February 11, 2025

Mandatory vs. Suggested Pricing: Algorithmic Price Setting and the Sherman Act

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In January, as the Biden Administration drew to a close, the U.S. Department of Justice ("DOJ") and eight state attorneys general amended their antitrust lawsuit against software maker RealPage, Inc. ("RealPage"). The lawsuit alleges that RealPage amasses nonpublic, competitively sensitive data from competing landlords through its pricing algorithms and then uses this data in generating pricing recommendations that the landlords are expected to follow. The amendment adds as defendants six of the nation's largest landlords, alleging that they participated in an unlawful scheme not only through their use of RealPage's algorithms, but also through direct coordination and information-sharing. Two additional state plaintiffs have joined the suit as well.

One of the six landlords has agreed to a settlement that, if approved, would prohibit it from using competitors' non-public information to run or train its pricing models, and from using third-party pricing software or algorithms without the supervision of a court-appointed monitor. The settlement also requires the landlord's cooperation in the litigation.

The new allegations against landlords in the *RealPage* suit add another dimension to the collection of algorithmic price-setting cases that have developed in recent years, including private litigation against RealPage. Collectively, these cases have begun to shape the early contours of the answer to an important question: To what extent does algorithmic price-setting constitute unlawful price-fixing in violation of the Sherman Act?

Instructing the Algorithm: The *Topkins* Prosecution

In 2015, in *United States v. Topkins*, the DOJ brought its first criminal prosecution targeting the use of algorithmic price fixing. The DOJ entered into a plea agreement with a former e-commerce executive stemming from his participation in an alleged price-fixing conspiracy involving the sale of posters on Amazon's marketplace. The DOJ alleged that the executive and his co-conspirators agreed to adopt specific algorithms for the sale of the agreed-upon posters with the goal of coordinating price changes, and that the executive wrote computer code that instructed his company's algorithm-based software to set prices of the agreed-upon posters in conformity with the agreement. *Topkins* heralded a new era in enforcing antitrust laws in the realm of algorithmic pricing.

Topkins involved conspirators communicating directly about algorithmic pricing and directly instructing the pricing algorithms, resulting in anticompetitive effects in the marketplace. The fact pattern in *Topkins,* while in the context of algorithmic pricing, involved conduct that would constitute a traditional Sherman Act violation: direct instruction of the algorithm and communications among conspirators, a prohibited agreement in restraint of trade.

Post-*Topkins* cases, however, have been more nuanced. Rather than directly instruct an algorithm to conform to a price-fixing agreement, the more recent cases involve competitors feeding their non-public information to a third-party algorithm that uses the information to make pricing recommendations. Under this scenario, the lawfulness of the conduct may turn, at least in part, on the extent to which there is an agreement or expectation that competitors' prices will follow the platform's model, as well as whether the software algorithm bases its recommendations on competitors' non-public information. What remains to be seen is whether an algorithmic price-setting machine learning model that "learns" to set prices based on competitively sensitive information received from multiple competitors can ever be lawful, and if so, under what circumstances.

"Mandatory" Price Recommendations

The *RealPage* cases involve competitors providing data to a software algorithm that then recommends prices to its users—recommendations that allegedly border on mandates. The DOJ complaint alleges that RealPage's products make it easy for property managers to accept its recommendations, such as through "bulk" acceptances, but difficult and time-consuming to decline them. In their statements of interest filed in ongoing private litigation against RealPage, the DOJ and the Federal Trade Commission ("FTC") argued that real estate owners and operators, after sending RealPage their nonpublic and competitively sensitive data, "overwhelmingly priced their units in line with RealPage's suggested prices (80-90%)." In doing so, the agencies argued, owners/operators effectively delegated independent decision-making to the algorithm, and RealPage prevented deviations from its suggested prices by enforcing and monitoring compliance with those prices.

In the private litigation, a Tennessee federal court denied the defendants' motion to dismiss the complaint, finding that the plaintiff lessees had adequately alleged parallel conduct through the defendants' change in pricing strategies following their adoption of RealPage's software—including price increases during an economic downturn that were against the defendants' self-interest. This finding would appear to be consistent with the allegation that RealPage's users have little discretion to override the algorithm's recommendations.

Similarly, in *Duffy v. Yardi Systems, Inc.*, a Washington federal court, in December, denied a motion to dismiss based on similar allegations, also involving pricing algorithms in the multifamily housing market. In *Duffy*, however, the court neither required nor cited any allegations as to the mandatory nature of the price recommendations. Instead, the court relied on allegations from which it could infer that each lessor contracted with the software maker "in circumstances showing an intent to participate in a concerted scheme or plan to fix rental prices and restrain trade." According to the court, the complaint alleged that the software provider advertised its product "as a means of increasing rates above those available in a competitive market." It also alleged that "[e]xisting lessor clients publicly touted the success of Yardi's efforts to increase rental rates, the benefits of not having to guess at market conditions or to offer concessions/specials, and the elimination of concerns that they would be underbid, implicitly inviting other lessors to sign up and enjoy the same benefits." The court rejected the argument that the complaint was required to allege a specific agreement to implement the algorithm's pricing recommendations, finding that "the allegations amply suggest that the lessors intended to, and for the most part, did adhere" to the recommendations.

