

# ORGANIZATIONAL FORM AND ENFORCEMENT INNOVATION

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INTRODUCTION .....	298
I. A MODEL OF ENFORCEMENT INNOVATION AND THE ROLE OF ECONOMISTS .....	299
II. PROMINENT EXAMPLES OF INNOVATION IN ANTITRUST ECONOMICS GENERATED AT THE U.S. AGENCIES .....	310
A. DEFINING RELEVANT MARKETS AND THE EMERGENCE OF THE HYPOTHETICAL MONOPOLIST TEST AND CRITICAL LOSS ANALYSIS .....	311
B. MERGER SIMULATION .....	314
C. THE EVOLUTION OF THE MERGER GUIDELINES .....	318
D. THE CREDIBILITY REVOLUTION IN EMPIRICAL ANTITRUST .	321
III. INSTITUTIONS AND REFORM TO PROMOTE RESEARCH AND INNOVATION IN ANTITRUST ECONOMICS .....	329
A. RESEARCH VERSUS CASEWORK .....	329
B. DO THE BUREAU OF ECONOMICS AND THE ECONOMIC ANALYSIS GROUP NEED STRUCTURAL REFORM? .....	335
CONCLUSION .....	337

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## INTRODUCTION

In this article, we examine one mechanism through which enforcement innovation occurs and is passed into practice at the U.S. antitrust agencies. Our main thesis is that agency economists are uniquely situated to produce, adapt, and disseminate new methodologies that improve enforcement accuracy because of the multiple and conflicting roles they play. Agency economists are trained in academic PhD programs to value methodology above application, and to read and publish in academic journals. They know how to narrow questions, so that they can be answered precisely, using theoretical and/or empirical models. But when they arrive at the agencies, these economists trained in academic PhD programs are thrust into decision-making roles where they must render judgments on messy, real-world cases, typically with imperfect knowledge, and often in conflict with agency attorneys, political appointees, and/or the economists and attorneys who appear on behalf of parties. How to manage this process in a way that produces growth (useful innovation) is a primary institutional challenge for the antitrust agencies.

We focus on the organizational structure of the U.S. antitrust agencies with an eye toward isolating the factors that encourage or discourage the development and application of useful, innovative economic tools.<sup>1</sup> Specifically, we examine how the relationship between academia and the agencies and the dual responsibilities of research and casework serve to encourage what has become known as “enforcement R&D,” the development and application of new methodologies for screening and evaluating mergers, and for quantifying the expected harm to competition of various behaviors.

The organization of this article is as follows. Part I contains a model of optimal antitrust enforcement that illustrates both the role of economic analysis as a screening mechanism and how economic innovation improves the accuracy of this mechanism and the enforcement of the antitrust laws. Part II discusses several prominent examples of innovation in antitrust enforcement at the agencies and the extent to which these innovations have been incorporated in law. Part III examines the institutions and institutional policies that serve to promote or retard the production of new knowledge.

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<sup>1</sup> See Paul A. Pautler, *A Brief History of the FTC's Bureau of Economics: Reports, Mergers, and Information Regulation*, 46 REV. INDUS. ORG. 59, 59 (2014) (“[E]conomists at the FTC have had a significant role since its 1914 founding, and in the most recent 40 years, those economists have produced work that not only made the FTC a more efficient and effective regulator, but also enhanced the knowledge of economists generally in areas of FTC specialty.”).

## I. A MODEL OF ENFORCEMENT INNOVATION AND THE ROLE OF ECONOMISTS

Over the past 50 years, antitrust law and enforcement have moved toward a system of enforcement based on an effects-based analysis.<sup>2</sup> Conduct previously condemned as illegal per se is now evaluated under the rule of reason.<sup>3</sup> Merger analysis in the agencies has moved away from structural considerations and toward fitting models to observed competition and then using the models to predict how much competition would be lost post-merger, post-conspiracy, or post-monopolization.<sup>4</sup>

Economic research has been and continues to be a critical complementary input to the agencies' enforcement effects. Economic research by current and former agency economists has improved the agencies' ability to distinguish between pro- and anticompetitive conduct and transactions, improving the predictability, cost, and accuracy of enforcement. As the judiciary was figuring out how to apply an effects-based analysis under the rule of reason to prevent harm to competition,<sup>5</sup> economists began to develop models of compe-

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<sup>2</sup> See generally Gregory J. Werden, *Antitrust's Rule of Reason: Only Competition Matters*, 79 ANTITRUST L.J. 713 (2014).

<sup>3</sup> See Bruce H. Kobayashi & Timothy J. Muris, *Chicago, Post-Chicago, and Beyond: Time to Let Go of the 20th Century*, 78 ANTITRUST L.J. 147, 152–53 (2012). Over three decades, the Supreme Court abandoned most per se rules, leaving only naked horizontal price fixing and market division, plus a modified per se rule for tie-ins, under per se treatment. See *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877, 900 (2007) (holding minimum resale price maintenance subject to the rule of reason); *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28, 42–43 (2006) (recognizing no presumption of market power or rule of per se illegality for patent tie-ins); *State Oil Co. v. Khan*, 522 U.S. 3, 17 (1997) (holding maximum resale price maintenance not per se illegal and instead subject to the rule of reason); *Cont'l T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, 58 (1977) (holding that territorial restrictions are subject to the rule of reason).

<sup>4</sup> See generally Carl Shapiro, *The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years*, 77 ANTITRUST L.J. 701 (2010); Gregory J. Werden, *A Robust Test for Consumer Welfare Enhancing Mergers Among Sellers of Differentiated Products*, 44 J. INDUS. ECON. 409 (1996).

<sup>5</sup> See Kobayashi & Muris, *supra* note 3, at 152–53. During this time, the Supreme Court, prior to overturning its per se rule, established higher evidentiary standards in resale price maintenance cases in *Business Electronics Corp. v. Sharp Electronics Corp.*, 485 U.S. 717 (1988) and *Monsanto Co. v. Spray-Rite Service Corp.*, 465 U.S. 752 (1984). The Court also set out a hard-to-satisfy two-part test for plaintiffs in predatory pricing cases in *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 222–23 (1993). Moreover, the Court expanded the use of procedural mechanisms to screen out antitrust claims earlier in pre-trial proceedings in *Matsushita Electric Industrial Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586–87 (1986) (establishing the requirements to overcome motions for summary judgment) and in *Bell Atlantic Corp. v. Twombly*, 550 U.S. 544 (2007) (establishing the requirements to overcome motions to dismiss). The Court also developed truncated forms of analysis, under which even practices that resemble per se offenses are tested for possible efficiencies. However, the Court did not create any broad rules of per se legality, and application of economics to antitrust policy under the rule of reason necessarily will require intensive fact-based and often-indeterminate answers regarding what cases to bring and how these cases are decided.

tition that would enable the agencies and the courts to perform the benefit-cost analyses necessary to do so. These models, coupled with observable data, are used to generate predictions of the effects of mergers, including by quantifying the loss in competition following a merger. Similarly, these models can be used to produce predictions of the effects of collusion or monopolization by comparing market performance with and without a conspiracy, or with and without various firm practices. The predictions generated by these models and data also are used to distinguish between pro- and anticompetitive conduct or transactions.

Not everyone views the movement of antitrust law and enforcement to an effects-based analysis positively. Indeed, the president of the United States recently decried this evolution of antitrust law and policy as a 40-year “experiment failed.”<sup>6</sup> And the current leadership of the Federal Trade Commission has expressed a desire to “turn back the clock,”<sup>7</sup> replacing the existing evidence-based, case-by-case approach to enforcing the antitrust laws with an ex ante enforcement approach based on structural presumptions and the explicit prohibition of conduct through rulemaking.<sup>8</sup> As much of the support for an effects-based analysis came from economic research published in peer-reviewed journals that evolved over the same time period, the administration can justify its approach only by ignoring decades of economic evidence and

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<sup>6</sup> Joseph R. Biden, Remarks by President Biden at Signing of an Executive Order Promoting Competition in the American Economy (July 9, 2021), [www.whitehouse.gov/briefing-room/speeches-remarks/2021/07/09/remarks-by-president-biden-at-signing-of-an-executive-order-promoting-competition-in-the-american-economy](https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/07/09/remarks-by-president-biden-at-signing-of-an-executive-order-promoting-competition-in-the-american-economy).

<sup>7</sup> See, e.g., Gregory J. Werden & Luke M. Froeb, *Can the FTC Turn Back the Clock?*, ANTI-TRUST MAG. ONLINE (Oct. 29, 2021).

<sup>8</sup> For example, the FTC withdrew its Section 5 statement. See *Statement of the Commission on the Withdrawal of the Statement of Enforcement Principles Regarding “Unfair Methods of Competition” Under Section 5 of the FTC Act*, FED. TRADE COMM’N (Jul. 9, 2021), [www.ftc.gov/system/files/documents/public\\_statements/1591706/p210100commnstmtwithdrawalsec5enforcement.pdf](https://www.ftc.gov/system/files/documents/public_statements/1591706/p210100commnstmtwithdrawalsec5enforcement.pdf). The FTC also voted to withdraw its support for the recently promulgated 2020 Vertical Merger Guidelines. See Press Release, Fed. Trade Comm’n, Federal Trade Commission Withdraws Vertical Merger Guidelines and Commentary (Sept. 15, 2021), [www.ftc.gov/news-events/press-releases/2021/09/federal-trade-commission-withdraws-vertical-merger-guidelines](https://www.ftc.gov/news-events/press-releases/2021/09/federal-trade-commission-withdraws-vertical-merger-guidelines). Perhaps with an eye towards withdrawing the 2010 Horizontal Merger Guidelines, both the FTC and the DOJ have issued a Request for Information on Merger Enforcement. See *Submit a Comment on the Joint FTC-DOJ Merger Enforcement Request for Information*, FED. TRADE COMM’N (Jan. 18, 2022); Press Release, Fed. Trade Comm’n, Federal Trade Commission and Justice Department Seek to Strengthen Enforcement Against Illegal Mergers (Jan. 18, 2022), [www.ftc.gov/news-events/press-releases/2022/01/ftc-and-justice-department-seek-to-strengthen-enforcement-against-illegal-mergers](https://www.ftc.gov/news-events/press-releases/2022/01/ftc-and-justice-department-seek-to-strengthen-enforcement-against-illegal-mergers).

experience<sup>9</sup> and by ignoring the lessons from the credibility revolution in empirical antitrust discussed below.<sup>10</sup>

In this Part, we use the standard economic model of optimal enforcement to analyze and contrast these two approaches and to illustrate and explain the evolving role of economists in antitrust and the effect of enforcement innovation. We model the process of antitrust enforcement as a problem of decision-making under uncertainty where the agency uses an enforcement screening mechanism to distinguish between pro- and anticompetitive transactions and conduct.<sup>11</sup>

In this model, an antitrust investigation produces evidence in the form of a noisy enforcement signal  $x$ .<sup>12</sup> The noisy enforcement signal could be produced by either of two competing models. In the left panel of Figure 1, the distribution centered at  $\mu_0$  depicts the distribution of signals generated under the null hypothesis ( $H_0$ ) that the conduct or transaction is procompetitive, while the distribution centered at  $\mu_1$  depicts the distribution of signals generated under

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<sup>9</sup> For example, in explaining their withdrawal from the recently promulgated 2020 Vertical Merger Guidelines (VMGs), the majority of the FTC commissioners asserted:

The VMGs' reliance on [the elimination of double marginalization (EDM)] EDM is theoretically and factually misplaced. It is theoretically flawed because the economic model predicting EDM is limited to very specific factual scenarios: mergers that involve one single-product monopoly buying another single-product monopoly in the same supply chain, where both charge monopoly prices pre-merger and the product from one firm is used as an input by the other in a fixed-proportion production process.

*Statement of Chair Lina M. Khan, Commissioner Rohit Chopra, and Commissioner Rebecca Kelly Slaughter on the Withdrawal of the Vertical Merger Guidelines*, FED. TRADE COMM'N (Sep. 15, 2021), [www.ftc.gov/system/files/documents/public\\_statements/1596396/state\\_statement\\_of\\_chair\\_lina\\_m\\_khan\\_commissioner\\_rohit\\_chopra\\_and\\_commissioner\\_rebecca\\_kelly\\_slaughter\\_on.pdf](http://www.ftc.gov/system/files/documents/public_statements/1596396/state_statement_of_chair_lina_m_khan_commissioner_rohit_chopra_and_commissioner_rebecca_kelly_slaughter_on.pdf). This Statement, however, is “flatly incorrect as a matter of microeconomic theory.” Carl Shapiro & Herbert Hovenkamp, *How Will the FTC Evaluate Vertical Mergers?*, PROMARKET (Sep. 23, 2021) (“All of this has been included in economics textbooks for decades . . . . [Moreover], [i]n drafting its statement, the majority appears not to have consulted with the FTC's own Bureau of Economics. As a result, we have the spectacle of a federal agency basing its policies on a demonstrably false claim that ignores relevant expertise.”).

<sup>10</sup> See, e.g., Memo from Lina M. Khan, Chair, Fed. Trade Comm'n, to Commission Staff and Commissioners Regarding the Vision and Priorities for the FTC 2 (Sept. 22, 2021), [www.ftc.gov/system/files/documents/public\\_statements/1596664/agency\\_priorities\\_memo\\_from\\_chair\\_lina\\_m\\_khan\\_9-22-21.pdf](http://www.ftc.gov/system/files/documents/public_statements/1596664/agency_priorities_memo_from_chair_lina_m_khan_9-22-21.pdf) (asserting that “[g]rowing evidence suggests that market power now looks to be an increasingly systemic problem across the economy” while failing to mention the Bureau of Economics at all in the memo). For a critical discussion of the evidence cited in support of the existence of systemic market power across the economy, see generally Joshua D. Wright & Jennifer Cascone Fauver, *Antitrust Reform and the Nirvana Fallacy: The Case Against a New Sherman Act*, 2022 COLUM. BUS. L. REV. 72 (2022). This issue, as well as the credibility revolution in economics generally, is discussed further in Part I.D below.

<sup>11</sup> See STEVEN PINKER, RATIONALITY: WHAT IT IS, WHY IT SEEMS SCARCE, WHY IT MATTERS 201–26 (2021) (describing “statistical decision theory,” which combines ideas: “estimating the probability that something is true of the world (Bayesian reasoning) and deciding what to do about it by weighing its expected costs and benefits (rational choice)”).

<sup>12</sup> In reality, evidence is multi-dimensional, but we can make our point more simply by imagining that evidence can be reduced to a single signal.

the alternative hypothesis ( $H_1$ ) that the conduct or transaction is anticompetitive.

The inferential value of an observed signal is based upon the relative probabilities that the observed signal was generated by competing models of the effect of the transaction or conduct.<sup>13</sup> The bigger the distance between the distributions, the easier it is for the agencies to distinguish pro- from anticompetitive behavior. For example, if there is no overlap between the distributions, any observed signal can only be generated by one of the two competing models, making it possible to perfectly distinguish pro- from anticompetitive cases. Unfortunately, this is rarely the case.

In Figure 1, we illustrate a case where the two distributions have a significant overlap. The agency attempts to distinguish between pro- and anticompetitive conduct by choosing an enforcement screening threshold  $x^T$  that initiates an enforcement action when the signal is greater than the threshold, that is, when  $x > x^T$ . Under these conditions, any attempt to distinguish between pro- and anticompetitive conduct will be imperfect and subject to error. In what follows, we label the two kinds of errors generated by imperfect enforcement using the conventions of hypothesis testing. Specifically, a “Type I” error means false enforcement, i.e., bringing a case against a procompetitive transaction, and a “Type II” error is false nonenforcement, i.e., failing to bring a case against an anticompetitive one.

