Aetna-Humana and Algorithmic Market Definition in the Guidelines

There is a constant tension in the law between certainty and flexibility. Kostis Hatzitaskos, Nicholas Hill and Brad Howells postulate that the Merger Guidelines contain such a tension with respect to the issue of whether a relevant product market must always contain closer substitutes. The authors analyze how this tension in the Guidelines played out in the recent challenge by the Department of Justice to the proposed Aetna-Humana merger.

Dealing with Uncertainty: Procedural Aspects of Merger Control in Mexico

Luis Gerardo García Santos Coy and Edgar Martín Padilla reflect on the challenges faced by companies and practitioners since the introduction of Mexico’s Federal Economic Law in 2014 and the creation of the Federal Economic Competition Commission (COFECE). They analyze the impact of these regulatory changes under the new merger review regime in Mexico, recommend possible improvements in policy for COFECE, and offer tips on how best to approach the antitrust review of merger cases in Mexico.

Book Review: The Next Frontier of Antitrust?

Kevin Christensen reviews Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy by Ariel Ezrachi and Maurice Stucke. He describes and evaluates the authors’ views about how the current antitrust enforcement regime is unable to protect consumers in the new technological age characterized by two-sided markets, Big Data, and pricing algorithms. He concludes that the book raises important questions that will continue to spur conversations for a long while to come.

Paper Trail: Working Papers and Recent Scholarship

Allan Shampine reviews a paper by Sidak and Skog that provides a case study discussing the theoretical and practical challenges of implementing hedonic regression analysis in a RAND case.
Aetna-Humana and Algorithmic Market Definition in the Guidelines

Kostis Hatzitaskos, Nicholas Hill, and Brad T. Howells

The Department of Justice and Federal Trade Commission Horizontal Merger Guidelines outline the Agencies’ enforcement policy on horizontal mergers. The Guidelines play an important role during all phases of the merger review process, including litigation. Because merger review is fact specific and because facts vary greatly across mergers, the Guidelines must be general enough to accommodate the nuances of a wide range of potential scenarios. This need to preserve generality can lead to ambiguities that can complicate counseling, merger review, and litigation.

We discuss here one such ambiguity in the Guidelines, concerning whether market definition must be strictly algorithmic or may instead be a more holistic process informed by both qualitative and quantitative evidence. The recent Aetna-Humana health insurance merger trial was the first since the 2010 revisions of the Guidelines to focus squarely on this ambiguity. A number of products were at issue in the trial, but the key question was whether the merger would reduce competition in the sale of Medicare Advantage plans to seniors eligible for Medicare. In what follows, we explore the market definition questions raised at trial and their implications for practitioners.

Constructing a Candidate Market

In an effort to limit the potential for gerrymandering, earlier versions of the Guidelines laid out an algorithmic approach to defining markets. For example, the 1992 Guidelines, as revised in 1997, described a product market definition process that would begin with a single product and add substitutes one at a time, in order of their closeness of substitution, until the collection of products passed the hypothetical monopolist test.


2 For example, the court in Aetna noted that “[a]lthough the Guidelines are not binding, the D.C. Circuit and other courts have looked to them for guidance in previous merger cases.” United States v. Aetna Inc., 240 F. Supp. 3d 1, 11 n.7 (D.D.C. 2017) (citing FTC v. H.J. Heinz Co., 246 F.3d 708, 716 n.9 (D.C. Cir. 2001)); FTC v. Sysco Corp., 113 F. Supp. 3d 1, 38 (D.D.C. 2015).

3 In this context, gerrymandering refers to defining a market whose boundaries exclude an important substitute or include an unimportant substitute, leading to erroneous conclusions about competitive effects.

4 U.S. Dep’t of Justice & Federal Trade Comm’n, Horizontal Merger Guidelines § 1.11 & n.9 (1992, rev. 1997), https://www.ftc.gov/sites/default/files/attachments/merger-review/hmg.pdf [hereinafter 1992 Guidelines] (“Specifically, the Agency will begin with each product (narrowly defined) produced or sold by each merging firm and ask what would happen if a hypothetical monopolist of that product imposed at least a ‘small but significant and nontransitory’ increase in price, but the terms of sale of all other products remained constant. If, in response to the price increase, the reduction in sales of the product would be large enough that a hypothetical monopolist would not find it profitable to impose such an increase in price, then the Agency will add to the product group the product that is the next best substitute for the merging firm’s product. . . . Throughout the Guidelines, the term ‘next best substitute’ refers to the alternative which, if available in unlimited quantities at constant prices, would account for the greatest value of diversion of demand in response to a ‘small but significant and nontransitory’ price increase.”).
not be gerrymandered to exclude a close substitute. If a market that begins with product A includes product C, and product B is a closer substitute for product A, then product B must also be in the market. Indeed, it will have been added before product C.

The 2010 Guidelines retain the use of the hypothetical monopolist test but do not contain a formal algorithm for constructing the group of products to be tested. Instead, they emphasize that there may be more than one valid relevant market and that market definition is a means to an end.

The hypothetical monopolist test ensures that markets are not defined too narrowly, but it does not lead to a single relevant market. The Agencies may evaluate a merger in any relevant market satisfying the test, guided by the overarching principle that the purpose of defining the market and measuring market shares is to illuminate the evaluation of competitive effects.\(^5\)

The approach described in the 2010 Guidelines better reflects how product markets are defined in practice. Namely, the Agencies focus on testing candidate markets that constitute intuitive, natural groupings of products that are based upon documentary and other qualitative evidence and can be tested using available data. This is consistent with the *Brown Shoe* indicia that remain persuasive in litigation.\(^6\) The key *Brown Shoe* indicia include “industry or public recognition” of the market, a “product’s peculiar characteristics or uses,” “distinct customers,” and “specialized vendors.”\(^7\)

This approach, however, gives the Agencies discretion in constructing the products to be tested and thus creates a risk that an incorrect market definition will lead to incorrect conclusions about competitive effects. The 2010 Guidelines contain language to mitigate this risk. Unfortunately, this language, and related language that follows, admits multiple interpretations. The merging parties in *Aetna*, for example, read this language to suggest that the 2010 Guidelines prescribe a variant of the earlier algorithmic approach.

The language in question begins before Example 6 in the 2010 Guidelines and continues through the end of that example.

When applying the hypothetical monopolist test to define a market around a product offered by one of the merging firms, if the market includes a second product, the Agencies will normally also include a third product if that third product is a closer substitute for the first product than is the second product.

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### Example 6:
In Example 5, suppose that half of the unit sales lost by Product A when it raises its price are diverted to Product C, which also has a price of $100, while one-third are diverted to Product B. Product C is a closer substitute for Product A than is Product B. Thus Product C will normally be included in the relevant market, even though Products A and B together satisfy the hypothetical monopolist test.\(^8\)

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5 2010 Guidelines, supra note 1, § 4.1.1.

6 See, e.g., Petition for Review of a Decision of the Fed. Trade Comm’n, McWane, Inc. v. FTC, No. 14-11363 at 26 (11th Cir. Apr. 15, 2015) (“Courts routinely rely on qualitative economic evidence to define relevant markets.”…Thus, for example, in *Polyure*; the Commission’s market definition was affirmed by this Court on the basis of the *Brown Shoe* indicia, apparently without an econometric study.” (citation omitted)); FTC v. Whole Foods Mkt., Inc., 548 F.3d 1028, 1039 (D.C. Cir. 2008) (“We look to the *Brown Shoe* indicia, among which the economic criteria are primary”); United States v. H&R Block, Inc., 833 F. Supp. 2d 36, 52 (D.D.C. 2011) (“When determining the relevant product market, courts often pay close attention to the defendants’ ordinary course of business documents.” (citations omitted)).


8 2010 Guidelines, supra note 1, § 4.1.1 (emphasis added).
Absent the word “normally,” and read without further context, this language implies that any relevant market must be consistent with the algorithmic approach to market definition specified in earlier versions of the Guidelines. Specifically, a product cannot be included in a candidate market unless every other product that is a closer substitute is also included. Under this approach, one could rank every substitute by how close of a substitute it is to the focal merging party product. The only market definition question would then be how far down this list one would have to go to pass the hypothetical monopolist test. 9

However, the Guidelines make clear by using the word “normally” twice that there are reasonable exceptions to such an algorithmic approach. This is consistent with the language quoted earlier, which notes that there are typically multiple valid relevant markets and that market definition is a means to assessing competitive effects. 10 What the Guidelines do not do is specify precisely when exceptions to the algorithmic approach are reasonable.

A clarification that is consistent with common practice would be that the starting point for candidate markets can be any natural and intuitive grouping of products that is consistent with the type of Brown Shoe indicia that courts and practitioners routinely consider. Following the algorithmic approach can instead lead to counterintuitive markets that look gerrymandered in comparison, particularly when data on closeness of substitution are incomplete.

Product Market Construction in the Aetna-Humana case
Consider the example of Aetna. At the heart of the market definition fight in that case was the question of which products must be included in the candidate market before performing the hypothetical monopolist test. Seniors who are eligible for Medicare have two broad options in how they get their Medicare coverage. Most seniors either purchase a privately operated Medicare Advantage plan (which the government subsidizes) or get their Medicare coverage directly from the government. The latter option is frequently referred to as Original Medicare. The evidence at trial established that seniors frequently supplement the coverage provided by Original Medicare with private insurance that limits their exposure to cost sharing for medical care and prescription drugs. 11

In Aetna, the government 12 alleged a product market of Medicare Advantage plans in 362 separate counties. This product market excluded all Original Medicare coverage options. Their government economic expert, Aviv Nevo, tested this product market using several versions of the hypothetical monopolist test, all of which it passed. The government therefore concluded, in conjunction with other evidence, that Medicare Advantage plans were a relevant product in those 362 counties. 13

9 Earlier versions of the Guidelines also contained an explicit smallest market prescription, so how far down the list one must go was also specified: one stopped as soon as the group of products was large enough to pass the hypothetical monopolist test. The 2010 Guidelines state that the Agencies usually use the smallest relevant market that satisfies the hypothetical monopolist test, without specifying when they might deviate from this approach.

10 See 2010 Guidelines, supra note 1, § 4.1.1. This language directly follows Example 6, further softening reliance on an algorithmic approach.

