Review of Industrial Organization
https://doi.org/10.1007/s11151-025-10038-w

Economics at the FTC: Labor Markets Research, Misleading Training Claims, a Supermarket Merger, Deception in the Gig Economy, and Loyalty Discounts

Matthew Chesnes[1] · Michel Grosz[1] · Paul S. Koh[2] · Shiva Koohi[1] · Devesh R. Raval[1]

Received: 13 September 2025 / Accepted: 4 October 2025

Abstract
Through rigorous economic analysis, economists in the Federal Trade Commission's Bureau of Economics support the FTC's missions of protecting consumers and maintaining competition. This article first describes how tools from labor markets have informed research at the FTC on merger effects, as well as recent research on labor economics by FTC economists. The article then provides four examples of how FTC economists have applied economic analysis to their casework. The first example is of the economic analysis of harm to consumers who signed up for a training program based on misleading information. The second describes the economic analysis that was done in support of the litigation to block the Kroger-Albertson's supermarket merger. The third describes a methodology that can be used to estimate the harm to workers who are deceived about the earning potential in the gig economy. The last is a discussion of the analysis of the anticompetitive effects of loyalty discounts offered by a platform in the Surescripts matter.

Keywords Antitrust · Consumer protection · Deception · Loyalty discounts · Mergers · Labor economics

1 Introduction

The primary role of the Bureau of Economics (BE) at the U.S. Federal Trade Commission (FTC) is to support the Commission's consumer protection and antitrust investigations by performing economic analysis. This article discusses recent research that has been done by economists in BE and recent investigations in which economic analysis played an important role.

Extended author information available on the last page of the article

Published online: 13 October 2025

While economic analysis in support of casework is the focus of this article, BE staff -- which currently consists of 72 Ph.D. economists, 12 research analysts and statisticians, two administrative professionals, and five financial analysts -- contribute to the missions of the FTC in a multitude of ways. For example, BE frequently offers feedback to the Commission and others in government on the potential effects of legislation and regulation. BE maintains a connection with the academic economics community by writing research papers, sending staff to academic conferences, and organizing a weekly seminar series.

Along with the Tobin Center for Economic Policy at Yale, BE hosted the 17th annual FTC Microeconomics Conference on November 14 and 15, 2024.[1] Keynote addresses by the scientific committee members discussed oligopsony, automation in the workplace, and healthcare consolidation. The papers that were presented addressed a variety of subjects, including: the balance between user privacy and personalization; non-compete clauses in labor contracts; vertical integration in healthcare markets; and the labor market effects of mergers. The FTC and the Tobin Center will again host this conference on November 13–14, 2025.[2]

The Bureau of Economics is strengthening its engagement with the academic marketing community through its co-hosting of the 2nd FTC Conference on Marketing and Public Policy, which was held on October 18, 2024, in partnership with the Yale School of Management and the INFORMS Society of Marketing Science (ISMS).[3] The conference featured research on topics that included advertising, privacy, and information disclosure, as well as a special session that highlighted policy and research by BE economists. Building on the success of this event, the FTC is expanding the conference to a day and a half. The 3rd FTC Conference on Marketing and Public Policy will take place on March 19–20, 2026, and will be co-hosted with the Carey Business School at Johns Hopkins University, the Law & Economics Center's Program on Economics and Privacy at the Antonin Scalia Law School (George Mason University), and the Center for Business and Public Policy at Georgetown University.[4]

The FTC recently launched a Labor Markets Task Force to ensure that the agency uses its competition and consumer protection powers to protect workers in addition to consumers.[5] In Section II, we highlight how tools from labor economics have informed evidence on the effects of mergers and discuss research that BE economists have performed with respect to labor markets.

Three of the four sections on FTC investigations address labor market issues in whole or in part. Section III examines a case that involved a for-profit training com-

[1] Copies of the papers that were presented along with a video of the conference are available at https://www.ftc.gov/news-events/events/2024/11/seventeenth-annual-microeconomics-conference.

[2] See https://www.ftc.gov/news-events/events/2025/11/eighteenth-annual-microeconomics-conference for details.

[3] See https://www.ftc.gov/news-events/events/2024/10/second-federal-trade-commission-conference-marketing-public-policy for details.

[4] See https://www.ftc.gov/news-events/events/2026/03/third-federal-trade-commission-conference-marketing-public-policy for details.

[5] See https://www.ftc.gov/system/files/ftc_gov/pdf/memorandum-chairman-ferguson-re-labor-task-force-2025-02-26.pdf.

pany; BE analyzed the harm to consumers from misleading claims about the value of its training and education programs. Section IV describes the economic analysis in the FTC's successful challenge to the Kroger–Albertsons supermarket merger, which incorporated a novel labor market count. Section V draws on two recent FTC cases to illustrate methods for estimating harm to gig economy workers who were misled about their earning potential. Section VI presents an economic analysis of loyalty discounts offered by Surescripts: an information intermediary for pharmacy transactions. And Section VII offers a brief conclusion.

2 Applying Labor Economics in the Bureau of Economics

With its long tradition of employing labor economists, the Bureau of Economics is well positioned to contribute to the FTC's expanded focus on competition in labor markets. In this section, we first describe how economists in BE have applied tools on causal inference from labor economics to understand the effects of mergers. We then discuss more recent research by economists in BE on labor markets; we focus on restrictions on what workers are allowed to do as well as how workers are trained and educated.

2.1 Bringing a Labor Economist's Lens To Merger Research

Industrial organization often draws on case studies to explore how firms behave in markets. In this section, we show how tools from labor economics have helped answer policy questions at the FTC through a case study of the contributions of Dan Hosken. Dan, who recently retired after a 30-year career in the Bureau of Economics, was originally trained as a labor economist at Cornell University. Over his FTC career, he brought a labor economist's lens to the agency's core work by applying empirical methods from labor economics to better understand the effects of mergers.

Dan was one of the staff economists who worked on the FTC's challenge to the Staples-Office Depot merger in 1997. Along with the FTC's economic expert (labor economist Orley Ashenfelter), the team developed a groundbreaking empirical approach to merger analysis that has been described as having "established a new paradigm in merger analysis" by presenting "rigorous, econometric analysis of pricing effects." (Monahova et al., 2017).

Dan Hosken, together again with Ashenfelter, broke new ground by applying causal inference methods that had been developed by labor economists to assess the effects of consummated mergers in consumer goods markets in Ashenfelter and Hosken (2010). Their work was one of the first to leverage retail scanner data for this purpose; this type of data has since become standard in antitrust economics. Despite the scrutiny that each merger received, four of the five mergers studied led to moderate post-merger price increases.

Dan then expanded on this earlier analysis to assess how well structural models that are commonly used in industrial organization predicted merger effects. Structural models depend on strong assumptions about demand systems and firm conduct, which raises questions about how well their predictions reflect real-world outcomes.

In Weinberg and Hosken (2013), Dan Hosken and Matt Weinberg compared the ex-post price effects of mergers that were documented in Ashenfelter and Hosken (2010) with ex-ante predictions that are generated by several different structural merger simulation models. Only some of the structural models produced simulated price effects that are closely aligned with observed outcomes. This work helped catalyze a broader research agenda that applies theory-based empirical frameworks to evaluate merger effects (e.g., Miller & Weinberg, 2017).

Dan Hosken's broader research agenda emphasized that the effects of mergers are highly context-specific—shaped by product demand, cost structures, and competitive interactions among the merging firms. He argued that the most effective way to inform antitrust enforcement is to build a body of detailed case studies that are grounded in economic theory and institutional realities. Beyond the examples noted earlier, Hosken contributed to this approach through studies of mergers in industries as wide ranging as: retail grocery chains (Hosken, Olsen, and Smith, 2018); gasoline refineries (Taylor and Hosken, 2007; Hosken, Silvia, and Taylor, 2011); and appliance manufacturers (Ashenfelter, Hosken, and Weinberg, 2013). By doing so, he was able to assess the overall effectiveness of merger enforcement by synthesizing evidence from a wide range of retrospective studies to inform ongoing policy debates (Ashenfelter, Hosken, and Weinberg, 2014).

A common defense of mergers is that integrating the merging firms' operations will generate efficiencies. In collaboration with Orley Ashenfelter and Matt Weinberg, Hosken analyzed such potential efficiencies in the Miller–Coors joint venture. The transaction had been approved on the grounds that consolidating production would reduce shipping distances and decrease costs. Their analysis found that decreases in shipping distances (expressed as positive numbers) were negatively correlated with post-merger price changes, which provided evidence consistent with the merger's stated efficiency rationale (Ashenfelter, Hosken, and Weinberg, 2015).

Hosken's newest research extends the reach of merger retrospectives by integrating new forms of data into the analysis. First, he played a central role in the development of the FTC's study of physician practices, which collects non-public data on most insurance claims in several states to shed light on the extent of consolidation in physician markets and its implications for patient outcomes (Deibler et al., 2025). Second, in collaboration with Frank Pinter and Devesh Raval, he investigated the effects of divestitures—the primary structural remedy in merger enforcement—in the context of supermarket mergers (Hosken, Pinter, Raval, 2025). This work used novel data from consumer reviews to evaluate how divestitures affect both prices and service quality.

Finally, Dan Hosken has recently returned to his roots as a labor economist by expanding the analysis of merger effects to include workers as well as consumers. In collaboration with Miriam Larson-Koester and Charles Taragin, he has developed a bargaining model that shows that mergers between direct competitors can harm workers in three ways: by reducing employment; by increasing employer bargaining power in overlapping product markets; and by weakening worker bargaining power in overlapping labor markets (Hosken, Larson-Koester, Taragin, 2025). The greatest harm arises when firms overlap in both product and labor markets. However, since consumer and worker harms tend to coincide when there is product market overlap,

antitrust enforcement that is focused on harm in product markets may already deter many mergers that would also harm workers.

2.2 Restrictions on Workers

One focus of the Labor Markets Task Force is non-compete agreements (NCAs), which can impose unnecessary, burdensome, and often lengthy restrictions on former employees' ability to work for competitors after leaving a job. Within the Bureau of Economics, Mike Lipsitz has conducted extensive research on how changes in the enforceability of non-competes affect workers and firms.[6]

First, greater noncompete enforceability can hurt workers. Matt Johnson, Kurt Lavetti, and Mike Lipsitz show that stricter enforceability of NCAs—that is, a greater likelihood that courts will uphold them—reduces earnings for affected workers (Johnson et al., 2025). The decline is driven by the diminished ability of workers to leverage mobility in strong labor markets to secure higher wages, and by spillover effects on unaffected workers that are caused by a reduced arrival rate of new job offers.[7] Mike Lipsitz and Evan Starr find similar effects on wages for low-wage workers, a group for whom the economic justifications for NCAs may be weakest (Lipsitz & Starr, 2022).

Hiraiwa et al. (2024) use a revealed preference approach to assess the value that firms place on NCAs. They study a 2020 Washington state law that barred enforcement of NCAs for most employees who earn less than $100,000. If employers valued enforceability for workers near this threshold, they would be expected to offer small wage increases to bring those employees above it. The authors find no evidence of such wage adjustments, which suggests that employers of low-wage workers place little value on the ability to enforce NCAs.

Enforcing non-competes can have broader effects on productivity, innovation, and the competitive dynamics of markets. Mike Lipsitz and Mark Tremblay find that greater enforceability increases industry concentration and propose a theoretical framework for weighing the resulting competitive harms against potential gains from increased firm investment (Lipsitz & Tremblay, 2024). Johnson, Lipsitz, and Pei (2023) show that stronger enforcement reduces both the quantity and quality of innovation by limiting the cross-firm diffusion of ideas that occurs when inventors change employers. In ongoing work, Chang, Johnson, Lavetti, Lipsitz, and Raval (2025) assemble a novel dataset on state-level manufacturing productivity to measure how NCA enforceability affects investment, overall firm productivity, and the share of surplus that accrues to labor.

[6] Ferguson et al. (2023) and Hole et al. (2024) both discuss the FTC's benefit-cost analysis of the Non-compete Rule, which relied in part on Mike Lipsitz's research.

[7] The earnings of all workers, including those without a non-compete, would be negatively affected if greater enforceability of non-competes would reduce the arrival rate of new job offers. With fewer new job offers, workers would find it harder to climb the job ladder to higher paying, higher productivity jobs or leverage outside offers for wage increases. The arrival rate of new job offers could fall if the number of firms searching for workers fall, such as due to reduced firm entry, or because recruitment costs rise when firms cannot observe which workers are bound by noncompetes.

The Labor Markets Task Force has also turned its attention to restrictive occupational licensing, which can prevent new market entry and worker movement. BE economists Tom Koch and Nathan Petek have examined how nurse practitioner (NP) scope-of-practice laws—which define the range of services that NPs are allowed to provide—affect patient outcomes (Koch and Petek, 2019). Drawing on Medicare and commercial insurance claims data, they found: no evidence that expanding NP scope of practice harms patients; some evidence that scope expansion has health benefits for Medicare beneficiaries; and no lasting effects of scope expansion on access to care or office visit prices.

