision errors or

³² Mats Bergman, Malcolm B. Coate, Anh Mai & Shawn W. Ulrick, *Does Merger Policy Converge After the 2004 European Union Reform?*, 15 J. COMPETITION L. & ECON. 664 (2019).

³³ MASSIMO MOTTA, *COMPETITION POLICY: THEORY AND PRACTICE* (2009).

³⁴ Joseph Farrell & Carl Shapiro, *Horizontal Mergers: An Equilibrium Analysis*, 80 Am. Econ. Rev. 107 (1990). For an analysis of the implications of parties' strategy in employing an efficiencies defense, see Peter L. Ormosi, *Claim Efficiencies or Offer Remedies? An Analysis of Litigation Strategies in EC Mergers*, 30 INT'L J. INDUS. ORG. 578 (2012).

³⁵ Pauline Affeldt, Tomaso Duso & Florian Szücs, *25 Years of European Merger Control*, 76 INT'L J. INDUS. ORG. 102720 (2021).

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

deterrence. Their sample consists of 368 merger cases, from 1990 until 2007.³⁹ Using two probit models—statistical models that estimate the probability of an event occurring based on observed variables—they analyze firm-level data. The results suggest that the MEA improved the predictability of EC decisions, indicating a reduction in systematic mistakes, although predictability does not necessarily guarantee fewer errors. With regards to specific factors which are likely to correctly predict the outcome, Duso et al. identify barriers to entry, dominance, market definitions and Phase II referrals.⁴⁰ After 2004, market definition became increasingly significant, whereas Phase II investigations played a less prominent role in determining the final decision.

In another study by Mai, the author uses a sample of 341 mergers from 1990 up to 2012 and estimates the probability of a challenge by the EC.⁴¹ The results contain robust evidence of adjustments in the EC’s policy after the 2004 reform. By distinguishing between “unilateral-effects mergers” and “coordinated-effects mergers”, it is shown that the likelihood that a merger with coordinated effects is being challenged after the 2004 reform came into effect is higher. In addition, Mai concludes that the merger review has been less strict for mergers with unilateral effects post reform.⁴² With regards to specific aspects of the merger review, market shares appear to have become less important post-reform, similar to the study by Affeldt et al.⁴³

Covering a rather small sample of 50 cases, Fernandez, Hashi, and Jegers estimate the probability of a merger not being cleared after the 2004 reform, in a time span ranging from January 2005 up to the end of 2006.⁴⁴ The authors manually extracted information provided in the decision documents and interpreted some phrases as indicating competitive concerns, such as entry barriers or the geographic scope of the merger. For the analysis of non-cleared cases, the study includes some Phase I cases that were conditionally cleared and some Phase II cases that ultimately received clearance. It is argued that this selection is due to the lack of prohibitions but it remains difficult to identify finally cleared cases as non-cleared as these are rather “challenged” cases. For their results, the authors present an increase in market shares and the non-contestability of the market as the main drivers for “non-clearance”.

³⁹ Tomaso Duso, Klaus Gugler, & Florian Szücs, *An Empirical Assessment of the 2004 EU Merger Policy Reform*. 123 *ECON. J.* 527, 596-619 (2013).

⁴⁰ *Id.*

⁴¹ Anh Mai, *Is EU Merger Policy Less Stringent After Its 2004 Reform?*, 1 PESO WORKING PAPERS (2016), <https://www.diva-portal.org/smash/get/diva2:900189/FULLTEXT01.pdf>.

⁴² *Id.*

⁴³ Affeldt et al, *supra* nt 35.

⁴⁴ Borja Martinez Fernandez, Iraj Hashi, & Marc Jegers, *The implementation of the European Commission’s Merger Regulation 2004: An empirical analysis*, 4 *J. COMPETITION L. ECON.* 791 (2008).

Entry barriers are assumed as “the most serious concern.”⁴⁵ Since the sample selection of the study does not include both cases before and after the reform, an interpretation of the results regarding changes due to the 2004 reform remains impossible.

In a similarly designed study, Mini estimates challenge rates of cases in the pre-reform and post-reform periods, with a special focus on concerns regarding unilateral effects.⁴⁶ Explanatory variables of the probit model contain, inter alia, different concentration levels as measured by the HHI or market shares, respectively. The dataset consists of 1670 distinct cases between September 1990 and December 2013, of which 791 are after the reform. Results suggest that the reform led to fewer challenges by the EC in cases where the post-merger HHI was above 2000 and the delta HHI (change due to merger) was over 250, leading to a 14-27% lower probability of a challenge. This shows a more lenient approach towards mergers with moderately high concentration levels. In summary, Mini also concludes that the 2004 reform led to a less strict enforcement as the probability of a challenge decreases, depending on the HHI levels.⁴⁷

We build upon previous literature by selecting our relevant terms from existing dictionaries (e.g. from Lyons,⁴⁸ Christiansen and Kerber,⁴⁹ Budzinski⁵⁰ or Heim, Hüschelrath, and Laitenberger⁵¹) and use similar estimation models for predicting the probability of non-clearance (see, e.g., Bergman, Jakobsson, and Razo⁵²). However, our work extends the current knowledge by analyzing 29 years of merger control, applying automated text analysis and dictionary approaches on all available case decision documents.

⁴⁵ *Id.*

⁴⁶ Federico Mini, *Fifty is the New Forty: EU Merger Policy Permits Higher Market Shares After the 2004 Reform*, 53 R. INDUS. ORG. 535 (2018).

⁴⁷ *Id.*

⁴⁸ Lyons *supra* nt 9.

⁴⁹ Christiansen and Kerber *supra* nt 3.

⁵⁰ Oliver Budzinski, *Wettbewerbsfreiheit und More Economic Approach: wohin steuert die Europäische Wettbewerbspolitik?*, 13 MARBURGER VOLKSWIRTSCHAFTLICHE BEITRÄGE (2007), <https://www.econstor.eu/bitstream/10419/29859/1/606249796.pdf>.

⁵¹ Sven Heim, Kai Hüschelrath, & Ulrich Laitenberger, *The Duration of the EC Merger Control Process: Determinants and the Impact of the 2004 Merger Regulation Reform*, 15 ZEW DISCUSSION PAPER (2015), <http://ftp.zew.de/pub/zew-docs/dp/dp15063.pdf>.

⁵² Mats A. Bergman, Maria Jakobsson & Carlos Razo, *An econometric analysis of the European Commission's merger decisions*, 23 INT'L J. INDUS. ORG. 717 (2005).

III. Data and Methods

Our dataset consists of all merger decision documents prepared by the EU’s Directorate General for Competition (DG Comp) from 1990 up to the end of 2019. In particular, we collect all final decisions which are available in English. Our focus lies on the English-language cases as this is one of the three official working languages of the Commission—besides German and French—and the automation of language processing is simplified when the corpus of documents, the structured set of texts, consists of only one language. For setting up our dataset, we retrieved all files from the official DG Comp website for the given time period.⁵³ A total of 6245 decision documents in English were collected (for an overview, see Figure III). The following basic information was extracted from each of those cases: case number, parties involved, notification date of the merger, final decision date by the DG, word length per document, associated economic sector and the type of decision. The latter was used to identify whether a merger was approved directly, cleared only under certain conditions or prohibited.

Figure I shows the number of cases per year in our sample, ranging from 1990 up to the end of 2019. While the overall trend indicates growth in case numbers over time, the data also reflects cyclical patterns, with periods of increases followed by decreases. The number of words in each decision exhibits notable variation across the years.