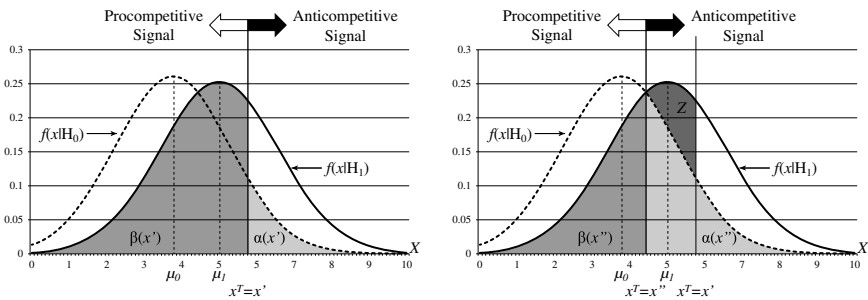


FIGURE 1: ENFORCEMENT WITH A NOISY SIGNAL  $x$

If the enforcement regime chooses a standard of proof  $x^T = x'$ , the probability of a Type I error (bringing a bad case) equals the shaded area  $\alpha(x')$ . The probability of a Type II error (failing to bring a good case) equals

<sup>13</sup> For any realized signal  $x = x'$ , the relative likelihood that the signal was generated by the anticompetitive model is captured by the ratio of the height of the two distributions illustrated in Figure 1 evaluated at  $x'$ . For example, if the signal  $x = x'$  is observed, then the likelihood that the signal was generated by the anticompetitive model equals  $f(x'/H_1)/f(x'/H_0)$ , which is greater than 1 at  $x = x'$  and thus favors an anticompetitive inference ( $H_1$ ).

the shaded area  $\beta(x')$ . The enforcement agency can reduce one of the errors by changing its choice of  $x^T$ , but only by increasing the other error. The right panel of Figure 1 illustrates the effect of lowering the threshold  $x^T$  from  $x'$  to  $x''$ . The rate of Type I errors increases to  $\alpha(x'')$  while the rate of Type II errors decreases to  $\beta(x'')$ .<sup>14</sup> The total error rate  $\alpha(x'') + \beta(x'')$  decreases by the shaded area Z.

TABLE 1: ERROR COST MATRIX FOR EVALUATING CONDUCT AND TRANSACTIONS UNDER THE ANTITRUST LAWS

	Anticompetitive Conduct (P(H <sub>I</sub> ))	Procompetitive Conduct (P(H <sub>0</sub> ))
<i>Enforcement if Signal = (x &gt; x<sup>T</sup>)</i>	<p><b>Correct Enforcement (“Hit”)</b>                      Prob = 1 – β(x<sup>T</sup>) (“Sensitivity”)</p>	<p><b>Erroneous Enforcement (“False Alarm” or “Type I Error”)</b>                      Prob = α(x<sup>T</sup>)                      Cost of Error = K<sub>I</sub></p>
<i>No Enforcement if Signal = (x &lt; x<sup>T</sup>)</i>	<p><b>Erroneous Nonenforcement (“Miss” or “Type II Error”)</b>                      Prob = β(x<sup>T</sup>)                      Cost of Error = K<sub>II</sub></p>	<p><b>Correct Nonenforcement</b>                      Prob = 1 – α(x<sup>T</sup>) (“Specificity”)</p>

The error-cost matrix applicable to a particular enforcement strategy is depicted in Table 1. There are four possible outcomes associated with such an imperfect screening mechanism. With a threshold of  $x^T$ , the Type I error rate is  $\alpha(x^T)$ , with each one costing  $K_I$  when one occurs. The “specificity” of the screen, that is, the rate at which procompetitive conduct is correctly identified, is  $1 - \alpha(x^T)$ .<sup>15</sup> The Type II error rate of the screen is  $\beta(x^T)$ , and Type II errors, with each one costing  $K_{II}$ . The “sensitivity” of the screening mechanism, that

<sup>14</sup> That is,  $\frac{\partial \alpha(x^T)}{\partial x^T} < 0$  and  $\frac{\partial \beta(x^T)}{\partial x^T} > 0$ .

<sup>15</sup> The loss function does not explicitly include the benefits of correct positive and negative decisions. Following the standard convention in the decision-theoretic (or “signal detection”) literature, we assume the loss parameters are normalized so that gains may be assumed to equal zero. See Michelle M. Burtis, Jonah B. Gelbach & Bruce H. Kobayashi, *Error Costs, Legal Standards of Proof, and Statistical Significance*, 25 SUP. CT. ECON. REV. 1, 11 (2018); see generally Murat C. Mungan & Joshua Wright, *Optimal Standards of Proof in Antitrust*, 71 INT’L REV. L. & ECON. 1 (2022); Andrew I. Gavil & Steven C. Salop, *Probability, Presumptions and Evidentiary Burdens in Antitrust Analysis: Revitalizing the Rule of Reason for Exclusionary Conduct*, 168 U. PA. L. REV. 2107 (2020).

is, the rate at which anticompetitive conduct is correctly identified, equals  $1 - \beta(x^T)$ .

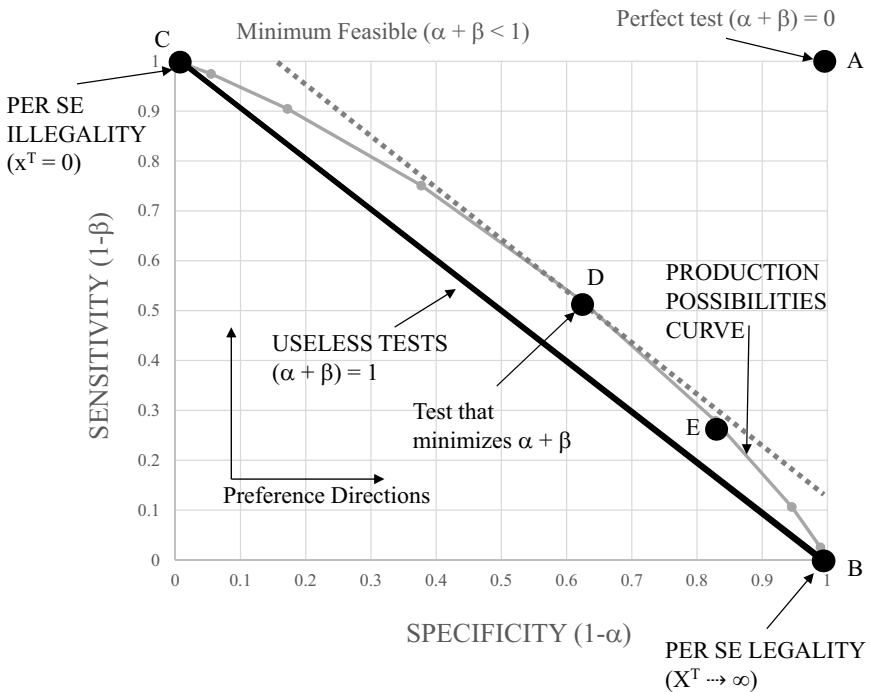


FIGURE 2: ALTERNATIVE ENFORCEMENT TESTS

Figure 2 depicts the enforcer’s dilemma. At point B, no cases are brought (per se legality → only Type II errors), and at point C, all cases are brought (per se illegality → only Type I errors). The line that connects points B and C is the set of uninformative or useless tests which return results that do not depend on whether the conduct being examined is pro- or anticompetitive. These tests, including the two per se rules, produce a total error rate of  $\alpha + \beta = 1$ .

Point A denotes a screen that does not produce errors. Unfortunately, with the overlapping distributions of Figure 1, such a screen is not feasible. The curve that contains the points C, D, E, and B represents the feasible set of outcomes generated by moving the threshold  $x^T$ . Point E represents the choice of  $x^T = x'$ , which results in a test with a low Type I error rate and a high Type II error rate. Point D represents the choice of  $x^T = x''$ , which results in symmetric Type I and Type II error rates and lower overall error rates than the choice of  $x^T = x'$ . This feasible set is negatively sloped—indicating the trade-off between the two error types as the threshold  $x^T$  is changed. As noted



above, increasing the probability of one error must decrease the probability of the other.

An optimal antitrust enforcement regime will set the threshold  $x^T$  at a level  $x^*$  that minimizes the sum of error costs and the direct costs of enforcement.<sup>16</sup> If  $P(H_0)$  and  $P(H_1)$  denote the prior probabilities (or “base rates”) of pro- and anticompetitive conduct respectively, minimization of expected error costs plus the cost of the test ( $m$ ) is achieved by choosing a standard of proof  $x^T = x^*$  that minimizes the expected error cost:<sup>17</sup>

$$\text{Loss}(x^T) = P(H_0)[\alpha(x^T)K_I] + P(H_1) [\beta(x^T)K_{II}] + m \quad (1)$$

If  $m$  is small, the optimal standard of proof  $x^*$  will satisfy the following condition:<sup>18</sup>

$$-\frac{\partial \beta(x^*)}{\partial x^*} / \frac{\partial \alpha(x^*)}{\partial x^*} = \omega / \pi, \quad (2)$$

where  $\omega = \frac{K_I}{K_{II}}$  (the ratio of the cost of Type I and Type II errors) and  $\pi = \frac{P(H_1)}{P(H_0)}$  (the prior odds in favor of  $H_1$ ). If the cost of false prosecution is higher than the cost of false nonprosecution and the prior odds favor procompetitive behavior, then the optimal threshold will be high, and vice versa.

The left-hand term in equation (2) is the slope of the feasible set. The dotted line represents the tradeoff if an agency worried equally about the rate and costs of Type I and Type II errors. In this case, the agency tries to minimize the sum of error costs by choosing a threshold where the slope of the feasible set equals  $\omega/\pi$ . In the special case where  $P(H_0) = P(H_1)$  and where  $K_I = K_{II} = K$ ,  $\omega/\pi=1$ , the optimal standard of proof is  $x^* = x^*$  in Figure 1. If  $m$  is small, an optimal enforcement strategy will be at point D on the feasible set in Figure 3.<sup>19</sup> Under these conditions, this is the point in the feasible set that minimizes total error costs. At the optimum, the probability of either error as well as the total error cost rate is less than one, i.e.,  $\alpha(x^*) + \beta(x^*) < 1$ . Nota-

<sup>16</sup> See Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1 (1984); Isaac Ehrlich & Richard A. Posner, *An Economic Analysis of Legal Rulemaking*, 3 J. LEGAL STUD. 257 (1974) (setting out the general approach); Richard A. Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, 2 J. LEGAL STUD. 399 (1973).

<sup>17</sup> The resource cost of conducting the screening test  $m$  is assumed to not vary when using a given enforcement mechanism, but the cost could be avoided if the agency uses an enforcement strategy that does not require the evaluation of evidence  $x$  (e.g., per se rules where  $x^T = 0$  or  $x^T = \infty$ ).

<sup>18</sup> See Burtis et al., *supra* note 15, at 12.

<sup>19</sup> *Id.* Under these conditions, both  $\omega$  and  $\pi$  equal 1, so the loss function is minimized when  $x^T$  is raised to the point where the marginal reduction in Type II errors equals the marginal increase in Type I errors.

bly, the total error rate and error costs are lower than if either of the two per se rules (at B or C) are used.

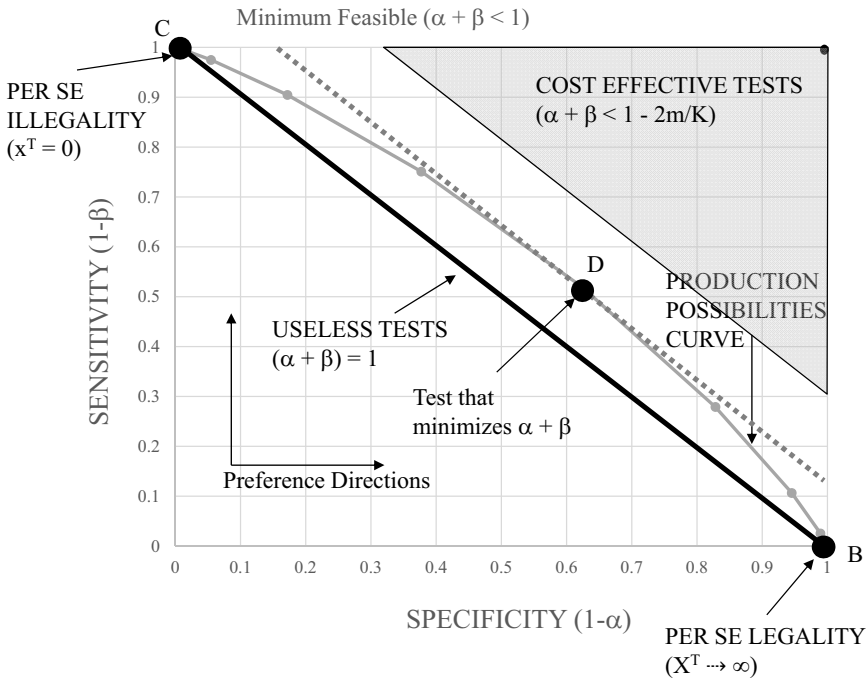


FIGURE 3: COST-EFFECTIVE TESTS

There are two reasons why per se rules B or C, which generate higher error costs, might be preferred to point D. The first is that the benefits from reducing total error rates by using test D are less than the costs of doing so, including the error costs and the costs of enforcement.<sup>20</sup> Figure 3 depicts such a setting, where  $m$  is large relative to  $K$ , so that the reduction in error costs does not outweigh the higher enforcement costs of using test D.

Figure 4 depicts the case where  $\pi$  (i.e., the odds in favor of anticompetitive conduct) is large, so that conduct that is procompetitive is rare (e.g., horizontal price fixing). Under these circumstances, the optimal standard of proof will be set at a low level. As depicted in Figure 4, use of a per se rule dominates any of the interior solutions on the production possibilities curve.<sup>21</sup>

<sup>20</sup> Under the conditions depicted in Figure 3, either of the two per se rules will dominate point D if  $\alpha + \beta < 1 - 2m/K$ . *Id.*

<sup>21</sup> The case where  $\pi$  is large is one where an anticompetitive presumption is warranted. Note that the use of presumptions would require the accurate evaluation and identification of conduct

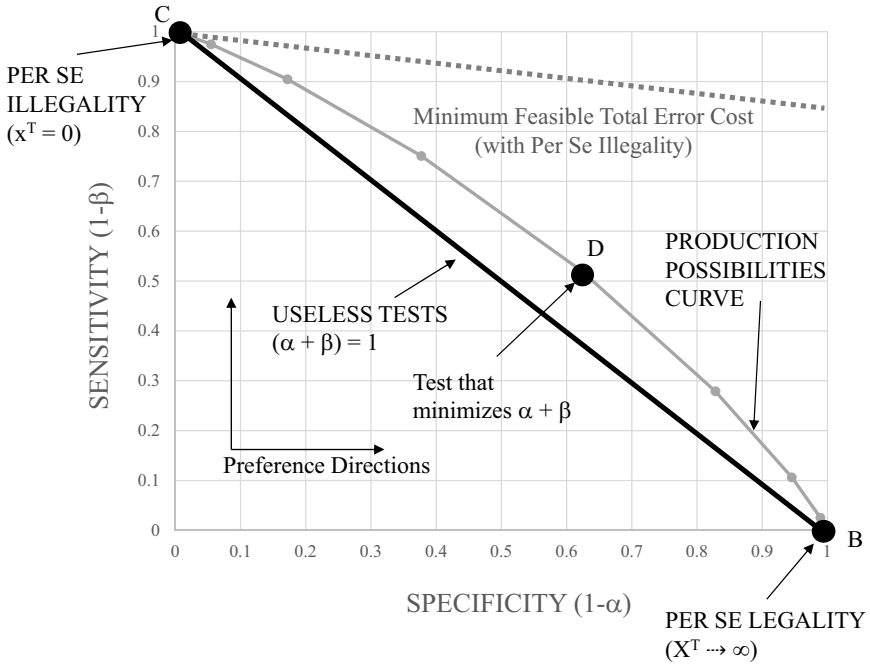


FIGURE 4: PRIORS AND PER SE RULES

The precision of the enforcement signal and where the production-possibilities curve lies depends on the quality of the model and data that underlies the enforcement test. A good model should capture the significant features of observed competition and be able to predict the loss of such competition following mergers, collusion, or monopolization. By “model,” we mean something quite general: any methodology, implied or explicit, with a method for making predictions about the effects of collusion, mergers, or monopolization. It can be as simple as the per se rule against the exchange of price information to infer collusion, or something as sophisticated as the formal merger simulation models used by the agencies.<sup>22</sup>

and circumstances where the presumption is empirically supported. See generally Bruce H. Kobayashi & Joshua D. Wright, *Antitrust and Ex-Ante Sector Regulation*, in THE GLOBAL ANTI-TRUST INSTITUTE REPORT ON THE DIGITAL ECONOMY 856 (Joshua D. Wright & Douglas H. Ginsburg eds., 2020).