2.3 Worker Training and Education

Many occupations require workers to complete specialized training and earn educational credentials before entering the field. In the Bureau of Economics, Michel Grosz and James Thomas have conducted extensive research on the economics of education; they examine how training programs, credentialing requirements, and postsecondary institutions influence labor market outcomes.

Michel Grosz's research explores how economic conditions affect postsecondary education. He finds that local economic shocks, such as mass layoffs, increase community college enrollment in short-term, high-return programs (Foote & Grosz, 2020), and that the Great Recession increased student borrowing and default rates, especially for those already enrolled (Grosz & Monarrez, 2025). Most recently, he has documented shifts in undergraduate enrollment during the COVID-19 pandemic; he highlights its effects on access to and participation in undergraduate education (Darolia et al., 2025). Community colleges mainly respond to changes in labor market demand by expanding student enrollments (in response to student demand) rather than by increasing program capacity (Grosz, 2022).

Grosz's work also examines the returns to such education. Stevens et al. (2019) finds substantial earnings gains from occupational credentials in health-related fields. Exploiting a randomized lottery admission study, Grosz estimates substantial causal increases in earnings, healthcare employment, and licensure from entering a large nursing program (Grosz, 2020, 2024).

James Thomas examines how universities use course offerings and grading policies to influence students' participation in STEM fields. Thomas (2024) infers university preferences over student course choices by analyzing course offerings and shows that universities steer students toward STEM fields at the expense of student utility when creating new course offerings. In related work, Ahn et al. (2024) show that tougher grading standards in STEM deter students who place greater weight on grades by estimating an equilibrium model in which instructors choose grading policies to influence enrollment. Equalizing grade distributions across fields would substantially increase STEM participation.

Thomas has also studied the signaling quality of grades: First, with the use of a Bayesian learning framework, he demonstrates that grades in STEM and economics courses provide stronger signals of ability than do grades in other fields, even for unrelated disciplines (Thomas, 2019). Thomas et al. (2023) further examine mechanisms for improving the informativeness of first-year law school grades. Their esti-

mates indicate that replacing high-variance instructors produces a substantially larger reduction in the misclassification rate of top-performing students than do reductions in class size.

3 Misrepresentations about Educational Investments: FTC v. Career Step

3.1 Introduction

Every year, millions of students seek to learn new skills that can help them in the labor market. Degrees and credentials, however, involve an important investment decision: Potential students must compare the expectation of higher earnings and better employment prospects in the future with upfront costs in the form of tuition and the time spent studying (Becker, 1993).

A large body of economic literature measures the return on students' investments in education. These returns are not always positive (Lovenheim & Smith, 2023). Overall, there is strong evidence that four-year college degrees offer substantial positive returns. More recent evidence also shows positive returns to most but not all community college degrees and certificates (Stevens et al., 2019; Soliz, 2023). Although there is limited evidence on for-profit colleges, existing research suggests that payoffs at these colleges are smaller than at public and private non-profit colleges, and not always positive (Cellini & Turner, 2019). For-profit programs also cost more than comparable programs at non-profit institutions, which makes the return on investment lower. We know even less about the labor market outcomes of students who enroll in short-term credentialling programs at private proprietary schools.[8]

Educational credentials are often crucial for individuals who are seeking better job opportunities. However, apart from programs at established public and non-profit institutions, it can be unclear to prospective students which programs pay off. Students often struggle to make the best educational investment decisions, in large part because of a lack of adequate information about the value of these investments (Baker et al., 2018). This context creates the potential to dupe potential students into signing up for training programs that might not actually lead to career advancement.

3.2 The FTC and Educational Institutions

The FTC has long protected consumers from deception about the value of educational programs. As far back as 1972, the Commission issued the Vocational School Guides, which gave guidance to providers of occupational programs as to how to avoid unfair or deceptive practices. These Guides were amended in 1998 and again

[8] These private proprietary schools train students for a wide range of occupations. Recent research provides the first evidence on the returns to cosmetology schools, for example, which enroll over 200,000 students each year (Rebolledo et al., 2025). Apprenticeship programs are often run by unions outside of traditional postsecondary educational institutions, and are often in building, construction, and manufacturing trades (Lerman & Rauner, 2011). There are also other private companies similar to Career Step, which offer training and certification in healthcare, childcare, and other related fields.

in 2013, with specific attention to misrepresentations with respect to employment prospects and salaries for graduates.[9]

In recent years the FTC has investigated several large for-profit colleges for misrepresenting the value of their programs. In 2017, the Commission settled with DeVry University for $100 million over allegations that the university had deceived consumers about the starting salaries of their graduates, and about how many graduates gained employment in their field of study.[10] In 2019, the Commission reached a $191 million settlement with the University of Phoenix over advertisements that promoted business relationships and connections that, according to the FTC, misled students about their post-graduation employment prospects.[11]

The FTC has also taken preventative action against the types of practices that these large for-profit colleges have been accused of. In 2021 the Commission used a synopsis (formerly known as "penalty offense authority") to put 70 of the largest for-profit institutions on notice about misrepresenting the job prospects and earnings of their graduates. The notice outlined many types of practices, including: deceptive claims about labor market demand for different fields of study; how many graduates get jobs in their chosen field; whether the institution can help with job placement; and graduate earnings.[12]

The FTC's actions against educational institutions are not limited to these high-profile and large institutions. The Commission has reached settlements with several additional for-profit training companies in the past decade.[13]

3.3 Career Step's Business and its Misrepresentations

Career Step is a for-profit company that provides online training and certification programs for healthcare occupations. Consumers can purchase a subscription from Career Step and train to be, for example, a Medical Assistant, Pharmacy Technician, or Hemodialysis Technician.

Most of the training that consumers receive from Career Step occurs through online modules. Consumers purchase a subscription to the modules for a set number of months. The price of these subscriptions is $1,899 to $4,299 for 4, 8, or 12 months, depending on the program. Consumers can then purchase subscription extensions for

[9] See https://www.ftc.gov/sites/default/files/documents/federal_register_notices/2013/11/131118vocationalschools.pdf,

See https://www.ftc.gov/news-events/news/press-releases/2013/11/ftc-approves-changes-vocational-schools-guides, and

See https://www.ftc.gov/news-events/news/press-releases/1998/08/ftc-votes-update-vocational-schools-guides.

[10] See https://www.ftc.gov/news-events/news/press-releases/2017/07/ftc-returns-more-49-million-refunds-devry-students.

[11] See https://www.ftc.gov/news-events/news/press-releases/2019/12/ftc-obtains-record-191-million-settlement-university-phoenix-resolve-ftc-charges-it-used-deceptive.

[12] See https://www.ftc.gov/news-events/news/press-releases/2021/10/ftc-targets-false-claims-profit-colleges.

[13] For example, against Ashworth College, Online Training Academy, St. James School of Medicine, and Sollers College.

$129 per month or $999 for a full year. Some of the programs also require in-person externships and clinical hours with practitioners in the field. Career Step offers additional services that consumers can purchase to aid their studies, such as support sessions or specialized equipment such as venipuncture kits.

Career Step's target audience is military servicemembers and their spouses, and its recruitment efforts focus on these consumers. Career Step routinely advertises at events such as military job fairs and in military-focused publications. Career Step's focus on the military is not unique.[14] Because servicemembers have access to special education benefits, for-profit schools often target them specifically.[15]

According to the FTC's complaint, Career Step made a wide range of claims that misled consumers.[16] These claims included that most participants were employed in their field of study; that more than 80% of completers obtained employment in their field of study; that Career Step's partnerships with companies led to job placements; that Career Step itself would help find jobs and externship placements; and that the typical consumer would complete a program within six months if not sooner. In addition, the FTC's complaint alleged that Career Step compensated some of their consumers for posting positive reviews of the programs.

Although there are many allegations of Career Step's misrepresentations in the FTC's complaint, they can be summed up into misrepresentations of the benefits and of the costs of its programs, both of which harmed consumers.

First, Career Step misrepresented the benefits of its programs to consumers: Consumers who were considering whether to enroll in Career Step's programs likely cared mostly about the income that they would make when they finished and got a job in their new chosen field. So, consumer perceptions about the benefits to Career Step's programs come from the earnings that Career Step advertised its successful students made and from representations about how many students completed their programs, how many students got job placements through industry partnerships, and how many students got jobs in the same field. For example, Career Step advertised that its Dental Assistant program graduates made $35,000 per year. If Career Step had also represented that, for example, only 50% of students who enroll in these programs actually completed and gained employment as dental assistants, then consumers might have expected that, on average, the program would have yielded only half of the advertised earnings premium.

Second, Career Step misrepresented the costs of its programs to consumers: Consumers had to sign up for an initial subscription period with the price varying by program. For many programs, however, it took longer for consumers to finish than the few weeks or months that Career Step promised. Often the delays came from: the program websites being down; unclear instructions for completing certain course modules; or delays in placements for required externships. These longer enrollment times forced consumers to pay for extensions to their initial subscriptions, and to spend more of their valuable time learning and studying.

[14] See https://www.militaryconsumer.gov/blog/targeting-troops.

[15] In another case, the FTC obtained a $30 million settlement with Colorado Technical University and American InterContinental University for falsely claiming they were affiliated with the military in their advertisements.

[16] See https://www.ftc.gov/system/files/ftc_gov/pdf/CareerStep-Filed-Complaint.pdf.

3.4 Consumer Harm from Educational Institution Misrepresentations

Consider a consumer's choice of whether to pursue an educational program. A consumer's willingness to pay for an educational program may depend on how he/she perceives the increased earnings potential and job satisfaction, or how much he/she enjoys learning new skills.

Figure 1 below shows a stylized version of this choice. The horizontal axis represents the number of potential consumers and the vertical axis the price of the program to consumers. The demand curve under the terms advertised by the educational institution is represented by D_a. This demand curve arises from consumers' perceptions about the payoffs from the program, which in turn are informed by the institution's representations about it. Variation in the willingness to pay comes from each consumer's own valuation of these advertised payoffs. Although there are many sources of heterogeneity in the payoffs, the one on which we focus is the difference in actual program earnings relative to a consumer's earnings prior to enrollment.

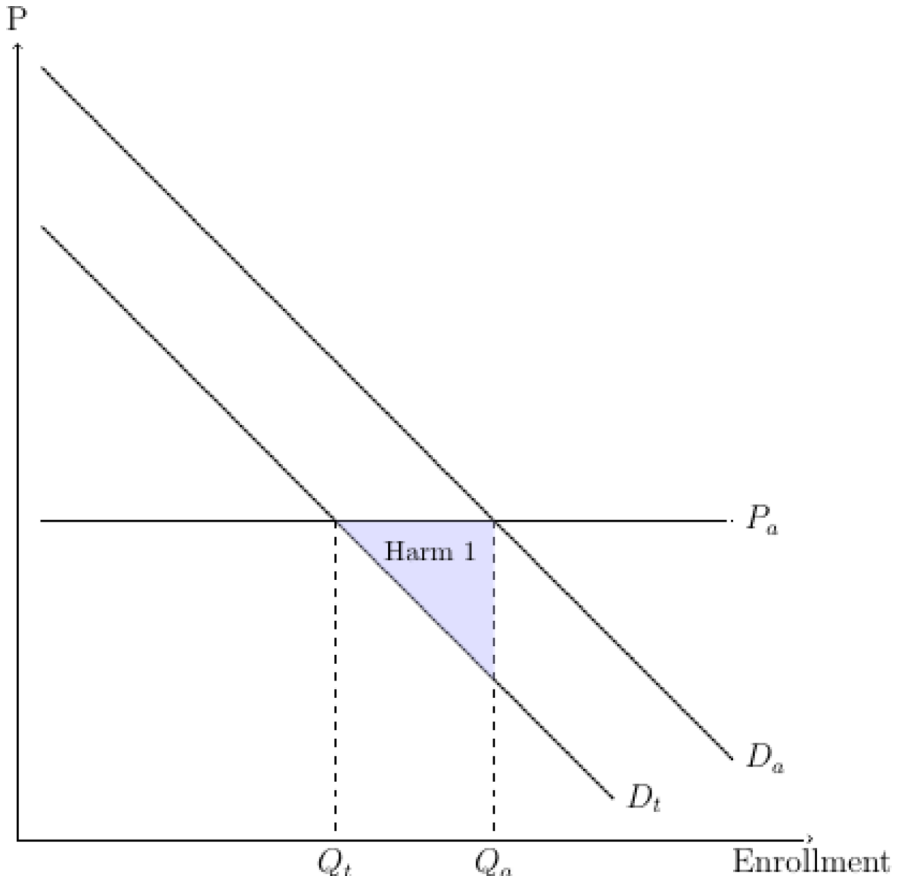

Fig. 1 Enrollment Under Advertised and Truthful Representations of Program Value

The advertised price of the program is given by P_a. The equilibrium number of students who enroll under the institution's current advertising practices is denoted by Q_a.