11 Medicare Advantage plans have built-in limits to out-of-pocket medical costs and typically include prescription drug coverage.

12 The plaintiffs in Aetna, here collectively referred to as “the government,” included the United States, the States of Delaware, Florida, Georgia, Illinois, Iowa, and Ohio, the Commonwealths of Pennsylvania and Virginia, and the District of Columbia.

13 Aetna, 240 F. Supp. 3d at 21 (“The government’s economist, Dr. Aviv Nevo, analyzed whether the proposed market for the sale of individual Medicare Advantage plans would satisfy the hypothetical monopolist test. . . . Because Medicare Advantage passed under all formulations of his hypothetical monopolist tests, Nevo concluded that individual Medicare Advantage plans constitute a relevant product market.”).
The defendants countered that at least some Original Medicare coverage options should have been included in the candidate market. They argued that the government was improperly excluding Original Medicare coverage options. In short, the defense alleged that the government was gerrymandering the market by excluding close substitutes that the merging parties did not own while including more distant substitutes. 14

The defendants in *Aetna* attempted to find support for their argument in the language of Example 6. They argued that some of the less popular Medicare Advantage plans that were included in the relevant product market were more distant substitutes than were the most popular Original Medicare coverage options. As such, they argued that at least some Original Medicare coverage options should also have been included in the market, making it immaterial that the government's proposed product market passed the hypothetical monopolist test. 15

Proving this claim was difficult. Accurate data were available on the enrollment of Medicare Advantage plans at the county level but data on enrollment in Original Medicare coverage options were not, nor were switching data from Medicare Advantage plans to specific Original Medicare coverage options. 16 The defendants' economic expert, Jonathan Orszag, therefore relied upon an argument that diversion to the smallest Medicare Advantage plan in some counties was so close to zero that it must have been the case that diversion was higher to at least one Original Medicare coverage option. The defendants' argument can be summarized like this:

1. Some Medicare Advantage plans have very low enrollment.
2. Diversion from other Medicare Advantage plans to these plans must be low.
3. There are Original Medicare coverage options with high enrollment.
4. Thus, even though an enrollee in a Medicare Advantage plan is generally less likely to switch to Original Medicare than to another Medicare Advantage plan, the enrollee is still more likely to switch to the most popular Original Medicare coverage option than to switch to the least popular Medicare Advantage plan.
5. Thus, a proposed market that includes the least popular Medicare Advantage plan but excludes the most popular Original Medicare coverage option violates Example 6.

This approach has three significant flaws. First, while logically sound, it is speculative, as the defendants did not actually identify a specific Original Medicare coverage option that proved that Example 6 had been violated. 17

Second, it ignores the fact that a candidate market that excluded the smallest Medicare Advantage plans would likely have passed the hypothetical monopolist test in many counties. Plans with negligible market share are not generally material to market concentration or compet-

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14 Id. at 18 (“As a result of this overlap, defendants believe that ‘a Medicare Advantage plan’s closest cousins are often one or more Original Medicare options instead of other Medicare Advantage plans. Excluding all Original Medicare options in order to create an MA-only market would ignore the ample overlap between the two types of plans.’”). Testimony of Jonathan Orszag at 3068:9–3069:10, United States v. Aetna Inc., No. 1:16-cv-01494 (D.D.C. Dec. 19, 2016) [hereinafter Orszag Testimony].

15 *Aetna*, 240 F. Supp. 3d at 24 (“The crux of Orszag’s argument is that, in response to a price increase on a particular Medicare Advantage plan, there are likely to be Original Medicare options that enjoy greater diversion than the plan’s most distant Medicare Advantage substitute. . . . Applying what he calls the ‘circle principle,’ which he derives from ‘Example 6’ of the Guidelines, Orszag argues that any such Original Medicare options must be included in the product market. By ignoring the circle principle, defendants assert, Nevo has defined an overly narrow and conceptually flawed product market.”).


17 As Judge Bates put it: “The problem was this more nuanced argument, however, is that it is almost entirely speculative. Orszag has not identified an Original Medicare product of the kind that he describes above . . . .” *Aetna*, 240 F. Supp. 3d at 26.
itive effects, and excluding them would not have affected the government’s argument. But the qualitative and quantitative evidence showed that Medicare Advantage plans are a cohesive group of products, so a market definition that excluded them would have looked incomplete and less intuitive. 18

Third, given the lack of county-level data on Original Medicare coverage option enrollment, the realistic product market options were either a Medicare Advantage market or a market that includes all Medicare Advantage plans and all Original Medicare coverage options. A market including all Original Medicare coverage options is clearly too broad given the qualitative evidence and the data on switching from Medicare Advantage to Original Medicare. 19 Such an omnibus market would serve to obscure rather than illuminate the merger’s potential competitive effect: that there is valuable competition between Medicare Advantage plans offered by Aetna and Humana and that the merger would eliminate this competition. 20

The court weighed both sets of arguments and found for the government, agreeing that Medicare Advantage plans in each of the alleged counties constituted a relevant product market. The opinion emphasizes the qualitative evidence that industry participants view Medicare Advantage plans as a natural grouping of products and the fact that such a grouping passed multiple hypothetical monopolist tests. As such, the judge appears to have used the approach suggested by the government—that it is reasonable to test a coherent group of products that shed light on competitive effects using the hypothetical monopolist test—and rejected the allegation of gerrymandering advanced by the defendants:

[D]efendants plainly believe that the lack of a complete set of diversion ratios undermines the government’s ability to carry its burden on market definition. The Court disagrees. If taken to its logical conclusion, defendants’ position implies a purely econometric approach to market definition, requiring the government to calculate individual diversion ratios for all the products potentially in the market, rank them from highest to lowest, and, at some point, draw a line between those products that fall within the market and those products that fall outside. But that technical approach is not taken by the cases. Econometric evidence can be powerful evidence, but it is not the only evidence that courts consider in defining the relevant market. Indeed, the cases relied upon by both parties here have considered the Brown Shoe factors and ordinary course of business documents, in addition to econometric evidence, before reaching conclusions about the proper market definition. 21

18 The opinion discusses, among other pieces of evidence, the fact that the two firms manage and price their Medicare Advantage products separately from their Medicare Supplement businesses, the dearth of company Medicare Advantage documents discussing competition from Original Medicare, the abundance of company Medicare Advantage documents discussing intense competition from other Medicare Advantage companies, and switching data that support the notion that Medicare Advantage plans attract distinct customers. Id. at 14–17.

19 For example, the Kaiser Family Foundation estimated that more Medicare Advantage enrollees die in a given year than switch to Original Medicare. Testimony of Richard Frank at 113:18–114:10, United States v. Aetna Inc., No. 1:16-cv-01494 (D.D.C. Dec. 5, 2016).

20 The defendants also did not show that alternative product markets would necessarily have led to lower levels of concentration. For example, if smaller Medicare Advantage plans were owned by third parties, a narrower market that excluded them may actually have increased concentration. Testimony of Aviv Nevo at 3568:9–3569:13, United States v. Aetna Inc., No. 1:16-cv-01494 (D.D.C. Dec. 21, 2016). Similarly, even if Original Medicare options had higher total enrollment than Medicare Advantage plans in a county, a broader market that included Original Medicare options may not have been less concentrated if Aetna and Humana had high enrollment in the Medigap and Part D plans in that county. Moreover, the government did not argue that there is no competitive interaction between Medicare Advantage plans and Original Medicare, and their market definition did not mean that they ignored the influence of Original Medicare. Their expert included competition from Original Medicare in his competitive effects analysis. Aetna, 240 F. Supp. 3d at 31; Testimony of Aviv Nevo at 1603:6–15, United States v. Aetna Inc., No. 1:16-cv-01494 (D.D.C. Dec. 12, 2016).

The key takeaway is that a court has endorsed a product market that reflects business realities but may run afoul of the strict hypothetical monopolist test algorithm that appears in past versions of the Guidelines. While the algorithmic approach is closely related to Example 6 in the present version of the Guidelines, a more holistic approach is consistent with specific language elsewhere in the Guidelines (see, e.g., Section 4.1.3) and, more generally, with the emphasis throughout the Guidelines on the primacy of competitive effects relative to market definition.

Conclusion

To block any proposed transaction that they believe to be anticompetitive, the Agencies must typically prevail at trial or be likely to do so. Trials therefore offer an opportunity to test the Guidelines as a coherent framework for merger analysis rather than just a summary of the Agencies’ stated practices. This process can reveal ambiguities in the Guidelines if parties hold opposing views on what exactly the Guidelines prescribe.

In *Aetna*, Judge Bates ruled on one such ambiguity when he rejected the notion that market definition should proceed algorithmically based on total diversion alone. In doing so, he affirmed a more flexible view of market definition in which the products that make up a market are based on both qualitative and quantitative evidence. This approach is consistent with the more flexible Guidelines that were introduced in 2010, and with the move in those Guidelines away from market definition and a focus on competitive effects.
Dealing With Uncertainty: Procedural Aspects of Merger Control in Mexico

Luis Gerardo García Santos Coy and Edgar Martín Padilla

Amendments to the Mexican Constitution in 2013, with the main objective of leveling the landscape of the telecom industry in Mexico, resulted in a significant revision of Mexico’s competition law framework and the creation of two new autonomous agencies with jurisdiction over competition matters.¹ The Federal Institute of Telecommunications (IFT) has jurisdiction over the telecommunications and broadcasting sectors and the Federal Economic Competition Commission (COFECE) has jurisdiction over all other industries.² As a consequence of these constitutional amendments, a substantially new Federal Economic Competition Law (Competition Law) was enacted that became effective on July 7, 2014.³ A more sophisticated approach to merger review in the new Competition Law was accompanied by understandable institutional limitations, leading to mixed results in its implementation, especially in terms of efficiency and predictability.

Now that four years have passed since the creation of COFECE and three years since the implementation of the new Competition Law, it is timely to reflect on the challenges being faced by companies and practitioners in dealing with the Mexican merger control process, particularly in complex cases.⁴ In our opinion, these amendments to Mexico’s merger control regime have not resulted in more effective competition law enforcement. In this article, we analyze the most important challenges under the new merger review regime in Mexico and recommend possible improvements.