<sup>22</sup> A version of the merger simulation tools developed by economists at the U.S. agencies that allows users to perform both horizontal and vertical merger simulations is available at CompetitionToolBox.com. See also Charles Taragin et al., *Package “Antitrust,”* COMPREHENSIVE R ARCHIVE NETWORK (Oct. 12, 2022) (describing the suite of tools used to assess the implications of horizontal mergers), [cran.r-project.org/web/packages/antitrust/antitrust.pdf](https://cran.r-project.org/web/packages/antitrust/antitrust.pdf).

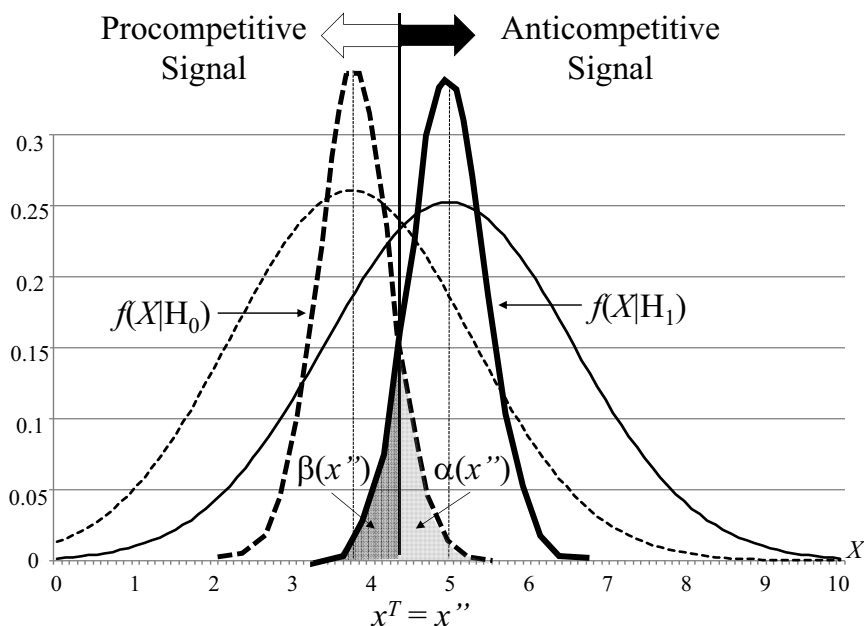


FIGURE 5: ENFORCEMENT INNOVATION AND PRECISION

Figure 5 illustrates the effect of enforcement innovation that increases the precision of the enforcement tools available. This increase in precision is depicted as a decrease in the variance of the signal distributions for pro- and anticompetitive conduct. This reduces the overlap between the pro- and anticompetitive signal distributions, which lowers the probability of both Type I and Type II errors for a given standard of proof.

Figure 6 illustrates how the reduction in the error rates from the improvement causes an outward shift in the production-possibilities curve, making test F feasible and lowering total error costs. Enforcement innovation can also lower the cost of producing evidence  $m$ .<sup>23</sup> Decreases in  $m$  will enlarge the set of tests in which there are cost-effective tests. This latter effect would make the use of test D cost effective relative to using one of the per se rules, and it

<sup>23</sup> For example, economists at the U.S. antitrust agencies have developed programs that generate predictions and metrics used to analyze proposed mergers. See, e.g., Taragin et al., *supra* note 22. It is also possible that enforcement innovation simultaneously shifts out the production-possibilities curve and reduces both error rates, while also requiring that significant resources be used, thus increasing  $m$ . In such cases, any benefits generated by increased precision and lower error costs will be offset by the additional resource costs required by these more advanced techniques.

would be consistent with the movement from rules of per se illegality to a rule of reason analysis for vertical restraints discussed above.<sup>24</sup>

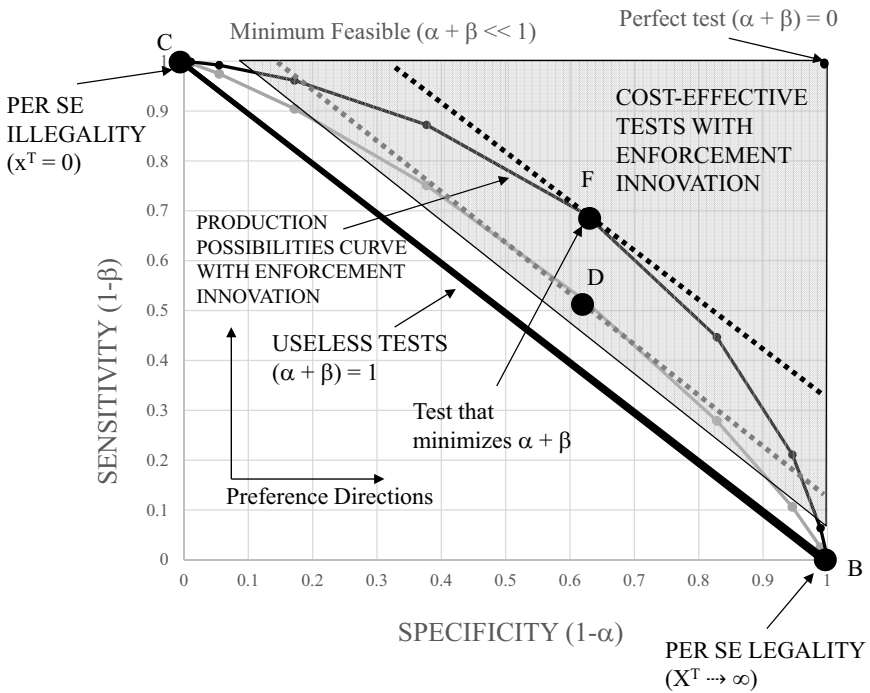


FIGURE 6: THE EFFECT OF ENFORCEMENT INNOVATION

An important question is the extent to which improvements in models generated by economists have moved the production-possibilities curve outward enough to outweigh the incremental costs of using these more sophisticated tools. Even with better models, it is possible that without good data to feed them, their reliability in producing useful predictions will be suspect. Thus, as we discuss below, the process through which models and their predictions are generated and validated is a critical research function. Yet, rejection of models because they generate less-than-perfect predictions would reject any model, and it fundamentally misunderstands the role that these models play. Models provide a framework that allows litigants and legal decision-makers to infer what facts matter, why they matter, and how much they matter. Even with limited data, models can not only steer investigations toward relevant evidence and data, but they also produce a framework for making inferences in the face of limited data. Regardless of whether the model is explicit and

<sup>24</sup> See Kobayashi & Muris, *supra* note 3, at 152–53.

formal or implicit and informal, better models provide better guidance for investigations and lead to better enforcement decisions.

The biggest barrier to effective use of models comes from those who are under the mistaken impression that facts in a vacuum can speak for themselves. In general, this is not the case. Rather, facts must be interpreted through a model or a set of competing models<sup>25</sup> to answer the relevant causal questions: is it likely that this conspiracy raised prices; how likely is it that this merger will raise prices; or how likely is it that consumers are injured by some vertical contract? Causality and likelihood are determined by models and the evidence that they generate.<sup>26</sup> Economists, and in particular industrial organization economists, have held a central role in antitrust because they are uniquely situated to address these questions raised by an evidence-based antitrust policy.

## II. PROMINENT EXAMPLES OF INNOVATION IN ANTITRUST ECONOMICS GENERATED AT THE U.S. AGENCIES

In the 1980s, an academic economist gave a presentation to the Antitrust Division of the U.S. Department of Justice on behalf of two merging brands that seemed like close substitutes. Using supermarket scanner data, the professor presented demand estimates from a flexible functional form using rival prices as instruments—both innovations to antitrust—showing that each product had relatively elastic demand. He asserted that the merged firm would not find it profitable to raise price, as each product would lose too many sales to its nonmerging rivals.

What the professor did not realize, however, was that he had also presented an estimate of the cross-price elasticity of demand, a measure of substitution between the brands. The staff economists had been modeling how merged firms internalize competition and immediately recognized the importance of the big cross-price elasticity estimate between the products of the merging firms. This large cross-price elasticity gives the merged firm a large incentive to raise prices because many of the sales lost when it raises the price of one of its products would be picked up by the other, and vice versa. Staff economists used the demand estimates to calibrate a formal model to the current prices and quantities and then simulated the effect of the merger—another innovation—which ultimately led to a successful challenge.

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<sup>25</sup> See Luke M. Froeb et al., *Adversarial Decision Making: Choosing Between Models Constructed by Interested Parties*, 59 J.L. & ECON. 527, 527–48 (2016).

<sup>26</sup> For example, that gravity causes a ball to accelerate towards the earth at a rate of 9.8 meters/second squared is a property of Newton's model of the laws of motion. Similarly, a well-specified model or set of models is necessary to draw inferences about the effects of conspiracies, mergers, or vertical relationships.

The case was one in a long string of cases in which agency economists introduced new methodology into the enforcement of antitrust laws. Today, the analyses of unilateral effects and the associated tools, such as merger simulation, have become a standard part of the enforcement toolkit at the U.S. agencies.<sup>27</sup> Use of these analyses and tools has spread to enforcement agencies across the globe.<sup>28</sup>

In this Part, we present in more detail several prominent examples of enforcement innovations that have made it into agency practice and into antitrust law. Specifically, we discuss the development of the hypothetical monopolist test and critical loss analysis, merger simulations, the merger guidelines, and the credible revolution in empirical economics and merger retrospectives. In many ways, these innovations are linked, but we will discuss them separately. Indeed, one could tell a similar innovation story about many other tools developed or refined by agency economists that have been incorporated into the analyses of both horizontal and vertical mergers, unilateral and coordinated conduct, and antitrust and regulatory policy.<sup>29</sup>

#### A. DEFINING RELEVANT MARKETS AND THE EMERGENCE OF THE HYPOTHETICAL MONOPOLIST TEST AND CRITICAL LOSS ANALYSIS

After two landmark decisions, *Dupont* and *Brown Shoe*, the Supreme Court offered broad, qualitative guidance on defining relevant antitrust markets.<sup>30</sup>

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<sup>27</sup> For an overview and survey of merger simulation, see generally Oliver Budzinski & Isabel Ruhmer, *Merger Simulation in Competition Policy: A Survey*, 6 J. COMPETITION L. & ECON. 277 (2009). See also CompetitionToolbox.com, *supra* note 22, for a web-based merger simulation tool.

<sup>28</sup> See, e.g., Apostolos Baltzopoulos et al., *UPP Analysis in Five Recent Merger Cases* (Konkurrensverket, Working Paper No. 2015:3, 2015).

<sup>29</sup> Other examples include Steven C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 AM. ECON. REV. 267, 268–70 (1983) (using analyses of vertical conduct and vertical mergers to examine incentives to increase rivals' costs); David Reiffen & Michael R. Ward, *Generic Drug Industry Dynamics*, 87 REV. ECON. & STAT. 37 (2005); Luke M. Olson & Brett W. Wendling, *The Effect of Generic Drug Competition on Generic Drug Prices During the Hatch-Waxman 180-Day Exclusivity Period*, Fed. Trade Comm'n Bureau of Econ., Working Paper No. 317, 2013) (using the unique institutional and regulatory features of the generic drug industry to estimate the causal effects of entry); Pauline M. Ippolito, *Resale Price Maintenance: Empirical Evidence from Litigation*, 34 J.L. & ECON. 263 (1991) (showing uses of resale price maintenance that are inconsistent with a presumption of illegality through detailed empirical analysis); MALCOLM B. COATE & ANDREW J. HEIMERT, FED. TRADE COMM'N, *MERGER EFFICIENCIES AT THE FEDERAL TRADE COMMISSION 1997–2007* (2009) (studying efficiency analyses by staff at the FTC), [www.ftc.gov/sites/default/files/documents/reports/merger-efficiencies-federal-trade-commission-1997%E2%80%932007/0902mergerefficiencies.pdf](http://www.ftc.gov/sites/default/files/documents/reports/merger-efficiencies-federal-trade-commission-1997%E2%80%932007/0902mergerefficiencies.pdf).

<sup>30</sup> *United States v. E. I. du Pont de Nemours & Co.*, 351 U.S. 377, 395, 404 (1956) (suggesting “reasonable interchangeability” as the key consideration in defining markets); *Brown Shoe Co. v. United States*, 370 U.S. 294, 325 (1962) (establishing seven relevant factors to weigh).

Yet, a gap still remained for practitioners regarding how to systematically delineate markets in a consistent and coherent framework. This changed with the 1982 Merger Guidelines and the introduction of the hypothetical monopolist test (HMT).<sup>31</sup> The HMT represented a breakthrough framework to determine the “playing field” to assess the specific competitive conduct at issue—whether it be mergers or monopolistic conduct.

The HMT was established with the following language from the 1982 Merger Guidelines:

[T]he market definition used by the Department can be stated formally as follows: “a market consists of a group of products and an associated geographic area such that ([in] the absence of new entry) a hypothetical, unregulated firm that made all the sales of those products in that area could increase its profits through a small but significant and non-transitory increase in price (above prevailing or likely future levels).”<sup>32</sup>

Simply stated, the HMT involves taking the smallest group of products and determining whether a hypothetical monopolist could impose a “small but significant and non-transitory increase in price” (SSNIP). If so, then the market is defined. Otherwise, the candidate market must be expanded, and the test is repeated until it is satisfied.<sup>33</sup>

The HMT illustrates the process and importance of agency-based enforcement innovation. The HMT was developed within the DOJ and was pioneered by DOJ economist Gregory Werden.<sup>34</sup> While the HMT represented an important conceptual step forward, there still remained the question: how do we know if a hypothetical monopolist would find a SSNIP to be profitable? In 1989, Barry Harris and Joseph Simons, who had both served formerly at the FTC, introduced the critical loss analysis to answer just this question.<sup>35</sup> Their critical loss analysis represented a systematic and intuitive way to implement the HMT using data that is relatively easy to obtain.

Specifically, the “critical” insight from Harris and Simons was that when a hypothetical monopolist raises price, there are two effects. First, there is an

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<sup>31</sup> U.S. DEP’T OF JUST., 1982 MERGER GUIDELINES § 2 (1982) [hereinafter 1982 GUIDELINES], [www.justice.gov/archives/atr/1982-merger-guidelines](http://www.justice.gov/archives/atr/1982-merger-guidelines); see also Gregory J. Werden, *The History of Antitrust Market Delineation*, 76 MARQ. L. REV. 123 (1992); Gregory J. Werden, *The 1982 Merger Guidelines and the Ascent of the Hypothetical Monopolist Paradigm*, 71 ANTITRUST L.J. 253 (2003) [hereinafter Werden (2003)].

<sup>32</sup> 1982 GUIDELINES, *supra* note 31, § 2 n.6.

<sup>33</sup> See *id.* at § 2.