However, suppose that the institution misrepresents its value to consumers such that consumers are tricked into being willing to spend more on the program. Their willingness to pay when faced with the truth is lower than their willingness to pay under Career Step's advertisements. The curve denoted D_t represents demand under a counterfactual set of advertisements where Career Step no longer made misrepresentations. The vertical gap between D_t and D_a represents the difference in payoff between what the institution advertised and what it should have advertised.

Under the institution's misrepresentations, a portion of consumers ($Q_a - Q_t$) enroll in the program expecting the value to be higher than the cost but ultimately find that the value is *less* than the cost. These consumers would not have enrolled had they known the true value of the program, and had the institution allowed them to form an accurate assessment of their willingness to pay for the program. This subset of consumers was harmed by the misrepresentations: The harm is the loss that they experienced from paying P_a and receiving $D_t - P_a$ rather than $D_a - P_a$. The total amount of the harm from the institution's misrepresentations of value is labeled as "Harm 1" in the figure.

In addition to misrepresenting the value of each program to consumers, the institution can also misrepresent the price of the program. In the Career Step case, consumers routinely found that they had to extend their initial subscriptions to finish all of the program requirements. The extra time that consumers had to spend on their studies, plus the dollar value of the subscription renewals, represents the bulk of the difference in cost.

Figure 2 adds the higher true price to consumers P_t in addition to the advertised price P_a. There are two additional sources of harm to consumers from the misrepresentations of costs:

First, some of the consumers who would not have enrolled because of the misrepresentation about the *value* of the program are hurt further because they had to pay more than they expected. There are Q_a- Q_t of these consumers. While before the harm that they incurred was Q_t- P_a, they now incur an additional amount $P_t - P_a$, for a total harm of $D_t - P_t$. The additional harm to these consumers is "Harm 2" in the graph, and the total harm to this subset of consumers is Harm 1 plus Harm 2.

Second, $Q_t - Q^*$ consumers would now find the cost of the program too expensive relative to their willingness to pay, even if they had accurate information about the value of the program. The harm to these consumers is $D_t - P_t$, the difference between their true valuation of the payoff to the programs and cost. This is "Harm 3" in the graph.

3.5 Empirical Estimation

We can apply this simple model to yield estimates of the harm to consumers across the range of Career Step programs.

To model the price of each Career Step program, we can use the advertised price of a subscription plus the time that Career Step advertised it would take a consumer to complete the program.

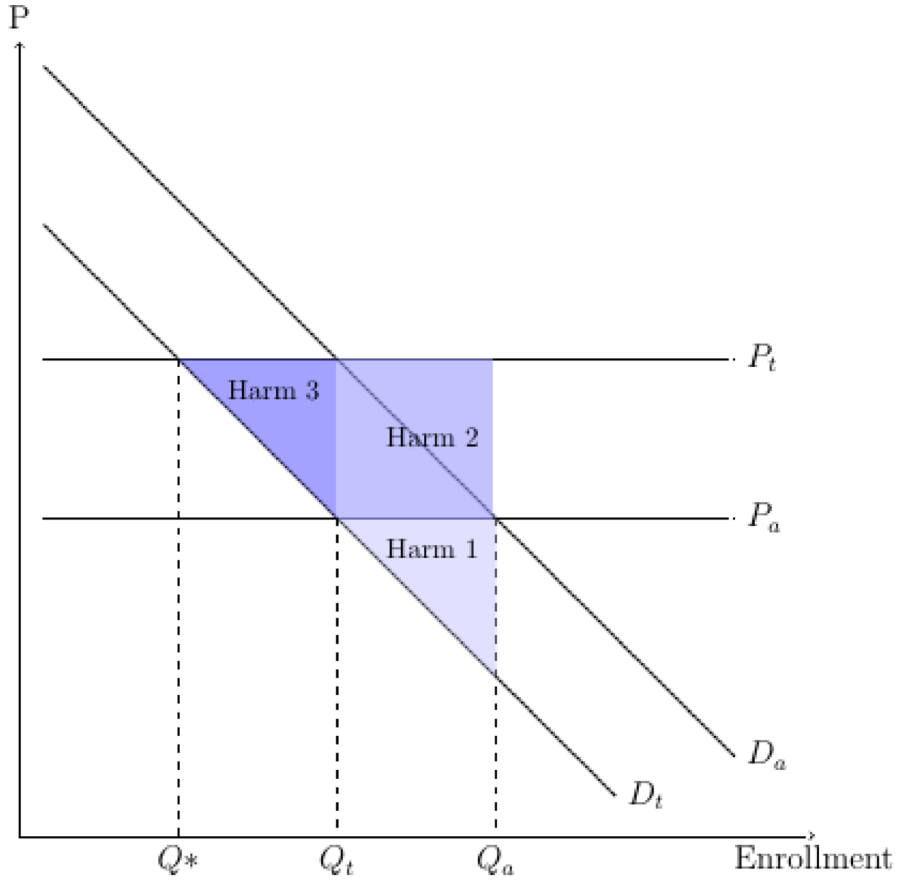

Fig. 2 Enrollment Under Advertised and Truthful Representations of Value and Cost

An estimate of the value of each program is more complicated, since it requires information on how willingness to pay varies across different consumers. For this analysis we relied on the fact that Career Step focused its digital and social media advertisements on its "key audience" of military servicemembers and their spouses. To approximate this population, we drew a sample of individuals from the 2018–2022 American Community Survey who had a spouse in the military. Median earnings of consumers in the sample was $21,000, and approximately a quarter of the individuals had zero earnings. The Census data, combined with Career Step's own representations, yield measures of the additional income that each potential consumer might expect to earn as a result of enrolling in any particular program. For example, Career Step advertises that completers of the Dental Assistant Program can expect annual earnings of $35,000. Potential consumers with zero income, such as those who are not employed currently, would stand to gain $35,000 per year. Other earners would gain less. Someone who is already making $20,000 per year would expect to earn only $15,000 more per year, and someone who is already making more than $35,000 would have a zero monetary payoff.

This approach of course abstracts away from the additional non-monetary value that a program might yield to a consumer. For example, in addition to a bump in earnings, a consumer enrolling in one of Career Step's programs might gain satisfaction from moving into a more interesting job.[17]

We further account for Career Step's representations about completion rates and employment rates by scaling the resulting earnings bumps. For example, if completers of a particular program are advertised to be making $30,000, but only 80% of them are advertised to be employed in the field, then the expected earnings in that program are actually $24,000. We then calculate the present discounted value of the annual increase in earnings over 30-year careers. Overall, continuing the example, an unemployed consumer enrolling in the Dental Assistant program might expect an approximately $400,000 payoff over 30 years. At the other extreme, some consumers might still have negative payoffs, which we assume to have a value of zero. The distribution of these payoffs for each individual program helps approximate a mapping of the demand D_a for each program under the advertised payoffs.

We use a similar approach to incorporate the counterfactual where Career Step had accurately represented the earnings payoff to its programs. For example, Career Step represented that most or all of its students completed their programs. The FTC's investigation found, however, that completion rates were actually 25% or less.[18] This means that a consumer's expected payoff was lower than what Career Step advertised. This approach yields approximations of D_t for each program as well.

Together, these estimates generate a data-driven estimate of the demand and costs under the advertised and counterfactual truthful representations for each individual Career Step program. Estimating the harm that is shown in Fig. 2 is then straightforward.

3.6 Case Outcomes

In July 2024 Career Step and the FTC agreed on a settlement, which coincided with Military Consumer Month,[19] which the Commission voted to approve by a 5−0 vote.[20] For the settlement, Career Step cancelled approximately $27.8 million in debts that were owed by current and former Career Step consumers who had enrolled between February 2020 and February 2023. Career Step also paid $15.7 million, which was then sent as redress checks and PayPal payments to 42,794 consumers who had paid for training between August 2018 and September 2024.[21] The order

[17] Another benefit of education is meeting new classmates. Given Career Step's learning modules are online, that mechanism is likely small or nonexistent.

[18] See https://www.ftc.gov/system/files/ftc_gov/pdf/CareerStep-Filed-Complaint.pdf.

[19] See https://www.ftc.gov/system/files/ftc_gov/pdf/2024-7-26-Holyoak-statement-re-Career-Step-LLC-FINAL.pdf.

[20] See https://www.ftc.gov/news-events/news/press-releases/2024/07/career-step-pay-435-million-cash-debt-cancellation-resolve-charges-it-used-deceptive-advertising.

[21] See https://www.ftc.gov/news-events/news/press-releases/2025/03/ftc-sends-more-155-million-refunds-consumers-affected-career-steps-deceptive-job-placement-employer.

also prohibited Career Step from making deceptive claims about its educational products going forward.

4 Empirical Analysis of Retail Mergers in FTC v. Kroger

4.1 Introduction

On October 14, 2022, Kroger and Albertsons—two of the largest grocery chains in the United States—announced plans to merge in a $24.6 billion deal, which would have been the largest supermarket merger in U.S. history. The proposal drew immediate scrutiny from regulators, consumer advocates, labor unions, and state attorneys general. In February 2024, the FTC, joined by multiple states (Arizona, California, Washington D.C., Illinois, Maryland, Nevada, New Mexico, Oregon, and Wyoming), filed a lawsuit in federal district court to block the transaction; the plaintiffs argued that the merger would significantly reduce competition in the supermarket sector, which would lead to higher prices for consumers and diminished protections for workers. On August 26, 2024, U.S. District Court Judge Adrienne Nelson began a 15-day hearing on the FTC's motion for a preliminary injunction to block the merger. On December 10, 2024, the court granted the motion, and issued an injunction that halted the merger (Opinion & Order, 2024). Albertsons terminated the merger agreement with Kroger the next day (Albertsons Companies, Inc., 2024).

During the hearing, both the plaintiffs and the defendants presented extensive evidence to persuade the court as to how supermarket competition should be understood—roughly a decade after the last litigated supermarket merger in *FTC v. Whole Foods Market*. This article draws on publicly available documents from *FTC v. Kroger* to review the state-of-the-art empirical tools that antitrust agencies may use to assess competition and merger-related harm in the retail sector.[22] We focus specifically on downstream retail competition.[23]

This section of this article proceeds as follows: First, we examine how the FTC defined product and geographic markets. Second, we review the agency's concentration analysis and its application of the structural presumption under the 2023 Merger Guidelines. Third, we analyze the FTC's evaluation of competitive effects, which assesses the merging firms' incentives to raise prices after the merger. We then review the FTC's analysis of the divestiture remedy that was proposed by the defendants and discuss how future work can inform analyses of supermarket mergers.

[22] This article relies on public versions of case materials; we draw primarily from the court's preliminary injunction ruling, plaintiffs' pre- and post-trial briefings, and transcripts of expert testimony. The case materials can be downloaded from https://www.appliedantitrust.com/14_merger_litigation.htm.

[23] For another excellent review of the case and insights into the current drivers of supermarket competition, we refer the readers to Fox et al. (2025), co-authored by Edward J. Fox, who served as FTC's expert witness in "in retail operations and consumer shopping behavior," and by his litigation support team.

4.2 Market Definition

Defining the relevant product and geographic markets is typically the first step in antitrust analysis. It is essential for helping the court understand the contours of competition: specifically, who competes with whom. In this section, we describe the FTC's approach to market definition, which the Court ultimately accepted.[24]

4.2.1 Product Market

The FTC pled a "Supermarkets" product market, but also argued that the merger triggered anticompetitive presumptions even in a broader "Large-Format Stores" market. The "Supermarkets" market included traditional supermarkets (e.g., Kroger, Albertsons, Food Lion, Stater Bros., and Raley's) and supercenters (e.g., Walmart and Target) and excluded dollar stores, limited assortment stores, warehouse clubs, specialty organic grocers, and online-only retailers. This definition was based on both functional characteristics and consumer behavior: supermarkets offer a "one-stop shopping" experience, whereas fringe formats typically do not. The FTC presented evidence that showed that: firms within this market primarily monitor each other's prices; fringe formats differentiate themselves strategically; and the industry commonly recognizes these distinctions.

The defendants contended that the Supermarkets market was underinclusive, arguing that Kroger and Albertsons face growing competition from a wide range of retail formats. They presented evidence that consumers frequently cross-shop across store types and that retailers monitor prices across a broad set of competitors. They also emphasized Walmart's role as a dominant competitor that exerts significant pricing pressure on both Kroger and Albertsons, despite the fact that Walmart was included in the FTC's "Supermarkets" market.

However, the court rejected these counterarguments as grounds for discarding the plaintiffs' proposed market definition. It concluded that the Supermarkets market was appropriately defined for antitrust purposes, noting that a relevant market need not include every potential competitor as long as it meets established legal and economic standards.