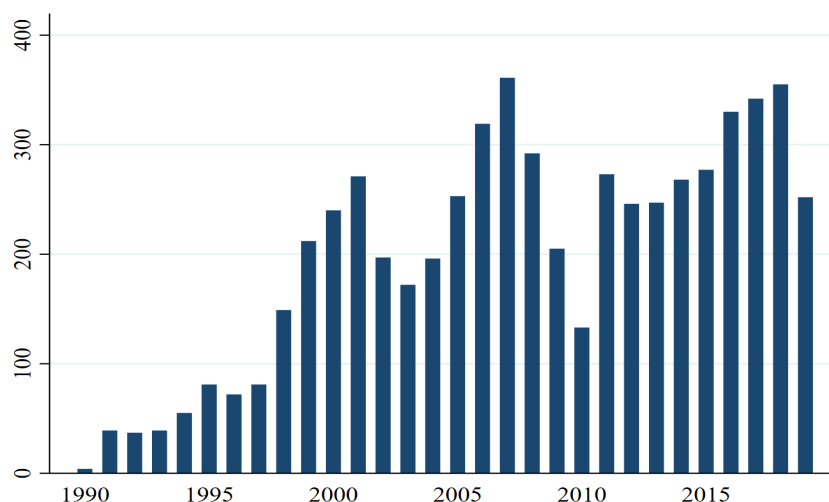


Figure I. Number of cases per year.

The average length of the decision documents, which can be a measure of both the complexity of the cases and the depth of the analysis, increases significantly, as

⁵³ *Merger Cases*, EUROPEAN COMMISSION (2020), <https://competition-cases.ec.europa.eu/search?caseInstrument=M&caseOngoing=ongoing>.

shown in Figure II. Before 1998, the cases have on average a total of 2,777 words per document. During this period, the most extensive case has 25,030 words: the merger between the two US companies Kimberly-Clark Corporation of Dallas and Scott Paper Company of Philadelphia of 16 January 1996.⁵⁴ In the years between 1999 and 2010, the average word count remains around 4,000. One extreme outlier here is the merger between the airlines Ryanair / Aer Lingus which was prohibited under article 8(3) of the Merger Regulation.⁵⁵ This decision took almost a year until it was finalised in 2007, resulting in a very detailed and extensive decision document with more than 20,000 words. After 2010, the figures fluctuate sharply around 6,000 words with a high variance. This is due to some extraordinarily large and complex cases in recent years. The longest case overall is the merger between the chemical companies Dow and DuPont, cleared in March 2017. Its final decision text spans 915 pages and contains nearly 405,000 words.

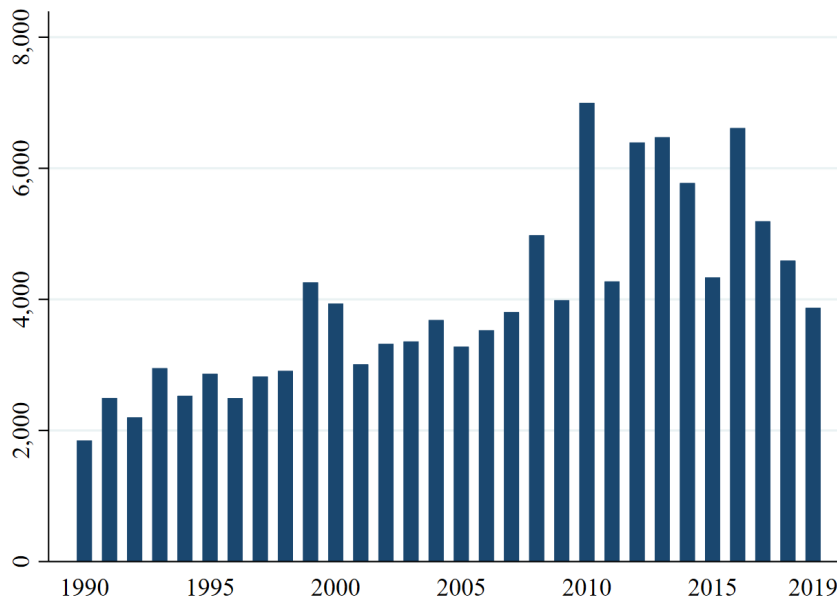


Figure II. Average number of words in the decision documents per year.

A. Decision

We identify the most relevant articles of the EC Merger Regulation for our analysis, selecting those most applicable to our paper based on EU Competition Law Rules: these include articles 6(1)a, 6(1)b and 6(1)c for Phase I and 8(1), 8(2) and 8(3) for Phase II decision, respectively. Figure III provides an overview of all cases notified to the EC, according to the official merger statistics.⁵⁶ In total, 7601 cases have been

⁵⁴ European Commission, M.623, Kimberly-Clark/Scott Paper (Dec. 18, 1996).

⁵⁵ European Commission, M.4439, Ryanair/Aer Lingus (Feb. 27, 2007).

⁵⁶ European Commission, Merger Cases: Statistics (June 7, 2023), https://ec.europa.eu/competition-policy/document/download/4b083559-e36c-44c2-a604-f581abd6b42c_en?filename=Merger_cases_statistics.pdf.

registered at the EC in the time period from 21 September 1990 until the end of 2019. Since our sample only contains mergers which are accompanied by a final decision document and are in the English language, we obtain 6245 cases for our analysis (see Figure III, numbers in brackets).

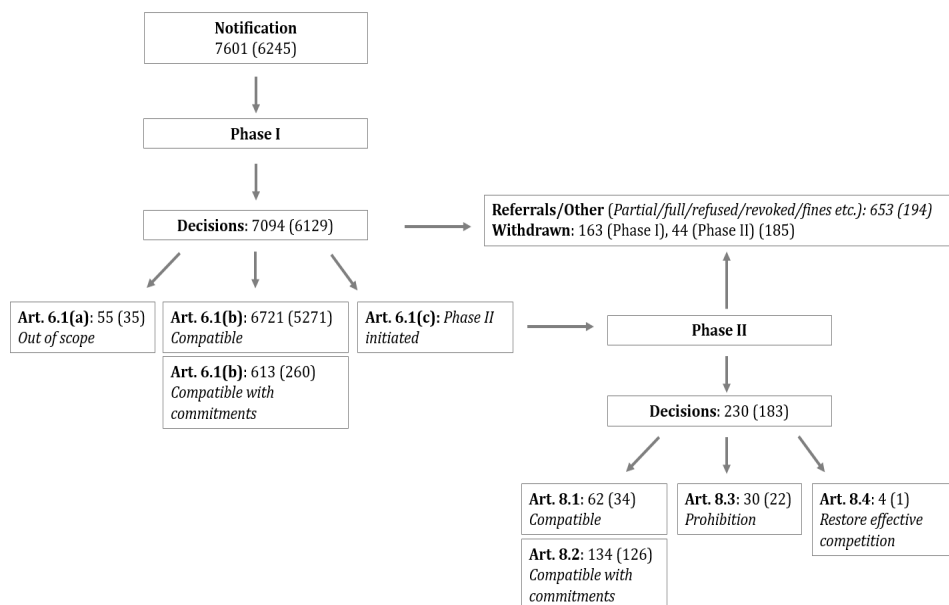


Figure III. Statistics of all cases officially notified to the EC and in our sample (in brackets).