The DOJ/states' amended complaint in *RealPage* goes even further. Rather than rely solely on each landlord's independent agreement with RealPage, the DOJ/states allege traditional Section 1 conduct between the landlords, including sharing of pricing and occupancy information, information about a particular landlord's acceptance of RealPage's recommendations, and the parameters applied by a particular landlord in using the software's "auto-accept" feature. These allegations provide an element often found lacking in a "hub and spoke" conspiracy: a rim connecting the spokes.

Software Algorithms Recommending—Not Mandating—Prices to Users

A different outcome was reached in *Gibson v. Cendyn Group, LLC*, where an algorithm's price recommendations were not followed as consistently. In June 2024, a Nevada federal court dismissed a putative consumer class action alleging that Las Vegas hotel operators unlawfully delegated independent decision-making to a software algorithm, which then recommended prices for hotel rooms based on public information regarding competitors' pricing. The court held that the plaintiffs had failed to plausibly allege a tacit agreement among the hotels because the hotels "are not required to and often do not accept the pricing recommendations generated by" the algorithm.

Like the court in the private *RealPage* litigation, the court in *Gibson* focused on the extent to which the algorithm's pricing recommendations were alleged to be mandatory. In *Gibson*, however, the court found they were not. Therefore, the court reasoned, "[i]t accordingly cannot be that the vertical arrangements between Cendyn and Hotel Defendants to license GuestRev and GroupRev restrain trade."

But discretion was not the only factor considered in *Gibson.* In addition to the non-mandatory nature of the price recommendations, the court in *Gibson* also noted that the price recommendations were based on publicly available information, stating that "consulting your competitors' public rates to determine how to price your hotel room—without more—does not violate the Sherman Act." The plaintiffs argued that even if confidential information was not exchanged directly between competitors, their allegations created an inference that the algorithms improved over time by running on confidential information provided by each of the competitors. The court held, however, that even if this occurred, it would not constitute a tacit agreement to fix prices.

In September 2024, a federal court in New Jersey similarly dismissed with prejudice a complaint brought by putative class action plaintiffs against owners and operators of various Atlantic City casino-hotels. In *Cornish-Adebiyi v. Caesars Entertainment, Inc.*, the court rejected the plaintiffs' allegation that casino-hotels engaged in a conspiracy to artificially fix prices through their "knowing and purposeful shared use" of the algorithmic software. In addition to the pricing authority that the hotels "continued to retain and exercise," the court found that the plaintiffs failed to allege an illegal price-fixing conspiracy through the "knowing" and "purposeful" use of the software algorithm. The court cited the absence of any allegation that the hotels' "proprietary data are pooled or otherwise comingled into a common dataset against which the algorithm runs." In other words, the court concluded, "the pricing recommendations offered to each Casino-Hotel individually are not based on a pool of confidential competitor data."

Both *Gibson* and *Cornish-Adebiyi* suggest that there may be no Sherman Act violation unless the algorithm pools competitors' non-public information in making its recommendations. Both cases, however, are now pending appeal to the Ninth and Third Circuits, respectively. These courts are poised

to become the first federal appellate courts to weigh in on algorithmic price-setting, and their decisions may provide more robust guidance.

Other courts may reach different conclusions from those reached to date. But collectively, the decisions to date suggest, at a minimum, that liability may follow where (i) adoption of most or all of an algorithm's pricing recommendations is mandatory or agreed among users or (ii) the algorithm pools its users' non-public information in making pricing recommendations. What is less clear is the permissibility of the use of confidential information merely to train the algorithm.

FTC and DOJ View: Price Discretion Does Not Doom Algorithmic Price Fixing Claim

The enforcement agencies, in their statements of interest filed in the private cases, have taken a less nuanced position: that algorithmic pricing is a per se violation of Section 1 of the Sherman Act, and there is no limitation simply because the recommended prices are non-binding. The FTC and DOJ have argued that the violation is the agreement itself, and that the frequency with which the agreement is followed is irrelevant. In their view, the competitors' retention of price discretion does not doom a price-fixing claim. They liken the algorithmic price to an agreement to fix advertised list prices, arguing that such an agreement would be unlawful even if the conspirators sometimes deviate from the list price—and that the use of recommendations from a common algorithm is similarly unlawful. It remains to be seen whether the agencies will continue to take such a forceful position under the Trump Administration.

Conclusion

With the upcoming appeals in *Gibson* and *Cornish-Adebiyi*, two federal appellate courts may weigh in on algorithmic price fixing sometime this year. Even with such rulings, however, the larger question will remain: whether algorithms—which, using artificial intelligence, can learn from experience and experimentation—are capable of tacitly colluding absent any active participation, express agreement, or even an invitation and subsequent participation from competing firms. While Sherman Act Section 1 violations have long required a meeting of human minds, courts are about to find themselves in the position of applying Section 1 to non-sentient artificial intelligence models that can learn to collude with minimal, if any, human intervention.

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