To address the defendants' claim that the Supermarkets market was too narrow, the FTC also presented evidence that the merger would substantially lessen competition even in a broader "Large-Format Stores" market. This market included traditional supermarkets and supercenters, as well as: club stores (e.g., Costco, Sam's Club); natural food stores (e.g., Whole Foods, Sprouts Farmers Market); and limited assortment stores (e.g., Trader Joe's, Aldi). The FTC presented evidence that 96% of grocery shopping occurs at retailers within this broader market in overlap areas, underscoring its relevance (Plaintiffs' Post-Hearing Brief, Proposed Findings of Fact, and Proposed Conclusions of Law, 2024, p. 18). This alternative definition was used to test the robustness of the concentration and competitive effects analysis. The

[24] The defendants claimed that the standard market definition exercise is inappropriate for this industry and did not propose an alternative market definition.

FTC showed that its conclusion that the merger would be anticompetitive remained unchanged under the broader market definition.[25]

4.2.2 Geographic Market

The identification of relevant geographic markets began with locating areas where Kroger and Albertsons overlapped in their operations. Given the inherently local nature of grocery competition, the FTC identified competing stores based on whether consumers would plausibly view them as alternative shopping options.

Specifically, the FTC defined each geographic market as a local area centered around a defendant's store. Plaintiffs' industrial organization expert, Dr. Nicholas Hill, used the defendants' loyalty card data to calculate a 75% catchment area: the smallest circle around each focal store that accounted for 75% of its sales (Opinion & Order, 2024, p. 23).[26][27] He then doubled the radius of this catchment area and included all stores within the expanded area as part of the relevant geographic market. This method relied on detailed microdata from the parties' own loyalty card records that offered granular insight into consumer shopping behavior.

In response to the defendants' critique that this approach imposed arbitrary boundaries and failed to account for variation in draw areas across store formats, Dr. Hill conducted a robustness check that used an alternative "customer-based" method. This approach defined geographic markets based on the census block groups from which each focal store drew customers. He found that his conclusions were not sensitive to the choice of method. The court ultimately adopted the FTC's primary approach.

4.2.3 Hypothetical Monopolist Test

Dr. Hill demonstrated the validity of the market definitions by showing that most local markets under both definitions passed the "hypothetical monopolist test" (HMT). Dr. Hill applied the HMT using a standard economic method known as "critical loss analysis". This approach evaluates whether a small price increase by the hypothetical monopolist would be profitable by comparing the expected loss in sales that are due to customers' avoiding the higher prices of the hypothetical monopolist to the "criti-

[25] The FTC conducted sensitivity analyses with respect to market definition in both product markets and geographic markets. Koh (2024b) develops an empirical framework for formalizing such sensitivity analysis with respect to market definition; he uses Shapley values with an application to the Albertsons-Safeway merger.

[26] Thus, the algorithm determines the radius at the store level. The average radii of the 75% catchment areas for Albertsons' and Kroger's stores in the overlap areas were approximately 5.6 and 4.6 miles.

[27] In past cases, experts have invoked the *Elzinga–Hogarty* test to defend local geographic markets (Elzinga and Hogarty, 1973). That approach defines markets by examining trade flows, asking whether most consumption within an area is supplied from inside it and whether most production within the area is sold locally. Although catchment-area analysis shares some features with this framework, Dr. Hill's method was instead anchored in the hypothetical monopolist test. His delineation of geographic markets sought to identify the set of competitor stores that would plausibly constrain a focal store under a hypothetical price increase, thereby capturing consumer substitution rather than trade flows.

cal" (threshold) loss of sales that would make the price increase unprofitable for the hypothetical monopolist.

Dr. Hill conducted the HMT on 2,537 proposed markets that represent parties' stores that had at least one of the other party's stores in its geographic area and showed that 2,062 supermarket markets and 2,503 large-format markets passed the HMT. The court interpreted this as evidence that the great majority of plaintiffs' proposed markets were properly defined.[28]

4.2.4 Estimation of Diversion Ratios

One can implement critical loss analysis by comparing the critical loss threshold, which is a function of a hypothetical price increase and observed price-cost margins, against the (aggregate) diversion ratio.[29] Formally, the quantity diversion ratio from store j to store l is defined as

$$D_{j\to l} \equiv -\frac{\frac{\partial q_l}{\partial p_j}}{\frac{\partial q_j}{\partial p_j}} \tag{1}$$

where p_l and q_l represent the price and quantity that are sold at store l.[30] In this case, Dr. Hill estimated diversion ratios between the merging firms' stores by leveraging their detailed loyalty data and assuming that diversions are proportional to market shares.

Hosken and Tenn (2016) and Koh (2025) formalize the necessary assumptions for estimating the aggregate diversion ratio. In general, the diversion ratio from store j to store k can be expressed as the weighted sum of individual-level diversion ratios:

$$D_{j\to k} = \sum\nolimits_{i\in S_k} w_{ij} D_{i,j\to k}, \tag{2}$$

where: S_k is the set of consumers that consider store k as a potential shopping destination; w_{ij} is a weight that depends on consumer i's sensitivity to prices at store j; and $D_{i,j\to k}$ is individual i's diversion ratio from j to k.[31] If consumer i has a multinomial logit demand and makes N_i choices (e.g., the number of trips to supermarkets in a year), the weights and the individual diversion ratios admit simpler expressions:

[28] The defendants' expert Dr. Israel proposed what he called the "Actual Monopolist Test" as an alternative to the HMT, but the Court did not accept it as a valid test for market definition.

[29] If m is the price-cost margin $(p\text{-}c)/p$, X is the percentage increase in price, and D is the aggregate diversion ratio from a product in the candidate product market to all other products in the product market, then the price increase will be profitable if $X/(X+m) < D$.

[30] Quantity sold in a retail store can be conceptually difficult to measure because retail stores typically carry a large number of items. Thus, it is common to approximate the quantity sold with revenue. As explained below, Koh (2025) proposes a framework that does not require such approximation.

[31] Set s_k can be determined by making specific assumptions with respect to consumers' maximum travel distances or applying the geographic market definition.

$$w_{ij} = \frac{N_i s_{i,j}(1-s_{i,j})}{\sum_{\sim i} N_{\sim i} s_{\sim i,j}\left(1-s_{\sim i,j}\right)} \tag{3}$$

$$D_{i,j\to k} = \frac{s_{i,k}}{1-s_{i,j}} \tag{4}$$

where $s_{i,k}$ is the probability that i chooses store k as a shopping destination.[32] To take (3) and (4) to data and feasibly estimate diversion ratios, an analyst can assume that each i corresponds to an aggregated geographic unit such as a census block group and estimate N_i and $s_{i,j}$ as block group-level grocery shopping frequency and market shares using the parties' loyalty data and a measure of block-level market size that is estimated from government surveys, third-party sales data, or other data sources.

The above approach has two major practical advantages: First, it does not require data from non-merging parties. Second, it imposes a parametric assumption on consumer-level preference – that consumers have logit demand – but does not require the analyst to estimate the demand function if disaggregated market shares can be estimated from rich microdata. Such microdata are becoming more readily available from retail firms as they increase their investments in data capabilities.

When rich microdata are unavailable, an alternative approach to estimating store-to-store diversion ratios is to use aggregate data. For example, the approach of Ellickson et al. (2020) requires only cross-sectional data on store-level annual revenues. The defendants' expert (Dr. Mark Israel) relied primarily on this approach. Dr. Hill, however, found that his own conclusions with respect to market definition and competitive effects did not change even if he replaced his diversion ratio estimates with the ones that were calculated from the Ellickson et al. (2020) approach.

4.2.5 Market Concentration and the Structural Presumption

Once markets are defined, one can calculate market shares to assess market power and potential merger harm.[33] As described above, each geographic market was defined as including all relevant store formats within twice the radius of a 75% catchment area around a focal store. After identifying the competing stores within each market,

[32] The diversion ratios can be equivalently expressed as $D_{j\to k} = \sum_{i\in S_j} w_{ij}\ D_{i,j\to k}$ because $D_{j\to k} = \sum_{i\in S_k} w_{ij} D_{i,j\to k} = \sum_{i\in(S_k\cap S_j)\cup(S_k\cap S_j^c)} w_{ij} D_{i,j\to k} = \sum_{i\in S_k\cap S_j} w_{ij} D_{i,j\to k} = \sum_{i\in(S_j\cap S_k)\cup(S_j\cap S_k^c)} w_{ij} D_{i,j\to k} = \sum_{i\in S_j} w_{ij} D_{i,j\to k}$ since any consumer $i \notin S_j \cap S_k$ $i \in S_k \cap S_j$ has $w_{ij} = 0$ if $i \notin S_j$ $w_{ij} = 0$ if $i \in S_j$ or $D_{i,j\to k}$ if $i \in S_k$, so $\sum_{i\in S_k\cap S_j^c} w_{ij} D_{i,j\to k} = \sum_{i\in S_j\cap S_k^c} w_{ij} D_{i,j\to k} = 0$.

[33] Nocke and Whinston (2022), Koh (2024a), and Nocke and Schutz (2025) derive the mathematical relationship between market shares and the potential welfare loss from mergers. These tools allow the analyst to translate market shares into quantitative statements on potential merger harm.

Dr. Hill used the Herfindahl-Hirschman Index (HHI) to project post-merger market (seller) concentration. These calculated projections were characterized on a market-by-market basis with the use of the DOJ and FTC's 2023 Merger Guidelines, which presume that a merger is anticompetitive if it results in either: (i) a post-merger HHI above 1,800 with an increase of at least 100; or (ii) a post-merger market share above 30% with an HHI increase of at least 100.

Dr. Hill found that 1,922 markets under the Supermarkets definition and 1,785 markets under the broader Large-Format Stores definition exceeded the thresholds that are set forth in the 2023 Merger Guidelines (Opinion & Order, 2024, p. 28). These results demonstrated that the FTC's findings were robust to alternative market definitions. Dr. Hill also showed that many of these markets would be presumptively unlawful under the more lenient thresholds of the 2010 Horizontal Merger Guidelines, which further reinforced the conclusion that the proposed merger was likely to harm competition.

The court agreed, finding that the merger of Kroger and Albertsons would lead to undue market concentration and presumably lessen competition in many geographic markets using both the Supermarkets and Large-Format Stores market definitions.

4.3 Competitive Effects

A merger has an adverse competitive effect if the elimination of head-to-head competition between the merging firms is likely to harm consumers. To assess this, Dr. Hill employed Werden's (1996) compensating marginal cost reduction (CMCR) framework, which quantifies the percentage to which marginal costs would need to fall to offset the merger's upward pricing incentives. If the required CMCR exceeds the cost savings that would be expected from the merger, the merged firm is likely to raise prices.

In applying this method, Dr. Hill used the defendants' ordinary-course-of-business gross margins and diversion ratios that were derived from loyalty card data. He found that 1,472 local markets under the Supermarkets definition and 1,513 under the Large-Format Stores definition were both presumptively anticompetitive and had CMCR values that exceeded 5% (Plaintiffs' Post-Hearing Brief, Proposed Findings of Fact, and Proposed Conclusions of Law, 2024, p. 40). Dr. Hill argued that 5% was a conservative threshold, especially in light of the testimony from the FTC's efficiency expert, Mr. Aaron Yeater, who estimated that the merger would likely generate cost savings of less than 1% (Preliminary Injunction Hearing Transcript-Day 6 Afternoon Session, 2024, p. 1840). These findings suggested that the merger would likely lead to higher prices in many local markets even after accounting for the defendants' claimed efficiencies.

4.3.1 Measuring Margins

Detailed store-level financial data allows antitrust agencies and firms to estimate economic margins, which are key inputs for both the HMT and the competitive effects analysis. However, selecting the most appropriate measure of accounting margin requires an economic justification. The plaintiffs relied on the merging parties' store-

level gross margins as measures of economic margin; they argued that gross margins were appropriate because the defendants use them in ordinary-course business decisions that are related to pricing, profitability, and performance evaluation. The defendants, however, disagreed and proposed an alternative measure of variable margin that is tied to capital finance planning; their margin estimates were substantially lower than those of the plaintiffs.

To assess which measure was more appropriate, Dr. Hill conducted a quasi-experimental analysis that was based on a real-world event: a January 2022 labor strike at Kroger's King Soopers stores in Denver. The strike caused a diversion of customers to nearby Safeway stores (that were owned by Albertsons). This exogenous sales shock created an opportunity to examine changes in categories of costs to determine which were marginal. Dr. Hill analyzed the changes in sales and costs at 77 affected Safeway locations before, during, and after the strike and found that the implied margin was 28% -- which was very close to the stores' average gross margin of 29%. By contrast, Dr. Israel's measure, at an average margin of 19%, was significantly lower than the empirical estimate (Plaintiffs' Post-Hearing Brief, Proposed Findings of Fact, and Proposed Conclusions of Law, 2024, p. 23).

