Did Recent Platform Mergers Reduce Competition?

Descriptive Retrospective Analyses of 6 Platform Mergers

Daniel Minh McCarthy

Emory University

Kenneth C. Wilbur

University of California, San Diego

September 14, 2023

Abstract

Critics argue that the U.S. government's 2023 draft merger guidelines prioritize market deconcentration over consumer harm prevention. We describe how category competition indicators changed after six recent platform mergers, using a large consumer spending panel. Perhaps surprisingly–based on trends in concentration measures, customer payments, market size and multihoming behaviors–none of the six platform mergers appear to have reduced competition in their markets over a 12-month horizon. A blanket policy against platform mergers could inadvertently reduce competition by preventing pro-competitive mergers.

1 Introduction

The U.S. Federal Trade Commission (FTC) and Department of Justice (DOJ) issued draft merger guidelines[1] for public comment in July 2023. The draft guidelines state: "When a Merger Involves a Multi-Sided Platform, the Agencies Examine Competition Between Platforms, on a Platform, or to Displace a Platform." They further say that platforms generally share several features: multiple sides with participants that may provide or consume distinct products and services on each side;

1. Https://www.ftc.gov/legal-library/browse/ftc-doj-merger-guidelines-draft-public-comment

an operator that provides core services that connect the sides; direct or indirect network effects, in which participant value of using the platform depends on the number and types of platform participants on the same side and/or other sides; and a potential conflict of interest if the platform operator is also a platform participant.

We share the agencies' concerns about potentially harmful effects of platform mergers. Network effects can imply winner-take-most outcomes, even in large platform markets. Cusamano, Gawer and Yoffie (2019) conclude that "all of the world's most valuable firms are platforms," , emphasizing the high stakes of regulating platform mergers.

On the other hand, Shapiro (2023) interprets the draft merger guidelines as abandoning a previous regulatory focus of preventing consumer harm due to enhanced market power. He argues: "Critically, the draft says nothing to indicate that the Agencies will evaluate mergers based on whether they are likely to harm customers due to enhanced market power." He further argues that the unifying theme of the draft guidelines is "preserving deconcentrated market structures." He contends this marks a significant shift from past goals of promoting competition and consumer protection.

Economic theory has long held that allowing certain platform mergers could increase competition in some cases (see, e.g., Eisenmann, Parker and Van Alstyne 2011, Farrell and Shapiro 2010, among many others). Some platform mergers aggregate smaller, non-dominant platforms in order to compete against larger platforms, or equip smaller competitors to better compete against incumbent firms. Few papers use data to analyze platform mergers, but a rare exception is Farronato, Fong and Fradkin (2023). They find that platform revenues did not rise after a merger of two platforms, as gains from network effects were offset by loss of variety, switching costs and disintermediation. Rietveld and Schilling (2021) offer a systematic literature review and write that "Notably, however, the few studies on platform mergers have tended to find that such mergers did not result in higher prices or harm consumer welfare (contrary to typical antitrust economics predictions). This may be because platform mergers are more likely to occur when the merging parties are significantly disadvantaged relative to another competitor and merging helps to both level the competitive playing field and establish a larger ecosystem that creates more value for consumers."

We seek to help calibrate this debate. We offer a descriptive "look back" at how recent platform mergers correlated with changes in category competition indicators. To do so, we investigate direct consumer payments in a large card spending panel dataset of 2.23 million U.S. consumers over 6.5 years. We graph how market shares, average monthly payments, multihoming behaviors, category concentration and market size changed after each merger. We observe two mergers involving leading platforms (travel & lodging marketplaces and food delivery) and four mergers involving non-leading platforms (music streaming, national newspapers, clothing marketplaces and home security).

Our "headline" result is straightforward: The data do not suggest that any of these six platform mergers led to reduced category competition. In 5 cases, market competition increased after the merger event occurred. In one case, market competition decreased, but that was because a non-merging dominant firm further increased its market share.

The result could be interpreted as evidence that recent competition decisions were not obviously mistaken. Yet it is also relevant to future competition decisions, which may be motivated by different policy objectives and hence lead to different decisions. Suppose that Shapiro (2023) is correct that the FTC and DOJ seek to preserve deconcentrated structures: Our results suggest that would not maximize competition because it would prevent some pro-competitive platform mergers. In particular, a tighter merger policy could cause some non-leading platforms to lose market share or exit and thereby indirectly increase category leaders' market power.

Important caveats apply. Our work is purely descriptive or correlational; we do not claim, present or interpret any causal effects. The sample of platform mergers that we analyze is necessarily limited by the platform mergers that previous competition authorities allowed to proceed. The data only enable us to measure outcomes in direct consumer payment markets, limiting the mergers we can analyze and the post-merger outcomes we can observe.[2]

2. Consumer payment markets are especially important for consumer protection regulations, but some platform mergers' anti-competitive effects could be realized in other currencies or on other platform sides (e.g., for consumer attention to ads; for advertising sales; for seller/provider participation and compensation on the platform; etc.).