<sup>34</sup> See Werden (2003), *supra* note 31, at 257 n.12.

<sup>35</sup> Barry C. Harris & Joseph J. Simons, *Focusing Market Definition: How Much Substitution is Necessary?*, 12 RSCH. L. & ECON. 207, 211–19 (1989).



increase in profit due to higher margins on sales that are still made. Second, there is a reduction in profit due to lost sales (and lost margins on those sales). Implementing the test, which compared these two effects, simply required the size of the pre-merger margins and the chosen level for the SSNIP (typically, five or ten percent). With this information, one can calculate the “critical loss” that a hypothetical monopolist can lose (expressed as a percentage of sales lost) before the SSNIP becomes unprofitable. The analysis then requires that evidence of “actual loss” be generated to compare to the critical loss.

The arrival of the 1992 Merger Guidelines, which was influenced by economic developments in models geared toward differentiated products, inspired further change in how the HMT was implemented.<sup>36</sup> Specifically, the 1992 version allowed for the SSNIP to be imposed on one, some, or all of the products controlled by the hypothetical monopolist.<sup>37</sup>

With this development, there was also a reformulation of the critical loss analysis pioneered by Harris and Simons. A “firm-level” approach to critical loss was developed that explicitly modeled critical loss as a firm-level optimization based on assumed functional forms for firm demand—typically linear demand. These approaches were developed by two FTC economists, Daniel O’Brien and Abraham Wickelgren.<sup>38</sup> Additionally, Michael Katz and Carl Shapiro developed a similar firm-level approach.<sup>39</sup> Both economists had spent time at the DOJ as head of the Economic Analysis Group (EAG).<sup>40</sup> These papers represented a reformulation of critical loss that made the actual loss endogenous and part of the modeling structure. The DNA of these approaches is a single-firm optimization generalized to a SSNIP for either one, some, or all of the products controlled by the hypothetical monopolist. When the assumptions are met, this tool allows the generation of bounds on the

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<sup>36</sup> See U.S. DEP’T OF JUST. & FED. TRADE COMM’N, MERGER GUIDELINES (1992) [hereinafter 1992 GUIDELINES], [www.justice.gov/archives/atr/1992-merger-guidelines](http://www.justice.gov/archives/atr/1992-merger-guidelines).

<sup>37</sup> Compare 1982 GUIDELINES, *supra* note 31, § 2.A (“In general, the Department seeks to identify a group of products such that a hypothetical firm that was the only present and future seller of those products could raise price profitably.”) (footnote omitted), with 1992 GUIDELINES, *supra* note 36, § 1.11 (“In performing successive iterations of the price increase test, the hypothetical monopolist will be assumed to pursue maximum profits in deciding whether to raise the prices of any or all of the additional products under its control.”).

<sup>38</sup> See generally Daniel P. O’Brien & Abraham L. Wickelgren, *A Critical Analysis of Critical Loss Analysis*, 71 ANTITRUST L.J. 161 (2003). Their research was first published in the Bureau of Economics Working Paper Series. See Daniel P. O’Brien & Abraham L. Wickelgren, *A Critical Analysis of Critical Loss Analysis* (Fed. Trade Comm’n Bureau of Econ., Working Paper No. 254, 2003), [www.ftc.gov/reports/critical-analysis-critical-loss-analysis](http://www.ftc.gov/reports/critical-analysis-critical-loss-analysis).

<sup>39</sup> Michael L. Katz & Carl Shapiro, *Critical Loss: Let’s Tell the Whole Story*, ANTITRUST, Spring 2003, at 49.

<sup>40</sup> See *Past Assistant Attorneys General for Economic Analysis*, U.S. DEP’T OF JUST., [www.justice.gov/atr/about-division/economic-analysis-group/past-deputy-assistant-attorneys-general-economic-analysis](http://www.justice.gov/atr/about-division/economic-analysis-group/past-deputy-assistant-attorneys-general-economic-analysis) (updated June 15, 2023). For a list of FTC Bureau of Economics Directors from 1915 to 2014, see Pautler, *infra* note 90, at app. d.

actual loss from a merger based on the type of information commonly possessed by the agencies during a pre-merger investigation (e.g., data on margins and diversion ratios). However, implementation of the firm-level critical loss is more complex than Harris and Simons' "market-level" critical loss. This complexity can result in different formulas based on the assumed functional form for demand and precisely how the SSNIP is implemented, that is, whether it is for one, some, or all of the products.<sup>41</sup>

There is little doubt that the HMT and the use of critical loss analysis continue to play a prominent role in improving the predictability and usefulness of market definition. Both have been widely adopted by both the agencies and the courts to define relevant antitrust markets.<sup>42</sup>

## B. MERGER SIMULATION

In the aftermath of the 1992 Merger Guidelines and the unilateral effects revolution in antitrust economics,<sup>43</sup> merger simulation emerged as a standard tool at the agencies in the mid-1990s.<sup>44</sup> Merger simulation is a technique that models consumer substitution through a series of demand equations.<sup>45</sup> These equations form the structural backbone of the market prediction.

At its core, merger analysis is always attempting to compare two states of the world: the world with the merger and the world without. Both are unobservable at the time of the proposed acquisition.<sup>46</sup> In standard merger analysis, the world without the merger is generally assumed to be very much like the current world. This is a reasonable assumption under most market conditions

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<sup>41</sup> See Malcolm B. Coate et al., *Tailoring Critical Loss to the Competitive Process*, 65 INT'L REV. L. & ECON. 1, 4–11 (2020); see also Timo Autio et al., *On the Risk of Using a Firm-Level Approach to Identify Relevant Markets* (Ctr. for Stud. in Econ. and Fin., Working Paper No. 581, 2020), papers.ssrn.com/sol3/papers.cfm?abstract\_id=3701141.

<sup>42</sup> See generally Malcolm B. Coate, Shawn W. Ulrick & John M. Yun, *Critical Loss in Market Definition: Methods and Court Decisions*, 10 J. ANTITRUST ENF'T 419 (2022) (detailing federal court horizontal merger litigation resolved from 2011 to 2019 and the use of critical loss in those cases).

<sup>43</sup> See, e.g., Louis Silvia, *Economics and Antitrust Enforcement: The Last 25 Years*, 25 INT'L J. ECON. BUS. 119, 120 (2018) ("The rise of unilateral effects theories is the big story here. The issuing of the 1992 Department of Justice/FTC Merger Guidelines was a landmark event. They articulated unilateral theories of harm based on 'localized competition.' Diversion rates and margins—not market shares and concentration—are the key elements in these theories.") (citation omitted).

<sup>44</sup> See Budzinski & Ruhmer, *supra* note 27, at 277.

<sup>45</sup> See, e.g., Luke M. Froeb & Gregory J. Werden, *An Introduction to the Symposium on the Use of Simulation in Applied Industrial Organization*, 7 INT'L J. ECON. BUS. 133, 134 (2000) ("Merger simulation uses a standard oligopoly model calibrated to observed prices and quantities to predict the effects of a merger on the prices and quantities of the merging firms and their rivals.").

<sup>46</sup> Of course, consummated mergers can be assessed retroactively and, thus, involve only one counterfactual (the world without the merger). See *infra* Part II.D.

unless there is rapid innovation and entry. The issue then comes down to predicting the world with the merger.

Several approaches can be used to make this central prediction regarding the effect of combining two brands/firms. First, agencies could take a structural approach and conclude that all markets where there is one less competitor could be generally problematic. This approach is formalized in *Philadelphia National Bank*.<sup>47</sup> As noted below, the weaknesses of this approach in predicting market outcomes have led antitrust policymakers to alternative, effects-based analyses. At best, a market-share presumption offers only a directional prediction, which—under a rule of reason—cannot weigh potential anticompetitive effects against potential procompetitive efficiencies.<sup>48</sup>

An alternative approach is to utilize a well-specified system of demand and directly measure the impact on pricing incentives when one firm purchases a rival firm. This is where merger simulation comes into play. It provides a structural model—calibrated to current market outcomes—to simulate the impact of a merger.<sup>49</sup> Assuming some degree of substitution between the merging products, these models will always predict some price increase. However, the advantage is that a full simulation can be used to determine the overall impact of a price increase across all competitors and to determine the precise magnitude that merger efficiencies must reach in order to defeat a price increase. The simulation does the hard work of incorporating these potential tradeoffs from a merger to arrive at a net effect.<sup>50</sup> A number of theoretical works laid the groundwork for merger simulation,<sup>51</sup> which fully emerged with

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<sup>47</sup> *United States v. Phila. Nat'l Bank*, 374 U.S. 321, 363 (1963) (“[A] merger which produces a firm controlling an undue percentage share of the relevant market, and results in a significant increase in the concentration of firms in that market, is so inherently likely to lessen competition substantially that it must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects.”).

<sup>48</sup> See, e.g., Gregory J. Werden, *Simulating the Effects of Differentiated Products Mergers: A Practical Alternative to Structural Merger Policy*, 5 GEO. MASON L. REV. 363, 368 (1997) (“[E]fficiency effects of mergers cannot be considered *systematically* because anticompetitive effects are not quantified in any comparable way.”).

<sup>49</sup> Structure is imposed on the model in order to reduce variance but can come at the potential cost of specification bias. Common structural assumptions include Bertrand or Cournot competition. See Froeb & Werden, *supra* note 45, at 134.

<sup>50</sup> See, e.g., Werden, *supra* note 48, at 369 (“There will always be some competition at the margin, and it must be accounted for in a proper analysis of the likely competitive effects of a merger.”).

<sup>51</sup> Joseph Farrell & Carl Shapiro, *Horizontal Mergers: An Equilibrium Analysis*, 80 AM. ECON. REV. 107, 107 (1990); R. Preston McAfee & Michael A. Williams, *Horizontal Mergers and Antitrust Policy*, 40 J. INDUS. ECON. 181, 181 (1992); Gregory J. Werden, *Horizontal Mergers: Comment*, 81 AM. ECON. REV. 1002, 1002 (1991).

the work of Werden and Froeb.<sup>52</sup> Simulations are particularly suited for differentiated product markets and moved the agencies away from a strict focus on market definition to predict the effects of mergers to a competitive effects analysis.

Merger simulations come in many varieties and can range from a full-blown system to a simple simulation based on strong assumptions. For example, the 2010 Horizontal Merger Guidelines incorporate the gross upward pricing pressure index (GUPPI), which can, under restrictive assumptions, be interpreted as a simple simulation model.<sup>53</sup> The incorporation of GUPPIs into the Guidelines demonstrates that not all merger simulations require a tremendous amount of data and complexity. Of course, these models, whether of the complex or simple variety, are highly structured and rely on key assumptions; they should not be blindly applied without some degree of coherence and tethering to real-world conditions. For instance, caution is warranted when markets are characterized by more dynamic factors that are not as focused on a strict short-run pricing optimization.<sup>54</sup> Consequently, merger simulation should not be given considerable weight by courts unless the oligopoly model can capture the significant features of observed competition in a particular industry.<sup>55</sup>

One problem with simulations is that price predictions are sensitive to assumptions about the form of demand—how quickly demand becomes more

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<sup>52</sup> Gregory J. Werden & Luke M. Froeb, *The Effects of Mergers in Differentiated Products Industries: Logit Demand and Merger Policy*, 10 J.L. ECON. & ORG. 407 (1994). Notably, the paper also was first published as a working paper within the DOJ. See also Jerry Hausman et al., *Competitive Analysis with Differentiated Products*, 34 ANNALES D'ECONOMIE ET DE STATISTIQUE 159 (1994); Nathan H. Miller, *Modeling the Effects of Mergers in Procurement*, 37 INT'L J. INDUS. ORG. 201 (2014); Gloria Sheu & Charles Taragin, *Simulating Mergers in a Vertical Supply Chain with Bargaining*, 52 RAND J. ECON. 596 (2021).

<sup>53</sup> U.S. DEP'T OF JUST. & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 6 (2010) [hereinafter 2010 GUIDELINES], [www.justice.gov/atr/horizontal-merger-guidelines-08192010](http://www.justice.gov/atr/horizontal-merger-guidelines-08192010). Under the assumption that the pass-through rate of changes in the marginal cost is 0.5, which is true when demand is linear and marginal cost is constant, the equilibrium price increase will equal the GUPPI/2. See, e.g., Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, 10 B.E. J. THEORETICAL ECON., no. 1, art. 9, 2010, [faculty.haas.berkeley.edu/18shapiro/alternative.pdf](http://faculty.haas.berkeley.edu/18shapiro/alternative.pdf).

<sup>54</sup> See, e.g., Gregory J. Werden & Luke M. Froeb, *Unilateral Competitive Effects of Horizontal Mergers*, in HANDBOOK OF ANTITRUST ECONOMICS 43, 47 (Paolo Buccirossi ed., 2008) (“Merger simulation calibrates a model of a one-shot, non-cooperative oligopoly game to match critical features of the industry.”).

<sup>55</sup> See Gregory J. Werden, Luke M. Froeb, & David T. Scheffman, *A Daubert Discipline for Merger Simulation*, ANTITRUST, Summer 2004, at 89; Nathan H. Miller et al., *Upward Pricing Pressure as a Predictor of Merger Price Effects*, 52 INT'L J. INDUS. ORG. 216 (2017); Nathan H. Miller et al., *Pass-Through and the Prediction of Merger Price Effects*, 64 J. INDUS. ECON. 683, 698–700 (2016).

elastic as price increases. This was noticed by agency economists,<sup>56</sup> who then invented a solution: compute *compensating marginal cost reductions* that offset the incentive of the merged firm to raise price.<sup>57</sup> The simulated cost reductions can be used as a measure of the competition lost by the merger or to benchmark the claimed efficiencies of the merging parties.

As merger simulation has been applied to more industries, economists have developed methodological innovations to capture the significant and peculiar features of competition in a given case—for example, in industries where firms compete by bidding (e.g., timber mills, defense procurement), by bargaining (e.g., video content and distribution), by choosing price and promotion (e.g., ice cream), by choosing price and location (e.g., retailers), by closing capacity (e.g., coated recycled board), among capacity constrained firms (e.g., parking lots), for durable goods (e.g., tractors), and managing revenue (e.g., cruise ships).<sup>58</sup> In all of these examples, questions from ordinary casework led to methodological innovations that furthered our understanding of how mergers affect competition.

Simulations began to take hold first at the DOJ in the mid-1990s with early cases involving bread (resulting in a consent decree), mascara, tissues, and frozen seafood, and then later spread to the FTC.<sup>59</sup> By the late 1990s, however, simulations had yet to appear in court, even though economists used them for other applications like damage estimation.<sup>60</sup> Important papers emerged that tested the methodology against consummated mergers.<sup>61</sup> Today,

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<sup>56</sup> Philip Crooke, Luke Froeb, Steven Tschantz & Gregory J. Werden, *Effects of Assumed Demand Form on Simulated Postmerger Equilibria*, 15 REV. INDUS. ORG. 205 (1999).

<sup>57</sup> See Werden, *supra* note 4, at 410–13; Luke M. Froeb & Gregory J. Werden, *A Robust Test for Consumer Welfare Enhancing Mergers Among Sellers of a Homogeneous Product*, 44 J. INDUS. ECON. 409, 411–12 (1996); Marie Goppelsroeder et al., *Quantifying the Scope for Efficiency Defense in Merger Control: The Werden-Froeb-Index*, 56 J. INDUS. ECON. 778, 789 (2008).