4.3.2 Measuring Upward Pricing Incentives

The defendants used the Gross Upward Pricing Pressure Index (GUPPI) to assess the merging firms' first-order incentives to raise prices. GUPPI measures how the merging firms' first-order pricing incentives shift at the pre-merger equilibrium (Farrell & Shapiro, 2010; Jaffe & Weyl, 2013). Both CMCR and GUPPI are widely used tools for evaluating upward pricing incentives in merger analysis. In this case, however, the plaintiffs' expert Dr. Hill preferred CMCR because it incorporates feedback effects by capturing how the merging firms' prices would interact at the post-merger equilibrium. While CMCR and GUPPI typically yield similar results, CMCR may provide greater precision.

In retail merger analysis, estimating competitive effects can be challenging due to the lack of store-level price and quantity data, even when revenue data are available. A common workaround is to approximate quantities with the use of sales revenue (Ferguson et al., 2023). Koh (2025) proposes an alternative approach that avoids this approximation by using revenue-based diversion ratios instead of quantity-based ratios, which enables competitive effects analysis even when price and quantity data are not separately observed.

The revenue diversion ratio is defined as

$$D^{R}_{j\to k} \equiv -\frac{\frac{\partial R_k}{\partial p_j}}{\frac{\partial R_j}{\partial p_j}} \tag{5}$$

where $R_l \equiv p_l * q_l$ is store l's revenue. Thus, (5) looks at diversions in revenues rather than in quantities sold as in (1). Quantity diversion ratios and revenue diversion ratios are generally not equal to each other when firms have market power, as is typically the case in merger analysis.

Koh(2025) demonstrates that GUPPI and CMCR are functions of: the margins of the merging firms; revenue diversion ratios; and own-price elasticities. He also observes that the own-price elasticities in turn are functions of within-firm margins and revenue diversion ratios provided that the profit maximization condition holds. Thus, data on merging firms' store-level margins and revenue diversion ratios are sufficient to identify the merging firms' store-level GUPPIs and CMCR.

Finally, Koh (2025) demonstrates that assuming consumers have CES preferences enables the analyst to estimate revenue diversion ratios from revenue data with the use of a proportional-to-share formula.

4.4 Divestiture

As part of the proposed merger, the defendants agreed to divest 579 stores to C&S Wholesale Grocers to alleviate anticompetitive concerns. However, the plaintiffs argued that the proposed divestiture was inherently risky and insufficient. They cited C&S's limited experience in operating full-service grocery stores and pointed to the failed divestiture in the Albertsons-Safeway merger, where stores that were divested (sold) to Haggen ultimately closed, as evidence that such remedies may not preserve competition.[34]

The FTC presented economic analysis that indicated that many local markets would remain presumptively unlawful even with the proposed divestiture. Of the markets that Dr. Hill identified as presumptively unlawful under the HHI thresholds, more than 113 would not include a single divested store, which meant that the proposed remedy could not address competitive concerns in those areas (Opinion & Order, 2024, p. 46).

Assuming a perfectly successful divestiture—where no sales are lost and no stores close—Dr. Hill found that 551 Large-Format Stores markets would still be presumptively unlawful (as per the HHI thresholds). If the divested stores were to lose 30% of their sales, the number of unlawful post-merger markets would rise to 716 (Opinion & Order, 2024, p. 46). Furthermore, even under the assumption of perfect success, Dr. Hill identified 230 Large-Format Stores markets where both the HHI thresholds and CMCR values exceed antitrust benchmarks, which indicated likely price increases. For the Supermarkets market, Dr. Hill found that 1,002 markets would remain presumptively unlawful under a perfect divestiture. This number increased to 1,035 if 10% of sales are lost, 1,276 with a 30% loss, and 1,347 with a 50% loss in sales.

Dr. Hill also analyzed the effects of potential store closures. If 30% of divested stores were to close, 710 Large-Format Stores markets would remain presumptively unlawful; if 50% closed, the number would rise to 860 (Opinion & Order, 2024, p. 46). In the Supermarkets market, assuming 10%, 30%, and 50% store closures, the number of presumptively unlawful markets would be 1,310, 1,410, and 1,520. Plaintiffs noted that a 50% closure rate is consistent with the outcome of the Albertsons–Safeway divestiture to Haggen.

[34] As discussed earlier, Hosken, Pinter, and Raval (2025) examine multiple supermarket divestitures, including the divestitures to Haggen, and find large increases in negative reviews that follow divestitures, with consumers' complaining about higher prices.

4.5 Discussion

The *FTC v. Kroger* case offers valuable lessons on how retail mergers can be analyzed with the use of increasingly rich microdata. The FTC relied on the merging parties' own loyalty card data to assess market definition, concentration, and competitive effects. The case also illustrates how the agency approached the merger remedy question. The tools that we describe in this article are broadly applicable to other retail mergers and remain flexible in their data requirements – provided that the necessary economic assumptions are satisfied.

Perhaps the most novel element of the Kroger/Albertsons case was that the FTC advanced a theory of harm with respect to the merger's potential effects on the labor market: The Commission alleged that the merger would substantially lessen competition for unionized grocery store labor; the relevant market was defined as "union grocery labor" in areas that are covered by collective bargaining agreements (CBAs). It presented evidence that union grocery workers receive wages and benefits that are determined through CBAs and are distinct from those of non-union workers. While the parties disputed the extent of these differences, the court accepted the FTC's market definition.

The FTC's labor theory of harm rested on two points: that the merger would result in high concentration in the union grocery labor market; and that it would reduce unions' bargaining leverage by eliminating head-to-head competition between the merging firms for unionized workers. Evidence included internal documents that showed that the parties viewed each other as "bargaining competitors" and sought to avoid strikes that could shift sales to the other.

However, no formal quantitative analysis was presented to the court, largely due to limitations in available data and empirical methodologies. The court found that the evidence was insufficient to independently justify a preliminary injunction but noted that labor market theories in merger cases are new and lack established analytical frameworks, which makes their development more challenging. Thus, developing robust quantitative tools to analyze such issues will be essential for future merger enforcement.

5 Estimating Consumer Injury from Deceptive Earnings Claims in Gig Economy Cases

5.1 Background

The "gig economy"—a broad term used for short-term work arrangements for independent contractors—began its rise to prominence more than a decade ago with the creation of rideshare companies such as Uber and Lyft. The term encompasses work that is done by many kinds of individuals, including: consultants; delivery workers; pet sitters; home improvement professionals; and many others. The gig economy has

grown rapidly in recent years: it generated more than $556 billion in global annual sales in 2024; this is almost three times the gig economy's sales in 2019.[35]

Gig economy work can differ from traditional jobs in many ways: For example, gig workers are often classified as independent contractors. While this classification gives gig workers the flexibility to choose when and where they work, it also makes it more difficult for gig workers to predict how much they will earn. In contrast to traditional employees, independent contractors' wages might not be established by an employment contract, and earnings can vary based on time of day, season, or type of job performed. Another difference is that many aspects of app-based gig work are more automated as compared to traditional jobs, with sometimes opaque algorithms' playing an important role in determining pay and gig work offers. These unique features of the industry have brought special attention from consumer protection regulators and enforcement agencies including the FTC. The FTC recently issued a policy statement that announced its commitment to protecting gig economy workers from unfair, deceptive, and anticompetitive practices.[36]

There are significant differences in how gig platforms assign work, distribute payments, and make claims to prospective workers -- even if we focus only on the subset of gig platforms that involve driving services: workers' using their own vehicles to drive passengers, groceries, or restaurant meals, or to provide other services. For example, some of these platforms offer gig workers (or "drivers") individual work opportunities, which provide workers with the choice to accept or reject distinct passenger ride requests or delivery offers. Other platforms may offer gig workers the opportunity to sign up for shifts or driving blocks, where drivers complete multiple rides or deliveries within that shift. Drivers may earn compensation that is based on time worked, jobs completed, distance driven, or a combination of these. Some platforms advertise expected earnings prior to customer tips while others include projected tips in the earnings claims. Platforms may also differ in other ways, such as whether time spent waiting for ride or delivery requests is compensated, whether past driver performance affects the job offers that are received, and whether the platform offers additional compensation to drivers if their earnings fall below a minimum amount.

The FTC alleged that deceptive claims were made to gig workers in several recent cases, including Arise Virtual Solutions, Care.com, Grubhub, Handy Technologies, and Lyft.[37] In this article, we focus on two such cases: Uber Technologies Inc.

[35] See World Economic Forum, "What is the gig economy and what's the deal for gig workers?" available at https://www.weforum.org/stories/2024/11/what-gig-economy-workers. Global revenue generated by the gig economy was $204 billion in 2019. *See* Mastercard & Kaiser Assocs., "Mastercard Gig Economy Industry Outlook and Needs Assessment," available at https://blog.kleros.io/content/files/wp-content/uploads/2019/05/gig-economy-white-paper-may-2019.pdf.

[36] See https://www.ftc.gov/legal-library/browse/policy-statement-enforcement-related-gig-work.

[37] See https://www.ftc.gov/legal-library/browse/cases-proceedings/2223046-arise-virtual-solutions-inc-ftc-v, https://www.ftc.gov/legal-library/browse/cases-proceedings/carecom-inc-ftc-v, https://www.ftc.gov/legal-library/browse/cases-proceedings/202-3157-grubhub-inc-ftc-illinois-v, https://www.ftc.gov/legal-library/browse/cases-proceedings/handy-technologies, and https://www.ftc.gov/legal-library/browse/cases-proceedings/222-3028-lyft-inc-us-v.

("Uber"); and Amazon's delivery platform ("Amazon Flex").[38] While there are significant differences in how the platforms operate and pay drivers, the FTC alleged that both companies misled drivers as to how much they would earn through the platforms. These cases provide us with an opportunity to illustrate specific methods to estimate consumer injury that was incurred by drivers.[39]

The academic law and economics literature defines different concepts of damages (Allen et al., 2011), which can guide our approach to estimating consumer injury.[40] One concept of economic damages is "reliance," which aims to restore the plaintiff to the same position "as if the relationship with the defendant or the defendant's misrepresentation (and resulting harm) had not existed in the first place" (Allen et al., 2011). Reliance damages are typically used in tort law, which has a goal of compensating individuals for a wrongdoing. In economic terms, redressing individuals for opportunity costs falls under the framework of reliance damages (Cooter & Ulen, 2016).

Another concept of economic damages is "expectation," which has the goal of restoring the plaintiff to the same financial position as if the defendant had performed as promised. Expectation damages often apply to breach-of-contract cases. One way that we can calculate expectation damages is by examining the difference between the value of what was promised and the value of what was delivered.

In typical scenarios, consumers pay money in exchange for products or services, which form the basis for our estimation of consumer injury according to one of the economic damage concepts described above. Gig workers, however, usually do not pay money in exchange for the opportunity to earn income through the gig platform.[41] Therefore, one way to estimate a consumer's injury that is related to gig economy earnings misrepresentations is to consider lost earnings.

Lost earnings are measured as the difference in injured workers' earnings through the platforms and their estimated earnings in a counterfactual setting without deception. However, the presumed counterfactual, and thus estimates of lost earnings, can differ based on the circumstances of the case: such as the facts, the defendant company's business model, and the data—and the approach that is taken to estimate injury.

In the case against Uber, the FTC challenged both yearly and hourly earnings claims that Uber made to prospective drivers in specific cities. The FTC's complaint identifies median yearly and hourly earnings that were significantly lower than the stated amounts and alleges that the typical prospective driver would likely be deceived by the claims. Taking these allegations as true, if one were to assume that Uber would

[38] See https://www.ftc.gov/legal-library/browse/cases-proceedings/152-3082-uber-technologies-inc and https://www.ftc.gov/legal-library/browse/cases-proceedings/1923123-amazon-flex for details on these cases.

[39] These illustrations are not meant to substitute for methodologies and calculations that can be used when there is additional, relevant data that are available; for example, in litigation, injury and monetary calculations will benefit from additional data that are obtained through discovery. Nor are these illustrations meant to supplant the legal framework for calculating monetary relief as set forth by the courts. FTC law enforcement actions, of course, will continue to meet the relevant standard of proof under that framework.

[40] Again, these concepts do not substitute for how to approximate injury and calculate monetary relief under the law.

[41] Some gig workers may incur monetary start-up costs, such as undergoing licensing requirements. As discussed below, we incorporate these costs in certain injury estimates. In addition, gig workers are usually responsible for gas and vehicle maintenance. The injury estimates laid out here do not include these costs.

have advertised accurate earnings in the hypothetical counterfactual setting (rather than delivering on the promised, inflated earnings in the counterfactual), one could use an opportunity cost approach to estimate lost earnings. Under this opportunity cost or reliance damages approach, one could estimate consumer injury by calculating the value of lost time as well as any start-up costs of becoming an Uber driver.