The next section describes the data set and relevant measures. The third section presents and interprets the findings. The final section concludes.

2 Data and Measures

Earnest Analytics collects and processes complete credit and debit card transaction histories for a balanced panel of U.S. consumers.[3] Three data features affect the analysis:

1. The data report transactions by individual, merchant, and time, enabling us to systematically measure multihoming and new brand adoptions, richer analyses than traditional market shares alone.

2. The data resemble transaction records on consumer card statements. Therefore, we do not observe prices directly, as we cannot distinguish extensive and intensive margins of consumption, and we also cannot discern indirect purchases such as a consumer buying a package good from a retailer. Therefore, we limit our investigation to direct consumer payment markets only.

3. The data provider organizes the data by merchant from January 2016 until May 2022. However, not all merchants are tracked in all time periods. This limits data availability in some categories and limits competitor selection in all categories.

2.1 Merger Selection and Market Definition

We construe the idea of "platform merger" broadly to include any event where a platform acquires or merges with another business, where the other business may or may not also be a platform. We sought to include as many platform mergers as possible. We sought to identify platform mergers

3. The data are provided by partner financial institutions. Earnest then removes personally identifying information but retains persistent customer identifiers. Similar data were analyzed and described by Oblander and McCarthy (2023). We analyze cards that Earnest Analytics infers owners to use consistently as either "shopping" or "subscription" cards. We make this choice because it helps to remove potential business card expenditures in the data. We correlated quarterly digital subscriber revenue reported in the New York Times' SEC filings with total panel expenditure on NYT across 25 quarters, finding a correlation of .97.

that occurred between 2017 and 2021 so we could present category data before and after each platform merger. We also required merging entities to have competitors tracked in the Earnest Analytics data so we could make statements about competition.

We identified platform mergers to potentially analyze by (i) considering all changes in merchant parents in the Earnest Analytics dataset; (ii) reviewing lists of recent large mergers and acquisitions, and (iii) entering a series of targeted queries in search engines and large language models to search for more potential platform mergers. We identified 6 M&A events which fell within our sample period, featured a merging party that accepts direct consumer payments, and competes with Earnest-tracked merchants.[4] We cannot prove non-existence of other relevant platform mergers but we do not know of any that meet our selection criteria.

We construct a competitive set for each merger. We did this through a combination of Earnest's category and subcategory classifications, researcher judgment, and targeted machine queries to identify likely competitors for each brand. Market definition is inherently subjective, so we are comforted by the draft guidelines' observation that "Some substitutes may be closer, and others more distant, and defining a market necessarily requires including some substitutes and excluding others... The Agencies recognize that such scenarios are common, and indeed 'fuzziness would seem inherent in any attempt to delineate the relevant...market.'"

2.2 Measures

We visualize time series of market outcomes in four ways for each merger:

1. We show how market shares changed around the time of the merger. We calculate these market shares as shares of paying customers within each month.[5]

4. Some mergers we considered, but did not meet the selection criteria, included Google/Fitbit (not enough tracked competitors available), Microsoft/LinkedIn (unclear competitive set), WalMart/Jet (sales tracking challenges), WalMart/Bonobos (sales tracking challenges), Shipt/Target (sales tracking challenges), Amazon/Pillpack (sales tracking challenges for major competitors), Amazon/Whole Foods (sales tracking challenges and unclear competitive set) and PayPal/Honey (paying customers are businesses).

5. We cannot calculate unit or volume shares because the spending data do not distinguish prices from quantity purchased.

2. We also calculate market shares among "adopters," that is, consumers who are observed to pay a particular brand for the first time in the sample. Most of these consumers are making their first observed purchase in the category, but some are multihoming or switching to a new brand. Many consumers exhibit inertia in consumption, so we expect that adopter shares may offer a clearer snapshot of current competitive conditions than overall market shares. Of course, the two sets of market shares are strongly related, as decisions by adopters will also be reflected in changes in market shares; but market shares are also affected by non-switching consumers and customer exits.

3. We depict paying customers' mean payments for each brand in each month.[6] This seems to be the closest we can come to a measure of price, but it is not price. For example, if some consumers switch from monthly payment plans to annual payment plans, the mean monthly payment among paying consumers may rise significantly, even though the switching consumers are now paying lower monthly prices. Yet despite the measure's interpretation challenges, mean payments show sustained trends in most categories.

4. We graph 5 measures of category competition:

   (a) Concentration (HHI): We use brand market shares to calculate the Herfindahl-Hirschmann Index (HHI) within each month. We divide it by 100 for presentation on a 0-100 axis.