Note: For referrals, the number of cases in our sample is relatively low due to the lack of final decision documents. Requests for referrals are not included in the figures as they appear again in the decision of the referral. For Art. 6.1(c), numbers are included in Phase II decisions or withdrawals/other, respectively.

In cases where commitments are not fulfilled or agreements cannot be reached, a merger can eventually be prohibited or withdrawn by the notifying parties. Article 8(3) refers to a prohibition in Phase II, as shown in Figure III. In total, only 30 prohibitions were issued over this time period, representing a mere 0,4% of all notified cases. This, however, should be interpreted carefully, as the number of withdrawals and cases with commitments is not reflected in this category. The overall majority of cases in our sample was cleared in Phase I under article 6.1(b). Cases under Art. 4(4) were fully referred from the Commission back to the competent authorities of the member states.⁵⁷ Similar to Art. 4(4), a case can also be referred back to the member States under Art. 9(3), either partially or fully, also on request by the member state, after investigation by the EC (see for example M.1827 Hanson/Pioneer, 2000).

⁵⁷ For example in Case Cargill-BCA/ABF-Allied Grain/ JV (2004), where the geographic focus of the merger was entirely on the United Kingdom and therefore, the case was not to be decided by the EC (Cargill / ABF / Allied Grain JV, 2011).

Another interesting aspect is the rather low number of mergers were considered to be outside the scope of the merger regulation, indicated by Art. 6.1(a). In total, only 55 cases have been recorded as out of scope which refers to 0.7% of all notified cases. Moreover, these 55 cases are unevenly distributed over time: Most of them appear in the early years of the European merger reviews. After 2004, there were only 3 cases classified as type Art. 6.1(a). This could indicate that firms are better able to assess jurisdiction in merger control.

B. Sector

The official “Statistical Classification of Economic Activities in the European Community” provided the framework for the distribution of economic sectors in our dataset.⁵⁸ An overview of the classification and notation of the codes is given in Table I. In our sample of all merger cases, sector C, the manufacturing sector, incorporates the most cases (39%). Sector G (Wholesale and retail trade) includes 11% of all cases, and sector K (Financial and insurance activities) includes 9.8%. Table 1 shows the distribution of the economic sectors.⁵⁹

⁵⁸ Eurostat, <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>.

⁵⁹ For some cases, no economic sectors could be identified. Thus, we only report 6002 cases with a given economic sector. Many of the cases without a given sector are decided under Art. 4(4), Art. 14 or withdrawn.

Sector	Freq.	Percent	Cum.
C - Manufacturing	2,337	38.94	38.94
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	676	11.26	50.2
K - Financial and insurance activities	589	9.81	60.01
J - Information and communication	563	9.38	69.39
H - Transporting and storage	426	7.1	76.49
D - Electricity, gas, steam and air conditioning supply	302	5.03	81.52
N - Administrative and support service activities	211	3.52	85.04
L - Real estate activities	207	3.45	88.49
M - Professional, scientific and technical activities	125	2.08	90.57
I - Accommodation and food service activities	103	1.72	92.29
B - Mining and quarrying	91	1.52	93.8
F - Construction	91	1.52	95.32
E - Water supply; sewerage; waste management and remediation activities	73	1.22	96.53
Q - Human health and social work activities	73	1.22	97.75
R - Arts, entertainment and recreation	58	0.97	98.72
O - Public administration and defence; compulsory social security	28	0.47	99.18
S - Other services activities	24	0.4	99.58
A - Agriculture, forestry and fishing	14	0.23	99.82
P - Education	6	0.1	99.92
T - Activities of households as employers	5	0.08	100

Table I. Distribution of economic sectors, sorted descending.

C. Text Analysis

In this section, we analyse the final decision documents of all merger cases in our sample, using text analysis.

Keyness Analysis / Word frequency

First, we identify differences in the wording before and after the 2004 merger reform. We implement a keyness analysis by splitting the decision documents (corpus) into a target and a reference group.⁶⁰ The keyness of a given term or feature in general refers to a score of occurrences across different categories. In our case, the categories are the mergers before and after the 2004 reform, that is a merger is either decided before or after 1 May 2004. These two categories then build the basis for the

⁶⁰ The keyness analysis is based on the relative normalised frequencies of linguistic items between two corpora, Kenneth Benoit et al, *quanteda: An R package for the quantitative analysis of textual data*, 3 J. OPEN SOURCE SOFTWARE 774 (2018).

two groups, the reference and the target group of documents. In Figure IV, the most frequent terms before the 2004 reform are represented in grey bars, and the ones after the reform in blue bars, respectively. General stop-words and terms referring to individual companies or common abbreviations (such as “EEA” for European Economic Area) are removed in advance. After the 2004 reform, we observe a higher probability for the terms “questionnaire” and “question” which indicate a greater emphasis on feedback from the merging parties, competitors, customers or other third parties. On the other hand, before the reform the term “dominant” was used more often than after the reform. This hints at less influence of the concept of dominance in the merger review, a result that is in line with the findings of Affeldt et al., who showed that arguments related to dominance significantly decreased after 2004.⁶¹

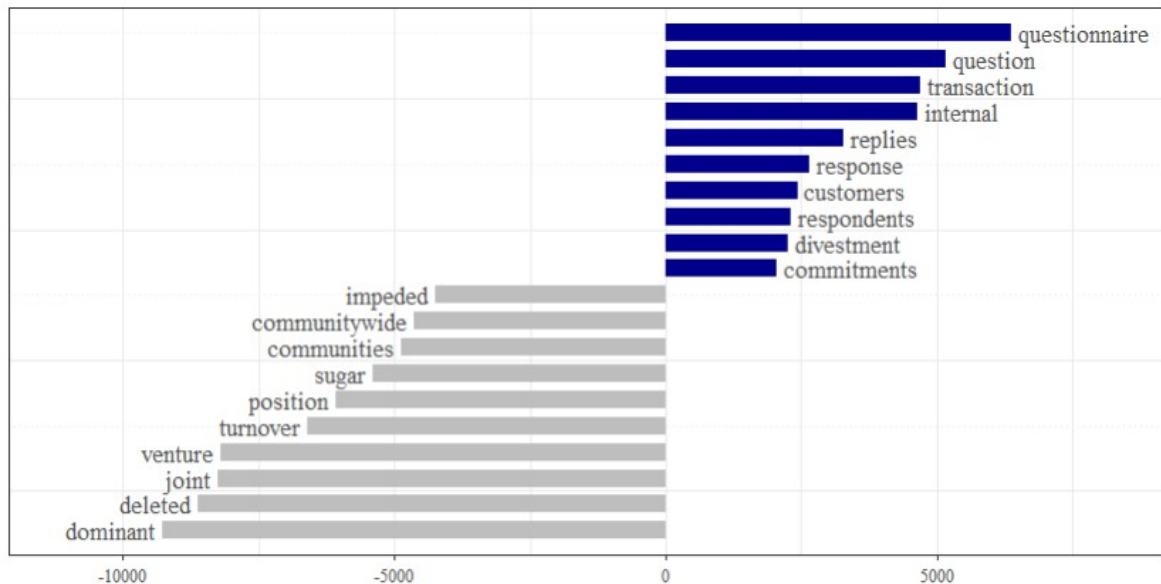


Figure IV. Keyness analysis for comparing the relative frequency of terms before/after the MEA.

Note: Blue bars on the right side represent terms that appear more frequently after the reform, while grey bars on the left indicate terms more frequent before the reform. General stop-words and company-specific terms were removed prior to analysis. The x-axis represents the keyness score, which indicates how much more likely a term is to appear in one corpus compared to the other.