On the other hand, other factual scenarios may lend themselves to a different approach to approximating consumer injury. In Amazon Flex, the company made a nationwide representation about customers' tips that drivers would earn through the platform, allegedly claiming that drivers would earn "100% of tips." This representation was made to both prospective and existing drivers.

If we assume that this scenario lacked markets or groups of drivers to serve as "controls" to demonstrate what would have happened in the absence of alleged deception, estimating the number of drivers who responded to the claims would pose a particular challenge. Another challenge would lie in interpreting "100% of tips" in numerical terms, such as specific wages per hour, which would make it more difficult to estimate outside wages. Finally, because the FTC's complaint alleges that Amazon Flex initially paid drivers 100% of tips before switching to a different pay model, one could assume that drivers *would* earn all tips in the counterfactual world without deception. These facts could lead to an expectations damages approach: One could estimate consumer injury by taking the difference between estimated actual earnings and Amazon's described earnings. We discuss further details for both approaches below.

5.2 Uber's Claims with Regard To Driver Earnings

5.2.1 Background and Allegations

Uber operates a mobile app that allows consumers to hail rides from participating drivers who use their own vehicles to earn fares by driving passengers to their desired destinations. In a 2017 case against the company, the FTC alleged that Uber misrepresented that drivers in specific cities were likely to earn substantial income when in fact they often earned less than the claimed amounts. Specifically, in 2014, Uber claimed that "the median income…is more than $90,000/year/driver in New York City and more than $74,000/year/driver in San Francisco." Around 2015, the company also made hourly earnings representations for more than a dozen specific markets, such as "Make $25/hour" in Boston, MA; "Make $29/hour" in San Francisco, CA; and so on. The company agreed to pay $20 million to settle the FTC's allegations.[42]

[42] See https://www.ftc.gov/news-events/news/press-releases/2017/01/uber-agrees-pay-20-million-settle-ftc-charges-it-recruited-prospective-drivers-exaggerated-earnings. The case also involved allegations about an Uber car financing program, which this article does not discuss.

5.2.2 Estimating Consumer Injury Using an Opportunity Cost Approach

The FTC alleged that the claims were unsubstantiated. According to the complaint, the median driver in New York City and San Francisco working a standard 40-hour week would earn significantly less than what Uber had advertised. In addition, the complaint alleged that in many of the markets with hourly claims, the actual median hourly earnings were below the claimed hourly earnings.

One way to approximate injury would be to estimate opportunity and start-up costs. Under this framework, Uber's alleged earnings misrepresentations were likely to have resulted in injury to drivers who joined Uber because of the claims and who had employment alternatives available with higher incomes than they earned through Uber. Injury would reflect these drivers' opportunity costs in terms of lost wages (the difference between what they earned on Uber and what they could have earned elsewhere) as well as their start-up costs (such as time and money spent on required classes and permits).

Using this framework, one can follow four general steps to estimate injury:

Step 1) Did the earnings misrepresentations increase driver enrollment?

In the first step, one could examine whether the earnings misrepresentations significantly increased driver enrollment. For example, one might utilize a difference-in-differences estimation strategy to examine the number of drivers before and after the representations and compare the change to a set of control cities that did not advertise deceptively at the time.

Step 2) What frameworks can we use to examine injury to the drivers who did enroll?

Some drivers who enrolled due to the claims could have earned more elsewhere. This set of drivers can be examined in one of two ways: For the annual income claims, one can estimate the number of injured drivers with the use of publicly available survey data on the prior careers of Uber drivers. In addition, Bureau of Labor Statistics data on wage distributions for these careers can be used to estimate how many of the enticed drivers were likely to have had higher earnings elsewhere.

For the hourly earnings claims, one could use driver attrition data. If drivers were induced to enroll in Uber due to the earnings misrepresentations, and then quit after finding that the wages were less than they could earn elsewhere, one would expect to see an increase in attrition rates in markets in which earnings misrepresentations were made. One could compare attrition rates in the markets with deceptive claims to the attrition rates in the markets without deceptive hourly claims. This "excess attrition" provides one way to estimate the number of injured drivers for the cities with hourly earnings claims.

Step 3) What are some ways to examine the injury that each driver incurred in terms of lost wages per hour?

One could also consider ways to estimate the amount of injury that was incurred by each driver per hour of driving, which in this context represents drivers' opportunity costs in terms of lost wages. Each driver's hourly opportunity cost can be estimated as the difference between their best alternative employment wage -- their "outside wage" -- and the actual wage that was alleged in the Uber complaint.

One can estimate the outside wage for injured drivers by assuming that it falls within a range. The upper bound of the range is assumed to be Uber's allegedly claimed wage: One can assume that each affected driver earned less in his/her outside employment than the allegedly claimed wage. The lower bound of the range is assumed to be the alleged actual wage: It is assumed that drivers whose outside wages were lower than their alleged actual Uber wages were not injured.[43] If one were to assume that wages are uniformly distributed across this range, then:

$$\$\ \text{Outside Wage} = \frac{\$\ \text{Alleged Actual Uber Wage} + \$\ \text{Claimed Uber Wage}}{2}$$

Under this framework, one can then estimate the injury per hour by subtracting the alleged actual median Uber wage from the median outside wage, or:

$$\$\ \text{InjuryPerHr} = \$\ \text{Outside Wage} - \$\ \text{Alleged Actual Uber Wage}$$

Step 4) What is one way to calculate injury in terms of lost wages and start-up costs?

One way to estimate total injury is to sum injured drivers' start-up costs -- which drivers incur regardless of the number of hours that they ultimately drive -- and lost wages: which drivers incur for each hour that they drive. To calculate lost wages per driver, one can multiply the injury-per-hour estimate that was developed in the third step above by the estimated amount of time that injured drivers drive. Start-up costs can be calculated in terms of both time -- e.g., taking required classes and undergoing licensing requirements -- and money: e.g., money spent on commercial registration and permits, if any, required by the jurisdiction. One can convert the time portion of these start-up costs into a dollar amount by assuming that injured drivers value their time at their outside wage. Finally, lost wages per driver can be added to start-up costs per driver in each market and multiplied by the estimated total number of injured drivers in the market.

We can summarize the four steps that we described above with the following formula, which estimates the consumer injury that results from earnings misrepresentations under an opportunity cost framework:

$$\$\ \text{Total Injury} = \#\ \text{Injured} \times [\$\text{InjuryPerHr} \times \text{TimeSpentDriving} + \$\ \text{StrtUp} + (\text{StrtUp Hrs} \times \$\ \text{OutsideWge})]$$

In sun, total injury in the absence of other data can be considered to be the sum of opportunity costs (in terms of lost wages, or the difference between actual driver wages and estimated outside employment wages) and start-up costs (in terms of the upfront time and money costs that are associated with being a driver).

[43] For both the lower and upper bound, there could be a variety of reasons for why a driver might choose a particular way to earn wages even if it is less than other opportunities or reasons that a driver selects a particular opportunity over others; the assumption here is meant for illustrative purposes.

5.3 Amazon Flex's Representations about its Tipping Practices

5.3.1 Background and Allegations

Amazon Flex, owned by Amazon.com Inc., is a service through which drivers can use their own vehicles to deliver products—including packages, groceries, and restaurant meals—to end consumers ("customers"). Drivers can utilize the service through the Amazon Flex app, which presents drivers with various delivery block offers.

As the FTC alleged in its 2021 complaint against the company, drivers could view available offers throughout the day and select delivery blocks based on length of the block, location, time of day, tip-eligibility, and block earnings. Some delivery blocks, including those that involved the delivery of restaurant meals and groceries, were eligible to receive tips from the customer. When delivery blocks were eligible to receive tips, drivers were presented with a range of expected earnings before booking the block (the "promised pay rate").

The FTC alleged that Amazon Flex represented to both drivers and delivery-receiving customers that drivers would receive "100% of tips": e.g., "You will receive 100% of the tips you earn while delivering with Amazon Flex." In addition, the company allegedly indicated that all customer tips would be "passed through" or "passed on" to drivers. The FTC also alleged that Amazon Flex changed from paying drivers the promised pay rate plus the full amount of customer tips to paying drivers a lower-than-promised hourly rate: a change that it allegedly did not disclose to drivers. According to the FTC, Amazon used customer tips to make up the difference between the new lower hourly rate and the promised rate. The company agreed to pay $61.7 million to settle these charges.[44]

5.3.2 Estimating Consumer Injury Using an Expectation Damages Approach

The following allegations in the Amazon Flex case may lend themselves to a different approach to consumer injury than the opportunity cost framework that we described earlier:

1) Amazon Flex made nationwide claims to both prospective and existing drivers that drivers would earn "100% of tips."
2) In the early years of the Amazon Flex platform, drivers *did* earn 100% of tips in addition to the bottom end of the promised pay rate.[45]
3) According to the FTC, several years later, Amazon rolled out a new earnings model, where tips were used to subsidize the bottom end of the promised pay rate. This new earnings model was not announced to drivers. In addition, drivers' earnings statements did not separately list tips, which suggests that drivers may not have been able to verify whether they received 100% of tips in addition to their promised pay from Amazon.

[44] See https://www.ftc.gov/news-events/news/press-releases/2021/02/amazon-pay-617-million-settle-ftc-charges-it-withheld-some-customer-tips-amazon-flex-drivers.

[45] This article does not discuss Amazon Flex's alleged practices following the FTC case. No statement should be interpreted as an assessment of the company's current tip pass-through rate.

Given these characteristics, one could conclude that a reasonable driver is likely to interpret the "100% of tips" claim to mean that he/she would receive at least the bottom end of the promised pay rate in addition to all customer tips. One could also conclude that all drivers were likely to have been injured since the claim was allegedly made to both new and existing drivers nationwide.

Depending on the nature of the claim and circumstances, adopting an opportunity cost approach might be infeasible and a poor fit for the facts. When a claim is made to all drivers across the country, a lack of control markets may make it difficult to gauge the effect of the claim on enrollment or tenure. In addition, when a claim is a general statement ("earn 100% of tips") without reference to precise hourly or yearly earnings, using certain methods to approximate opportunity costs might not be feasible.

Therefore, rather than calculating opportunity costs, one can estimate injury as expectations damages by taking the difference between the promised hourly earnings (the promised pay rate plus all customer tips) and the alleged earnings (the lower-than-promised pay rate, subsidized with customer tips) for all drivers, or:

$$\$\text{Total Injury} = \$\text{ Total Promised Earnings} - \$\text{ Total Alleged Actual Earnings}$$

For Amazon Flex, this amount would equal the sum of tips that were used to subsidize the promised pay rate, which the complaint alleged totaled over $61 million. Amazon agreed to pay $61,710,583 to settle the allegations.

5.4 Discussion

Gig economy platforms can differ in significant ways with respect to pay structures, advertising claims, and business models. The previous two sections describe two ways in which we can estimate consumer injury from deceptive earnings claims that are made to gig workers: one based on opportunity costs plus start-up costs; and another based on the difference between the promised earnings and actual earnings. The specifics—such as the claim and practices in question—will affect the approach that is taken.[46]

6 Loyalty Discounts and their Effects on Competition in FTC v. Surescripts

6.1 Background

Exclusive-dealing contracts are vertical arrangements that restrict one or both parties to the contract from doing business with anyone else. These types of contracts may have pro-competitive benefits such as reducing costs and discouraging free riding.

[46] In future gig work investigations, BE may utilize other approaches to consumer injury that are different from those described in this article based on the particular circumstances that are presented by those investigations. These approaches are not a substitute for those conducted in litigation. In litigation, of course, the FTC will seek discovery that will enable the Commission to offer the reasonable approximation of consumer harm that is required by the operative legal standard.

However, a firm may also use exclusive contracts to deny a rival sufficient scale to compete. Any analysis of the effects of exclusive contracts on competition must weigh the potential pro-competitive and anti-competitive effects.

When the market in question is two-sided (or multi-sided), the use of exclusive contracts can tip the scales toward the anti-competitive effects. Two-sided platforms connect two distinct groups of customers, and allow them to interact and create value for both sides. A key feature in many two-sided markets is indirect network effects where the value of the platform to customers on one side of the market is enhanced by the participation of customers on the other side. A classic example is a credit card network: Cardholders value the network more when more merchants accept their card; and merchants value the network more when more cardholders carry the card.

Because of indirect network effects, a new entrant must solve a "chicken-and-egg" problem and achieve a critical mass of customers on both sides of the platform. This is the only way to become a viable competitor to an incumbent platform.

Exclusive contracts can prevent rivals from obtaining that critical mass of new customers. Therefore, the use of exclusive contracts in two-sided markets between an incumbent platform and its customers may deny other platforms the scale that they need to compete. This can make entry or expansion by a rival platform difficult or even impossible.