<sup>58</sup> See, e.g., Sheu & Taragin, *supra* note 52, at 624; Nicholas Hill, *Analyzing Mergers Using Capacity Closures*, (U.S. Dep't of Just., Working Paper No. 08-8, 2008), [www.justice.gov/sites/default/files/atr/legacy/2008/09/05/2366664.pdf](http://www.justice.gov/sites/default/files/atr/legacy/2008/09/05/2366664.pdf); Luke Froeb et al., *Bertrand Competition with Capacity Constraints: Mergers Among Parking Lots*, 113 J. ECONOMETRICS 49 (2003); Luke Froeb, *Evaluating Mergers in Durable Goods Industries*, 34 ANTITRUST BULL. 99 (1989); Steven Tschantz, Philip Crooke & Luke Froeb, *Mergers in Sealed Versus Oral Auctions*, 7 INT'L J. ECON. BUS. 201 (2000); Lance Brannman & Luke Froeb, *Mergers, Cartels, Set-Asides and Bidding Preferences in Asymmetric Oral Auctions*, 82 REV. ECON. & STAT. 283 (2000).

<sup>59</sup> See Werden, *supra* note 48, at 364, n.4.

<sup>60</sup> *Id.*; see also Gregory J. Werden, Luke M. Froeb & James Langenfeld, *Lost Profits from Patent Infringement: The Simulation Approach*, 7 INT'L J. ECON. BUS. 213 (2000).

<sup>61</sup> See, e.g., Craig Peters, *Evaluating the Performance of Merger Simulation: Evidence from the U.S. Airline Industry*, 49 J.L. & ECON. 627 (2006); Matthew C. Weinberg & Daniel Hosken, *Evidence on the Accuracy of Merger Simulations*, 95 REV. ECON. & STAT. 1584 (2013).

simulations can be easily accessed through online tools developed by agency economists.<sup>62</sup> They have also been adopted by foreign competition agencies.<sup>63</sup>

The use of merger simulation within the agencies has led to calls to use simulation as a tool to create screens and presumptions when agencies and courts evaluate mergers.<sup>64</sup> This has been realized to a degree with the incorporation of GUPPIs within the 2010 Horizontal Merger Guidelines. Overall, while merger simulation is a tool routinely used by economists at both the FTC and the DOJ, its impact in courts has been significantly more modest.<sup>65</sup> A notable exception, however, is the routine use of merger simulations in hospital merger litigation and their acceptance by courts.<sup>66</sup>

### C. THE EVOLUTION OF THE MERGER GUIDELINES

As the development of the HMT, critical loss analysis, and merger simulations illustrates, merger review is a prime, if not the best, example of an area where current and former agency economists made valuable and innovative economic contributions that have impacted agency review in the United States and around the world. Not coincidentally, merger enforcement represents perhaps the greatest success of the integration of economic theory and empirical analysis in U.S. antitrust enforcement. Once the haven of many of the worst early U.S. antitrust decisions, current enforcement, largely based upon the joint DOJ/FTC 2010 Horizontal Merger Guidelines, endorses an economically sound and empirically grounded analysis at every stage of merger review. Moreover, the guidelines will continue to evolve, as the current leadership of the FTC and DOJ have put out a Request for Information on Merger Enforcement that questions whether the enforcement approach contained in the current merger guidelines “capture[s] the competitive issues raised by mergers

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<sup>62</sup> See CompetitionToolbox.com, *supra* note 22.

<sup>63</sup> See generally Thomas Buettner et al., *The Use of Quantitative Economic Techniques in EU Merger Control*, ANTITRUST, Fall 2016, at 68.

<sup>64</sup> See generally Jonathan B. Baker, *Merger Simulation in an Administrative Context*, 77 ANTITRUST L.J. 451 (2011).

<sup>65</sup> See Budzinski & Ruhmer, *supra* note 27, at 296 (“[T]he number of real merger cases where simulation models have been applied by an antitrust authority or one of the merging parties is still somewhat small.”).

<sup>66</sup> See Christopher Garmon, *The Accuracy of Hospital Merger Screening Methods*, 48 RAND J. ECON. 1068 (2017) (producing an earlier version as a BE working paper, see Christopher Garmon, *The Accuracy of Hospital Merger Screening Methods* (Fed. Trade Comm’n, Working Paper No. 326, 2015), [www.ftc.gov/reports/accuracy-hospital-merger-screening-methods](http://www.ftc.gov/reports/accuracy-hospital-merger-screening-methods)); Devesh Raval et al., *A Semiparametric Discrete Choice Model: An Application to Hospital Mergers*, 55 ECON. INQUIRY 1919 (2017); see also Steven Tenn & Sophia Vandergrift, *Geographic Market Definition in Urban Hospital Mergers: Lessons from Advocate-NorthShore Litigation*, ANTITRUST SOURCE (Dec. 2017), [www.americanbar.org/content/dam/aba/publishing/antitrust-magazine-online/dec17\\_full\\_source.pdf](http://www.americanbar.org/content/dam/aba/publishing/antitrust-magazine-online/dec17_full_source.pdf) (examining the use of merger simulation in the FTC’s litigation blocking the merger of two Chicago-area hospital systems).

today and whether [they] adequately equip enforcers to identify and proscribe unlawful, anticompetitive transactions.”<sup>67</sup>

These guidelines are the byproduct of years of work, planning, and innovations within antitrust economics. Not surprisingly, the evolution of the U.S. merger guidelines closely reflects the innovations in merger policy previously discussed. The first merger guidelines emerged in 1968, with important updates in 1982 and 2010. The 1968 Guidelines, published by the DOJ, identified that the DOJ’s purpose was to prevent horizontal mergers that “significant[ly]” increased “concentration in a market.”<sup>68</sup> These guidelines used a structural approach to merger enforcement with thresholds that reflected a “low tolerance for mergers” that was consistent with Supreme Court decisions at that time.<sup>69</sup> It was also consistent with the results produced by the dominant form of economic research of the time, based on the structure-conduct-performance (SCP) paradigm that produced correlations between economic performance and indicators of market concentrations.<sup>70</sup>

As is discussed in more detail below, challenges to the SCP paradigm exposed the lack of robustness of the paradigm’s main empirical underpinnings and the inability of the paradigm’s empirical methodology to identify the causal effect of industrial concentration on market performance.<sup>71</sup> These challenges led economic researchers to reject this approach in favor of empirical studies focused on the examination of identifiable events in single markets that would allow causal inference about the event.<sup>72</sup> As a consequence, merger analysis at the agencies changed with these developments. Again, the 1982 Guidelines introduced several economic innovations that are still used in the current 2010 Horizontal Merger Guidelines, including the use of the HMT in defining antitrust markets and the articulation of economic principles for coordinated effects cases based on George Stigler’s *A Theory of Oligopoly*.<sup>73</sup> Compared to the 1968 Guidelines, the 1982 Guidelines reduced the role of market

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<sup>67</sup> U.S. DEP’T OF JUST. & U.S. FED. TRADE COMM’N, REQUEST FOR INFORMATION ON MERGER ENFORCEMENT 1, (2022), [downloads.regulations.gov/FTC-2022-0003-0001/content.pdf](https://downloads.regulations.gov/FTC-2022-0003-0001/content.pdf).

<sup>68</sup> U.S. DEP’T OF JUST., 1968 MERGER GUIDELINES § I.4 (1968) [hereinafter 1968 GUIDELINES], [www.justice.gov/archives/atr/1968-merger-guidelines](http://www.justice.gov/archives/atr/1968-merger-guidelines).

<sup>69</sup> See *United States v. Phila. Nat’l Bank*, 374 U.S. 321, 363 (1963); see also Richard J. Gilbert, *The Antitrust Revolution: Charting the Course of Antitrust Enforcement*, 65 ANTITRUST BULL. 587, 589 (2020); Shapiro, *supra* note 4, at 702–03 (noting that “the 1968 Guidelines were based on one big idea: horizontal mergers that increase market concentration inherently are likely to lessen competition,” and that “[b]y today’s standards, the 1968 Guidelines are rather shocking”).

<sup>70</sup> See Richard Schmalensee, *Inter-Industry Studies of Structure and Performance*, in 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 951 (Richard Schmalensee & Robert Willig eds., 1989).

<sup>71</sup> *Id.*

<sup>72</sup> See Timothy F. Bresnahan, *Empirical Studies of Industries with Market Power*, in 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 1011 (Richard Schmalensee & Robert Willig eds., 1989).

<sup>73</sup> George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44 (1964).

concentration by expanding the discussion of competitive effects and by stating an economic effects-based theme for merger enforcement based on the idea that “mergers should not be permitted to create or enhance ‘market power’ or to facilitate its exercise.”<sup>74</sup> The 1982 Guidelines also introduced a set of more tolerant structural screens based on the Herfindahl-Hirschman Index (HHI).<sup>75</sup>

The 1992 Guidelines, jointly produced by both the DOJ and the FTC, abandoned the 1982 Guidelines’ focus on coordinated effects and placed an increased focus on consideration of the unilateral effects of horizontal mergers in markets for differentiated products. It also revised the agencies’ treatment of both entry and efficiencies. The 2010 Horizontal Merger Guidelines further extended the unilateral effects revolution that began in the 1992 Guidelines.<sup>76</sup> The 2020 Vertical Merger Guidelines extend the unilateral effects revolution to vertical transactions.<sup>77</sup>

It is hard to understate the importance of the guidelines in how the antitrust laws are implemented. Indeed, the merger guidelines are arguably the most important channel through which economic research affects antitrust enforcement.<sup>78</sup> The 2010 Horizontal Merger Guidelines have not only represented an accurate description of agency practice since their promulgation,<sup>79</sup> they have also been favorably cited by a number of courts and have influenced the development of case law, including the courts’ acceptance of theories of harm based on unilateral effects.<sup>80</sup> The development and evolution of the guidelines provide a living history of how advances in antitrust economics, often sub-

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<sup>74</sup> 1982 GUIDELINES, *supra* note 31, at 2.

<sup>75</sup> *Id.* at § III.A.

<sup>76</sup> See 2010 GUIDELINES, *supra* note 53; see also Silvia, *supra* note 43, at 120 (“[T]he 2010 Guidelines treated unilateral theories more extensively and extended them to new settings, including auction markets, innovation, product variety, and homogeneous products.”).

<sup>77</sup> Technically, the 1984 Guidelines represented the last non-horizontal merger guideline until 2020. See U.S. DEP’T OF JUST. & FED. TRADE COMM’N, VERTICAL MERGER GUIDELINES (2020) [hereinafter 2020 GUIDELINES], [www.justice.gov/atr/page/file/1290686/download](http://www.justice.gov/atr/page/file/1290686/download). The 2020 Guidelines have been withdrawn by the FTC. Press Release, Fed. Trade Comm’n, Federal Trade Commission Withdraws Vertical Merger Guidelines and Commentary (Sept. 15, 2021), [www.ftc.gov/news-events/news/press-releases/2021/09/federal-trade-commission-withdraws-vertical-merger-guidelines-commentary](http://www.ftc.gov/news-events/news/press-releases/2021/09/federal-trade-commission-withdraws-vertical-merger-guidelines-commentary).

<sup>78</sup> See Joseph Farrell & Carl Shapiro, *The 2010 Horizontal Merger Guidelines After 10 Years*, 58 REV. INDUS. ORG. 1, 3–5 (2021).

<sup>79</sup> Craig T. Peters & Jeff M. Wilder, *Ten Years of the 2010 HMG: A Perspective from the Department of Justice*, 58 REV. INDUS. ORG. 13 (2021); Alison Oldale et al., *The 2010 Horizontal Merger Guidelines at Ten: A View from the FTC’s Bureau of Economics*, 58 REV. INDUS. ORG. 33 (2021). For empirical evidence of the influence of the 1982 Merger Guidelines, see Malcolm B. Coate et al., *Bureaucracy and Politics in FTC Merger Challenges*, 33 J.L. & ECON. 463 (1990).

<sup>80</sup> Carl Shapiro & Howard Shelanski, *Judicial Response to the 2010 Horizontal Merger Guidelines*, 58 REV. INDUS. ORG. 51 (2021).



stantially driven by agency economists, critically shape agency enforcement. Fifty years after the initial set of merger guidelines, the latest iteration of the guidelines recognizes concentration as only a starting point for analysis and suggests a broader modeling exercise that takes account of substitutes, entry, competitive interactions, and the nature of consumer demand.<sup>81</sup>

#### D. THE CREDIBILITY REVOLUTION IN EMPIRICAL ANTITRUST

A critical question regarding the theoretical developments previously discussed is whether these economic innovations increase the accuracy and predictability of antitrust enforcement. The use of more complex models in conjunction with broad antitrust standards and imperfect enforcement will still generate both Type I (false prosecution) and Type II (false nonprosecution) errors and may be more costly to administer. Ultimately, it is an empirical question whether the 1992 and 2010 merger guidelines' unilateral effects analysis performs better than the 1968 Guidelines' simple structural approach in identifying those mergers that produce anticompetitive outcomes. Moreover, as demonstrated in Part I, even if the use of standards illuminated by complex models and data can theoretically outperform the rules by generating lower error costs, the relatively high costs of administration can make a standards-based system more costly to use in practice.<sup>82</sup>

Thus, empirical methods that produce credible causal estimates of the competitive effects of mergers would be a critical and necessary input into any rational policy analysis of this question. Current and former agency economists have also been at the forefront of the development and application of empirical tools and methodologies used to produce causal predictions of the effects of mergers and to evaluate *ex post* the accuracy of the merger prediction tools discussed previously. These empirical approaches, discussed below, incorporate innovations that evolved in empirical economics generally.

In the period leading up to the promulgation of the 1968 Merger Guidelines, as mentioned, the dominant empirical approach to studying industry performance was the SCP paradigm.<sup>83</sup> SCP studies used cross-sectional analyses and reduced-form regressions to study the relationship between inter-industry differences in concentration (measured by an HHI or concentration ratios) and measures of industry performance (e.g., profits, margins, or prices). Following the work of Joe Bain in the 1950s, a large set of papers running cross-industry ordinary least squared (OLS) regressions of indices of

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<sup>81</sup> See generally Shapiro, *supra* note 4.

<sup>82</sup> See *supra* Part I.

<sup>83</sup> See Bresnahan, *supra* note 72, at 1012–13.

concentration on accounting measures of markups found a positive association between concentration and profits.<sup>84</sup>

Critics of this literature pointed out that these observed associations between concentration and measures of performance do not identify the economic mechanism generating the relationship.<sup>85</sup> The work of Harold Demsetz and others demonstrated the weakness of this approach in discerning between competitive and anticompetitive market outcomes.<sup>86</sup> Others identified the lack of a coherent cross-industry theory of markets that would produce hypotheses that could be tested by the SCP regression analyses.<sup>87</sup> Economic research also exposed underlying problems with the empirical approach used by the SCP paradigm, including the theoretical endogeneity of market shares, measures of concentration, and markups.<sup>88</sup> Moreover, these works did not define relevant antitrust markets and instead used standard industrial classifications (SIC) to determine which firms were to be included in the market-share and concentration calculations. As a result, the concentration measures used did not measure concentration in relevant antitrust markets.<sup>89</sup> Other work questioned the use of accounting data in SCP papers and found that the traditional positive relationship between concentration and profits from the SCP regression analyses did not appear robust when better data were used to analyze this relationship.<sup>90</sup>

In sum, SCP studies fall short of identifying the causal effect of industry concentration on industry performance and do not provide a credible basis for an antitrust policy based on market structure.<sup>91</sup> However, workable and credi-

<sup>84</sup> See Schmalensee, *supra* note 70.

<sup>85</sup> See William N. Evans, Luke M. Froeb & Gregory J. Werden, *Endogeneity in the Concentration-Price Relationship: Causes, Consequences, and Cures*, 41 J. INDUS. ECON. 431 (1993); Nathan H. Miller et al., *On the Misuse of Regressions of Price on the HHI in Merger Review*, 10 J. ANTITRUST ENF'T 248 (2022).

<sup>86</sup> See Harold Demsetz, *Industry Structure, Market Rivalry, and Public Policy*, 16 J.L. & ECON. 1 (1973) (showing that the cross-sectional relationship between concentration and profits can be explained by increased efficiency).