Dictionary Approach

Second, we analyse individual terms or groups of terms which represent specific economic or theoretical concepts, such as terms relating to structural market parameters like ‘dominance’ or ‘entry barriers’.⁶² We assume that the focus on topics

⁶¹ Affeldt et al, *supra* nt 35.

⁶² These terms are: dominance, dominant, market share, market shares, entry barrier, entry

regarding such structural indicators is decreasing over time and should decline especially after 2004. As seen in Figure 5, there is a substantial decrease in the proportion of cases which refer to these structural market parameters, but this trend did not start in 2004, and can be traced back to the beginning of the 2000s. Time series for all individual terms can be found in the appendix (Figure A3).

Since, as expected, terms relating to structural market parameters appear to be declining over time, we complemented our analysis using a separate dictionary of terms related to the MEA.⁶³ Terms include ‘coordinated effects’, ‘efficiency defence’ or ‘consumer welfare’ which are sometimes analysed during the merger review process due to the MEA. During the 1990s, we see relatively high values which seems counter-intuitive. After 1997, we observed a steady increase and a clear trend in the mentioning of the MEA related terms over time.⁶⁴

In addition, we plot the proportion of notified cases under simplified procedure along with the two time series in Figure IV, in order to compare the relative magnitudes. The share of cases decided under the EC’s simplified procedure was at nearly 80% at the end of 2019. Since the adoption of the procedure in 2000, we observe an almost steady trend cases which are assumed to not raise competition concerns towards this procedure. If we compare the proportion of cases with structural market parameter (SMP) words with the share of simplified cases, we do see a counteracting effect, as the SMP time series declines over time whereas the simplified cases increase. Many decisions in simplified cases only consist of four short paragraphs, stating the merging parties and the notification date, the parties’ businesses, the application of the simplified procedure and then finally, the approval of the Commission. There is not much variation in the text and case-specific information is missing. Thus, the increase in cases decided under the simplified procedure also decreases the likelihood of the mentioning of SMP terms which indicates that the case requires a more elaborate analysis.

barrier, barriers, market entry, entries, foreclosure, foreclose.

⁶³ The terms used are: Welfare, consumer welfare, Significant Impediment to effective Competition, SIEC, coordinated effect, uncoordinated effect, coordinated effects, uncoordinated effects, non-coordinated effects, unilateral effect, efficiency defense, efficiency defence, SSNIP, Small but significant and non-transitory increase in price.

⁶⁴ While on 30 June 1997 the Council Regulation (EC) No 1310/97 was adopted, it is not clear in what way this regulation could have influenced the wording of the merger decisions.

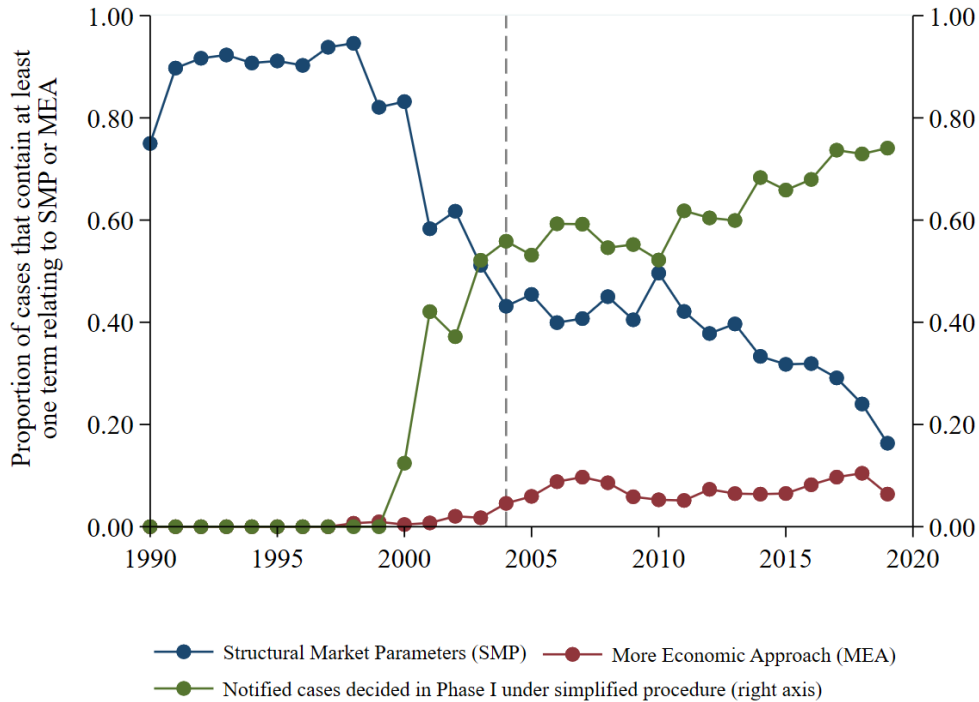


Figure V. Proportion of cases that contain at least one term relating to structural market parameters or the MEA, aggregated per year. The proportion of cases decided in Phase I under simplified procedure are plotted on the right axis.

A closer look into specific terms reveals interesting differences. Terms related to both coordinated and non-coordinated effects appear consistently since 2004, as expected (Figure VI). However, due to inconsistencies in how terms like “coordinated effects” are used across different decisions, the results should be interpreted with caution. The observed trends might partially reflect changes in the terminology rather than fundamental shifts. Similarly, the concept of efficiency defences or the SIEC test in the merger review can be clearly detected in the decision documents. Interestingly, other terms relating to efficiency are used constantly over time, without any sustained trend in the data (see Figure A3 in the appendix).

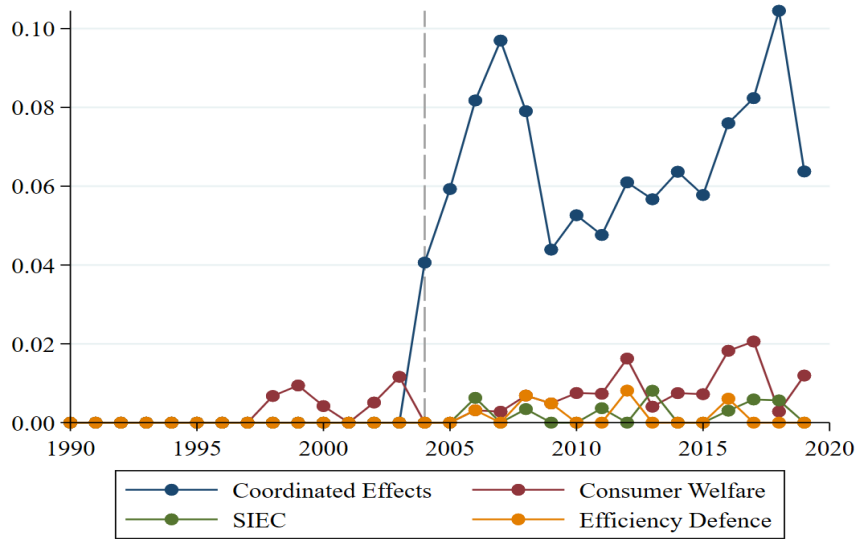


Figure VI. Proportion of cases regarding coordinated effects, consumer welfare, SIEC, efficiency defence, aggregated per year.