   (b) Concentration among adopters (HHI-Adop.): We use adopter market shares to calculate an HHI-Adopter index within each month. Again, we divide it by 100 for presentation.

   (c) Simultaneous multihoming (MH1): We count the proportion of paying customers who are observed to pay multiple competing brands within that same month. We would generally expect multihoming behavior to reflect increased competition.[7]

   (d) Multihoming or switching (MH13): We count the proportion of paying customers in

6. We do this after dropping the largest 0.1% of payments to make the averages less noisy.

7. "All else being equal, if users are willing to use multiple, competing services, then these services are less able to raise prices or set terms that are unfavorable to users because they are more willing to take their business elsewhere." (Economic Report of the President, 2023)

month t who were observed to pay at least one other competing brand within the previous 12 months $\{t-12, t-11, ..., t-1\}$. This 13-month window captures the possibility that someone paid an annual subscription for one service on June 1, 2017, and then paid an annual subscription to a competing service on July 1, 2018.

(e) We count the number of paying customers in each market in each month. We divide all observations by the maximum observed market size for presentation as a 0-100 index. Changes in market size may reflect changes in value offered to category consumers, among other factors.

3 Results

We present mergers in order of acquisition value. We quantify pre/post differences by comparing the last month before a merger closed to the same month in the following calendar year, to minimize seasonal confounders.[8]

3.1 Music Streaming: Sirius XM/Pandora

In February 2019, Sirius XM acquired Pandora Internet Radio for a reported \$3.5 billion. The rationale given was opportunities for cross-platform promotions, distribution, bundling and new services (Aswad 2019).

Figure 1 displays market outcomes for six paid music streaming platforms. Apple's iTunes service dominated the category with an average 60% customer share, but this slid from 66.4% down to 57.5% during the four-year observation window. Spotify was the long-standing second-ranked brand, with a 22.4% average market share over time.

In January 2019, the month before the acquisition closed, Sirius XM and Pandora had a combined 10.9% of customer share (9.0% for Sirius XM and 1.9% for Pandora). One year after the acquisition, their combined share stood at 11.9% (10.0% for Sirius XM and 1.7% for Pandora).

8. Where possible, we show up to 2 years of data before and after each merger. We adjust our pre/post comparison window in food delivery and home security for category-specific reasons.

Their market shares changed little over in the second year after the merger, at 11.8% combined (10.2% for Sirius XM and 1.7% for Pandora). During the same two years, Amazon Music rose from 5.8% up to 8.2%.

The second panel shows that Sirius XM did experience a slow upward trend in adopter share through 2019 and 2020, whereas Pandora did not gain much market share among adopters post-acquisition. Overall, Amazon Music, iTunes and Spotify led adopter share throughout 2019 and 2020.

Panel 3 shows that most streaming music providers received an average customer payment of about $10/month. Amazon Music had some fluctuation throughout 2018, but it is unclear whether this is because of changes in prices, promotions, product mix or other factors. Sirius XM received the highest average customer payment per month, but this declined from about $40 at the start of the 4-year period to about $27 near the end. This fall in average customer payment could contribute to the adopter share gains we see in Panel 2.

Panel 4 describes the category competition indicators. The monthly streaming music market size increased by 71% during this four-year window, a figure that resembles the 79% cumulative growth in paid music subscriptions reported by RIAA (2022). The HHI exceeded 5,000 in all periods, and fell slightly in the year after the merger, from 5167 in January 2019 to 5067 in January 2020. Adopters showed greater dispersion in all periods, with Adopter HHI showing no clear trend after the merger. Paid multihoming was relatively uncommon but rose steadily with time, from 1.3% at the start of the period to 2.6% at the end. 13-month multihoming also rose slowly, from 4.6% in February 2017 to 5.4% in February 2021.

Overall, the year after the Sirius XM/Pandora merger was characterized by indicators of slightly increased market competition, with slightly lower HHI, lower Sirius XM price, and increased multihoming and market size.

3.2 Clothing Marketplaces: Etsy/Depop

In June 2021, Etsy acquired Depop, a UK-based fashion resale marketplace, for approximately $1.6 billion. The rationale given was Depop's younger consumer base and opportunities for new growth (Balu 2021).

Figure 2 tracks market shares among the four used clothing marketplaces. At the time of the acquisition, Depop was a distant third place behind market leader Poshmark–which had over 70% of the market–and thredUP, which had about 20% of the market. Depop's market share slid downward for 5 months after the acquisition closed, but then increased rapidly in late 2021. Adopter shares largely mirrored overall market shares, but with more volatility; and in the final few months of the sample, Depop's adopter share moved slightly past thredUP's adopter share.