<sup>87</sup> See Steven Berry, *Market Structure and Competition, Redux*, FED. TRADE COMM'N MICRO CONFERENCE (Nov. 2017), [www.ftc.gov/system/files/documents/public\\_events/1208143/22\\_-stevan\\_berry\\_keynote.pdf](http://www.ftc.gov/system/files/documents/public_events/1208143/22_-stevan_berry_keynote.pdf).

<sup>88</sup> *Id.*; see also Schmalensee, *supra* note 70, at 951.

<sup>89</sup> See Gregory J. Werden & Luke M. Froeb, *Increased Margins and Merger Assessment: No Need to Fret*, 9 J. EUR. COMPETITION L. & PRAC. 519 (2018) (analyzing both past and recent studies that measure industry concentration based on broad industrial classifications, which are generally much broader than relevant antitrust markets defined under the HMT); see also Wright & Fauver, *supra* note 10.

<sup>90</sup> Paul A. Pautler, *A History of the FTC's Bureau of Economics* 13 (Am. Antitrust Inst., Working Paper No. 15-03, 2015), [www.antitrustinstitute.org/wp-content/uploads/2018/08/FTC-Bureau-of-Economics-History\\_0.pdf](http://www.antitrustinstitute.org/wp-content/uploads/2018/08/FTC-Bureau-of-Economics-History_0.pdf).

<sup>91</sup> See, e.g., Baker, *supra* note 64, at 456 (“[R]ules based on market shares and market concentration provide poor guidance for analyzing mergers, whether the competitive effects theory involves unilateral or coordinated effects.”). The criticisms of the SCP paradigm apply to recent

ble solutions to the problems identified by the critics of the SCP empirical studies proved elusive. Because of the inability to fix the problems of the SCP paradigm, economists interested in studying market performance and mergers abandoned the SCP's cross-sectional industry-study approach and replaced it with the "new empirical industrial organization" paradigm that focused on specific industries and tests of specific theory-based hypotheses about firm behavior.<sup>92</sup> This literature has also incorporated the "credibility revolution"<sup>93</sup> in empirical economics that uses quasi-experimental empirical research designs to identify the causal effects of a merger, abandoning the reduced form cross-sectional regressions used by the SCP paradigm.<sup>94</sup>

A primary example of this approach is the econometric analysis performed during the Staples/Office Depot merger in 1996.<sup>95</sup> In that case, the FTC alleged metropolitan statistical area (MSA)-based geographic markets for sales of consumable office supplies through office superstores (OSS). The proposed merger involved the two largest of the three existing OSS firms. A primary question in the case was whether the relevant antitrust market included the large number of diverse retail outlets that sold consumable office supplies, or whether a relevant antitrust market that only included the three OSS stores could be defended.<sup>96</sup> In the former case, the merger involved firms with small shares of the relevant product market. In the latter case, the merger would result in a merger to duopoly or monopoly in many geographic markets.

Both the FTC's and the merging parties' experts used event-study difference-in-difference regression analyses to analyze the market definition issue and to predict the price effects of the merger. Both experts relied on panel data (cross-sectional data repeated monthly) of OSS pricing of a standardized basket of office supply consumables to produce a "within" estimate of the

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papers that adopt a similar approach. *See, e.g.*, Wright & Fauver, *supra* note 10, at 72; Miller et al., *supra* note 85, at 249.

<sup>92</sup> *See* Bresnahan, *supra* note 72, at 1012.

<sup>93</sup> *See* Joshua D. Angrist & Jörn-Steffen Pischke, *The Credibility Revolution in Empirical Economics: How Better Research Design is Taking the Con Out of Econometrics*, J. ECON. PERSPS., Spring 2010, at 4; *see also* Press Release, Royal Swedish Acad. Scis., Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2021 (Oct. 11, 2021), [www.nobelprize.org/prizes/economic-sciences/2021/press-release](http://www.nobelprize.org/prizes/economic-sciences/2021/press-release) (awarding prize to David Card "for his empirical contributions to labour economics" and to Joshua D. Angrist and Guido W. Imbens "for their methodological contributions to the analysis of causal relationships"). All of the 2021 award winners have extensively used natural experiments to help answer important questions for society.

<sup>94</sup> *See* Evans et al., *supra* note 85, at 431–37 (including evidence of bias from comparing "between" [cross-sectional] to "within" [over time in the same industry] estimators). The FTC's Staples/Office Depot regression (addressed *infra* notes 95–98 and accompanying text), is a "within" estimator.

<sup>95</sup> *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1973–92 (D.D.C. 1997).

<sup>96</sup> *See* Orley Ashenfelter et al., *Empirical Methods in Merger Analysis: Econometric Analysis of Pricing in FTC v. Staples*, 13 INT. J. ECON. BUS. 265, 265–66 (2006).

before and after price effects of entry relative to markets where entry did not occur. These analyses focused on estimates of price changes observed when one of the merging parties (e.g., Office Depot) entered a geographic market where the other merging party (e.g., Staples) operated.<sup>97</sup> In a simple model where the merger is assumed to cause the exit of this independent source of competition from the relevant geographic market, the negative of these observed price effects of entry is interpreted as the predicted price effect of the merger. The analyses also examined the price effects observed when entry by the nonmerging OSS (OfficeMax) or by other sellers of consumable office supplies (e.g., Walmart, Best Buy) occurred. Depending on the specification, the entry/exit model predicted the average price effect of the merger to be between one percent and over eight percent in overlap markets. The FTC argued that the price effect would be seven percent after allowing for efficiencies.<sup>98</sup> Moreover, the analysis supported the FTC's market definition, as there was little evidence that OSS stores adjusted their prices when other non-OSS stores entered a geographic market. After a week-long hearing, a federal judge agreed with the FTC's main arguments and entered an injunction blocking the merger. The merger was abandoned soon thereafter.

Similar analyses were performed by FTC staff to analyze the 2015 Office Depot/Office Max merger. Commission staff replicated the type of econometric analysis performed in the 1996 Staples/Office Depot investigation but found different results. As a result, the FTC concluded that "[t]he econometric analysis reflects the new competitive dynamics in the industry and shows that the proposed merger is unlikely to result in anticompetitive price effects."<sup>99</sup> Similar analyses were performed in the Whole Foods/Wild Oats merger, but in that case, the FTC was not able to obtain a preliminary injunction to block the merger.<sup>100</sup> A divestiture of the Wild Oats trademark was ordered after a later settlement, but this divestiture did not result in the restoration of supermarket competition.<sup>101</sup>

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<sup>97</sup> *Id.* at 266. The FTC's expert used an MSA-based geographic market definition, while the parties' expert used a circle-based geographic market centered at the location of the merging parties' existing locations. *Id.* at 270–71.

<sup>98</sup> See Serdar Dalkir & Frederick R. Warren-Boulton, *Prices, Market Definition, and the Effects of Merger: Staples-Office Depot (1997)*, in *THE ANTITRUST REVOLUTION* 189 (7th ed., John E. Kwoka, Jr. & Lawrence White eds., 2018).

<sup>99</sup> Statement of the Federal Trade Commission Concerning the Proposed Merger of Office Depot, Inc. and OfficeMax, Inc. at 2, FTC File No. 131-0104 (Nov. 1, 2013), [www.ftc.gov/system/files/documents/public\\_statements/statement-commission/131101officedepotofficemaxstatement.pdf](http://www.ftc.gov/system/files/documents/public_statements/statement-commission/131101officedepotofficemaxstatement.pdf).

<sup>100</sup> *FTC v. Whole Foods Mkt., Inc.*, 502 F. Supp. 2d 1, 28 (D.D.C. 2007).

<sup>101</sup> The Wild Oats mark was used on a single store operated by supermarket chain Fresh & Easy, which closed all of its stores in 2015. See Tom Hals & Jim Christie, *Investor Burkle's Fresh & Easy Grocery Chain Files for Bankruptcy*, REUTERS (Oct. 30, 2015), [www.reuters.com/article/us-fresh-easy-bankruptcy-idUSKCN0SO22M20151030](http://www.reuters.com/article/us-fresh-easy-bankruptcy-idUSKCN0SO22M20151030).

These types of entry/exit event-study analyses are also used by the agencies in merger investigations when panel data is available (so that “within” before- and after-entry estimates can be produced), where competition involves local geographic markets (so that any price effects can be measured to a credible control), and where sufficient and recent entry or exit events have taken place (to ensure that the estimates produced have statistical power). In many merger investigations, however, these conditions are not met, and these techniques cannot be used. Therefore, economists must use the predictive tools discussed in Parts II.A and II.B to predict the likely effects of a proposed merger.

In such cases, this same type of analysis sometimes can be used to evaluate the effects of a merger retrospectively. Panel data still must be available, and a credible control group must also exist. Such an analysis, however, does not need multiple entry/exit events to have occurred, and instead can use the actual merger as the “event.”

Indeed, the demonstration of large and anticompetitive price increases post-merger was an important component of the FTC’s response to losses in court involving challenges to hospital mergers in the 1990s. By the late 1990s, the agencies were on a losing streak. From 1989 to 1999, the federal antitrust agencies lost seven consecutive challenges to hospital mergers.<sup>102</sup> Rather than continue to run into a brick wall, FTC Chairman Tim Muris formed the Merger Litigation Task Force in 2002 and tasked the agency economists with the job of determining what exactly was happening in these markets.<sup>103</sup> Two key issues were identified. The first was the methodology used to define geographic markets. The use of the Elzinga-Hogarty test and traditional critical loss analysis were defining relevant geographic markets that were very large and contained numerous hospitals. Judges examining the low levels of market concentration in these broadly drawn geographic markets found for the merging parties. The second issue was the not-for-profit status of the hospitals. Because the hospitals were not engaged in profit maximization, the parties argued that this insulated these hospitals from the standard incentives to raise prices post-merger, which the courts accepted.

The Muris initiative led to a series of papers that retrospectively examined the impact of consummated hospital mergers.<sup>104</sup> Merger retrospective analyses

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<sup>102</sup> Orley Ashenfelter et al., *Retrospective Analysis of Hospital Mergers*, 18 INT’L J. ECON. BUS. 5, 7–8 (2011).

<sup>103</sup> Timothy J. Muris, Chairman, Fed. Trade Comm’n, Everything Old is New Again: Health Care and Competition in the 21st Century, Remarks Before the 7th Annual Competition in Health Care Forum (Nov. 7, 2002).

<sup>104</sup> Ashenfelter et al., *supra* note 102, at 6–7; Deborah Haas-Wilson & Christopher Garmon, *Hospital Mergers and Competitive Effects: Two Retrospective Analyses*, 18 INT’L J. ECON. BUS. 17, 17–18 (2011); Steven Tenn, *The Price Effects of Hospital Mergers: A Case Study of the Suter–Summit Transaction*, 18 INT’L J. ECON. BUS. 65, 67–70 (2011).

done by the Bureau of Economics (BE) economists showed that these consummated hospital mergers involving both for-profit and not-for-profit hospitals resulted in double-digit price increases.<sup>105</sup> The initiative completely reversed how the agencies assessed hospital mergers and led to a string of victories. Published work on hospital merger retrospectives led to the abandonment of the Elzinga-Hogarty test and traditional critical loss analysis, as well as any differential treatment of not-for-profit hospitals. Agency economists also altered the models used to examine hospitals to explicitly take into account how these mergers alter the bargaining outcomes between hospitals and insurance companies.<sup>106</sup> This research is ongoing. Such retrospective analyses can also be used to examine the effects of policies of states that override attempts by the federal agencies to block mergers, such as certificates of public advantage (COPA) under the state action doctrine.

This episode illustrates the use of agency economists in a manner that fits their expertise while also challenging conventional wisdom in a pro-enforcement way. Since that time, the FTC's BE has also taken a leading role in conducting retrospective analyses of transactions to examine the efficacy of merger enforcement and economic models used to conduct merger analyses. These analyses have led to improvements in the merger guidelines over time and have provided courts and agencies with an increasingly reliable framework for analyzing mergers. The FTC's BE and the DOJ's EAG have produced over 30 merger retrospective studies, with former staff of the FTC and the DOJ contributing many more.<sup>107</sup>

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<sup>105</sup> See Ashenfelter et al., *supra* note 102, at 11 (noting the "powerful, robust empirical evidence that the transactions in question resulted in economically and statistically significant post-merger price increases") (citing Haas-Wilson & Garmon, *supra* note 104, at 18–19; Tenn, *supra* note 104, at 70).

<sup>106</sup> See generally Garmon, *supra* note 66 (describing the WTP- and UPP-based models used to evaluate hospital mergers and exploring the adoption of these models from parallel developments in the academic literature, including Robert Town & Greg Vistnes, *Hospital Competition in HMO Networks*, 20 J. HEALTH ECON. 733 (2001); Cory Capps et al., *Competition and Market Power in Option Demand Markets*, 34 RAND J. ECON. 737 (2003); Martin Gaynor & William B. Vogt, *Competition Among Hospitals*, 34 RAND J. ECON. 764 (2003); and Cory Capps & David Dranove, *Hospital Consolidation and Negotiated PPO Prices*, 23 HEALTH AFFS. 175 (2004)).

<sup>107</sup> See *Overview of the Merger Retrospective Program in the Bureau of Economics*, FED. TRADE COMM'N, [www.ftc.gov/policy/studies/merger-retrospective-program/overview](http://www.ftc.gov/policy/studies/merger-retrospective-program/overview). For a recent list of retrospectives conducted by the FTC's BE, see *List of Bureau of Economics Retrospective Studies*, FED. TRADE COMM'N, [www.ftc.gov/system/files/attachments/press-releases/ftc-announces-agenda-14th-session-its-hearings-competition-consumer-protection-21st-century/list\\_of\\_be\\_retrospective\\_studies.pdf](http://www.ftc.gov/system/files/attachments/press-releases/ftc-announces-agenda-14th-session-its-hearings-competition-consumer-protection-21st-century/list_of_be_retrospective_studies.pdf). For a list of the research studies produced by economists at the DOJ Antitrust Division's EAG, including retrospective studies, see *Economic Analysis Group Papers*, DEP'T OF JUST., [www.justice.gov/atr/economic-analysis-group-papers](http://www.justice.gov/atr/economic-analysis-group-papers) (updated June 26, 2023). For a comprehensive and recent list of merger retrospective studies, see *Merger Retrospective Studies Bibliography*, FED. TRADE COMM'N, [www.ftc.gov/policy/studies/merger-retrospective-program/bibliography](http://www.ftc.gov/policy/studies/merger-retrospective-program/bibliography). See also JOHN KWOKA, *MERGERS, MERGER CONTROL, AND REMEDIES: A RETROSPECTIVE ANALYSIS OF U.S. POLICY* (2014).

These studies are the primary way economists gauge the efficacy of enforcement efforts.<sup>108</sup> An example of this approach is a paper by Daniel Hosken, Luke Olson, and Loren Smith, which estimates the price effects of supermarket mergers in 14 U.S. markets in 2007 and 2008.<sup>109</sup> The study uses variation in the levels of concentration in these 14 markets to evaluate the structural thresholds contained in the 1992 Merger Guidelines. The article examines eight mergers in highly concentrated markets (HHI above 2,500) and six in moderately concentrated markets (HHI between 1,500 and 2,500). They found that prices increased, relative to control markets, in five of the 14 markets, with four out of those five occurring in highly concentrated markets. Prices in five markets decreased, with only one out of the five occurring in highly concentrated markets. They conclude that the HHI thresholds in the 1992 Guidelines were a useful enforcement screen. Mergers in unconcentrated markets seldom caused price increases.