Merger Control and Filing Trends
Currently, COFECE is composed of a Board of seven Commissioners (one of whom is the Chairman), the Technical Secretariat, the Investigation Authority, and the Internal Comptroller’s

² The first competition authority in Mexico, the Commission of Economic Competition (CFC), was created in 1992 as part of the Secretariat of Economy. The June 2013 constitutional amendment that created the new Commission gave COFECE regulatory independence. In addition, mechanisms designed to guarantee the professional, independent, technical, and impartial performance of its staff were implemented. See Decree by which several dispositions of articles 6, 7, 27, 28, 73, 78, 94 and 105 of the Political Constitution of the United Mexican States are amended and added, DOF 11-6-2013.
³ Federal Economic Competition Law [Competition Law], DOF 7-16-2014. According to the first transitional article of the Competition Law, the law became effective 45 days after its publication in the DOF.
⁴ The law does not contemplate a specific definition of “complex cases,” though more complex cases are generally understood as cases in which the parties have significant product overlaps or the industry is more concentrated. COFECE lists three factors on its website that are used to assess whether a competition risk exists under Article 64 of the Competition Law: (1) if the merger confers or could confer substantial power, i.e., the ability to unilaterally fix prices, to the resulting economic agent; or if the merger increases that power; (2) if the transaction’s purpose or effect is to establish entry barriers, unduly displace other agents or impede their entry into the market; or (3) if the transaction’s purpose or effect is to facilitate the execution of monopolistic practices. http://www.cofece.mx/cofece/ingles/index.php/cofece/que-hacemos/mergers.
Pursuant to Article 86 of the current Competition Law, a transaction will be subject to a mandatory premerger filing in Mexico if it reaches at least one of the following thresholds: (1) if the purchase price (or price allocation to the Mexican assets/entities/business) of the transaction or series of transactions that give rise to the concentration, notwithstanding the place of execution, has a value greater than MXN$1,358,820,000 pesos (approximately US $75.5 million); (2) if the transaction or series of transactions giving rise to the concentration, results in the acquisition of 35% or more of the assets or shares of an economic agent whose total assets or annual sales located or

As illustrated in Figure 1 below, the number of premerger filings submitted to and authorized by COFECE in the last four years has reached its historical average. After a significant drop due to a revision of the notification thresholds in 2007 and the global financial crisis of 2008, the number of filings has stabilized at between 120 to 140 per year over the last four years. The average timing to clear notified mergers has significantly increased, however, from approximately 35 days in 2011 to nearly 60 days in 2016. (See Figure 2.) Furthermore, the willingness of the new author-

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ity to establish its own criteria with respect to the information required for each transaction and not
to follow precedents of the former agency has frequently led to uncertainty for multinational play-
ers on how best to deal with the Mexican jurisdiction in complex merger control cases.

It is also significant that COFECE appears to have been working with a limited number of tech-
nical staff and that competition law is, to some extent, only a recent addition to the curricula of
universities in Mexico. As time goes on, more and more professionals in Mexico are becoming
interested in competition policy, thus it is expected that COFECE will keep benefiting from that
trend and further increase its technical staff in the near future. In the meantime, it has become
clear that Mexican procedure and institutional shortcomings are demanding that practitioners be
more careful, innovative, and rigorous than ever before.

**New Rules, New Challenges**

The most relevant obstacles facing merger control procedures in Mexico can be categorized dia-
grammatically as follows:

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**Timing.** The first challenge for practitioners in Mexico is to manage the client’s expectations
on timing. The new Competition Law brought substantial extensions to merger review periods.
Periods were extended from 35 to 60 business days to issue a clearance decision and from 5 to

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6 In the 2017 GCR Rating Enforcement Report 2017, COFEC states that its Merger Control department is comprised of 63 officers, who in
2016 reviewed approximately 150 transactions, for a ratio of 0.42 officers per case. Such ratio is similar to or larger than other jurisdic-
tions, such as Brazil (0.30), Colombia (0.10), Canada (0.22), the U.S. (0.30), and Europe (0.16). However, it appears to the authors that not
all of the 63 officers reported to GCR are necessarily technical staff (i.e., professional staff directly devoted to the merger analysis) of the
General Directorate of Merger Control. GCR, Rating Enforcement 2017: Mexico’s Federal Economic Competition Commission (July 21,
commission.

7 The approach to merger control in Mexico has become more sophisticated in recent years. As in the United States and Europe, the
Commission is seeking to apply an effects-based approach, which is leading to more extensive requests for detailed economic data to com-
plete a deeper analysis of the transaction.
10 business days to issue basic requests for information. These and other information requests may restart the clock for the period to issue a clearance decision. In addition, COFECE carries out a thorough analysis in almost every notified transaction, even where the transaction involves limited competitive overlaps.

After the initial filing, COFECE has the authority to request additional information (to complete the file) within the following periods:

1. 10 business days following the date of filing, to request basic information that should have been included in the initial filing; the applicants will have a period of 10 business days to satisfy such request, which period can be extended in justified cases; and

2. 15 business days from (i) the date of filing or (ii) the date on which the request for information mentioned in paragraph (1) above is satisfied, to request additional information that COFECE considers necessary for the analysis of the transaction—the applicants will have a period of 15 business days to satisfy such request. This period can also be extended in justified cases.

If the authority issues a request for additional information pursuant to paragraph (1) and/or (2) above, the 60 business days for review and resolution will start running from the date on which COFECE deems all the requested information to have been duly received. In particularly complex cases, the Competition Law allows COFECE to extend the review period for up to an additional 40 business days for COFECE to request additional information or issue a decision. It should be noted that if, after the submission of the pre-merger filing, the parties offer remedies or conditions to resolve the antitrust authority’s possible concerns, the 60 business day period for the antitrust authority to issue a decision will be restarted. With the former Commission, extensions of time periods were rare, even in complicated cases. However, over the past couple of years, COFECE has much more frequently issued extensions, not only of the time to issue a clearance decision, but also to extend the period for issuing a request for information that will restart the clock. These types of extensions are now to be expected for moderately to highly complex cases.

Based on the above, it may come as no surprise that, particularly during the past couple of years, international practitioners have frequently pointed out to the authors that Mexico is one of the jurisdictions taking longer to provide clearances in multi-jurisdictional transactions, even when the transaction does not raise competition concerns or when those concerns are similar to other jurisdictions.

Although the new Competition Law provides for an expedited review process, it is rarely used in practice. In accordance with Article 92 of the Competition Law, if the parties to a transaction provide compelling evidence to COFECE that such transaction will not have any anticompetitive

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8 Competition Law art. 90.

9 In recent cases, COFECE has requested information that is not necessarily “basic,” such as market shares and business documents. Considering that the parties have limited time to respond to such requests, it is important to be prepared beforehand for this type of scenario.

10 Competition Law art. 90 V.

11 Competition Law art. 90 VI.

12 Competition Law art. 90. Please note that as timing agreements are not specifically contemplated in the Competition Law or its regulations, COFECE takes the position that they are not available. When possible (e.g., if the transaction was notified with a considerable anticipated timing in relation to the expected closing), COFECE seeks to accommodate the expected timing of the parties. However, this is considered on a case-by-case basis and only under informal communications with COFECE.
effects in the market (i.e., absence of overlapping or related activities), then the parties may ask COFECE to analyze the transaction in an expedited review process.

The expedited review process reflects a well-intentioned attempt to have a method of treating simple cases differently, as was contemplated under the previous competition law. Under this expedited process the Competition Law provides that COFECE shall issue an official communication accepting the pre-merger filing within five business days following the date of receipt of the notification. Within 15 business days following the issuance of such official communication, COFECE must issue a decision with respect to the transaction. If COFECE does not issue a decision within such time period, it will be deemed to have constructively cleared the transaction.

In practice, however, use of the expedited process creates even more timing risks. The filing might not be accepted or even subsequently rejected by COFECE based on procedural issues. If this were to happen, the review periods will be restarted, with the potential to delay the review process significantly. Thus, the expedited process is not often used by practitioners in the country.

Finally, it is also important to note that the Mexican merger review process is suspensory in all cases. Thus, the parties cannot close their transaction prior to receiving clearance by COFECE. Nonetheless, in some cases, it may be possible to carve out the Mexico-based entities involved in a multi-jurisdictional transaction in order to be able to close the transaction in other jurisdictions. To do so, however, the transaction must not be legally effective, i.e., closed, in Mexico. In addition, the parties will need to implement effective mechanisms to avoid any exchange of sensitive commercial information relating to the Mexican business during this period. These may include hold separate provisions to assure that the businesses will be managed independently, clean rooms, and non-disclosure agreements. Although COFECE is aware that a contractual carve-out (as opposed to a structural one as described above) is an option that may be used in some other jurisdictions, in practice it is still not accepted in Mexico.

**Information Stage.** COFECE is increasingly requiring additional internal evidence from the parties involved in a transaction to be confident that a transaction will not have anticompetitive effects, regardless of their initial level of potential concerns with the transaction. At all times, being transparent and open with COFECE, preparing a complete file, and having an open communication channel to react quickly to its requests, is crucial for keeping the process as smooth as possible.

Documents and information required from the parties to a transaction are determined on a case-by-case basis. At the outset, the parties should carry out a detailed analysis in order to determine the information that will be submitted and whether any of the information is confiden-

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13 The Competition Law article 92 provides that, in order to conclude that a transaction will not have anticompetitive effects in a relevant market for the purposes of the expedited review process, (1) the purchaser may not participate in any markets vertically or horizontally related to the relevant market, (2) the purchaser may not be a current or potential competitor of the target, and (3) one of the following three scenarios must be applicable: (a) the transaction is the first entry by the purchaser into the relevant market; (b) prior to the transaction, the purchaser does not control the target and, as a consequence of the transaction, the purchaser increases its ownership stake in the target without obtaining more power to influence the operation, management, strategies and main policies of the target, including power to appoint members of the board of directors, officers and managers; or (c) the purchaser already has control over the target and increases its ownership of the target.


15 Competition Law art. 92.

16 In this regard, the purchaser must not acquire shares or assets in Mexico, nor acquire control (de jure or de facto) over the Mexican assets, shares or business, nor have the ability to participate in, manage or influence, directly or indirectly, the management, operation or commercial policies of the Mexican assets or business.
The parties should provide, to the extent possible, all potentially relevant information for COFECE’s competitive impact analysis when submitting the original filing. Otherwise, as previously described, the review period for COFECE to analyze a transaction will not commence as COFECE will not consider the file complete.