Tonality

Third, we analyse the tonality of the decision documents in the context of competition concerns. Since the length of the documents varies substantially (see Figure II for comparison), we obtain the relative term frequencies of positive and negative terms (ratio of positive/negative terms to the total number of terms) within the Lexicoder Sentiment Dictionary,⁶⁵ implemented in *quanteda*.⁶⁶ For example, negative terms would be expressions such as “insufficient”, “insignificant”, “problem” or “rivalry.”⁶⁷ In contrast, terms like “effective”, “efficient”, “unaffected” or “voluntary” would be seen as positive ones. The results are plotted in Figure VIII. As shown, the tonality of the decisions is always more positive than negative throughout our observation period. As the tonality of cleared cases is more positive than the one of non-cleared cases and as most cases are eventually cleared, this result is expected.⁶⁸ Furthermore, we take a closer look into the tonality of terms around specific keywords and phrases, in a given window of +/- 10 terms.⁶⁹ First, we select the same keywords relating to SMP as before, such as “dominance” or “entry barriers.” Second, we use the keywords relating to the 2004 reform and the MEA, such as

⁶⁵ Lori Young & Stuart Soraka, *Lexicoder Sentiment Dictionary*, computer software retrieved from <http://www.snsoroka.com/data-lexicoder/>

⁶⁶ *Relative Frequency Analysis (Keyness)* in Benoit *supra* nt 60.

⁶⁷ While ‘rivalry’ may often be interpreted as positive in competitive contexts, the Lexicoder Sentiment Dictionary might not fully capture this specific nuance.

⁶⁸ Lea Bernhardt, *Withdrawn and Prohibited Merger Cases in the EU*, 13 J. EUR. L. AND PRACTICE 296 (2022).

⁶⁹ We have tested variations in the window of terms of +/- 5 and +/- 10 around the keyword but the results did not change considerably.

efficiency defence or the SIEC test. The tonality of terms relating to SMP reaches its maximum for positivity around the year 2000, decreasing afterwards. Interestingly, there is no continuous decline in positively classified terms around SMP as there are small peaks around 2007, 2011 and 2016. For terms around MEA keywords, there is a clear peak in positive tonality after 2004 but overall we cannot observe a clear trend towards positive tonality.



Figure VII. Relative frequency of positive (solid) and negative (dashed) terms per year. In the two graphs in the top, the tonalities of terms related to keywords of structural market parameters (left) and the MEA (right) are depicted. The graph below shows the tonality of all terms, regardless of specific keywords.

As a next step, we calculate the sentiment by subtracting the number of negative terms from positive ones, using the Lexicoder Sentiment Dictionary as mentioned above. This gives us a net sentiment score for each document, where positive values indicate a more positive tone and negative values indicate a more negative tone. This method allows us to quantify the overall sentiment of the decision documents (Figure VIII). Again, we observe a peak of positively toned decisions around 2007/2008, followed by a steep decline in sentiment. This seems surprising since the number of prohibitions or withdrawals has declined substantially after 2002: before 2002, around 7% of cases were withdrawn or prohibited, whereas after 2002, only 2.8% of cases were not cleared⁷⁰. Thus, we would not expect such a decrease in

⁷⁰ Bernhardt *supra* nt 68.

sentiment. After a dip in 2010, the sentiment increases again and reaches its maximum near the end of our observation period.

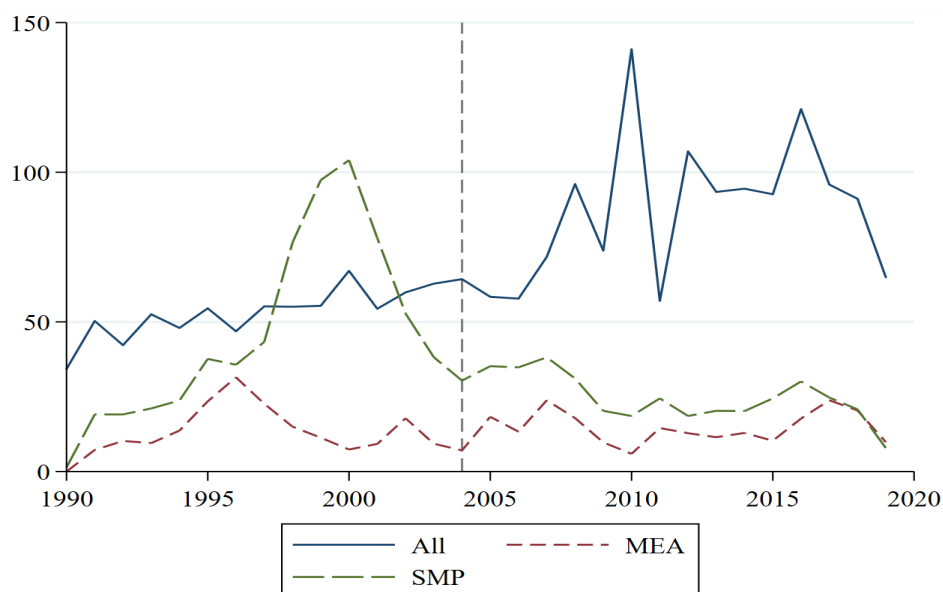


Figure VIII. Sentiment of merger decisions (positive minus negative) per year.

IV. Regression Analysis

In this section, we conduct a regression analysis of merger reviews. First, we analyse the impact of the merger regulation on the duration of merger reviews as well as on the probability of a merger being prohibited. Second, we turn to our semantic analysis, assessing whether there are any changes in wording and tonality.

A. Duration of merger reviews

The duration of a case depends on various factors such as the complexity, the competitiveness of the affected markets and possible efficiencies. A decisive factor in determining the duration of the investigation is whether the merger is resolved in Phase I or Phase II. When entering Phase I of the merger control procedure, the European Commission has 25 working days to analyse the case. Most of the cases are resolved in Phase I, in general without any remedies. At the end of Phase I, there are two possible outcomes of the procedure: first, the merger is cleared (unconditionally or with remedies). Second, the Commission still has competition concerns and opens a Phase II investigation. Phase II entails an in-depth analysis of the case. In general, the Commission has 90 working days to come to a decision. The period can be extended to some degree (by an additional 15 and 20 working days) under certain

circumstances.⁷¹ However, it is not uncommon for the investigation period to be even longer. Given all merger cases from 1990 to 2019, the analysis of 11 cases took more than 1000 days and 28 cases took more than 400 days. 3.68% or more than 200 cases took more than 150 days. However, the vast majority of all mergers (more than 91%) are resolved within 45 days (see Figure IX).

Factors that seem to be suitable to reflect the complexity and therefore the duration of merger reviews are typically connected to the companies involved in the merger or to the respective markets. However, market-specific factors such as market shares, concentration rates, entry barriers, mark-ups, profits or costs are either not included in the decisions, redacted or cannot easily be extracted from the documents, especially through automated techniques.