This type of analysis is also an important tool to gauge the accuracy of predictive methods discussed above in Parts II.A and II.B.<sup>110</sup> Retrospective analyses have examined unilateral-effects models, merger-simulation models, and the predictions of both.<sup>111</sup> Christopher Garmon compared the predictions generated using pre-merger data and the new screening tools used by agency economists (e.g., willingness-to-pay (WTP) and upward-pricing-pressure (UPP) models) to the actual post-merger price increases from retrospective analyses of these mergers.<sup>112</sup> Garmon concluded that the WTP and UPP models outperform structural approaches to merger enforcement in this setting. On the other hand, it is clear that all of the screening tools are imperfect, suggesting that there is a lot more work to be done.

These studies can help identify shortcomings of current merger enforcement procedures. A recent example is Nathan Miller and Matthew Weinberg's

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<sup>108</sup> Dennis W. Carlton, *Why We Need to Measure the Effect of Merger Policy and How to Do It*, COMPETITION POL'Y INT'L, Spring 2009, at 77. This research also previously appeared as an EAG working paper. See Dennis W. Carlton, *The Need to Measure the Effect of Merger Policy and How to Do It* (Econ. Analysis Grp., Working Paper No. 07-15, 2007), [www.justice.gov/atr/need-measure-effect-merger-policy-and-how-do-it](http://www.justice.gov/atr/need-measure-effect-merger-policy-and-how-do-it).

<sup>109</sup> See Daniel S. Hosken, Luke M. Olson & Loren K. Smith, *Do Retail Mergers Affect Competition? Evidence from Grocery Retailing*, 27 J. ECON. & MGMT. STRATEGY 3 (2018). This research was first published as an FTC BE Working Paper. See Daniel Hoskins et al., *Do Retail Mergers Affect Competition? Evidence from Grocery Retailing* (Fed. Trade Comm'n, Working Paper No. 313, 2012), [www.ftc.gov/be/workpapers/wp313.pdf](http://www.ftc.gov/be/workpapers/wp313.pdf).

<sup>110</sup> See Angrist & Pischke, *supra* note 93, at 22 (noting that this approach can and should be used to test the predictions of more complex models).

<sup>111</sup> For other examples of retrospective analyses in retailing done by FTC economists, see Orley Ashenfelter & Daniel Hosken, *The Effect of Mergers on Consumer Prices: Evidence from Five Mergers on the Enforcement Margin*, 53 J.L. & ECON. 417 (2010); Orley C. Ashenfelter et al., *The Price Effects of a Large Merger of Manufacturers: A Case Study of Maytag-Whirlpool*, 5 AM. ECON. J.: ECON. POL'Y 239 (2013); Weinberg & Hosken, *supra* note 61.

<sup>112</sup> Garmon, *supra* note 66, at 1069.

study of the MillerCoors joint venture, which the DOJ cleared without conditions in 2008.<sup>113</sup> During that investigation, the DOJ used a unilateral effects analysis to predict the upward pricing pressure from the merger. But the merger also presented cognizable and merger-specific efficiencies that resulted in little upward net pricing pressure. As a result, the DOJ cleared the joint venture. In their retrospective analysis, Miller and Weinberg compare the net and gross ex ante unilateral-effects price predictions to the actual observed post-transaction pricing. They found that the actual post-joint-venture prices of Miller and Coors significantly exceeded the predicted net prices from the unilateral-effects model. Moreover, they found significant post-joint-venture price increases for a product (Budweiser) produced by a close competitor. This led them to conclude that the merger generated significant price increases from coordinated effects and also led the authors to engage in research to update the analysis of coordinated effects.<sup>114</sup>

Some care must be exercised, however, in conducting merger retrospectives. As Dennis Carlton states, there are two requirements to conduct a retrospective study: (1) “data on the relevant market [both] pre- and post-merger” and (2) “the specific predictions” the government made about the post-merger outcome.<sup>115</sup> Consequently, “[r]etrospective studies that ask whether prices went up post-merger are surprisingly poor guides for analyzing merger policy.”<sup>116</sup> As the calls to reform antitrust are increasing—including the belief that antitrust agencies are unable or unwilling to bring cases—this caution is more relevant than ever.<sup>117</sup> Indeed, some have attempted to use the results of retrospective analyses as a whole to argue that antitrust enforcement has been too lax over the past 40 years.<sup>118</sup> There are reasons to be cautious about making such inferences from the body of merger retrospective studies. While merger retrospectives provide a useful tool to diagnose specific issues in court cases, as will be discussed immediately below, and can be used to validate the predictions generated by enforcement tools such as merger simulations, such studies can only be done in particular circumstances. As noted above, a lack of data or credible control group will not allow a study to be performed, and such studies can only be done when a merger is allowed. The set of analyses will not represent a random selection of mergers, and mergers that are successfully blocked cannot be studied. Thus, any inference from a group of stud-

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<sup>113</sup> Nathan H. Miller & Matthew C. Weinberg, *Understanding the Price Effects of the MillerCoors Joint Venture*, 85 *ECONOMETRICA* 1763, 1763–89 (2017).

<sup>114</sup> See Nathan H. Miller et al., *Oligopolistic Price Leadership and Mergers: The United States Beer Industry*, 111 *AM. ECON. REV.* 3123 (2021).

<sup>115</sup> Carlton, *supra* note 108, at 78.

<sup>116</sup> *Id.* at 77.

<sup>117</sup> *Id.* (“[K]nowing how many cases are brought tells one little (about whether there are too few or too many cases brought and whether the right cases are being brought.”).

<sup>118</sup> See generally, e.g., Κωοκα, *supra* note 107.



ies must carefully consider these selection issues and temper the inferences made as a result.<sup>119</sup>

### III. INSTITUTIONS AND REFORM TO PROMOTE RESEARCH AND INNOVATION IN ANTITRUST ECONOMICS

Part II presented examples of the process of enforcement R&D at the agencies. In this Part III, we explore possible institutional reforms that can continue to foster innovation within antitrust economics and continue the legacy of agency economists being at the vanguard of innovations. This is particularly relevant given the growing calls to move antitrust out of the realm of agencies and courts to a more regulatory approach. The justifications used by critics of modern antitrust law include the difficulty in implementing the rule of reason and the evidence required by the plaintiff (and defendants) in antitrust cases. Further, there is the question whether the tools used by antitrust economists are too complex for generalist judges to comprehend.<sup>120</sup> However, the role of economic innovation will remain even if antitrust law moves toward more *ex ante* enforcement and rulemaking. Indeed, the process of designing and implementing rational but administrable rules in theory requires more information regarding the likely effects of rules to be produced in the near term.<sup>121</sup> In this Part, we examine what institutions can best support and encourage the continued and robust production of enforcement innovation, as well as some of the potential roadblocks that will hinder research.

#### A. RESEARCH VERSUS CASEWORK

Luke Froeb, Paul Pautler, and Lars-Hendrik Röller detail the organizational features of the FTC's BE and DOJ's EAG that encourage the economists and attorneys to speak with separate voices.<sup>122</sup> As documented in Part II, current and former agency economists have played a major role in developing tools that increase the accuracy and lower the cost of agency enforcement. Indeed, the experience of having to apply, on a daily basis, microeconomics and econometrics to applied problems gives those in the agency, as well as those who leave the agency, the foundation for an active research agenda to supplement and improve the tools used by economists to assess conduct. Agency economists can also gain exclusive access to data that can be used, in some

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<sup>119</sup> See Michael Vita & F. David Osinski, *John Kwoka's Mergers, Merger Control, and Remedies: A Critical Review*, 82 ANTITRUST L.J. 361, 386 (2018).

<sup>120</sup> See Michael R. Baye & Joshua D. Wright, *Is Antitrust Too Complicated for Generalist Judges? The Impact of Economic Complexity and Judicial Training on Appeals*, 54 J.L. & ECON. 1, 1–5 (2011).

<sup>121</sup> See, e.g., Kobayashi & Wright, *supra* note 21, 869–70.

<sup>122</sup> Luke M. Froeb, Paul A. Pautler, & Lars-Hendrik Röller, *The Economics of Organizing Economists*, 76 ANTITRUST L.J. 569, 573–74 (2009).

cases, to conduct empirical research. In particular, the FTC has authority under Section 6(b) to require a company to file “reports or answers in writing to specific questions” about its business practices.<sup>123</sup> This authority was used by then-Chairman Muris to obtain data for the retrospective studies of consummated hospital mergers conducted by BE for the Merger Litigation Task Force. The FTC’s 6(b) authority was used recently to study hospital mergers as part of the FTC’s COPA Assessment Project.<sup>124</sup>

Thus, research and casework have important complementary effects. The continuous application of microeconomics and econometrics to potential antitrust cases often provides ideas for original research and the discovery of new or novel approaches to applying economics. The innovations that result from this research can then be used to improve enforcement. In particular, institutional support for economic research at the agencies differentiates agency economists from those working at private consulting firms, and their enforcement experience differentiates them from academic economists who have not served as agency economists. Further, the institutional support for research also increases the ability of agency economists to produce publishable research, which serves as a mechanism to develop and maintain high levels of skill and competence and makes agency economists more credible in cases where they serve as experts. It is also a necessary condition for movement of agency economists into academia.<sup>125</sup>

BE and EAG have always had a research mission, and the potential to use agency time to conduct economic research is often used as a recruiting tool to attract talented and newly minted PhDs in an environment where the antitrust agencies struggle to provide competitive monetary compensation. The DOJ, in particular, has had a tradition of hiring primarily industrial organization (I.O.) economists. In the 1980s through the 2000s, there was a tremendous growth in economic modeling and empirical techniques in antitrust economics. I.O. economists clearly fit a need. As noted above, for many reasons, I.O. economists almost uniformly have abandoned empirical approaches that relied on the estimation of noncausal relationships between measures of industrial

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<sup>123</sup> 15 U.S.C. § 46(b).

<sup>124</sup> Press Release, Fed. Trade Comm’n, FTC to Study the Impact of COPAs (Oct. 21, 2019), [www.ftc.gov/news-events/news/press-releases/2019/10/ftc-study-impact-copas](http://www.ftc.gov/news-events/news/press-releases/2019/10/ftc-study-impact-copas).

<sup>125</sup> See James J. Heckman & Sidharth Moktan, *Publishing and Promotion in Economics: The Tyranny of the Top Five*, 58 J. ECON. LITERATURE 419 (2020) (examining the powerful effect on the careers of young economists from publishing articles in the top five (T5) journals—*The American Economic Review*, *Econometrica*, *The Quarterly Journal of Economics*, *the Review of Economic Studies*, and the *Journal of Political Economy*). Important research by current and former agency economists has been cited throughout this article, including recent research published in the T5 journals, e.g., Miller et al., *supra* note 114, and Miller & Weinberg, *supra* note 113.

concentration and measures of market performance such as prices, markups, and input prices, including wages.<sup>126</sup>

Yet policymakers within the agencies and in Congress now routinely cite recent studies, produced by labor economists and macroeconomists from outside the field of I.O., that use this discredited approach to argue that concentration in product markets has risen, producing higher prices for consumers and dominant firms that harm competitors through exclusionary behavior.<sup>127</sup> Similar studies have argued that buyer-side concentration has also risen and is associated with lower wages.<sup>128</sup> They then infer that this correlation reflects a causal effect of growing concentration. But as discussed above, such a correlation does not necessarily reflect causality.<sup>129</sup> Moreover, there is little evidence of growing concentration in relevant antitrust markets. While studies have shown “that *aggregate* measures of concentration and markups have increased, actual evidence on *market* concentration levels show concentration levels falling and an increase in firm efficiency over time.”<sup>130</sup>

On the other hand, with the continued growth of empirical methods, data, and the need to think more broadly about economic questions, having a greater variety of disciplines—including labor, finance, marketing, and information economics—addressing competition issues is not a weakness but a strength. BE in particular has made a point of hiring candidates with backgrounds in a myriad of microeconomic fields, including labor, education, and law & economics in addition to I.O. To the extent that the DOJ still focuses primarily on I.O. economists, one question is: has the time come to move away from that model.

While the staff economists at the federal agencies have a robust history of producing agency-relevant research, research output and variety can be hindered by institutional bottlenecks. The level of support for agency research is negatively affected by the long-standing and continuing tension between enforcement interests and research interests that exists at the U.S. federal anti-

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<sup>126</sup> See *supra* discussion accompanying notes 85–89.

<sup>127</sup> See Wright & Fauver, *supra* note 10.

<sup>128</sup> For a discussion of the literature on concentration and wages, see Bruce H. Kobayashi et al., *Monopsony and Labor Markets in Merger Review: Global Antitrust Institute Comment on the DOJ-FTC Request for Information on Merger Enforcement* (Geo. Mason U. L. & Econ. Rsch. Paper Series, Working Paper No. 22-17, 2022), papers.ssrn.com/sol3/papers.cfm?abstract\_id=4089952.

<sup>129</sup> See Miller et al., *supra* note 85.

<sup>130</sup> Wright & Fauver, *supra* note 10, at 79; see also Esteban Rossi-Hansberg et al., *Diverging Trends in National and Local Concentration*, 35 NEBR MACROECONOMICS ANNUAL 115 (2021); Hendrik Döpfer et al., *Rising Markups and the Role of Consumer Preferences* 61 (Harv. Bus. Sch. Strategy Unit, Working Paper No. 22-025, 2023), papers.ssrn.com/sol3/papers.cfm?abstract\_id=3939126.

trust agencies.<sup>131</sup> When forced to choose between enforcement interests and research, the agencies generally choose to direct scarce resources to enforcement.<sup>132</sup> Indeed, there is some evidence that agency time billed to research at the FTC by BE economists has systematically declined in recent years,<sup>133</sup> reflecting increased casework loads and reduced staffing levels. When enforcement demands stretch agency resources, staff time for research projects and other activities not directly related to current enforcement activity will be limited. Even in times of reduced merger activity, economic research can be viewed as a threat to enforcement or policy goals when it produces or has the potential to produce results inconsistent with these goals.<sup>134</sup> It is certainly plausible that both forces are at work in the current environment.<sup>135</sup> Forces that consistently sacrifice agency economic research because of enforcement-related concerns will further slow the process of enforcement innovation. Over the long term, this will diminish agency effectiveness and exacerbate, rather than diminish, resource concerns.

One potential institutional reform would be to set up a system that explicitly protects agency time for conducting policy-relevant research. The now-defunct Division of Economic Policy Analysis used to employ about a dozen economists focused on agency-relevant antitrust and consumer protection research without being assigned to cases.<sup>136</sup> This division no longer exists. Even

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<sup>131</sup> See Pautler, *supra* note 90, at 2.

<sup>132</sup> *Id.* at 1.

<sup>133</sup> See OFF. OF INSPECTOR GEN., FED. TRADE COMM'N, EVALUATION OF THE FEDERAL TRADE COMMISSION'S BUREAU OF ECONOMICS 13 (2015) [hereinafter OIG REPORT], [www.ftc.gov/system/files/documents/reports/evaluation-ftc-bureau-economics/150630beevaluation.pdf](http://www.ftc.gov/system/files/documents/reports/evaluation-ftc-bureau-economics/150630beevaluation.pdf) (showing a decline from FY2010 to FY2014). More recent data on staff time devoted to research is unavailable, but, given the recent policy maneuvers by the leaders of the agency, there is a strong likelihood that personal research has been explicitly and implicitly discouraged and deemphasized. See Mike Swift et al., *Under Khan's Leadership, Staffers Air Frustrations in Wake of Survey*, MLEX (June 6, 2022) ("In the FTC's Bureau of Economics, the gag order was viewed as not only hurting the careers of staff economists who need to publish research and attend conferences in their field, but also as damaging to the FTC's mission. Without a strong record of publishing research, economists are seen as less effective expert witnesses.").

<sup>134</sup> Pautler, *supra* note 90, at 107 ("Threats to the research function of the Bureau occur more often than threats to the entire organization. . . . [R]esearch and law enforcement are uneasy bedfellows. If research produces reports that might not support a current or potential enforcement agenda, then the law enforcers will not be happy.").