In complex cases, it is now well accepted that COFECE will request copies of documents internally produced or exchanged between the parties that were used to evaluate, negotiate, and implement the transaction. These include presentations, business plans, strategic plans, marketing plans, reports, and analyses. Such documents are similar to those submitted in accordance with items 4(c) and 4(d) of U.S. Hart-Scott-Rodino Act (HSR) filings and section 5.4 of the European Commission’s Form CO.

Although we believe it is important for COFECE to perform a thorough review, we always advocate for and recommend that such requests are (i) proportional with the level of complexity of the transaction (based on a theory of harm), and (ii) realistic in terms of the availability of the parties’ internal information.

More recently, it has become very common for COFECE to request information from competitors and other third parties to corroborate the market data provided by the parties. Once again, this mirrors the general practice followed in the United States, the European Union, and other worldwide jurisdictions. The persons receiving such requests for information usually have a period of 10 business days to comply, which can be extended in certain cases. Such requests to third parties will not restart the time periods for COFECE’s merger review, but delays in third parties’ responses can cause COFECE to take more time to complete its review or possibly even extend relevant statutory time periods for its review. Parties should always be ready to provide such third-party contact information to COFECE as soon as practicably possible after filing so that the agency can quickly begin contacting third parties to avoid potential delays. We would also urge COFECE to make such requests early in the process to avoid potential delays.

Criteria and Analysis. On May 14, 2015, COFECE issued technical criteria for the estimation and application of a quantitative index to measure market concentration and analyze a transaction’s effect on competition. COFECE applies the Herfindahl-Hirschman Index (HHI) as a first indication of the competitive pressure in the post-merger market. COFECE will consider the transaction to have a low probability of having anticompetitive effects, without—usually—needing to engage in a more detailed competitive analysis, if (1) the HHI increases by less than 100 points; (2) the HHI post-transaction is under 2000 points; or (3) (a) the HHI post-transaction is between 2000 and 2500, (b) the HHI increases between 100 and 150 points, and (c) the resulting economic agent is not among the top four competitors. In the real world, the test in (3) above is difficult to pass.

Failure to meet these criteria, does not necessarily mean that the transaction will not be cleared, but the parties will need to provide additional information and arguments to explain why it will not have anticompetitive effects. In practice, however, not meeting such criteria will result in the case

17 Pursuant to article 125 of the Competition Law, the parties are allowed to identify which documents and information should be deemed confidential, explaining the reasons to do so. In that case, COFECE will not disclose such information in the public version of its decision or in press releases that may be issued by COFECE.

18 If such third parties fail to respond COFECE’s request for information, fines for up to MXN $226,470 pesos (approximately USD $12,580) for each day in default may be imposed, according to article 126 II of the Competition Law.

being treated as complex, which would lead to further analysis of the parties and their competitive overlaps. As a result, parties to such a complex transaction can expect requests for substantial information.

**Remedies.** If COFECE finds that a concentration is likely to have anticompetitive effects, it may impose the following requirements on the parties: (1) carry out or refrain from carrying out specific action or conduct; (2) transfer certain assets, rights, partnership interests or shares to third parties; (3) amend or delete terms and conditions of the transaction documents; (4) take certain actions to enhance the participation of competitors in the market, including providing access or selling goods and services to such competitors; or (5) otherwise avoid or mitigate distortions in the relevant market.\(^ {20} \)

However, in the past year, most of the cases in which COFECE required remedies involved pre-closing divestitures or an obligation not to acquire certain products or businesses, rather than typical post-closing divestiture obligations in accordance with the International Competition Network’s (ICN) best practices.\(^ {21} \) It seems that COFECE prefers the use of pre-closing divestures in order to avoid having to monitor and potentially commence litigation over a potential breach of the remedies imposed. In our view, the risk of litigation over remedies is remote and the Competition Law has provided COFECE with sufficient tools to enforce compliance, including the imposition of significant fines.\(^ {22} \) COFECE will likely benefit from using such tools and, when required, aim to develop court precedents which would ultimately strengthen its authority to enforce remedial measures.

As mentioned above, in some cases, COFECE’s approach results in the imposition of remedies that are not commonly used by other more established competition authorities. For instance, other regulatory authorities generally do not allow for an acquisition to be completed with an exclusion of the problematic lines of business or products when the seller is exiting those markets as such a remedy may jeopardize the future viability of the business retained by the seller.\(^ {23} \)

**COFECE’s New Internal Policies.** Probably the most challenging new policy in the past year relates to transactions involving private equity firms. As a consequence of investigations related to the Panama Papers,\(^ {24} \) COFECE started to request extensive information from private equity firms involved in notifiable transactions. The level of required disclosure now includes not only

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\(^ {20} \) In such transactions, according to article 90 V of the Competition Law, COFECE must inform the parties of its concerns at least 10 business days prior to the date on which the case is to be included in the agenda of the matters to be resolved by the Commissioners in order for the parties to have the opportunity of offering remedies or conditions which may address such concerns. However, as mentioned above, the time period for COFECE to issue a decision will be restarted as of the date on which such remedies or conditions are offered.


\(^ {22} \) Article 127 of the Competition Law provides a sanction of “a maximum fine equivalent to ten percent of the Economic Agent’s revenues, for failing to comply with the conditions established in a decision without prejudice to an order for divestiture.”

\(^ {23} \) For example in order to clear a swap of businesses between Sanofi and Boehringer in 2016, COFECE required the parties to avoid acquiring specific medicines, even when the seller was exiting the relevant market. Condiciona Cofece Operacion de Sanofi y Boehringer en el Sector de Salud Humana para Preservar Condiciones de Competencia en Medicamentos para la Toz con Flem, COFECE-62-2016, 19-12-2016, https://www.cofece.mx/cofece/index.php/prensa/historico-de-noticias/condiciona-cofece-operacion-de-sanofi-y-boehringer-en-el-sector-de-salud-humana-para-preservar-condiciones-de-competencia-en-medicamentos-para-la-tos-con-flemas (in Spanish).

\(^ {24} \) According to media reports, in 2016 COFECE authorized the acquisition of a leading company in the Mexican pharmaceutical sector by a Dutch investment fund. Afterwards, with the release of the Panama Papers, COFECE learned that the owner of one of the main competitors controlled the indirect buyer of such company through several investment funds and with the help of his wife. COFECE initiated a procedure to verify ownership of notifying parties since it was believed that several legal mechanisms were used to deceive COFECE in order to receive clearance of the concentration. Juan Montes, Secret Deal Squeezes Mexico’s Drug Sector, WALL ST. J. (June 20, 2016), https://www.wsj.com/articles/secret-deal-squeezes-mexicos-drug-sector-1466381531.
information related to the general partner, but also the identity of all of the limited partners of a fund, including their ownership or participation percentages. COFECE also requires disclosure of their partnership rights, information to which they have access, and whether such limited partners participate in overlapping or related activities upstream or downstream to those of the target. These information requirements can be very difficult to explain to clients. While COFECE has understandable concerns in this regard, we believe the information requests should be more relaxed in cases where well-known and reputable private equity firms are involved.

In addition, COFECE has recently imposed fines on notifying parties for not fully responding to a request for information issued during the review process.\(^{25}\) Being a suspensory authorization process, the sanction to notifying parties for not fulfilling such requests for information should be to not authorize the notified transaction, as opposed to imposing fines. Although we understand the need to send the message that COFECE is a strong watchdog, this seems to be unnecessarily aggressive for an authorization process. Regrettably, the specialized courts have confirmed the authority of COFECE to impose such fines.\(^{26}\)

**Facts and Significant Cases**

During 2016, according to public data, COFECE reviewed 134 mergers. They cleared 132 and imposed remedies or conditions on two. These numbers imply that the regulator unconditionally cleared nearly 98.5 per cent of the mergers subject to its analysis, as is typical for other agencies.\(^{27}\)

As mentioned above, if we look at historical data, the new Commission has experienced an increase in the average time for issuing a decision. The reasons may be found in the amendments to the merger control process, application of a more thorough economic analysis, staffing capacity limits, and the failure of the expedited review process.

Below is a summary of two of the most important merger cases reviewed by COFECE, according to COFECE’s 2016 report:\(^{28}\)

**Delta/Aeroméxico.** The parties notified a joint cooperation agreement for trans-border flights (Mexico-EU). COFECE identified possible competition concerns in relation to flights departing or arriving from Mexico City International Airport (AICM) and, after a one-year review process, approved the transaction subject to the pre-closing divestiture of a number of departure/arrival slots at the AICM equal to the number of Delta’s slots used during 2015. This divestiture eliminated all of the effects on slots at the AICM resulting from the transaction. In other words, it was as far as COFECE could go on slots remedies based on a traditional competition analysis.

\(^{25}\) Such fines were issued pursuant to article 126 of the Competition Law.

\(^{26}\) Final decisions issued by the COFECE may be challenged by economic agents only by way of a constitutional appeal (amparo) before a federal specialized court with no injunctive relief available to them, except for those cases in which the COFECE imposes fines or orders a divestiture, in which case a constitutional appeal will suspend application of the COFECE’s determination until a definitive ruling is issued by the courts (this injunction does not apply to decisions issued by the IFT), according to the constitutional amendment of June 2013.

\(^{27}\) According to the 2017 GCR Rating Enforcement Report, unconditional clearances in other jurisdictions were well above 90%, for example, Brazil (98.4%), Canada (95.19%), Colombia (96.25%), the European Union (92.54%), and the United States (97.54%). GCR, Rating Enforcement Report 2017 (2017), http://globalcompetitionreview.com/edition/1001035/rating-enforcement-2017.

\(^{28}\) As of 2017, the current administration has withdrawn this report.

Sanofi/Boehringer-Ingelheim. The parties notified the acquisition by Sanofi (as part of a business-swap) of Boehringer’s Consumer Health Care business worldwide. COFECE identified possible competition concerns in the cough medicine market. To eliminate such concerns, it approved the transaction subject to an unusual remedy prohibiting Sanofi from acquiring any of the cough medicine products sold by Boehringer, as opposed to a typical post-closing divestiture remedy in accordance with the ICN’s best practices.