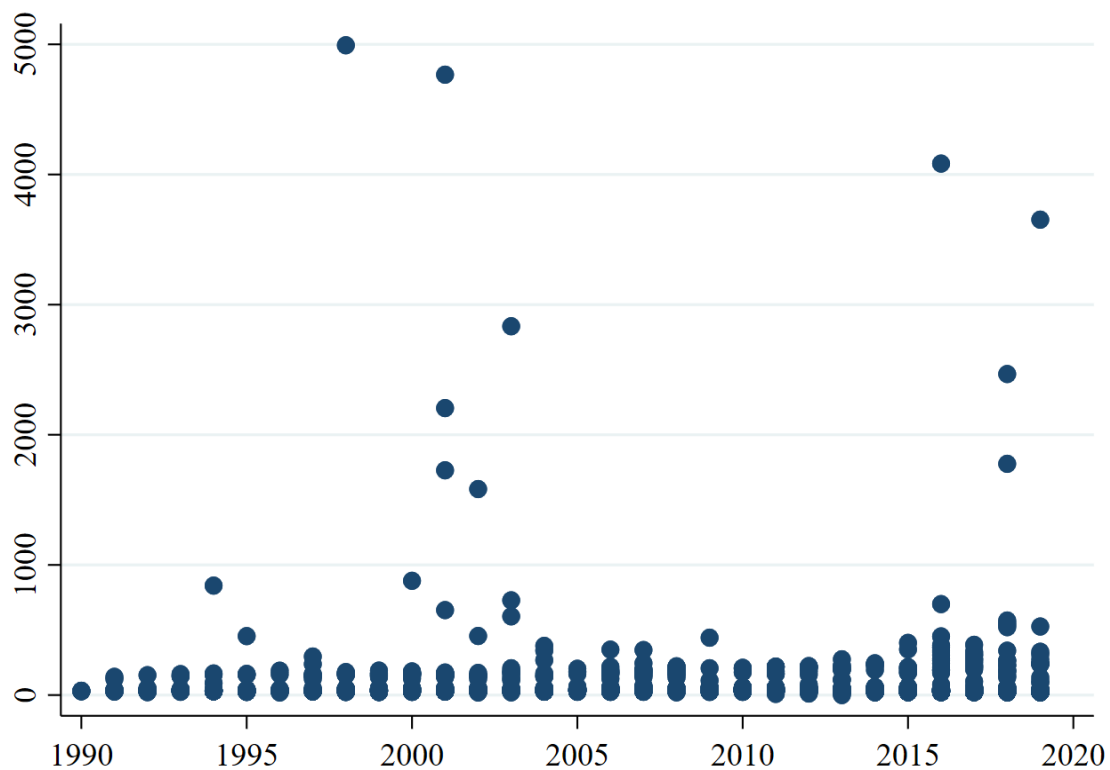


Figure IX. Duration of the merger reviews per year, measured in days.

For this reason, we chose covariates that we assume will affect the duration of merger analyses and that are easier to extract from the documents. As economic sectors are characterised by different competition intensities we use dummy variables accounting for the primary economic sector that is affected by the merger (see Table A1 in the appendix for an overview). Since the article after which a merger

⁷¹ European Commission, Competition: Merger control procedures, EC Fact Sheet (July 2013) https://competition-policy.ec.europa.eu/system/files/2021-02/merger_control_procedures_en.pdf (last visited Sept. 29, 2024).

is decided provides exact information on whether this case is cleared, withdrawn, approved etc. (see Figure I), this information should be highly correlated with duration. We therefore generated dummy variables to account for the respective article used. Finally, as an alternative to article dummies, we also used a dummy variable indicating if a merger is a Phase I or Phase II merger.

As we are aware that omitting market- and firm-specific factors can result in severe misspecification, we address this problem with a semantic approach. Instead of gathering information on, e.g., the concentration rates, number of competitors, barriers to entry and other factors, we count the number of structural and competition-relevant terms within a document. As can be seen from Table A2 in the appendix, we use 22 categories of terms, which are connected to the intensity, and restrictions of competition. The idea behind this approach is that – although the occurrence of a specific term cannot prove any pro- or anti-competitive effects – the occurrence of a higher number of terms is assumed to be a proxy for concerns over these terms by the European Commission.⁷² We therefore built dummy variables indicating if these terms occur in the decisions.

To account for the 2004 regulation, we created a dummy variable which is equal to one since the regulation came into force and zero otherwise. As the 2004 merger regulation is not the only regulation which could have an impact on the duration of the proceedings, we also included two additional dummy variables (Reg2007 and Reg2013) in order to account for the following regulations:⁷³

At the end of November 2007, the European Commission adopted the so-called non-horizontal merger guidelines to simplify the application and interpretation of the EC Merger Regulation to non-horizontal mergers.⁷⁴ Reg2007 indicates the time since the adoption of these guidelines.⁷⁵ On December 5th 2013, the European Commission adopted a merger simplification package “*in order to simplify and expedite the examination of concentrations that are unlikely to raise competition concerns [...]*” (European Commission, 2013b). The regulation came into force on January 1st 2014, and included a number of measures, e.g. a relaxing of market share thresholds and an adaptation of information requirements.⁷⁶

⁷² An improvement of this approach and a task for future research would be to analyse the tonality of the terms within a specific document.

⁷³ It should be noted that, despite the designation, these measures are guidelines or implementing regulations.

⁷⁴ Commission Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, 2008 O.J. (C 265), 6–25.

⁷⁵ European Commission Press Release IP/07/1780, *Mergers: Commission adopts Guidelines for merging companies with vertical or conglomerate relationship* (Nov. 28, 2007).

⁷⁶ Commission Implementing Regulation (EU) No 1269/2013 of 5 December 2013 amending Regulation (EC) No 802/2004 implementing Council Regulation (EC) No 139/2004 on the

	(1)	(2)	(3)	(4)	(5)
Duration	Cox	Cox	Cox	Cox	Cox
	Full	<1000	<300	Full	Full
	sample			Sample	Sample
Reg2004	.7171 (0.00)	.6992 (0.00)	.6918 (0.00)	.7221 (0.00)	.7192 (0.00)
Reg2007	1.21 (0.00)	1.21 (0.00)	1.21 (0.00)	1.30 (0.00)	1.29 (0.00)
Reg2013	1.45 (0.00)	1.47 (0.00)	1.54 (0.00)	1.71 (0.00)	1.68 (0.00)
Phase	-	-	-	2.34 (0.00)	-
Sector dummies	YES	YES	YES	YES	YES
Article dummies	YES	YES	YES	NO	YES
Competition terms	NO	NO	NO	YES	YES
Observations	5,989	5,979	5,942	5,989	5,989
Log Likelihood	-45863	-45740	-45394	-45283	-45243
Wald Chi	7430843 (0.00)	8449479 (0.00)	1.20e+07 (0.00)	1211337 (0.00)	512892 (0.00)

Table II. Survival analysis.

Note: Robust and clustered standard errors (on sector level) in parentheses.

To estimate the impact of these three merger regulations on the duration of merger investigations we use semi-parametric proportional-hazard Cox models (see Table II). Starting with the full sample, we find that all three regulations (Reg2004 and Reg2007, Reg2013) have an impact on investigation time. Both Reg2007 and Reg2013 show a negative effect on the duration of merger reviews in this period, potentially caused by factors beyond these regulations. The hazard ratio lies between 1.21 to 1.30 and 1.45 to 1.71, respectively.

Adding dummy variables for our 20 categories of competition terms (see column 5 in Table 2), we now account for the use of the terminology within the reports. By these means we indicate the relevance of terms such as concentration, market share, innovation, coordinated effects and others to control for case-specific factors. Again, the results remain more or less stable. Given equation (5) both 2007 and 2013 regulations' increase the hazard of merger investigations being terminated by 1.29 and 1.68 times. However, the 2004 regulation reduces the risk that an investigation will be terminated by about .72 times.

As some investigations last considerably longer, our dataset has some outliers, which may lead to a biased result. For this reason, we ran two additional regressions restricting duration to 1000 and 300 days, respectively. However, when restricting the sample the results do not change qualitatively, and only mildly quantitatively. Even if we restrict duration to a maximum investigation period of 300 days, the results do not change dramatically.