Panel 3 shows that average customer payments trended up at all four clothing marketplaces throughout the observation period. In the month that Etsy's acquisition of Depop closed, average payments per customer increased sharply at all four marketplaces; that may have been driven by the acquisition, the Covid-19 surge in summer 2021, or other factors. Average customer payments resumed their previous trend in the following month.

Among competition indicators, the total market size grew by 82% over four years, from 14,062 panelists to 25,560; but the increase was mostly complete before the merger, with just 3% gain from May 2020 to May 2021.[9] However, HHI fell significantly after the merger: from 6194 in May 2021 to 4943 in May 2022. Adopter HHI also decreased, falling from 5069 in May 2021 to 4878 in May 2022. Multihoming behaviors increased, with simultaneous multihoming rising from 1.5% to 2.0% over the final year, and 13-month multihoming rising from 10.1% to 11.8% over the same period.

Overall, the year after the Etsy/Depop merger was characterized by indicators of increased market competition, with concentration measures falling, and increases in multihoming and market size. We conclude this cautiously, as average payments were generally rising. However, the merger

9. May 2022 was the final full month of the sample and hence our last datapoint. Similar qualitative conclusions obtain if we replace May 2021 with June 2021 (the month before the merger closed).

did not appear to change the long-term payment trend, which may well have come from users selling higher-quality clothing or other non-pricing factors.

3.3 National Newspapers: Gannett/GateHouse

In November 2019 GateHouse Media acquired Gannett for a reported $1.2 billion. The deal included the national newspaper USA Today and created the "largest newspaper publisher in America" as GateHouse already owned 250 local newspapers. The rationale given included cost savings and improved national scale (O'Connell 2019).

Figure 3 shows that the New York Times had a dominant 62.3% market share on average rising from 60.1% to 66.8% over the four-year observation window. USA Today had a 0.7% share on average. Its share fell from 0.9% in the month before the merger closed (Oct 2019) to 0.4% 12 months later (Oct 2020). It also lost ground among adopters, with its adopter share falling from 4.4% in October 2019 to 0.8% in October 2020. Adopters were increasingly dominated by the New York Times, with a commanding 60% share by 2021. Those increases also came particularly at the expense of the Wall Street Journal, whose market share fell throughout most of the observation period.

Panel three reveals greater payment variability in newspapers, partly due to varying renewal rates of annual subscriptions. USA Today's average customer payment fell from $31.47 in October 2019 to $25.22 in October 2020, making the market share losses even more surprising. NYT's average payment decreased from $15.59 to $13.81 over the same 12-month period.

Panel 4 shows that the national newspapers market size increased 110% over four years, from 54,054 panelists to 113,590 panelists. The merger did not obviously slow the market growth. HHI increased after the merger, from 3720 in October 2019 to 4120 in October 2020. Adopter HHI increased more, from 3876 in October 2019 to 4920 in October 2020. Both concentration measures continued increasing in the final observation year, as New York Times consolidated its market share at the expense of competitors. Simultaneous multihoming fell from 9.7% in October 2019 to 9.0% in October 2020, whereas 13-month multihoming increased slightly from 25.1% to

25.5% over the same period.

Overall, we conclude that the year after the GateHouse/Gannett merger was mostly characterized by less competition, as the dominant firm consolidated market share, concentration measures rose, and simultaneous multihoming fell. However, the increase in concentration metrics clearly came from a non-merging firm's share gains, not from the platform merger. Additionally, increases in market size and 13-month multihoming along with falling average payments could counter-indicate this conclusion.

3.4 Home Security: Amazon/Ring

In April 2018 Amazon acquired Ring, a smart home security company known for its video doorbells, for a reported $1 billion. The rationale given was integrating Ring doorbells with Amazon Alexa and smart home products. Upon closing, Amazon decreased the Ring doorbell price from $180 to $100 and left the subscription price unchanged at $20/month (Kastrenakes 2018).

Unfortunately, Earnest Analytics did not track Ring before Amazon's acquisition. Therefore, our figures have two different market definitions: 3 incumbent brands–ADT, SimpliSafe and Vivint Smart Home–until March 2018, and the same three plus Ring starting in April 2018. Pre/post comparisons cannot be made as carefully in this category as in others.

Prior to Ring's availability in the data, ADT had about a 70% market share, which was slowly eroding as Vivint (˜20-25%) and Simplisafe (˜9-10%) gained ground. Ring's first observed market share was slightly below SimpliSafe, but grew quickly and climbed above 20% by mid-2020. SimpliSafe's market share continued to grow slowly, whereas Vivint's declined slightly, and ADT's fell from about 63% in April 2018 down to about 40% in late 2020. Ring's adopter share remained dominant throughout this entire period, ranging between 50-80% over three years.