Considerations for Practitioners
A first lesson for practitioners is that, for Mexico, even in those mergers that do not raise competition concerns, the best approach is to file as complete a notification as possible and to be continually responsive to the authority. In cases that are at least moderately complex, it is recommended to not limit the information to the minimum Competition Law requirements. It is advisable to be proactive in meeting with agency staff and explaining the transaction and any potential concerns, as well as keeping an open communication channel. We also advise thinking strategically about the timing of when to meet with higher level officers, such as the Technical Secretary, and Commissioners.

In complex cases involving several jurisdictions and where the geographic scope of the market extends beyond national boundaries, it is recommended to consider granting confidentiality waivers to the competition authorities of those other jurisdictions to facilitate a coordinated and aligned analysis. A waiver authorizes COFECE to make exceptions to its confidentiality obligation regarding the applicant’s identity, procedural information, and documents so that COFECE will be able to communicate with foreign competition authorities in connection with an application.

Policy Recommendations for COFECE
In our view, COFECE should try to identify potential competition concerns at an earlier stage in the process. In particular, the agency should start market tests and begin gathering information from third parties as soon as possible. COFECE should base its information requests on a sound theory of harm. This will allow a more straightforward, efficient, and transparent discussion with the merger parties on the transaction and potential remedies, if necessary.

If COFECE were to start viewing merger review as more of an authorization process than an adversarial process, then we would expect COFECE to become a more confident, and predictable agency, implementing policies and internal procedures to ensure the merger review process meets international standards. After all, the Competition Law provides the agency with sufficient tools to enforce any remedies, including the imposition of significant fines, and having more court precedents would ultimately strengthen the agency’s ability to carry out its constitutional mandate.

30 Condiciona COFECE Operación de Sanofi y Boehringer, supra note 23.
31 Although the Competition Law provides for “basic” information that needs to be included in the initial filing, in complex cases further information will be required, such as detailed market information, market shares for previous years, relevant inputs, barriers to entry, potential overlaps (vertical and horizontal), among others. COFECE has issued guidelines which are recommended to be followed from the beginning of the process. See Información que Pueden Presentar Los Agentes Económicos en Términos de la Fracción XII del Articulo 89 de la ley Federal de Competencia Económica, Para Facilitar el Análisis de una Concentración, https://www.cofece.mx/cofece/attachments/article/418/DOCUMENTO-CONCENTRACIONES-v3.pdf (in Spanish).
32 It is important to note that COFECE has been open to start conversations with the parties regarding the details of the transaction and the relevant industry. It is very important to maintain an open channel with the authority, particularly in complex cases. Meetings with technical experts from the company are also advisable as they can explain the particularities of the industry to the Authority.
In sum, the landscape after Competition Law reforms in Mexico is constantly evolving, and significant areas of uncertainty arise from COFECE’s shifting merger review criteria and its development of new precedents. Parties to international merger transactions should be prepared for the specific requirements of the Mexican merger control process and take the necessary steps to ensure that multijurisdictional transactions are carried out as smoothly as possible, such as preparing robust filings and being responsive and proactive with the authority, which in our experience is the best approach to complex cases and the most effective way to reduce timing to the extent possible.
Book Review

The Next Frontier of Antitrust?

Ariel Ezrachi and Maurice E. Stucke

Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy
Harvard University Press 2016

Reviewed by Kevin W. Christensen

Over the past several decades, and perhaps even as far back as the advent of the microprocessor, antitrust researchers have been concerned about the ability of existing antitrust laws to protect consumers against anticompetitive behavior in high technology industries. These concerns have given rise to strains of research covering issues such as dynamic competition, two-sided markets, Big Data as a barrier to entry, and price transparency. Separate research has discussed the potential for tacit collusion as well as whether privacy and income inequality are worthy of being under the antitrust umbrella. Although it is common to view each of these topics as distinct from one another, Ariel Ezrachi and Maurice E. Stucke take a different view in their recent book. Rather than being distinct, each of these topics are intertwined and symptomatic of a larger issue: the inadequacy of the current antitrust enforcement regime in the wake of recent technological innovations to protect consumers. Throughout their book, the authors connect these disparate ideas and attempt to show how current antitrust enforcement—in particular enforcers inspired by the Chicago and post-Chicago schools of thought—can result in consumers who are worse off.

In forming this thesis, Ezrachi and Stucke are careful not to suggest that recent technological innovations are always bad for consumers. But they caution that “[a]t times, it may be difficult to see beyond the façade of competition to the toll that the new paradigm has on us, our welfare, and our democratic ideals.” Thus, the goal of the book is to shed light on these issues, which may otherwise have been ignored because of the “significant potential benefits of innovation and technology [and] the rallying cries within the tech industry.”

The book is divided into five parts with three main themes. The first two themes echo the book’s title. The first emphasizes the “virtual” aspect of the title and describes how, in the authors’ view, computer algorithms and so-called Big Data can adversely affect consumers. The second theme emphasizes “competition,” implying that competition can be merely a façade, obscuring forces that can harm consumers through higher prices or decreased privacy. The final theme builds upon the first two and emphasizes the inadequacy of current enforcement regimes, as well

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1 ARIEL EZRACHI & MAURICE E. STUCKE, VIRTUAL COMPETITION: THE PROMISE AND PERILS OF THE ALGORITHM-DRIVEN ECONOMY 27 (2016) (“Big Data and technological innovations are neither good, bad, nor neutral. As we’ll explore, their nature depends on how firms employ them, whether their incentives are aligned with our interests, and certain market characteristics . . . .”).

2 Id. at viii.

3 Id. at 1–2.
as barriers that keep enforcers from achieving outcomes consistent with the stated objectives of antitrust, privacy, and consumer protection laws.

“Virtual” Competition: Pricing Algorithms and Tacit Collusion

While much has been said and written about the competitive impact of Big Data, comparatively little has been published on the competitive effects of algorithms that use Big Data to establish prices. Building, in part, on previously published research, Ezrachi and Stucke make the case that not only do pricing algorithms pose a threat to competition, but modern antitrust enforcers are also ill-equipped to deal with these threats. To make this case, the authors put forward three illustrative scenarios for how pricing algorithms might lead to harmful collusion: Messenger, Hub and Spoke, and Predictable Agent.4

In the “Messenger” scenario, the pricing algorithm is only the messenger where “humans are masters who agree to collude and map out the cartel.”5 The algorithm thus acts as a “technological extension of the human will.”6 Industry participants agree to work together to artificially increase price and use an algorithm to monitor and enforce the agreement. This scenario is not merely theoretical. In 2015, the U.S. Department of Justice investigated a price-fixing scheme for posters sold through Amazon Marketplace. According to a DOJ announcement, “[T]o implement their agreements, the defendant and his co-conspirator adopted specific pricing algorithms for the sale of certain posters with the goal of coordinating changes to their respective prices and wrote computer code that instructed algorithm-based software to set prices in conformity with this agreement.”7 Ultimately the defendant, David Topkins, agreed to plead guilty to one count of conspiracy to fix prices.

The second scenario, “Hub and Spoke,” operates much like its non-algorithm driven brethren wherein a central figure (the hub) facilitates collusion amongst competitors (the spokes). In this scenario, “the co-conspirators need not communicate with, or even know each other.”8 While hub-and-spoke conspiracies have appeared outside of the “virtual” world, the introduction of the algorithm is the sui generis feature of its modern adaptation: “each competitor outsources its pricing to an upstream supplier’s pricing algorithm. The competitors do not interact directly with each other, yet they all use the upstream supplier’s pricing algorithm.”9 As competitors contribute data to the same algorithm “prices stabilize [] and the retailers’ and algorithm vendor’s profits increase.”10 Unlike the Messenger scenario, the authors’ Hub and Spoke scenario assumes no communication between competitors. According to the authors, under the current antitrust enforcement regime, the absence of communication and an explicit agreement may not satisfy the intent and awareness conditions necessary for a finding of illegality.11

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5 Ezrachi & Stucke, supra note 1, at 39.
6 Id. at 45.
8 Ezrachi & Stucke, supra note 1, at 46.
9 Id. at 47–48.
10 Id. at 49.
11 Id. at 53–54.
The third scenario, Predictable Agent, is “tacit collusion on steroids” wherein competitors increase prices independently, through individual self-interest, and not through an agreement: “Here we consider how each firm unilaterally creates an algorithm but knows that the industry-wide use of pricing algorithms will facilitate tacit collusion. The competition authority lacks evidence of an illegal agreement but has evidence of anticompetitive intent.” As described by the authors:

[T]he industry-wide use of pricing algorithms increases both market transparency and the risk of conscious parallelism. Moreover, in programming its pricing algorithm, each firm will likely use historic pricing data and competitive responses to calibrate the dominant strategy. As such, when the algorithms operate within the greater transparency of their digitalized environment, the computers will already be programmed to anticipate and respond to rivals’ moves. In such a scenario, computers can rapidly calculate the profit implications of myriad moves and countermoves. With the computers’ ability to police deviations and rely on prior strategies to punish deviations, prices, as a result of their conscious parallelism, will climb.

Given the sophistication of this scenario and its potential ubiquity, the authors warn that enforcement agencies are ill-equipped to deal with it outside of the merger context. These three scenarios are meant to illustrate the authors’ view that algorithms can further a conspiracy or encourage price parallelism, each of which adversely affects consumer surplus. The central questions then are: How realistic are these scenarios? And how challenging will they actually be to enforcers? Obviously the Messenger scenario has already occurred and been subject to antitrust action under existing laws. Therefore, it likely does not pose a challenge to current antitrust regimes. Similarly, hub-and-spoke conspiracies have been alleged before and current antitrust laws were the basis for enforcement. Thus, the critical issue for this scenario must be whether the pooling of competitor data to inform pricing for all under a single algorithm constitutes an illegal agreement (assuming, as the authors do, that intent is established). According to the authors, “[P]arallel use of the same algorithm may give rise to concern. Yet whether it is sufficient to facilitate a finding of illegality remains to be seen.”