<sup>135</sup> On July 6, 2021, during FTC Chairwoman Lina Kahn's first week at the agency, *Politico* reported that the FTC placed a "moratorium" on staff participating in external events. Khan's chief of staff, Jen Howard, explained that "[t]he FTC is severely under-resourced and in the midst of a massive surge in merger filings. This is an all-hands-on-deck moment," and that "the agency pushed pause on public speaking events that aren't focused on educating consumers to ensure staff time is being used to maximum benefit and productivity. The American public needs this agency solving problems, not speaking on panels." Leah Nylen & Betsy Woodruff Swan, *FTC Staffers Told to Back Out of Public Appearances*, POLITICO (July 6, 2021), [www.politico.com/news/2021/07/06/ftc-staffers-public-appearances-498386](http://www.politico.com/news/2021/07/06/ftc-staffers-public-appearances-498386).

<sup>136</sup> See Pautler, *supra* note 90, at 25 n.108, 128 n.451, 129–31.

if such a standalone division is not recreated in either BE or EAG, a policy to give economists with promising research projects time to do them could address this.

Another potential solution is to specifically increase funding for economic research at the agencies. Calls for more money to fund both BE and the EAG are common.<sup>137</sup> Calls for greater spending, however, should always pass a benefit-cost assessment, and the outcome of this assessment will depend on what the additional resources will be used for. Former FTC Chairman Joseph Simons' proposed budget included an increase in the budget for BE that included a full-time position for an economist to conduct retrospective analyses of mergers.<sup>138</sup> Given our view regarding the high value of such studies, it is likely that such an expansion for that specific purpose would be worthwhile, even when a general increase in the budget of the same amount would not.

The problem here is not just the size of the budget; the inability to offer competitive salaries to economists, many of whom have good outside employment options, makes it difficult to hire and retain talent. The Consumer Financial Protection Board and the Federal Reserve have recognized this and gone off the General Schedule scale in order to attract good economists—often from the FTC and DOJ.<sup>139</sup> Congress and the agencies should consider this as well.

Another research bottleneck is that all agency research must be approved by the front office and, for more controversial research, by the chairman or assistant attorney general. The justifications for having a clearance requirement include the ability to ensure that sensitive agency or firm data is not publicly exposed. There are also reputational reasons: the FTC and the DOJ are thought leaders in the global antitrust community, and that reputation is hard earned. However, the benefits of this clearance requirement come at a cost: less research, delaying timely research, and a lower likelihood that research critical of agency policy or processes will be done.

Most work that deals with positive (how things are) economics usually has no trouble getting agency approval for publication. Problems arise with research projects that are more normative (how things should be); that contain

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<sup>137</sup> See, e.g., Joshua D. Wright, *Statement of Commissioner Joshua D. Wright on the FTC's Bureau of Economics, Independence, and Agency Performance*, FED. TRADE COMM'N (Aug. 6, 2015), [www.ftc.gov/system/files/documents/public\\_statements/695241/150806bestmtwright.pdf](http://www.ftc.gov/system/files/documents/public_statements/695241/150806bestmtwright.pdf).

<sup>138</sup> FED. TRADE COMM'N, *FISCAL YEAR 2020 CONGRESSIONAL BUDGET JUSTIFICATION* 81 (2019), [www.ftc.gov/system/files/documents/reports/fy-2020-congressional-budget-justification/fy\\_2020\\_cbj.pdf](http://www.ftc.gov/system/files/documents/reports/fy-2020-congressional-budget-justification/fy_2020_cbj.pdf).

<sup>139</sup> See, e.g., *Bureau of Consumer Financial Protection Salaries 2022*, FEDERALPAY.ORG [www.federalpay.org/employees/bureau-of-consumer-fin-pro/](http://www.federalpay.org/employees/bureau-of-consumer-fin-pro/); *Federal Reserve System Economist Salary*, GOVSALARIES, [govsalaries.com/salaries/FD/federal-reserve-system?year=2022&jobTitle=Economist](http://govsalaries.com/salaries/FD/federal-reserve-system?year=2022&jobTitle=Economist).

theoretical or empirical analyses critical of, or inconsistent with, current or prior agency enforcement decisions; and that can be perceived as an unwanted constraint on future actions. Currently, the FTC has an informal imprimatur system, that is, agency approval for release means the ability to publish with the staff members' agency affiliation on the paper. Rejection prevents publication, which means the project never sees the light of day or requires substantive revisions that may or may not satisfy the approving authority.

For research projects that are likely to be controversial *ex ante*, staff economists have historically been able to avoid this bottleneck by performing the research work on their own time and publishing the work without listing their agency affiliation. Whether this avenue is a reliable path to publication may also depend on the preferences of the approving authority. To the extent that staff economists can accurately predict which projects and papers will gain approval, such a system might deter some research by forcing it to be done without agency support or use of agency resources. Nonetheless, the current imprimatur system would benefit from some degree of formalization and standardization where work is approved in a more transparent, predictable, and timely manner.

An alternative solution is to have agency-relevant research performed by outside academic economists, either as contract employees or as coauthors of agency economists.<sup>140</sup> Indeed, this solution is currently employed as the primary model in which expert economists working for private consulting firms are hired to testify in matters that proceed to litigation at both agencies.<sup>141</sup> This model is also used to hire litigation-support teams, even in some cases where the testifying expert is an agency economist. Not only does this give agency economists access to academics, but it also gives academics access to real policy problems.

In these cases, the agencies effectively make a make-versus-buy decision.<sup>142</sup> This approach could be extended beyond litigation to include Hart-Scott-Rodino (HSR) merger investigative work. As an alternative, or as a complement, agencies could contract with a set of consulting firms on a fixed rate

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<sup>140</sup> More generally, however, coauthored research tends to emerge organically through connections and interactions made with the larger profession, which are facilitated when agency economists publish widely and participate in academic conferences. Thus, the lowest-hanging fruit to promote research is simply not to inhibit those relationships.

<sup>141</sup> See OFF. OF INSPECTOR GEN., FED. TRADE COMM'N, AUDIT OF FEDERAL TRADE COMMISSION EXPERT WITNESS SERVICES (2019), [www.ftc.gov/system/files/documents/reports/final-report-audit-expert-witness-services/final\\_ftc\\_oig\\_report\\_on\\_expert\\_witnesses-redacted\\_11-14-19.pdf](http://www.ftc.gov/system/files/documents/reports/final-report-audit-expert-witness-services/final_ftc_oig_report_on_expert_witnesses-redacted_11-14-19.pdf).

<sup>142</sup> Cf. R. H. Coase, *The Nature of the Firm*, 4 *ECONOMICA* 386, 390 (1937).

(negotiated over a longer-term contract) for overflow investigative work.<sup>143</sup> This would solve issues of capacity constraints that are often more temporary and allow the agencies to give staff economists time to conduct agency-relevant research.

In theory, the model could be applied directly to research activities; former agency economists are important contributors to enforcement R&D. However, enabling outside access to internal data, including data collected using the FTC's 6(b) authority, may limit the usefulness of this model for empirical projects that would rely on access to this type of data.<sup>144</sup>

#### B. DO THE BUREAU OF ECONOMICS AND THE ECONOMIC ANALYSIS GROUP NEED STRUCTURAL REFORM?

In a prior article, one of the authors examined the tradeoffs involved in how antitrust enforcement agencies chose to organize their economics groups within the agency.<sup>145</sup> That article focused on how different organizational structures affected the enforcement decision, where economists provide information to decision-makers. In particular, the article focused on the strengths and weaknesses of organizing economists under two particular organizational structures: a "functional organization" in which economists are situated in an independent bureau or group versus a "divisional organization" in which economists and lawyers are placed in integrated teams. The article finds that a functional organization is likely to produce higher-quality economic analysis but may lag behind a divisional organization in terms of producing analysis that is focused on the relevant legal questions as well as effectively communicating these findings to the decision-makers. The optimal organizational form will depend on the policy goals of the agency as well as the applicable law and may involve hybrid organizations that combine elements of both organizations.

The history of the economic bureaus in the U.S. antitrust agencies shows attempts to use both forms, as well as an ongoing struggle by economists to

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<sup>143</sup> As many of the economists working at private consulting firms are former FTC or DOJ economists and regularly interact with agency economists during merger investigations, familiarity with the processes and procedures involved in HSR merger investigation work would not be an issue. And given the growth of virtual technologies, BE and EAG could be more virtual and have contract, full- or part-time, economists located throughout the country and perhaps affiliated to a particular regional office where they can pick up sensitive documents or use secure computers.

<sup>144</sup> Outside economists were allowed to use line-of-business data collected using the FTC's 6(b) authority, but they were required to use special procedures, including using on-site computers, to access that data. See Pautler, *supra* note 90, at 34.

<sup>145</sup> See Froeb et al., *supra* note 122; see also Douglas H. Ginsburg & Eric M. Fraser, *The Role of Economic Analysis in Competition Law*, in INTELLECTUAL PROPERTY, COMPETITION LAW AND ECONOMICS IN ASIA 35 (R. Ian McEwin ed., 2011).

keep a seat at the proverbial decision-making table.<sup>146</sup> In particular, there are recent attempts to minimize the role of BE at the FTC. Prominently, during the Obama transition, a report was issued recommending that BE be abolished and folded into the Bureau of Competition.<sup>147</sup> This would have transformed BE from what Froeb et al. called a “functional organization” to a “divisional organization.”<sup>148</sup> Such a move would not be unprecedented, as this last was tried in the mid-1950s. The result was also short-lived and predictable.<sup>149</sup>

A recent article from a former BC manager claims the FTC only has “two primary bureaus, the Bureau of Consumer Protection (BCP) and the Bureau of Competition (BC).”<sup>150</sup> Further, she claims: “[f]or years, however, [BE] has struggled to define its role and manage its resources effectively.”<sup>151</sup> Additionally, “during [her] 26 years at the FTC, [BE] spent far too much time trying to opine on every matter in the agency.”<sup>152</sup> She cites the FTC’s Office of Inspector General Evaluation Report on BE to support some of her claims of BE dysfunction.<sup>153</sup> Has much changed since Judge Richard Posner observed in 1971 that lawyers exhibit “indifference (and sometimes hostility) . . . toward economists in the antitrust enforcement agencies”?<sup>154</sup> Of course, there are op-

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<sup>146</sup> See Jessica Rich, *Five Reforms the FTC Can Undertake Now to Strengthen the Agency*, BROOKINGS (Mar. 1, 2021) (advocating reform and stating that BE “has struggled to define its role and manage its resources effectively”), [www.brookings.edu/articles/five-reforms-the-ftc-can-undertake-now-to-strengthen-the-agency](http://www.brookings.edu/articles/five-reforms-the-ftc-can-undertake-now-to-strengthen-the-agency).

<sup>147</sup> Joan Z. Bernstein & Ann Malester, *Federal Trade Commission: Consumer Protection and Competition for a 21st-Century Economy*, in *CHANGE FOR AMERICA* 413 (Mark Green & Michele Jolin eds., 2009).

<sup>148</sup> See Froeb et al., *supra* note 122, at 575–79.

<sup>149</sup> As Froeb et al. detailed:

FTC Chairman Edward Howrey moved the economists who worked on mergers out of the Bureau of Economics and into the Bureau of Investigation, which put them under the supervision of attorneys working on merger cases. This organizational structure lasted for six years . . . . During this time, the economists’ influence was at a minimum, partly because their recommendations had to be filtered through their attorney supervisors. This reduced economist/attorney tensions but eliminated the role of the Bureau of Economics as an occasional devil’s advocate.

*Id.* at 569–70 (footnote omitted).

<sup>150</sup> Rich, *supra* note 146 (noting in a parenthetical that “[t]he FTC’s third bureau, the Bureau of Economics, provides economic analysis to support the two missions”).

<sup>151</sup> *Id.*

<sup>152</sup> *Id.* This harkens to the observation by Douglas Ginsburg and Eric Fraser that economists are often considered “case killers” at the agencies. See Ginsburg & Fraser, *supra* note 145, at 37 (describing how “agency lawyers long viewed economists unfavorably as ‘case killers’ who did not understand the law and who relied upon concepts and jargon the lawyers did not understand”).

<sup>153</sup> Rich, *supra* note 146 (citing OIG REPORT, *supra* note 133).

<sup>154</sup> Richard A. Posner, *A Program for the Antitrust Division*, 38 U. CHI. L. REV. 500, 532 (1971).



posing views. Certainly, there are agency heads and managers who strongly support BE and its role.<sup>155</sup>

Turning this organizational debate toward the role of BE and EAG in producing enforcement R&D, economists that do not “support” the lawyers in the agencies but function as a separate independent group within the agency structure, ultimately serving the FTC or DOJ front office, seems, in theory, to be a structure that better supports enforcement R&D. While a functional organization does require working with agency staff and assisting in various ways, economists organized in a functional organization are both an input into the lawyers’ case analysis *and* a potential source of conflicting output. This is the case whether economists are making independent recommendations on current cases based on the economic evidence produced during an investigation or producing research output that may make it easier to bring some types of cases while simultaneously making it harder to bring other types of cases in the future. Clearly, there is an inherent tension from serving as both an input and output. Some would like to push both economics groups into solely an input role or substitute agency economic analysis with either outside consultants hired perhaps “too early” and/or with a new digital unit or data division.<sup>156</sup> Yet the relevant question for policymakers is whether this push to ultimately weaken BE and EAG would strengthen or weaken the agencies’ mission to enforce the antitrust laws. A significant part of the answer will be its dynamic effect on the production of new analyses and tools.

## CONCLUSION

As part of the ongoing antitrust revolution that is seeking to overturn the advances of the modern antitrust movement and the associated body of caselaw, there have been calls to make institutional reforms at both antitrust agencies.<sup>157</sup> These calls are almost exclusively focused on litigating more cases, passing new *ex ante* rules under a “rulemaking authority,” and expanding the scope of competitive “harm.” Yet agencies are more than just litigators and vehicles for imposing rules on markets. They develop state-of-the-art research in antitrust economics—primarily through their respective ec-

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<sup>155</sup> For instance, Commissioner Joshua D. Wright brought on a full-time economic advisor into his office. See Wright, *supra* note 137, at 11, n.22; see also Froeb et al., *supra* note 122, at 583–84.

<sup>156</sup> See, e.g., OIG REPORT, *supra* note 133, at 9 (“Interviews and document reviews also revealed that there is perennial discussion regarding whether the BE should remain a separate bureau or be absorbed into the BC and BCP.”).

<sup>157</sup> See, e.g., John Cassidy, *The Biden Antitrust Revolution*, THE NEW YORKER (July 12, 2021) (“Proponents of the New Brandeis-ism contend that these agencies [the FTC and DOJ] should act proactively—carrying out broad investigations, publishing reports, and establishing rules of conduct for companies with a great deal of market power, including tech platforms and broadband providers.”).

onomics bureaus and divisions. This role is underappreciated both within and outside of the agencies.

In this article, we trace the role that agency economists have played in innovations in delineating markets, merger simulation, developing merger guidelines for courts and market participants, and empirically assessing conduct. What emerges is that agency economists (including former economists) are in a unique position to pioneer advances and improve agency enforcement. For instance, the empirical work that agency economists did in retroactively examining the impact of hospital mergers fundamentally changed the trajectory of hospital merger enforcement.

Consequently, examining the role of economists at the agencies is as critical as ever. Frequent calls to marginalize economists and move them to a purely “supporting” role under agency attorneys would disrupt the innovative role that economists have played throughout the history of the agencies. This reexamination is particularly timely given the recent actions of the new leadership of the FTC that clearly plans to de-emphasize the analytical framework based on industrial organization economics and the credible and causal empirical studies discussed in this article in favor of other approaches. Instead, we find that expanding and further incentivizing the research function of economists would better serve the agency mission and result in tangible social benefits.