Ring's average monthly payment in April 2018 was about $20 per month, less than 1/3 as much as ADT and Vivint, which each exceeded $60/month, followed by SimpliSafe at about $35/month. Throughout the subsequent 3-year period, average payments converged slightly, with ADT and SimpliSafe remaining mostly flat, Vivint falling slightly, and Ring increasing up to $24-28 over time. These trends accurately reflect the direct consumer payments in the Earnest Analytics data, but they likely mask differences in fixed fees. Multiple brands likely earned upfront revenue from equipment sales in retail channels that we are unable to observe directly; for example, if a customer bought a Ring doorbell on Amazon.com, we would only see a payment to Amazon, not a payment to Ring. Competing brands likely generated more direct equipment sales and professional installation fees which are observable in the card spending data.

The overall market grew about 60% in the 3 years following Amazon's acquisition of Ring, with a maximum of 216,000 payers observed in the sample. HHI decreased markedly as ADT lost share after the merger, from 5123 in April 2018 to 4496 in April 2019. Adopter HHI also fell significantly over the same 12-month period, from 5395 to 4768. Simultaneous multihoming rose from 1.6% in April 2018 up to 3.0% in April 2019. 13-month multihoming increased from 3.5% in April 2018 up to 11.8% by April 2019.

Overall, the year after the Amazon/Ring merger was characterized by increased market competition, with lower concentration metrics, lower prices, and increased multihoming and market size.

3.5 Travel & Lodging Marketplaces: AirBnB/HotelTonight

In April 2019 AirBnB acquired HotelTonight for a reported $465 million. The rationale given was AirBnB's desire to offer more hotel listings on its platform and to expand into all aspects of travel (Griffith 2019).

Figure 5 tracks market shares among 7 online travel & lodging marketplaces. Our comparison periods are February 2019 (pre-merger) and February 2020 (post-merger) to avoid pandemic-related disruptions that began in March 2020. AirBnB led the market with a 42.9% share in February 2019 before acquisition, while HotelTonight was sixth with a 2.0% share. A year later, in February 2020, AirBnB's market share was down slightly at 42.7%, and HotelTonight was also down slightly at 1.9%. All other competitors' market shares also fell slightly over this 12-month period except VRBO, which rose from 1.8% to 6.8%.

Similar patterns exist in adopter shares, with AirBnB and HotelTonight both losing ground slightly over this 12-month period, alongside all 4 other competitors save VRBO, which increased its adopter share from 4.1% to 13.8%. However, mean customer payments rose significantly at AirBnB, from $360 in February 2019 to $437 in February 2020. HotelTonight mean payments were largely unchanged at $217-218. Both changes paled next to VRBO's increase from $274 in February 2019 up to $864 in February 2020.

Market size grew from 89,532 paying cards in February 2019 to 100,540 paying cards in February 2020, fell 82% from February 2020 to April 2020, and then recovered to a new high by March 2022. HHI declined after the merger, from 3645 in February 2019 to 3306 in February 2020. Adopter HHI also decreased, from 2359 in February 2019 to 2148 in February 2020.

Simultaneous multihoming averaged 4.0% over this four-year period, with no clear trend throughout. However, it increased after the acquisition, from 3.9% in February 2019 to 4.2% in February 2020. 13-month multihoming averaged 31.9% during the 4-year observation window. It also rose slightly after the acquisition, from 32.7% in February 2019 to 33.8% in February 2020.

Overall, the year after the AirBnB/HotelTonight merger was characterized by indicators of slightly increased market competition, with lower HHI and adopter HHI, larger market size and increased multihoming. acquisition was followed by a decline in the two entities' combined market share. A counterargument could hold that AirBnB's per-consumer revenue increased post-merger, but the rise was smaller than VRBO's, and the factors driving this change—price, quality, inventory, or usage—remain unclear.

3.6 Food Delivery: Grubhub-Seamless/Eat24

In October 2017 GrubHub acquired Eat24 from Yelp for a reported $287.5 million. The deal expanded GrubHub's supplier network from 55,000 partner restaurants to 70,000, and enabled Yelp users to order food from GrubHub through the Yelp app. GrubHub already owned Seamless, AllMenus and MenuPages (Kastrenakes 2017).

The competitive set includes Caviar, DoorDash, Eat24, GrubHub/Seamless, Postmates and

UberEATS. Two issues affect the data. One is that Postmates was not tracked until May 2018. The other is that UberEATS orders are not separable from Uber ridesharing transactions before August 2017 or for several months after March 2019. Therefore, we limit the observation window to the 20 months from August 2017 to March 2019.

GrubHub/Seamless began this observation period as the market leader with 50% share in September 2017, but that fell to 32% by September 2018. Eat24's share also fell, from 11.5% in September 2017 down to 1.7% in September 2018. GrubHub shut down the Eat24 brand in 2018. DoorDash became the new market leader during the observation window, rising from 11.1% up to 38.6% across the 20 months.