While this conduct may be of interest, it seems to be the abstraction that drives the novelty. With additional facts, this situation may be more straightforward. For instance, since each competing spoke has ownership over their data, and use of these data are usually governed by contracts, executed contracts will likely require competing spokes to consent to sharing the benefits of their data with competitors. Inserting these realistic elements into Ezrachi and Stucke’s Hub and Spoke scenario seems to undermine the conclusion that enforcers (or private litigants) will have difficulty dealing with this situation under the current antitrust laws. Also, even if that is not the case, the central concern of this scenario is tacit collusion, not algorithms, which is already the topic of

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12 Id. at 56.
13 Id. at 64.
14 Id. at 68.
15 Even so, if pricing algorithms are sufficiently complex they may, perhaps, pose challenges for experts tasked with calculating economic damages, but this is not a topic broached by the authors.
16 Id. at 54.
17 Under another set of facts, the hub may possess monopoly power over the market for pricing algorithms thereby exercising market power over the spokes. Substantial market power for the hub in this market could run afoul of traditional antitrust laws by itself, obviating the need to sanction tacit collusion downstream.
the Predictable Agent scenario. Given this, the authors’ distinction between scenarios two and three may be unnecessary.

While the magnitude of tacit collusion may not have been previously seen prior to algorithms, the issue of what to do about it (if anything) is a well-trodden topic. It would seem then that the authors’ core concern is that tacit collusion may be a larger problem than currently understood and that at least some forms of tacit collusion should be illegal. Accordingly, enforcers’ powers should be expanded. The authors suggest at least two possible methods in which the downside of tacit collusion can be offset: “the introduction of legislation that targets ‘abuse’ of excessive transparency, possibly where clear anticompetitive intent is present” and the standalone unfair practices powers under Section 5 of the FTC Act.18 The authors’ first solution is short on specifics. They do not propose a specific policy prescription nor do they provide reference to academic research or existing draft bills that clarify what constitutes “abuse” or “excessive” or how to objectively identify them. A generalist audience would likely not demand these details, but those involved with antitrust research, enforcement, or practice may be disappointed at the lack of specificity.

The authors’ second solution also presents challenges in that it runs counter to current momentum. For example, under a recent guidance, the FTC will evaluate Section 5 complaints “under a framework similar to the rule of reason, that is, an act or practice challenged by the Commission must cause, or be likely to cause, harm to competition or the competitive process, taking into account any associated cognizable efficiencies and business justifications”19 This approach is inconsistent with the authors’ concerns. Elsewhere the authors criticize the rule of reason as “[t]he amorphous legal standard [that] is attractive to economists, lobbyists, and antitrust counsel who ‘know’ and ‘can work’ with the agency to dissuade it from intervening in our three scenarios” and “[an analysis that] is typically costly, time-consuming, and complex [and not] always objective or the outcome predictable.”20 Once again, the authors’ provide little guidance on how to achieve their preferred prescription given the current state of law.

Virtual “Competition”: The Competitive Façade

With their second theme, the authors emphasize that a façade of competition occurs in high-technology industries that can lead to consumers being worse off, potentially even exacerbating income inequality. As described in the book, the façade is the byproduct of at least three factors: behavioral discrimination, comparison intermediaries, and “frenemies.” Importantly, these factors arise unilaterally and do not require coordination or collusion among competitors.

The authors use “behavioral discrimination” as an umbrella term applying to both customized pricing (price discrimination) and customized advertisements.21 It is the authors’ view that such behavioral discrimination can reduce consumer welfare and that “targeted ads and marketing not

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18 Id. at 68. The authors also point to SEC investigations involving market manipulation but the discussion appears limited to financial markets.
20 EZRACHI & STUCKE, supra note 1, at 246, 255.
21 Economists describe price discrimination in terms of degrees. First degree, or perfect, price discrimination assumes a firm offers a product to an individual price at the consumer’s valuation of the product, thereby converting consumer surplus into producer surplus. Second degree price discrimination occurs when the firm offers different products to different groups of customers but cannot, ex ante, identify to which group a given customer belongs. In second degree price discrimination the consumers reveals their group based upon their pur-
only facilitate our consumption: they can influence and increase it." While price discrimination and advertising are not new, the presence of Big Data and Big Analytics allows for a higher incidence of use and greater efficacy of these practices. Although the authors pose the question as to whether we are entering “the age of perfect price discrimination,” they acknowledge perfect price discrimination is unlikely given the amount of data necessary, the sophistication of the algorithms necessary to implement it, and the complexity of individuals. Nevertheless, “Self-learning computer algorithms will continually inch closer to perfect price discrimination” and consumers will not know it is happening. Part of the reason we consumers will not know is that we “are in the dark on this data-driven behavioral discrimination” and, in many cases individuals do not have “the right to view the data, and to verify or contest the data’s accuracy.”

Consumers ostensibly benefit from increased transparency in at least some dimensions, including their ability to quickly compare prices online. But the transparency of prices also enables competitors to know what other competitors are charging and adjust their pricing strategy accordingly. While this may lead to lower prices, under certain conditions higher prices may be the result, especially if one supplier can anticipate and deter a price decrease of a competitor. The authors argue that such behavior is possible when algorithms are designed in this manner.

Thus, price transparency can be a double-edged sword which, given the pervasiveness of Big Data and Big Analytics, can be wielded with regularity. There are already dedicated “comparison intermediary websites” that allow consumers (and competitors) the ability to cheaply and easily compare prices of the same product across multiple sources. As the authors note, these websites often have a two-sided business model. On one side, they must attract customers interested in comparison shopping. On the other side are retail outlets that must allow the comparison intermediary access to their websites to scrape the data necessary to provide real-time (or nearly so) pricing. The two-sided nature of the market creates network effects which “may give rise to market power and create bottlenecks in the online environment.” The comparison intermediary may need to provide incentives (e.g., access to data on shoppers) to the suppliers in order to gain access to their prices.

The authors also suggest that these comparison intermediaries may turn into gatekeepers that “control many significant access points and, as a result, have the power to distort competition, sometimes unintentionally. So, comparison intermediaries could sometimes, under certain conditions, pave the way for higher prices, lower quality, and a reduction in consumer welfare.” The two-sidedness of the market is central to this concern:

Some platforms, for example, may allow for preferential placement based on the level of payment or commission they receive from sellers. . . . Such positioning may distort competition when the user is unaware of the preferential positioning and assumes that the top results are the best (or most relevant) ones objectively picked by the websites’ algorithms.

chasing behavior. Third degree price discrimination assumes a firm is able to segment the market by groups and (assuming no arbitrage opportunities) offers the product to each group at different prices. For more information, see JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 133–52 (1988). Behavioral price discrimination as described by the authors is most likely a form of first degree price discrimination.

22 EZRACHI & STUCKE, supra note 1, at 84.
21 Id. at 100.
24 Id. at 113.
25 Id. at 133.
26 Id. at 136.
As partial proof that this is a problem Ezrachi and Stucke cite a 1988 case where the U.S. government sued to stop airlines from allegedly manipulating the computer reservation system for their own competitive advantage.28 As the book explains, “To limit such abuses, the government required that the algorithm generate results based on ‘neutral’ characteristics.”29 The implication is that current comparison intermediaries should be ordered to do the same in order to maintain the quality of the information they provide to consumers.30

Finally, the authors describe a “Frenemy” scenario that offers a slightly different perspective on how consumers may be unilaterally harmed. Reduced competition arises, the authors argue, because of complex interdependence between upstream and downstream providers.31 This is most clear in the two-sided platform markets (or “super-platforms,” in the case of Google, Apple, and Facebook, among others) where the platform provides opportunities for developers to compete against one another on the platform. Additionally, competition may exist as platform versus platform and, occasionally, platform versus developer. In this latter dimension, there is asymmetry of bargaining power, which “is central to the Frenemy dynamic.”32 The authors argue:

The super-platform can degrade the functionality of the independent apps and online platforms—like LinkedIn, Twitter, Yelp, or Coupons.com—by reducing their performance and making them run slower. It can foreclose its Frenemies’ timely access to critical data. It can increase consumers’ switching costs, thereby making it harder for the app to attract users.33

Another concern with Frenemies is their “extraction and capture” strategy wherein “[t]he Frenemies cooperate with respect to both the inputs (extracting personal data) and outputs (providing platforms for behavioral ads by others.).”34 But that cooperation is limited to the extent it does not further the super-platform’s goals.35 This means the super-platform can restrict access to collected data to developers if its use is not consistent with the super-platform’s objectives. Since competition can include developer versus developer and platform versus developer elements, there may be competitive constraints whenever “the relative market and bargaining powers of the independent app developers and super-platform operates.”36 As an example, the authors point to the experience of Disconnect, which sought to distribute its Disconnect Mobile app through Google’s app store, Google Play, and whose main functionality was to reveal and

27 Id. at 136–37.
29 EZRACHI & STUCKE, supra note 1, at 137.
30 Recently, in Europe, that has happened to Google’s “Google Shopping” feature. See Press Release, Eur. Comm’n, Commission Fines Google € 2.42 Billion for Abusing Dominance as Search Engine by Giving Illegal Advantage to Own Comparison Shopping Service (June 27, 2017), http://europa.eu/rapid/press-release_IP-171784_en.htm. This example highlights the limits of the authors’ concerns beyond the U.S. borders, which is a topic discussed further in the next section.
31 As the authors note, such interdependence is not limited to super-platforms and their developers. Super-platforms can also be interdependent, especially as it relates to technology standards and licensing of intellectual property. The authors point to Google’s payment of $1 billion to Apple to be the preferred search engine on its products as one example. EZRACHI & STUCKE, supra note 1, at 157. They further argue that such interdependence mutes competition through higher prices, decreased innovation, or both. Id. at 157–58.
32 Id. at 155.
33 Id. at 156.
34 Id. at 160–61.
35 “[T]he super-platform should be vigilant, rebuking any independent app developers who greedily demand more personal data than necessary for its app to run effectively.” Id. at 164.
36 Id. at 176.
block secretive tracking by advertisers and other websites. Blocking the “extraction and capture” meant that Google was unable to collect consumer data it relies upon. Given that Google runs the Play Store, Google was able to remove Disconnect from it, according to the authors.37

Many of the Frenemy concerns are amplified, the authors argue, in the case of personal digital assistants: “The removal of the human element from the search activity . . . transfers more power to the super-platform. The personal assistant will use its own tools and may exercise its own judgment as to prioritizing and communicating the results.”38 With more power, the likelihood of anticompetitive conduct by the super-platform increases as does the “extraction and capture” of consumer data and erosion of consumer privacy.