Overall, it appears that while the 2004 regulation has led to a significant increase in the investigation time, both the 2007 and the 2013 reforms have decreased the duration of merger analysis,

B. Determinants of merger Phase II review and prohibition

Next, we analyse the impact of regulatory regimes on the probability of merger prohibition. Table III contains the results of least squares and logit regressions, regressing a dummy variable indicating when a merger is not cleared, i.e. if it is prohibited or withdrawn, on regulations regimes dummies, sector dummies and term dummies.

	(1)	(2)	(4)	(5)
Non-cleared	OLS	OLS	Logit	Logit
Reg2004	-.0821 (0.00)	-.0135 (0.02)	-6.05 (0.00)	-2.66 (0.00)
Reg2007	.0475 (0.00)	.0111 (0.02)	4.84 (0.00)	1.98 (0.07)
Reg2013	.0778 (0.00)	.0247 (0.03)	2.83 (0.00)	1.96 (0.00)
Sector dummies	YES	YES	YES	YES
Term dummies	NO	YES	NO	YES
Constant	.0622 (0.00)	.5953 (0.00)	-5.09 (0.15)	-.2527 (0.97)
Observations	6,113	6,113	5,911	5,911
(Pseudo) R ²	0.08	0.56	0.34	0.72
F/Wald Chi ²	22.96 (0.00)	175.38 (0.00)	572.24 (0.00)	1388.32 (0.00)
Log Likelihood			-550.51	-66.03
<i>Marginal Effects</i>				
Reg2004			-.2968 (0.00)	-.0092 (0.03)
Reg2007			.0446 (0.00)	.0030 (0.02)
Reg2013			.0330 (0.00)	.0047 (0.09)

Table III. Probability of prohibitions.**Note:** Robust and clustered standard errors (on sector level) in parentheses.

Starting with simple linear probability models, regression (1) that includes sector dummies but no term dummies indicates that the 2004 merger regulation led to a decrease of the probability of a merger being prohibited by about 8 percentage points. However, the 2007 and 2013 regulations seem to have a positive impact on the probability of prohibition. Given that regulation regime dummies equal one since the date when a regulation started until the end of our sample (i.e. 2019), an overall average effect of about 4.32 percentage points can be stated from 2013 to 2019. However, when including competition-relevant terms in our regression (2), the effects of merger regulation on probability of prohibition decline such that an overall effect of 2.23 percentage points results. At the same time, the explanatory power increases significantly when competition-relevant terms are included.

A similar picture emerges when using logit instead of linear probability models. Using sector and regulation regime dummies yields significant effects of merger regulation on the probability of prohibition. However, when accounting for competition terms, these effects become considerably smaller. Again, the explanatory power is greater when considering competition terms as a proxy for possible competition concerns. While the 2004 merger regulation leads to a decrease of the probability of prohibition by about 0.9 percentage points its overall effect is about 0.84 percentage points.

Overall, the effects of the merger regulation on the probability of prohibition are quite low. While the explanatory power of models using sector dummies is limited, a significant increase is observed when including competition-related terms. However, these models no longer support previous results. Still, a statistically significant reduction in prohibition probability is measured, though it is economically less significant. Economic significance refers here to the practical impact, which is limited by the rare occurrence of prohibitions. As the total number of prohibitions is very small compared to the majority of cleared cases the results have to be interpreted rather carefully.⁷⁷

As the number of prohibited mergers is low one could argue that this measure is inadequate. To address this criticism, we also use interventions instead of prohibitions. We therefore create a dummy variable, interventions, that is equal to one when a merger is not cleared directly on Phase I, which is defined by the article of the decision (see Figure III for an overview). Using interventions as the left hand side variable, we repeat regressions from Table III (see Table IV). Overall, the regression results support the results from the regressions analyzing the impact of the

⁷⁷ Bernhardt *supra* nt 68.

regulations on prohibitions. The results now become economically and statistically insignificant when accounting for competition-related terms.

	(1)	(2)	(4)	(5)
Interventions	OLS	OLS	Logit	Logit
Reg2004	-.0977 (0.00)	-.0170 (0.08)	-1.71 (0.00)	-.3972 (0.24)
Reg2007	.0503 (0.00)	-.0007 (0.89)	1.07 (0.00)	.1439 (0.47)
Reg2013	.07562 (0.00)	.0186 (0.01)	1.02 (0.00)	.5704 (0.02)
Sector dummies	YES	YES	YES	YES
Term dummies	NO	YES	NO	YES
Constant	.3478 (0.00)	.9722 (0.00)	-3.12 (0.00)	1.11 (0.00)
Observations	6,113	6,113	6,051	6,051
(Pseudo) R ²	0.08	0.50	0.11	0.50
F/Wald Chi ²	22.58 (0.00)	141.34 (0.00)	406.02 (0.00)	1388.32 (0.00)
Log Likelihood			-1517.60	-844.77
<i>Marginal Effects</i>				
Reg2004			-.1395 (0.00)	-.0114 (0.26)
Reg2007			.0577 (0.00)	-.0038 (0.48)
Reg2013			.0673 (0.00)	.0167 (0.02)

Table IV. Probability of interventions.

Note: Robust and clustered standard errors (on sector level) in parentheses.

V. Conclusion

The implementation of the 2004 merger regulation has brought a massive change of the merger control procedure in the European Union and also been a radical shift in the underlying idea of how competitive effects should be assessed in the context of merger review. The so-called MEA aims at both a more theory-based analysis as well as a much greater use of sometimes complex empirical methods.

Nearly 20 years after the introduction of the MEA, this paper analyses the effects of the reform both in the procedure and on the outcomes of the European Commission’s merger decisions. After providing some simple facts about the reform, we turn to the analysis of the duration of merger reviews.

Our survival analysis shows that the 2004 merger regulation significantly increased the duration of merger reviews, while both the 2007 guidelines for non-horizontal mergers and the 2013 merger simplification package contributed to a reduction. Using semi-parametric Cox models, we found that the 2007 guidelines and simplification in 2013 increased the likelihood of quicker termination, while the 2004 reform decreased it. Adding dummy variables for competition-related terms did not significantly alter these results. Even after accounting for outliers, the 2007 and 2013 changes consistently shortened review times. As we are not able to control for firm- and market-specific factors given such a large set of data, we use text analysis tools to determine competition-relevant terms within the decision documents. Generating dummy variables accounting for the occurrence of such terms are supposed to proxy the Commission’s concerns, which are related to those terms. However, introducing dummy variables in our survival analysis did not change the results significantly.

Analyzing the impact of merger regulations, the probability of mergers being prohibited shows a negative effect from the 2004 regulation (MEA) and positive effects from the 2007 guidelines for non-horizontal mergers and the 2013 merger simplification package. If, however, the competition-relevant terms are used as covariates, these effects remain statistically significant but fall to econometrically insignificant values.

Finally, we conducted a semantic analysis on the impact for the MEA on the wording of the merger decisions. Overall, and not surprisingly, there is a decline in terms regarding structural market parameters and an increase in terms that are related to the 2004 merger regulation. The tonality of the decisions is always more positive than negative which seems plausible since the overall majority of cases are cleared without any obligations based on competitive concerns.

To sum up, the impact of the 2004 merger regulation, the 2007 guidelines for non-horizontal mergers, and the 2013 merger simplification package on the duration of investigations is evident in terms of procedural duration. While the 2004 merger regulation has extended the review period, the subsequent guidelines have shortened it. Changes in the probability of prohibition are minor, likely within one percentage point. However, given the small number of prohibitions, these results should be interpreted with caution. Finally, as expected, the language used in the Commission's decisions has changed significantly.