The adopter shares reflected similar dynamics, with GrubHub falling from 32.7% adopter share in September 2017 down to 22.6% by September 2018; Eat24 falling from 13% to 0.9% over the same period; and DoorDash rising from 14% to 35.1% over the same period. Brands' mean customer payment rankings were more stable during the observation period. Eat24's mean payment fell by $3.57 and GrubHub's mean payment rose by $0.65 between September 2017 and September 2018. Doordash's mean payment fell by $3.86 and UberEATS' mean payment fell by $6.29 during the same 12-month window.

The category market size grew by 260% during this 20-month period, from 11,012 panelist cards up to 39,663 panelist cards. From September 2018 to September 2019, HHI fell from 4101 to 2908 and Adopter HHI rose from 2287 to 2889. Simultaneous multihoming grew from 0.9% up to 1.4% and 13-month multihoming grew from 4.4% up to 6.4% over the same period.

Overall, the year after the GrubHub/Eat24 merger was characterized by indicators of increased market competition, as the merging parties both lost significant market share, most prices were falling, HHI fell, and market size and multihoming behaviors increased. Two potentially contrary datapoints are that GrubHub's average payment and the Adopter HHI increased, but these do not change our qualitative conclusion..

4 Conclusion

We offer a descriptive "look back" at how category competition indicators changed after six recent platform mergers. We find that none of the platform mergers obviously harmed consumers. Five of the six led to increased competition; the remaining merger was followed by decreased competition but not because of the merger.

Our findings imply that the regulatory decisions allowing these six platform mergers may have been consistent with consumer interests. The exercise also suggests that card analytics data may help enable competition authorities and researchers to assess market competition quickly and systematically.

We undertook this research because experts interpreting the 2023 draft merger guidelines have expressed concern that the implicit goal of minimizing concentration could actually harm consumers by abandoning the goal of minimizing market power. One way this could occur is that a concentration-minimizing merger policy could prevent pro-competitive mergers. Our evidence seems to validate this concern.

This exercise has many limitations. We have not presented a full causal analysis, due to the time constraints on filing comments, though this may become possible in the future. We have solely focused on direct consumer payment markets, due to data availability, without looking at other platform sides or other currencies (e.g., attention). We could only analyze six platform mergers using the available data. In particular, we were unable to study on-platform effects of "vertical" platform mergers in which a platform acquired a large participant on its own platform. Another limitation is that the time horizons we have studied may be shorter than what policy makers would prefer to consider.

We think some interesting extensions of this work could look further into how customers of various types (vintage, expenditure level, category experience) are retained and developed by acquiring platforms. It also could be interesting to look more deeply into how distributions of customer payments change after a merger.

We hope this paper offers useful input to the regulatory process and encourages more retrospective studies of merger effects on competition and consumer welfare.

References

Aswad, Jem. 2019. “Sirius XM Completes Acquisition of Pandora.” *Variety* (February). https://variety.com/2019/biz/news/sirius-xm-completes-acquisition-of-pandora-1203125882/.

Balu, Nivedita. 2021. “Etsy courts Gen-Z with $1.6bln deal for fashion reseller Depop$.” *The Verge* (June). https://www.reuters.com/business/etsy-buy-gen-z-focused-fashion-marketplace-depop-163-billion-2021-06-02/.

Cusumano, Michael A., Annabelle Gawer, and David B. Yoffie. 2019. *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power.* Harper Business.

Economic Report of the President. 2023. Technical report. https://www.whitehouse.gov/wp-content/uploads/2023/03/erp-2023.pdf.

Eisenmann, Thomas, Geoffrey Parker, and Marshall Van Alstyne. 2011. “Platform envelopment.” *Strategic Management Journal* 32 (12): 1270–1285. https://onlinelibrary.wiley.com/doi/full/10.1002/smj.935.

Farrell, Joseph, and Carl Shapiro. 2010. “Antitrust evaluation of horizontal mergers: An economic alternative to market definition.” *The BE Journal of Theoretical Economics* 10 (1): 1–39. https://www.degruyter.com/document/doi/10.2202/1935-1704.1563.

Farronato, Chiara, Jessica Fong, and Andrey Fradkin. 2023. “Dog Eat Dog: Balancing Network Effects and Differentiation in a Digital Platform Merger.” *Management Science,* https://pubsonline.informs.org/doi/10.1287/mnsc.2023.4675.

Griffith, Erin. 2019. “Airbnb Acquires HotelTonight to Expand Travel Portfolio.” *New York Times* (March). https://www.nytimes.com/2019/03/07/technology/airbnb-hotel-tonight.html.