For many of these points, Ezrachi and Stucke seemingly merge competitive concerns with consumer protection.39 This provides an interesting possible solution to many of the authors’ concerns. After all, if data and algorithms are the source of the competitive problems, then enacting (or enforcing) consumer protection laws that inhibit data collection or require disclosures of how the data are collected, used, or sold may reduce competitive harms. The authors do not seem to consider this idea and instead emphasize the inadequacy of existing antitrust laws and enforcement powers to affect change.40 This is curious since they recognize that their ideas on antitrust are met with skepticism: “Some agency officials, in our discussions about this book, were engaged and eager. Others were somnolent. One was comatose.”41 Antitrust scholars appear to be skeptical of the antitrust treatment of Big Data and Big Analytics, citing to lack of sufficient proof that there is an issue.42

### Barriers to Effective Enforcement

The first two themes of the book outline the threats that new technologies pose to consumers and competition.43 Before discussing this final theme, I should note that the solutions (and problems) presented in the book are almost entirely based on a consumer welfare standard. As such, reception to Ezrachi and Stucke’s ideas may differ in other countries and the EU. Countries with a total welfare standard, for example, may have a different set of concerns and thus may require their own unique set of solutions. The solutions may also differ to the extent Chicago or post-Chicago views predominate in enforcement decisions, as they do in the United States. The book is noticeably silent about these cross-country differences, which may affect its broader appeal. It also means the barriers identified by the authors are almost entirely U.S.-centric.

The greatest barrier the authors see is the political influence of dominant technology companies. The authors are particularly critical of Google’s influence, noting:

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37 *Id.* at 179–80.

38 *Id.* at 195.


40 Such a proposal would likely also dampen the procompetitive use of these data. It is not clear, however, whether the dampening caused by changes to consumer protection laws would be the same, better, or worse, than changes to antitrust enforcement.

41 EZRACHI & STU CKE, *supra* note 1, at 248.

42 See, e.g., D. Daniel Sokol & Roisin Comerford, *Antitrust and Regulating Big Data*, 23 *GEO. MASON L. REV.* 1129, 1161 (2016) (“Until antitrust authorities can match theories of harm with specific factual circumstances and show negative competitive harm to consumers, the antitrust case against Big Data is a weak one.”).

43 EZRACHI & STU CKE, *supra* note 1, at 203 (“Faced with the end of competition as we know it, how will we protect ourselves? How do we ensure that the digitized hand yields a competitive environment that promotes our overall well-being?”).
Google, for example, from the beginning of the FTC investigation through the end of 2013, reportedly gave George Mason University’s Law and Economics Center $762,000 in donations. Why? The center “issued numerous studies supporting Google’s position that they committed no legal violations, and hosted conferences on the same issues where Google representatives suggested speakers and invitees.” Between 2009 and 2015, at least “66 published studies by over 45 academics” were reported—either “commissioned by Google,” “funded by Google,” or “supported by a gift from Google, Inc.”

Allegations of political influence over antitrust enforcers are not unique to the book or these authors. Indeed, Senator Elizabeth Warren made similar statements in a 2016 speech. Political influence aside, concerns over pricing algorithms have gained some traction at the Federal Trade Commission. FTC Commissioner Terrell McSweeney has said she is “absolutely fascinated” by the topic, emphasizing that “it’s something that we all need to understand and study more.” But interest in Ezrachi and Stucke’s views are not universal within the agency. As one example, acting FTC Chairman Maureen Ohlhausen and her Attorney Advisor at the time, Alexander Okuliar, offered their take on whether antitrust laws provide a reasonable vehicle to protect privacy. They suggest that “privacy issues may have some role in an antitrust analysis but that role must be consistent with the goal of antitrust, which is to promote economic efficiency that enhances consumer welfare, not to address other types of harm.” To identify privacy issues that do affect an antitrust analysis, Ohlhausen and Okuliar identify specific screening mechanisms. While they do not address Virtual Competition specifically, it seems unlikely that Ezrachi and Stucke’s concerns will trigger antitrust scrutiny under the proposed screening criteria.

Overcoming skepticism or torpidity amongst enforcers is one reason why the authors advocate applying political pressure to bring attention to these issues. Such pressure should counteract the purported influence that data companies have over enforcers that results from “the combination of concentrated economic power, weakened limits on corporate political spending, and an amorphous legal standard, such as the Supreme Court’s ‘rule of reason’ legal standard for most antitrust violations.” Without political pressure, the authors argue, corporate influence “will likely intensify with virtual competition” because the “stakes are greater” and because the “increasing economic power will likely translate to political power, influencing governmental policies to preserve the status quo.” For the authors, “It is basic economics that the more discretion the government has in bringing and determining violations, the more prone its policies are to distortion by lobbyists. The vaguer the legal standard, the more subjective input it allows from lobbyists.”

44 Id. at 246.
48 Id. at 156 (“Despite claims to the contrary, competition law offers at best a convoluted and indirect approach to protection of people’s expectations of privacy online.”).
49 EZRACHI & STUCKE, supra note 1, at 246.
50 Id. at 245.
Conclusion

For readers who are new to the topic, *Virtual Competition* offers a valuable introduction to some of the concerns new technologies raise for antitrust policy. Those predisposed to agreeing that current antitrust laws are ineffective in new technologies will likely nod their heads with some regularity and overlook some of the incompleteness of the authors’ proposals. Those predisposed to disagreeing—in particular adherents of the Chicago School—will be less inclined to respond positively. They likewise may overlook some of the authors’ valid concerns. Paradoxically, this may well be the intent behind the book. After all, the authors readily admit that political pressure is likely the best way to effectuate the change they seek. Given this, the intended audience is likely not the steadfast Bork acolyte but instead those inclined to agreement and, in particular, those inclined to spur political activism. Whether that is a good tack for competition policy and consumers is not clear.

*Virtual Competition* raises important questions, and will likely spur conversation on these issues. That said, the book falls short as a complete treatment. Identifying problems is one thing, but identifying actionable solutions is quite another. It remains to be seen how enforcers and courts might operationalize the authors’ ideas. Intentionally or not, these questions are left to future researchers. Where that research will lead is unclear. What is clear is that we are at the beginning of an interesting time to be in antitrust.
Editors’ Note: In this edition Allan Shampine reviews a paper by Sidak et al. that provides a case study discussing the theoretical and practical challenges of implementing hedonic regression analysis in a RAND case.

Send suggestions for papers to review to: page@law.ufl.edu or jwoodbury@crai.com.

—William H. Page and John R. Woodbury

Recent Papers


There has been substantial debate in recent years about how royalties should be set for patents encumbered by commitments to license on Reasonable and Nondiscriminatory (RAND) terms.¹ The issue of royalty determination generally arises when patents are declared essential to a standard (standard essential patents or SEPs) and the patent owner makes a RAND commitment to the standard-setting organization (SSO).² Part of that debate has been settled by rulings that reasonable royalties under a RAND commitment must reflect only the value inherent to the patented technology itself and not value accruing from incorporation into the standard. As the court in D-Link explained:³

When a technology is incorporated into a standard, it is typically chosen from among different options. Once incorporated and widely adopted, that technology is not always used because it is the best or the only option; it is used because its use is necessary to comply with the standard. In other words, widespread adoption of standard essential technology is not entirely indicative of the added usefulness of an innovation over the prior art. This is not meant to imply that SEPs never claim valuable technological contributions. We merely hold that the royalty for SEPs should reflect the approximate value of that technological contribution, not the value of its widespread adoption due to standardization.

We further hold that district courts must make clear to the jury that any royalty award must be based on the incremental value of the invention, not the value of the standard as a whole or any increased value the patented feature gains from its inclusion in the standard.

In economic terms, this is consistent with an ex ante approach to calculating reasonable royalties under RAND—that is, looking at the rates that would have been negotiated before the stan-

¹ Also sometimes formulated as FRAND, or Fair, Reasonable and Non-Discriminatory. The terminology used differs between standard-setting organizations, but from an economic perspective, analyses proceed in a similar fashion. Economists generally discuss FRAND and RAND together.

² For example, telecommunications standards, such as LTE, that are widely used in consumers’ mobile phones are set by standard-setting organizations.

standard is set (or ex ante to the standard) rather than the rates that can be charged after the standard is set (or ex post to the standard). The Federal Trade Commission has explained this approach.

**Recommendation:** Courts should apply the hypothetical negotiation framework to determine reasonable royalty damages for a patent subject to a RAND commitment. Courts should cap the royalty at the incremental value of the patented technology over alternatives available at the time the standard was chosen.4

Although there is now greater clarity on what should be focused on—the incremental value of the patented technology and not the increase in the patented technology’s value derived from inclusion in the standard itself—that focus brings new questions. How is one to determine the incremental value of the invention and separate out any increased value from inclusion in the standard? In a recent paper, *Hedonic Prices and Patent Royalties*, J. Gregory Sidak and Jeremy O. Skog of Criterion Economics suggest that the use of hedonic price estimation “is a conceptual breakthrough in the calculation of reasonable royalties for patent infringement, both for standard-essential patents subject to a RAND commitment and for patents that are not declared essential to any standard.”5 The idea of using hedonic regressions to help estimate patent royalties is not novel.6 However, it is certainly seeing more use of late, and scholarship about how the approach fits into different types of cases, and of the strengths and weaknesses of the approach generally, is very timely.

Sidak & Skog provide a useful discussion of the history of hedonic regressions, noting their application in various fields, including consumer price indices.7 In brief, a hedonic regression uses an econometric model to estimate what people are paying for particular characteristics of some good or service.8 For example, with respect to housing, a hedonic regression may explain sales prices for homes using a long list of characteristics such as square footage, number of rooms, presence of central air, etc. Assuming appropriate data and industry characteristics amenable to such analysis exist, the hedonic regression can provide estimates of how much people are paying for particular characteristics. For example, people may pay an extra $50 per square foot of additional livable space, all else equal. Hedonic regressions are most frequently used in settings where the characteristics of interest are easily identified and quantified.

The applicability of such an analysis to calculating a reasonable royalty outside the standard-setting context is straightforward. Knowing what consumers are paying for particular characteristics associated with the patented technology can be very helpful when thinking about a hypothetical negotiation. However, just as the commonly used *Georgia-Pacific* factors may require

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7 Sidak & Skog, supra note 5, at 608–11.