Appendix

Sector	Observations	Mean	Std. Dev.	Min	Max
1	204	39.21	43.70	2	454
2	13	65.84	81.01	22	311
3	91	34.68	19.26	9	157
4	2,329	49.46	126.27	0	4993
5	299	45.49	130.37	0	2205
6	71	31.28	6.20	8	240
7	90	37.26	35.32	18	341
8	653	35.55	22.14	8	240
9	421	69.29	305.30	1	4048
10	556	54.76	148.53	1	2834
11	588	41.75	196.54	19	4767
12	206	29.73301	17.39	7	265
13	125	38.65	27.43	22	182
14	211	34.76	21.61	6	223
15	28	34.17	5.12	22	46
16	6	29	3.03	24	33
17	63	31.23	7.08	22	54
18	58	40.91	38.78	22	245
19	24	33.33	5.23	25	45
20	4	32.5	2.64	29	35

Table A1. Duration statistics by sector.

ID	Group	Terms
1	Coordination	coordinated effect(s), collusion, tacit collusion, cartel
2	Non coordination	uncoordinated effect(s), unilateral effect, non-coordinated effect
3	Entry	Market entry, entry barrier, barrier to entry, market exit
4	Market power	Market power, market dominance, joint dominance, dominance
5	Price effect	Price effect
6	Efficiency	Efficiency gain, efficiencies, efficiency defence
7	Price competition	Price competition
8	Quantity competition	Quantity competition
9	Bidding market	Bidding market
10	Potential competition	Potential competition
11	Concentration	Concentration, concentration rate, Herfindahl index, HHI, Herfindahl-Hirschman
12	Product differentiation	Product differentiation
13	Innovation	Innovation, invention, research and development
14	Investment	Investment
15	Capacity	Capacity, capacity constraints
16	Cost	Cost, cost asymmetries, fixed costs
17	Multi market contacts	Multi market contacts
18	Buyer Power	Buyer Power
19	<i>skipped</i>	
19	Market transparency	Market transparency
20	Demand elasticity	Demand elasticity
21	Platform	Platform, network effect
22	Regression	Regression, correlation

Table A2. Structural and competition-related terms.

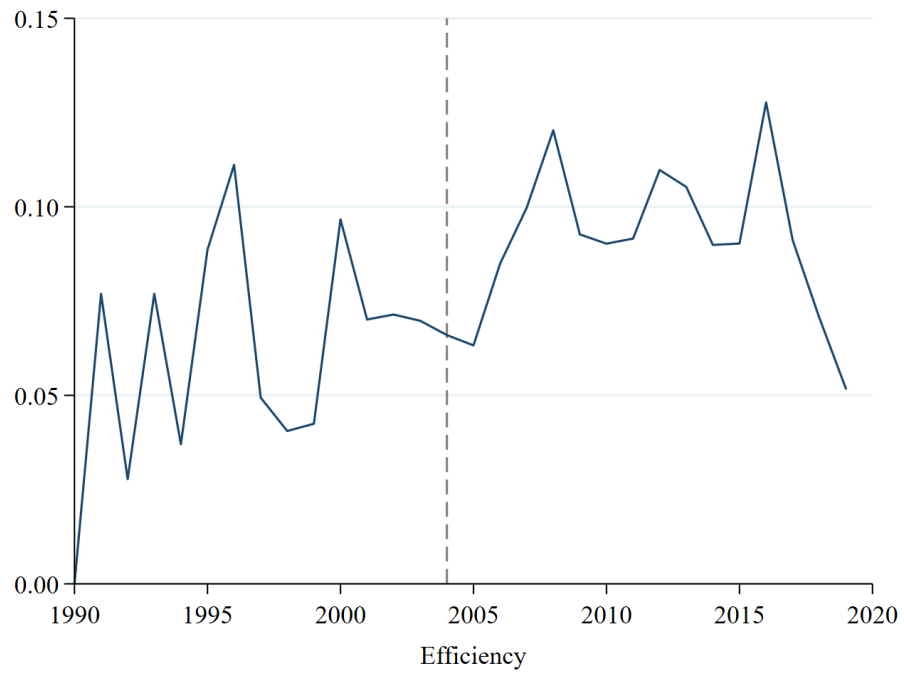


Figure A3. Proportion of cases that contain at least one term from the dictionary regarding efficiency.

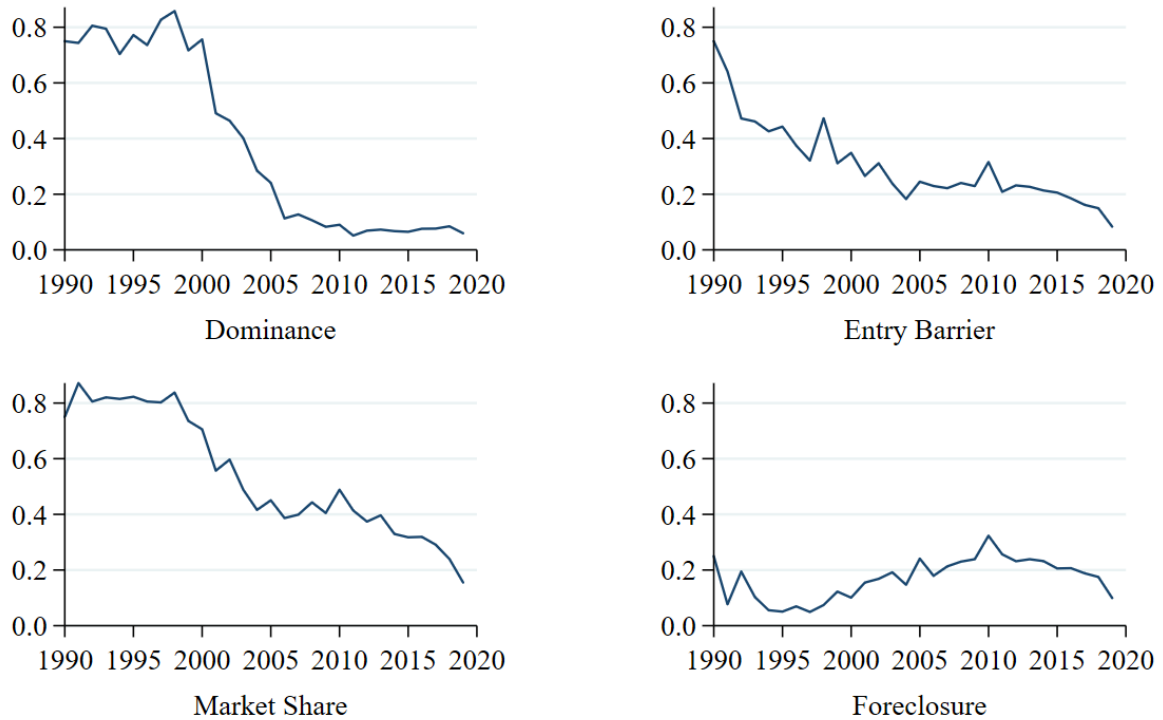


Figure A4. Proportion of cases that contain at least one term from the dictionary regarding **dominance, market shares, foreclosure and entry barriers.**

Note: The terms are dominance, dominant, market share, market shares, entry barrier, entry barrier, barriers, market entry, entries, foreclosure, foreclose.