Kastrenakes, Jacob. 2017. “Yelp is selling Eat24 to GrubHub for $287.5million$.” *The Verge* (August). https://www.theverge.com/2017/8/3/16092270/yelp-sells-eat24-to-grubhub.

———. 2018. “Amazon drops first-gen Ring doorbell price to \$100 after closing acquisition.” *The Verge* (April). https://www.theverge.com/circuitbreaker/2018/4/12/17229086/amazon-ring-acquisition-price-drop.

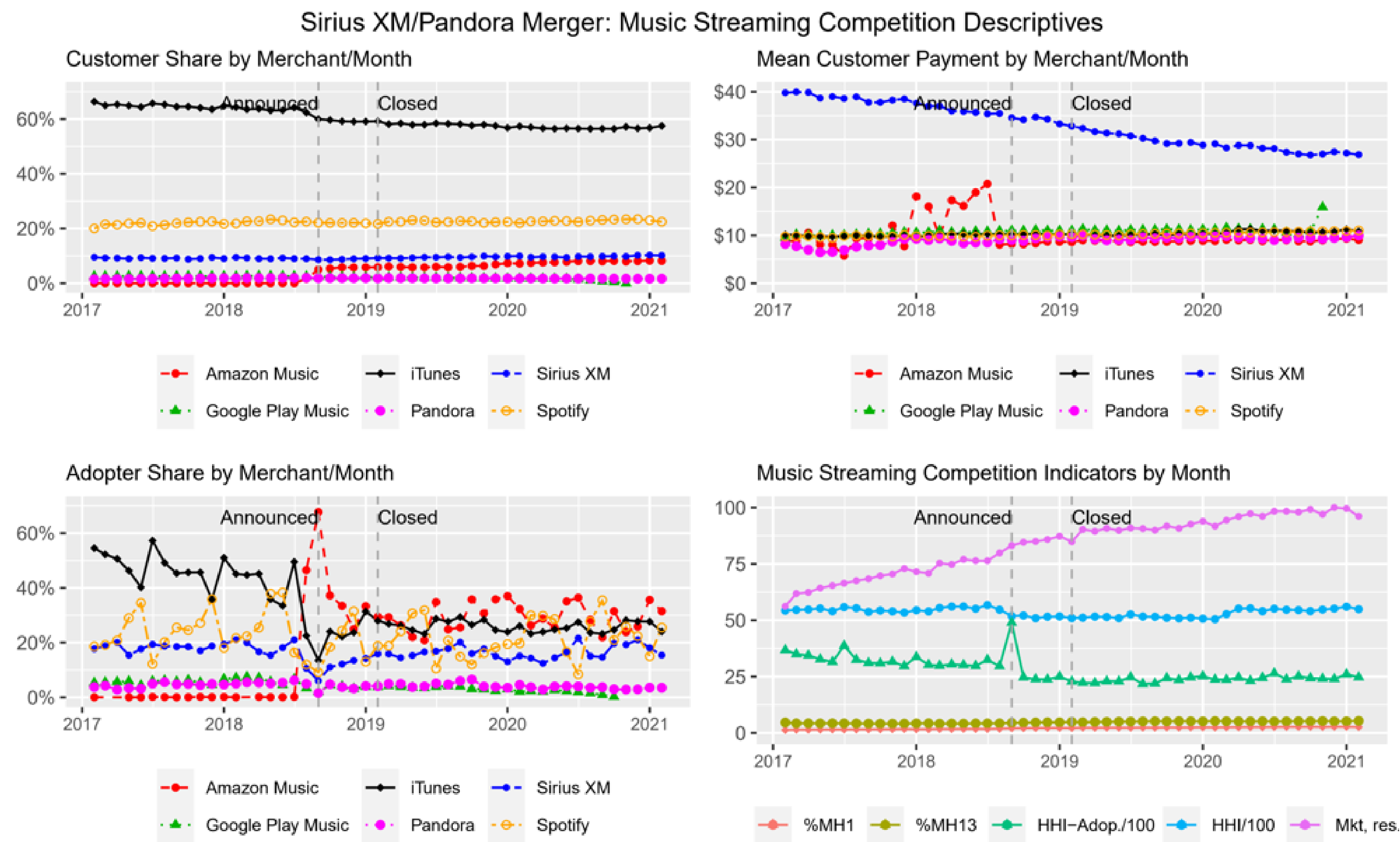
O’Connell, Jonathan. 2019. “Gannett, GateHouse approve merger, creating nation’s largest newspaper publisher.” *Washington Post* (November). https://www.washingtonpost.com/business/2019/11/14/gannett-finalizes-deal-become-nations-largest-newspaper-publisher-setting-stage-million-cuts/.

RIAA. 2022. *Yaer-End 2022 RIAA Revenue Statistics.* Technical report. https://www.riaa.com/2022-year-end-music-industry-revenue-report-riaa/.