That is exactly what was alleged in *FTC v. Surescripts*.[47]

6.2 Theory

The economics literature that aligns closest to Surescripts' conduct is Segal and Whinston (2000), which models a "divide and conquer" strategy where an incumbent pays for exclusivity by charging a low price to some customers that sign exclusives, while charging the monopoly price to non-signers. In that strategy, "each buyer that signs an exclusive creates an externality on all other buyers by reducing the likelihood that another supplier will enter."[48]

The effects of the "divide and conquer" strategy are amplified in two-sided markets with exclusives on both sides where a chicken-and-egg problem due to indirect network effects exacerbates the entry barrier.[49] Intuitively, the existence of exclusive contracts on one side of a platform may affect a rival's ability to sign up non-exclusive customers on the other side.

David Evans, the FTC's expert in the *Surescripts* matter, stated that the case "highlights a potentially important feature of exclusionary contracts for two-sided transaction platforms. Exclusive contracts on both sides of the platform magnify the impact of the contracts on each side."[50] Indirect network effects create a positive feedback

[47] See https://www.ftc.gov/legal-library/browse/cases-proceedings/141-0210-surescripts-llc.

[48] Segal and Whinston (2000) comments on an earlier study -- Rasmusen et al. (1991) -- that explains how exclusionary contracts can effectively exclude a rival if firms require a minimum scale to operate profitably and customers are unable to coordinate to defeat the strategy.

[49] See Whinston (2006). Chapter 4 discusses how economies of scale that arise from network externalities, including indirect network effects, may have exclusionary effects.

[50] See Evans (2024).

effect where contracting with customers on one side of a platform leads to additional potential customers on the other side who now value the platform more. However, indirect network effects can also lead to the opposite result: If a platform loses customers on one side -- perhaps due to exclusive contracts with a rival -- the platform risks losing customers on the other side who now value the platform less.

Relatedly, Doganoglu and Wright (2010) study how an incumbent platform can use introductory exclusive offers in a market without scale economies to foreclose rivals due to indirect network effects. This can occur even if the rival is more efficient and offers a superior network.[51]

Even when contracts are not explicitly exclusive, the use of all-units discounts can lead to similar exclusionary effects. With all-units discounts, a customer receives a discount on all of the units that it purchases once it exceeds a threshold level (or share) of transactions with a seller -- not just on the units beyond the threshold. As has been shown in the literature, these discounts can exclude smaller potential rivals.[52] These rivals may be unable to compete for significant sales without also accounting for the customer's loss of potentially large discounts if the customer's purchases from the original seller fall below the threshold.

The FTC argued that this was the effect of Surescripts' contracts with its customers. While most of the contracts were not explicitly exclusive, most customers would lose all of their discounts/incentives by multi-homing for even a small percentage of their transactions. In practice, this meant the contracts were *de facto* exclusive.

6.3 Surescripts' Business: Electronic Prescription Routing and Patient Eligibility

Historically, after a visit to a doctor, a patient might be handed a prescription on a physical slip of paper that the patient then delivered to a pharmacy. The pharmacy would check the patient's insurance coverage via phone or fax when filling the prescription and bill the patient the appropriate amount. Starting in the early 2000s, these transactions began to be completed electronically. Surescripts was one of the first platforms to facilitate those connections.

While Surescripts is engaged in many transactions, the case focused on two: "routing" and "eligibility."[53] Routing involves the transfer of prescription information from a prescriber via their electronic health record (EHR) software to a pharmacy.[54] Eligibility involves the transfer of patient health insurance information from a pharmacy benefit manager (PBM) to a prescriber via their EHR.

There are many benefits from these transactions relative to traditional methods: For example, a prescriber can have available the formulary details for a patient's plan

[51] The rival's network is superior in the sense that it would yield higher indirect network effects than the incumbent for a given number of customers that are signed up on each side.

[52] See Chao et al. (2018). In this article, the smaller rival is capacity-constrained. In two-sided markets where a platform has contracts with all-units discounts on both sides, a rival platform's limited connections to customers on one side is effectively a capacity constraint on the number of transactions that it can offer customers on the other side.

[53] Other transactions include medication history, electronic prior authorization, and clinical direct messaging. See https://surescripts.com/why-surescripts/our-impact/annual-impact-report.

[54] Throughout this article, the term "EHR" refers to the EHR vendor that contracts with Surescripts.

at the point of care and prescription information can be transferred quickly and accurately to a pharmacy. The use of electronic routing and eligibility transactions grew quickly, partially due to federal incentive programs that encourage their use, and have now almost completely replaced traditional methods.[55]

For routing and eligibility respectively, pharmacies and PBMs each pay Surescripts a fixed fee per transaction, and Surescripts then sends a percentage of those fees to the EHR. While most of Surescripts' contracts with pharmacies, PBMs, and EHRs were not nominally exclusive, they provided discounts and incentives if a customer used Surescripts for all or almost all transactions. As explained below, the FTC argued that these provisions made the contracts de facto exclusive and limited entry by rival platforms.

We discuss the routing transaction below, but much of the analysis extends to the eligibility transaction.

6.4 Surescripts' Alleged Anti-Competitive Conduct

The FTC's complaint alleged that Surescripts had become a monopolist of electronic routing transactions by 2009.[56] By that time, Surescripts had established connections to nearly all EHRs and pharmacies, which made Surescripts an essential platform for all customers that required connections. The FTC's complaint explained that, due to indirect network effects, the more pharmacies that connected, the greater would be an EHR's demand for the Surescripts platform. Similarly, pharmacies value connecting to Surescripts more when more EHRs are connected. Those effects alone gave Surescripts an advantage over rival platforms as it was one of the first platforms to obtain significant connections -- "critical mass" -- on both sides of the platform.

According to the FTC, Surescripts' monopoly was maintained, at least in part, due to Surescripts' "loyalty" contracts with EHRs and pharmacies. Pharmacies would pay a lower per-transaction price if they routed (generally) 100% of transactions via Surescripts. Similarly, an EHR would receive a higher percentage of that routing fee (an "incentive payment") if it used Surescripts for 100% of its transactions. While these differences may amount to only a few cents per transaction, they are economically significant once multiplied by the millions (or billions) of routing transactions that occur each year.[57]

These *all-units* discounts made it very costly for most customers to use multiple platforms (i.e., "multi-home") as routing even a small fraction of transactions over a rival platform would result in that customer's potentially losing *all* discounts or incentives from Surescripts. As a result of the loyalty contracts, the FTC argued

[55] Federal government incentive programs -- including the Medicare Improvements for Patients and Providers Act of 2008 and the Health Information Technology for Economic and Clinical Health Act of 2009 -- spurred the use of electronic routing and eligibility transactions through incentive payments and, later, penalties.

[56] See https://www.ftc.gov/system/files/documents/cases/surescripts_redacted_complaint_4-24-19.pdf.

[57] Today, Surescripts processes 23.8 billion transactions a year, including 2.5 billion routing transactions. See https://surescripts.com/why-surescripts/our-impact/annual-impact-report.

that Surescripts secured contracts with customers covering at least 95% of routing transactions.[58]

6.5 Quantitative Illustration

For a rival to convince a customer to use its platform for even a small percentage of transactions, the rival would need to offer large discounts/subsidies to make up for the higher price/lower incentives on the transactions that the customer continued to route through Surescripts. We illustrate the practical effects of Surescripts' loyalty contracts on the ability of rival platforms to compete through the following stylized example.[59]

Suppose that Surescripts has loyalty contracts that cover 90% of transactions on both sides of the routing market: with EHRs, and with pharmacies). Further, suppose that a rival platform offers connections to the remaining 10% on each side. Finally, suppose that a pharmacy routes 100 transactions a day and pays Surescripts four cents per transaction if the pharmacy is loyal and six cents per transaction otherwise.

The rival could approach the pharmacy that is loyal to Surescripts and offer the pharmacy 10 transactions from EHRs at a price: p^r. To accept, the pharmacy would need to factor in the higher price it would now pay on the 90 transactions that it still routes through Surescripts. If loyal to Surescripts, the pharmacy would pay \$4 (=\$0.04*100) to Surescripts. If the pharmacy multi-homed, it would pay \$5.40 (=\$0.06*90) to Surescripts and p^r*10 to the rival platform. For the pharmacy to accept, p^r would need to be no more than \$−0.14:[60] The rival would need to *pay* the pharmacy to make it as well off as before.

The same type of analysis holds for the rival platform approaching an EHR. It would need to offer additional incentives to the EHR to make up for the incentives the EHR would lose from Surescripts.

To avoid paying these subsidies, a rival could simply work with non-loyal customers on both sides of the transaction (i.e., the contestable demand). However, in our example, the existence of loyalty contracts on both sides of the platform makes the contestable demand very small. The rival could not compete for 10% of *all* transactions because some of the non-loyal pharmacies will still be transacting with loyal EHRs (and vice versa). In fact, the contestable demand is only 1% of the total transaction volume (*i.e.*, (1-0.9)*(1-0.9) = 1%).[61] Even if the shares of loyal customers were 50% on each side of the platform, the contestable demand is still only 25% of all transactions.

[58] See https://www.ftc.gov/news-events/news/press-releases/2019/04/ftc-charges-surescripts-illegal-monopolization-e-prescription-markets.

[59] The numbers that are used in this stylized example are for illustrative purposes only, since the details of the matter are non-public.

[60] The pharmacy's total routing cost if loyal to Surescripts is \$4. The rival's price to make the pharmacy as well-off multi-homing as it is being loyal satisfies \$0.06*90 + p^r*10 = \$4.

[61] This assumes that the customers on each side of the platform transact with the customers on the other side in proportion to their shares. So, in our example, every EHR sends 90% of its transactions to loyal pharmacies and 10% to non-loyal pharmacies.

Therefore, the extent of foreclosure due to Surescripts' contracts depends on the magnitude of the contestable demand and the difference between Surescripts' loyal and non-loyal prices. While the actual numbers are not public, the FTC alleged that the subsidies that would be required to convince individual customers to multi-home would not be feasible for a rival platform. According to the FTC's complaint, "Surescripts's web of loyalty contracts prevented competitors from attaining the critical mass necessary to be a viable competitor in either routing or eligibility. Those effectively exclusive contracts foreclosed at least 70% of each market, eliminating multiple competitive attempts from other companies, such as Emdeon, that offered lower prices and greater innovation."[62]

6.6 Outcome

During litigation in federal district court, Surescripts moved for full summary judgment on the FTC's claims, and the FTC moved for partial summary judgment on two issues: market definition and monopoly power.[63] The FTC won on both its issues.[64] On the monopoly power issue, the judge ruled that Surescripts had a 95% share since 2010 in the relevant markets and, combined with the chicken-and-egg problem in two-sided markets, Surescripts has had monopoly power since that time. The judge deferred ruling on Surescripts' motion on competitive effects but noted that "success on its motion was an uphill battle."

Soon after, the parties agreed to a settlement that included several components.[65] Surescripts was prohibited from using exclusivity or loyalty contracts that required 50% or more of a customer's transactions. It also was prohibited from including provisions in its contracts that limited the ability of customers to do business with Surescripts' competitors or prevented rivals from competing with Surescripts.[66]

FTC v. Surescripts provides an illuminating example of the implications of exclusive contracts in two-sided markets. Due to the chicken-and-egg problem that affects all platforms, gaining a critical mass of customers can be challenging. The addition of loyalty contracts that are de facto exclusive can heighten entry barriers and limit competition from rival platforms.

7 Conclusion

A central theme in this year's article on economics at the FTC is the growing prominence of labor economics. On the competition side, the antitrust agencies are now pursuing theories of harm in mergers based on labor market effects—as in the

[62] See https://www.ftc.gov/system/files/documents/cases/surescripts_redacted_complaint_4-24-19.pdf.

[63] While not discussed in this article, the FTC argued that the relevant product markets included only electronic transactions and did not include faxes, phone calls, and paper alternatives.

[64] See https://ecf.dcd.uscourts.gov/cgi-bin/show_public_doc?2019cv1080-177.

[65] See https://www.ftc.gov/system/files/ftc_gov/pdf/surescriptsstipulatedorder.pdf.

[66] The settlement also included other provisions, such as prohibiting employee non-compete agreements and requiring Surescripts to institute an antitrust compliance program.

Kroger/Albertsons matter—and considering whether non-compete agreements that limit worker mobility may also run afoul of the antitrust laws. In parallel, empirical tools pioneered in labor economics, particularly causal inference methods, are proving valuable both for evaluating the effects of consummated mergers and for testing the performance of structural models used to predict the effects of proposed mergers. On the consumer protection side, policymakers are targeting deceptive earnings claims about potential income from new jobs or business opportunities, as well as misrepresentations about the costs and benefits of training programs designed to prepare workers for such opportunities.