8 The amount being paid is sometimes referred to as consumer willingness to pay. The terminology can be confusing and the interpretation will depend on what exactly is being estimated. Willingness to pay, strictly speaking, is the maximum amount a consumer would be willing to pay for a particular feature. What they actually pay will generally be less than that amount because of competition among suppliers.
modification in the RAND context, application of hedonic regression analysis within the RAND context is not necessarily straightforward. Sidak & Skog claim that their application comports with *Ericsson v. D-Link*, but they explicitly state that the “methodology does not purport to implement the *ex ante* incremental value methodology that some academics, practitioners, and government officials [e.g., the Federal Trade Commission] have argued should guide the determination of RAND (and FRAND) royalties.”

Applying a hedonic regression to data reflecting current usage of a standard is, by definition, an *ex post* approach, and, by definition, it seems that the value that is estimated for a SEP will reflect the “increased value the patented feature gains from its inclusion in the standard.” That is, the hedonic regression is being used to explain the end good price as a function of certain characteristics, but one of those characteristics is the fact that it is used in the standard at issue.

There are certainly ways to implement *ex ante* valuations that do not involve hedonic pricing, but can hedonic pricing fit into the *ex ante* framework at all? Sidak & Skog simply dismiss the *ex ante* framework entirely, arguing that the *ex ante* incremental value approach “cannot be empirical” and “is unworkable in practice.” However, many of the academics, practitioners, and government officials cited by Sidak & Skog favor the *ex ante* approach and disagree with the *ex post* approach, as do I.

When working on the reasonable royalty toolbox, it is helpful for scholarship to examine how well different tools fit different frameworks and to analyze how best to use those tools in a given framework. It does seem at first that there are ways hedonic pricing can be used in an *ex ante* framework. For example, a practitioner could look at how people valued particular characteristics prior to the standard being set, and then evaluate the incremental contribution of the patented technology to those characteristics relative to alternatives that might have been included in the standard. This could be done using actual sales data (hedonic analysis) or survey data (conjoint analysis, which Sidak & Skog mention is also used in patent litigation and which relies on similar statistical techniques to hedonic analysis).

The bottom line seems to be that hedonic price analyses can certainly be used under a variety of frameworks, but practitioners should be particularly cautious about how they implement them in RAND cases, as following the Sidak & Skog approach may open the practitioner to

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9 In his review of a RAND rate determination, Judge Robart discussed how a variety of *Georgia-Pacific* factors should be modified. For example, he noted: “Factor 13 looks at the portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer. As with many of the other factors, in the RAND context, it is critical to consider the contribution of the patented technology apart from the value of the patent as the result of its incorporation into the standard, the latter of which would improperly reward the SEP owner for the value of the standard itself. Rewarding the SEP owner with any of the value of the standard itself would constitute hold-up value and be contrary to the purpose behind the RAND commitment.” *Findings of Fact and Conclusions of Law ¶109, Microsoft Corp. v. Motorola, Inc., No. 10-cv-1823 (W.D. Wash. Apr. 25, 2013).*

10 *Sidak & Skog, supra note 5, at 668–69.*

11 *Id. at 670.*

12 *Id. at 672–73.* Sidak & Skog also say that “*ex ante* data are not observable because they do not yet exist.” *Id. at 625.* If Sidak & Skog mean that one cannot observe sales of a patented technology that have not yet occurred, that is certainly true, but that does not mean relevant *ex ante* data do not exist. In some matters, there are likely *ex ante* data available that do shed light on the valuations for particular characteristics relevant to the patented technology. For example, in my 2010 article, I discuss studies on consumer valuation of broadband speeds. *Shampine, Price Indexes, supra note 6.* A patented technology that improved broadband speeds by a quantifiable amount could then be valued by looking at the valuation of that incremental improvement.

13 *Sidak & Skog, supra note 5, at 667.*
charges that the particular implementation (e.g., using *ex post* data that include the value from standardization) is fundamentally inconsistent with the *ex ante* framework.

Sidak & Skog attempt to distinguish between the *ex ante* approach and the requirements of *Ericsson v. D-Link*. Although they dismiss the former, they claim the requirements of the latter—separation of the value of the patented technology from value generated by inclusion in the standard—can be satisfied by hedonic analysis. Again, any practitioner attempting to implement a hedonic price analysis in a RAND case must be prepared to address whether the proposed valuation is limited to the value of the patented technology itself.

Sidak & Skog propose two means of separating out the value of the patents from the value of standardization. First, they suggest that if there are competing standards, one can compare the difference in value between the two standards, and that the difference will reflect the value of the new technologies rather than the value of standardization. While a competing standard may provide an interesting benchmark, it is not so clear that the difference between what people are paying for the two is entirely attributable to the inherent value of the different technologies in the more highly valued standard. There are reasons to be skeptical of Sidak & Skog’s claim, as discussed further below, but even if it were correct, while Sidak & Skog argue that it is applicable in their example, the particular circumstances required to implement that approach seem unlikely to occur very often. That is, how often will there be sufficiently similar benchmark standards to be used in the proposed analysis? It is also not clear how a practitioner is to select the “next-best” standard.

More generally, it seems unlikely that the approach will isolate the value of standardization even under the circumstances where there are two competing standards with a limited number of differentiating technologies. What people are paying for using each standard includes, by definition, the value generated by inclusion in the standard, and that is unlikely to be constant between the standards. For example, a concern often articulated by economists is that before the standard is set, there are multiple technologies that could be included. After one is selected, that competition disappears, and a firm can charge more for the use of its patented technology than it could before, simply because of inclusion in the standard. That is true for the technologies in both standards being compared, and it is not obvious that the difference in payments for each standard sheds much, if any, light on the value of the patented technology absent its inclusion in the standard.

Sidak & Skog attempt to sidestep this problem by defining the value of standardization in a particular way, arguing that by comparing two standards, the value from the need to agree on a common standard and the benefit from stimulating network effects is common and so will net out, but it is not clear that their approach solves the problem even under that definition. Put another way, they estimate the value of standard A relative to standard B (the standards in their example are LRDIMM and RDIMM), but the difference will include differences in the value of LRDIMM standardization and RDIMM standardization. Why should the value of standardization be identical for the two standards? The practitioner should be careful to be precise about what exactly is being measured and how the patented technology relates to that. This is likely to be a very fact-intensive inquiry.

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14 *Id.* at 669.

15 Sidak & Skog note that correct selection of the “next-best” standard is important to their methodology, but it is unclear what constitutes a “next-best” standard or how the practitioner is to measure whatever metric is being used to make that decision. *Id.* at 613.

16 *Id.* at 669.
Sidak & Skog also suggest that the value of the SEPs of interest can be separated from the incremental value of the standard by taking the willingness to pay for the standard and apportioning it among SEP holders based on patent counts. It is more precise to say that this step separates out the value of the patented technology of interest from other patented technologies. While that is an important step, if the amount that one starts with includes the value from standardization, then splitting that value up among multiple patented technologies does not address the Ericsson v. D-Link concern. This step may be better described then as an important step for calculating a specific royalty when using a hedonic price analysis, but not one related to separating out the value of the standard from the value of the patents. If the use of a benchmark standard has not solved the problem of separating out the value of standardization, it is hard to see how apportioning the total estimated value will then do so. Again, these are issues unique to the RAND context. When analyzing patents not subject to RAND commitments, there is no need to do any such separation, and hedonic analysis may be of great benefit. In the RAND context, however, use of an explicitly ex post approach to hedonic analysis raises tricky questions as to how the value of standardization can be separated out, since that value is part of the total value being estimated. Applying hedonic analysis in an ex ante framework can address this problem, but practitioners should exercise caution when applying hedonic analysis in an ex post framework and be prepared to defend their approach.

Assuming hedonic price analysis fits within the overall conceptual framework of the case, there is still the tricky question of getting the analysis itself right. Hedonic price analyses can be very finicky. I have previously suggested that one reason to favor looking at hedonic analyses done by governmental bodies and uninterested third parties, such as the Bureau of Labor Statistics, is that these entities often have deep institutional expertise on the data and techniques. Further, using a third party uninvolved in a particular litigation helps prevent claims of bias. This is where Sidak & Skog’s article shines. They walk through an example from litigation they participated in where they implemented a hedonic price analysis and describe why they made the choices they did. As they note, there are many choices to be made along the way. For example, the literature contains many different functional forms for a hedonic price model, and different forms may be more appropriate depending upon the specifics of the case. Sidak & Skog argue for a particular functional form given the specifics of their case, and, importantly, they explain why they believe the specifics of their case call for that particular functional form. They also include discussions of areas of implementation where their choices were critiqued by the opposing economist and why they chose to do things in particular ways in spite of the criticisms. For example, Sidak & Skog choose an additive form for their model structure, and argue that alternative structures are not suitable in the RAND context, even though some practitioners claim other structures can better capture price dynamics in industries where prices are changing rapidly.

Whatever one’s views on the particular choices made, Sidak & Skog’s step-by-step discussion is very helpful in showing areas where particular implementation choices are likely to be criticized or should be checked for robustness. The discussion also highlights just how many choices go into implementing a hedonic regression. A practitioner would be well advised to check whether

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17 Id. at 669. Patent count apportionment can be implemented in a variety of ways. Sidak & Skog use a weighted patent-citation score, but the discussion above goes to the general approach, not the specific methodology.

18 Shampine, Price Indexes, supra note 6.

19 Sidak & Skog, supra note 5, at 615.
their results are robust to different choices, and Sidak & Skog’s discussion helps provide examples of areas the practitioner may wish to test.

Overall, Sidak & Skog present an interesting case study of the application of hedonic analysis in a RAND proceeding. However, the article may be of most value in highlighting areas for a practitioner to focus on in non-RAND contexts. Although Sidak & Skog should be applauded for grappling with how to apply hedonic analysis in light of Ericsson v. D-Link, they do not address how it might be used in the commonly advocated ex ante framework, and their claims that they have resolved the problem of isolating the value of the standard in their ex post framework are not persuasive to this reviewer. Further research is called for in this area.

—ALLAN L. SHAMPINE, EXECUTIVE VICE PRESIDENT, COMPASS LEXECON