This expanded role for labor economics underscores the need for greater collaboration between labor economists and industrial organization scholars in addressing competition and consumer protection issues in labor markets. Such collaboration could help agencies better determine where enforcement resources are best directed, measure the harms caused by current practices, and develop effective remedies to mitigate those harms.

Acknowledgements We thank editor Larry White for his helpful comments, as well as comments from Dan Hosken, Michael LeGower, Nellie Lew, Rohan Pai, Ted Rosenbaum, David Schmidt, Christopher Taylor, Matt Weinberg, Brett Wendling, and Daniel Wood. Paul Koh was an FTC employee when this article was drafted. The views that are expressed in this article are those of the authors and do not necessarily reflect those of the Federal Trade Commission or any of the individual commissioners.

Author Contributions Devesh Raval is the corresponding author. All authors reviewed the manuscript. D.R. wrote the labor markets research section, M.G. wrote the deceptive training program section, P.K. wrote the Kroger/Albertsons section, S.K. wrote the gig economy earnings claims section, M.C. wrote the Surescripts section, and D.R. wrote the conclusion.

Funding The declaration is not applicable.

Data Availability No datasets were generated or analysed during the current study.

Declarations

Conflict of interest The authors have no competing interests as defined by Springer, or other interests that might be perceived to influence the results and/or discussion reported in this paper.

Ethical Approval The declaration is not applicable.

References

Ahn, T., Arcidiacono, P., Hopson, A., & Thomas, J. (2024). Equilibrium grading policies with implications for female interest in STEM courses. *Econometrica*, *92*(3), 849–880.

Albertsons Companies, I., & Newsroom (2024, December 11). Retrieved June 2025, from Albertsons Companies: https://www.albertsonscompanies.com/newsroom/press-releases/news-details/2024/Albertsons-Terminates-Merger-Agreement/default.aspx

Allen, M., Hall, R., & Lazear, V. (2011). Reference Guide on Estimation of Economic Damages. In Reference Manual on Scientific Evidence, 3rd Edition.

Ashenfelter, O., Daniel Hosken. (2010). The effect of mergers on consumer prices: Evidence from five mergers on the enforcement margin. *The Journal of Law & Economics, 53*(3), 417–466.
Ashenfelter, O., & Weinberg, M. (2014). Did Robert Bork understate the competitive impact of mergers? Evidence from consummated mergers. *The Journal of Law & Economics, 57*(S3), S67–S100.
Ashenfelter, O. C., Daniel, S., Hosken, & Weinberg, M. C. (2013). The price effects of a large merger of manufacturers: A case study of Maytag-Whirlpool. *American Economic Journal: Economic Policy*, *5*(1), 239–261.
Ashenfelter, O. C., Daniel, S., Hosken, & Weinberg, M. C. (2015). Efficiencies brewed: Pricing and consolidation in the US beer industry. *The RAND Journal of Economics*, *46*(2), 328–361.
Baker, R., Bettinger, E., Jacob, B., & Marinescu, I. (2018). The effect of labor market information on community college students' major choice. *Economics of Education Review*, *65*, 18–30.
Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press.
Cellini, S. R., & Turner, N. (2019). Gainfully employed? Assessing the employment and earnings of for-profit college students using administrative data. *Journal Of Human Resources, 54*(2), 342–370.
Chang, K., Johnson, M., Lavetti, K., Lipsitz, M., & Devesh Raval. (2025). *The effect of noncompete enforceability on productivity*. Evidence from a New Dataset on State-Level Manufacturing Productivity.
Chao, Y., Tan, G., & Wong, A. (2018). All-units discounts as a partial foreclosure device. *The Rand Journal of Economics, 49*(1), 155–180.
Cooter, R., & Ulen, T. (2016). Law and Economics, 6th Edition, Berkeley Law Books.
Darolia, R., Grosz, M., Matsudaira, J., & Stange, K. (2025). Trends in undergraduate postsecondary program enrollment through the COVID-19 pandemic. U.S. Department of Education, Office of the Chief Economics Working Paper No. OCE2024-005.
Deibler, D., Hosken, D., Koch, T., & Marshall Thomas. (2025). Physician mergers involve 38% of doctors, substantial health system participation, and frequent serial acquisition. *Health Affairs Scholar*, *3*(5), qxaf061.
Doganoglu, T., & Wright, J. (2010). Exclusive dealing with network effects. *International Journal of Industrial Organization*, *28*(2), 145–154.
Ellickson, P. B., Grieco, P. L., & Khvastunov, O. (2020). Measuring competition in spatial retail. *The RAND Journal of Economics, 51*(1), 189–232.
Elzinga, K. G., Thomas, F., & Hogarty (1973). The problem of geographic market delineation in antimerger suits. *The Antitrust Bulletin*, *18*(1), 45–81.
Evans, D. (2024). The economic analysis of exclusive contracts in Two-Sided markets: Federal trade commission v. *Surescripts Concurrences*, *1*, 1–9.
Farrell, J., & Shapiro, C. (2010). Antitrust evaluation of horizontal mergers: An economic alternative to market definition. *The BE Journal of Theoretical Economics*. https://doi.org/10.2202/1935-1704.1563
Ferguson, A., Lew, N., Lipsitz, M., & Raval, D. (2023). Economics at the FTC: Spatial demand, veterinary hospital mergers, rulemaking, and noncompete agreements. *Review Of Industrial Organization, 63*(4), 435–465.
Foote, A., & Grosz, M. (2020). The effect of local labor market downturns on postsecondary enrollment and program choice. *Education Finance and Policy*, *15*(4), 593–622.
Fox, E. J., Bourdage, J., LaTorraca, J., O'Laughlin, L., & Santana, M. (2025). Lessons learned from the Kroger-Albertsons merger case. *Journal of Retailing*, *101*(1), 138–152.
Grosz, M. (2020). The returns to a large community college program: Evidence from admissions lotteries. *American Economic Journal: Economic Policy*, *12*(1), 226–253.
Grosz, M. (2022). Do postsecondary training programs respond to changes in the labor market? *Journal of Human Capital*, *16*(4), 461–487.
Grosz, M. (2024). Community colleges and careers: Evidence from nursing school lotteries. *Labour Economics*, *90*, 102590.
Grosz, M., & Monarrez, T. (2025). The effect of the Great Recession on student loan borrowing and repayment (FRB of Philadelphia Working Paper No. 25 – 13).
Hiraiwa, T., Lipsitz, M., & Starr, E. (2024). Do firms value court enforceability of noncompete agreements? A revealed preference approach. Review of Economics and Statistics (2024): 1–47.
Hole, A., LeGower, M., Lipsitz, M., & Nevo, A. (2024). Economics at the FTC: Non-horizontal mergers, the CARS rule, and the non-compete rule. *Review Of Industrial Organization, 65*(4), 933–965.
Hosken, D., & Taragin, M. L. K. (2025). Labor and Product Market Effects of Mergers.

Hosken, D., & Tenn, S. (2016). Horizontal merger analysis in retail markets. In Handbook on the economics of retailing and distribution, 250–286.
Hosken, D., Silvia, L., & Christopher Taylor. (2011). Does concentration matter? Measurement of petroleum merger price effects. *American Economic Review*, *101*(3), 45–50.
Hosken, D. S., Olson L. M., & Smith, L. K. (2018). Do retail mergers affect competition? Evidence from grocery retailing. *Journal of Economics & Management Strategy*, *27*(1), 3–22.
Hosken, D., Pinter, F., & Devesh Raval. (2025). and. How Do Consumers Respond to Antitrust Policy? Evidence from Supermarket Divestitures.
Jaffe, S., & Weyl, E. G. (2013). The first-order approach to merger analysis. *American Economic Journal: Microeconomics*, *5*(4), 188–218.
Johnson, M. S., Lipsitz, M., & Alison Pei. (2023). and. Innovation and the enforceability of noncompete agreements. NBER Working Paper w31487.
Johnson, M., Lavetti, K., & Lipsitz, M. (2025). *The labor market effects of legal restrictions on worker mobility*. Journal of Political Economy.
Koch, T. G., and Nathan Petek (2019). *The effect of nurse practitioner scope of practice on health care utilization and health*. Evidence from law changes and patient moves.
Koh, P. S. (2024a). Concentration-based inference for evaluating horizontal mergers. *ArXiv Preprint arXiv*:240712924.
Koh, P. S. (2024b). Market Definition: A Sensitivity Analysis. arXiv preprint arXiv:2407.12774.
Koh, P. S. (2025). Merger Analysis with Latent Price. arXiv preprint arXiv:2404.07684.
Lerman, R. I., & Rauner, F. (2011). Apprenticeship in the united States. *Work and education in america: The Art of integration* (pp. 175–193). Springer Netherlands.
Lipsitz, M., & Starr, E. (2022). Low-wage workers and the enforceability of noncompete agreements. *Management Science*, *68*(1), 143–170.
Lipsitz, M., & Tremblay, M. J. (2024). Noncompete agreements and the welfare of consumers. *American Economic Journal: Microeconomics*, *16*(4), 112–153.
Lovenheim, M., & Smith, J. (2023). Returns to different postsecondary investments: Institution type, academic programs, and credentials. *Handbook of the economics of education* (Vol. 6, pp. 187–318). Elsevier.
Miller, N. H., & Weinberg, M. C. (2017). Understanding the price effects of the MillerCoors joint venture. *Econometrica*, *85*(6), 1763–1791.
Monahova, G., Sanghvi, C., & John Scalf. (2017). From staples to staples: 20 years of merger enforcement in the united States. *Geo Mason L Rev*, *24*, 1141:1169.
Nocke, V., & Schutz, N. (2025). *An aggregative games approach to merger analysis in Multiproduct-Firm oligopoly*. *The RAND Journal of Economics*. https://doi.org/10.1111/1756-2171.12500
Nocke, V., & Whinston, M. D. (2022). Concentration thresholds for horizontal mergers. *American Economic Review*, *112*(6), 1915–1948.
Opinion (2024). & Order, 3:24-cv-00347-AN (District court of Oregon December 10.
Plaintiffs, P. H., & Brief (2024). Proposed Findings of Fact, and Proposed Conclusions of Law, 3:24-cv-00347-ANDistrict Court of Oregon October 7.
Preliminary Injunction Hearing Transcript-Day 6 Afternoon Session, 3:24-cv-00347-AN (District Court of Oregon (October 2024).
Rasmusen, E. B., Ramseyer, J. M., & WileyJr, J. S. (1991). Naked exclusion. *American Economic Review, 81*(5), 1137–1145.
Rebolledo, N. A., Blanchard, K. J., & Cellini, S. R. (2025). *Cosmetology gets a trim: The impact of reducing licensing hours on colleges and students (No. w33936)*. National Bureau of Economic Research.
Segal, I. R., & Whinston, M. D. (2000). Naked exclusion: Comment. *American Economic Review*, *90*(1), 296–309.
Soliz, A. (2023). *Career and technical education at community colleges: A review of the literature* (p. 9). AERA Open.
Stevens, A. H., Kurlaender, M., & Grosz, M. (2019). Career technical education and labor market outcomes: Evidence from California community colleges. *The Journal Of Human Resources, 54*(4), 986–1036.
Taylor, C. T., Daniel, S., & Hosken (2007). The economic effects of The Marathon-Ashland joint venture: The importance of industry supply shocks and vertical market structure. *The Journal of Industrial Economics*, *55*(3), 419–451.
Thomas, J. (2019). The signal quality of grades across academic fields. *Journal Of Applied Econometrics, 34*(4), 566–587.

Thomas, J. (2024). What do course offerings imply about university preferences? *Journal of Labor Economics*, *42*(1), 53–83.
Thomas, J., Chilton, A., Joy, P., & Rozema, K. (2023). *Improving the signal quality of grades*. *Journal of Law, Economics, and Organization*. https://doi.org/10.1093/jleo/ewad012
Weinberg, M. C., Daniel Hosken. (2013). Evidence on the accuracy of merger simulations. *Review Of Economics And Statistics, 95*(5), 1584–1600.
Werden, G. J. (1996). A robust test for consumer welfare enhancing mergers among sellers of differentiated products. *The Journal of Industrial Economics*. https://doi.org/10.2307/2950522
Whinston, M. D. (2006). *Lectures on antitrust economics*. MIT Press.

Authors and Affiliations

Matthew Chesnes[1] · Michel Grosz[1] · Paul S. Koh[2] · Shiva Koohi[1] · Devesh R. Raval[1]

✉ Devesh R. Raval
draval@ftc.gov

Matthew Chesnes
mchesnes@ftc.gov

Michel Grosz
mgrosz@ftc.gov

Paul S. Koh
paulkoh9@gmail.com

Shiva Koohi
skoohi@ftc.gov

[1] Federal Trade Commission, Bureau of Economics, 600 Pennsylvania Ave., N.W, 20580 Washington, DC, USA

[2] School of Economics, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul 03722, Republic of Korea