Rietveld, Joost, and Melissa A. Schilling. 2021. “Platform Competition: A Systematic and Interdisciplinary Review of the Literature.” *Journal of Management* 47 (6): 1528–1653. https://journals.sagepub.com/doi/epub/10.1177/0149206320969791.

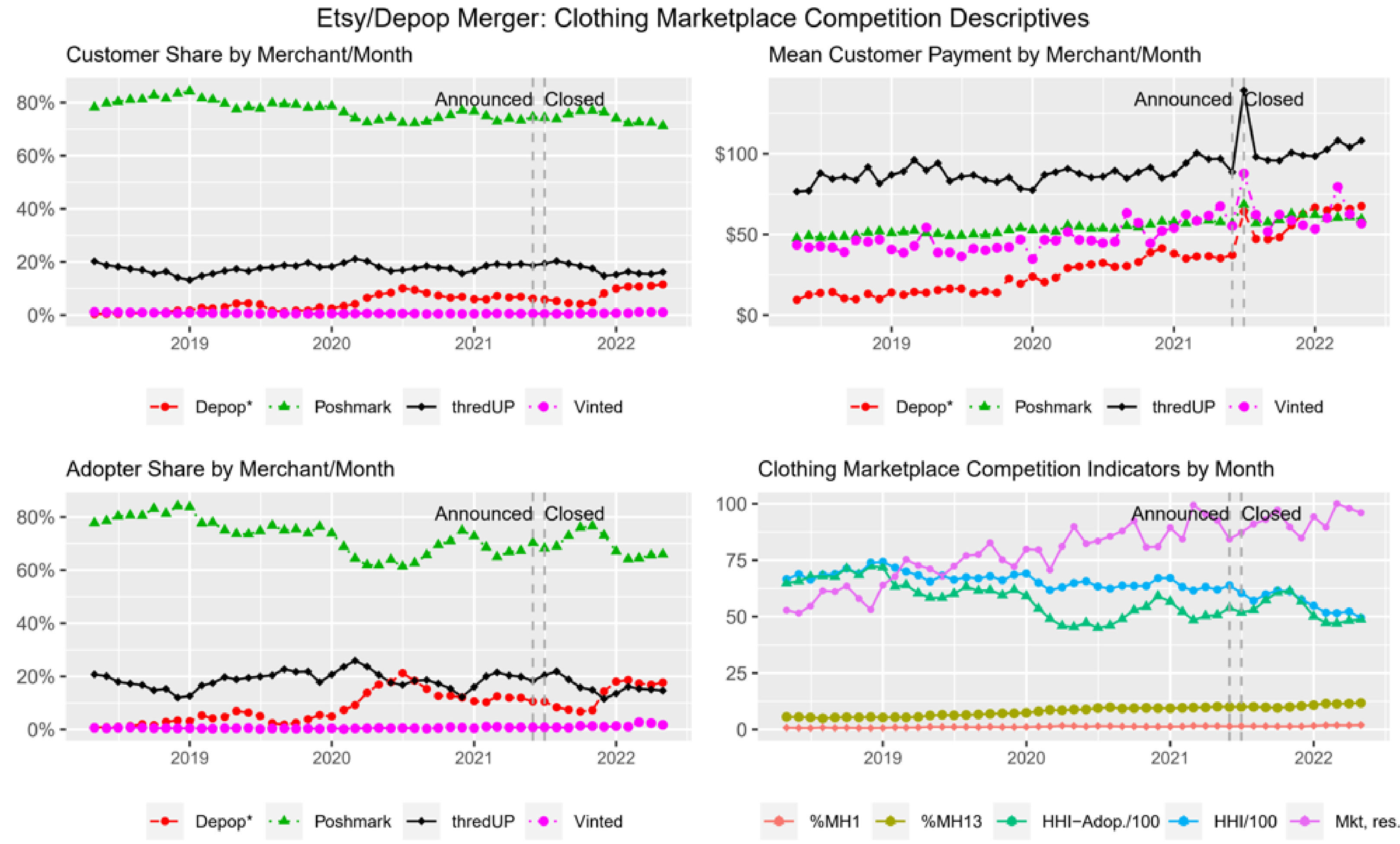
Shapiro, Carl. 2023. *Why Dropping Market Power from the Merger Guidelines Matters.* Technical report. ProMarket Draft Merger Guidelines Symposium. https://www.promarket.org/2023/08/07/carl-shapiro-why-dropping-market-power-from-the-merger-guidelines-matters/.

Shin Oblander, Daniel Minh McCarthy. 2023. "Estimating the Long-Term Impact of Major Events on Consumption Patterns: Evidence from COVID-19." *Marketing Science* forthcoming. https://doi.org/10.1287/mksc.2023.1443.



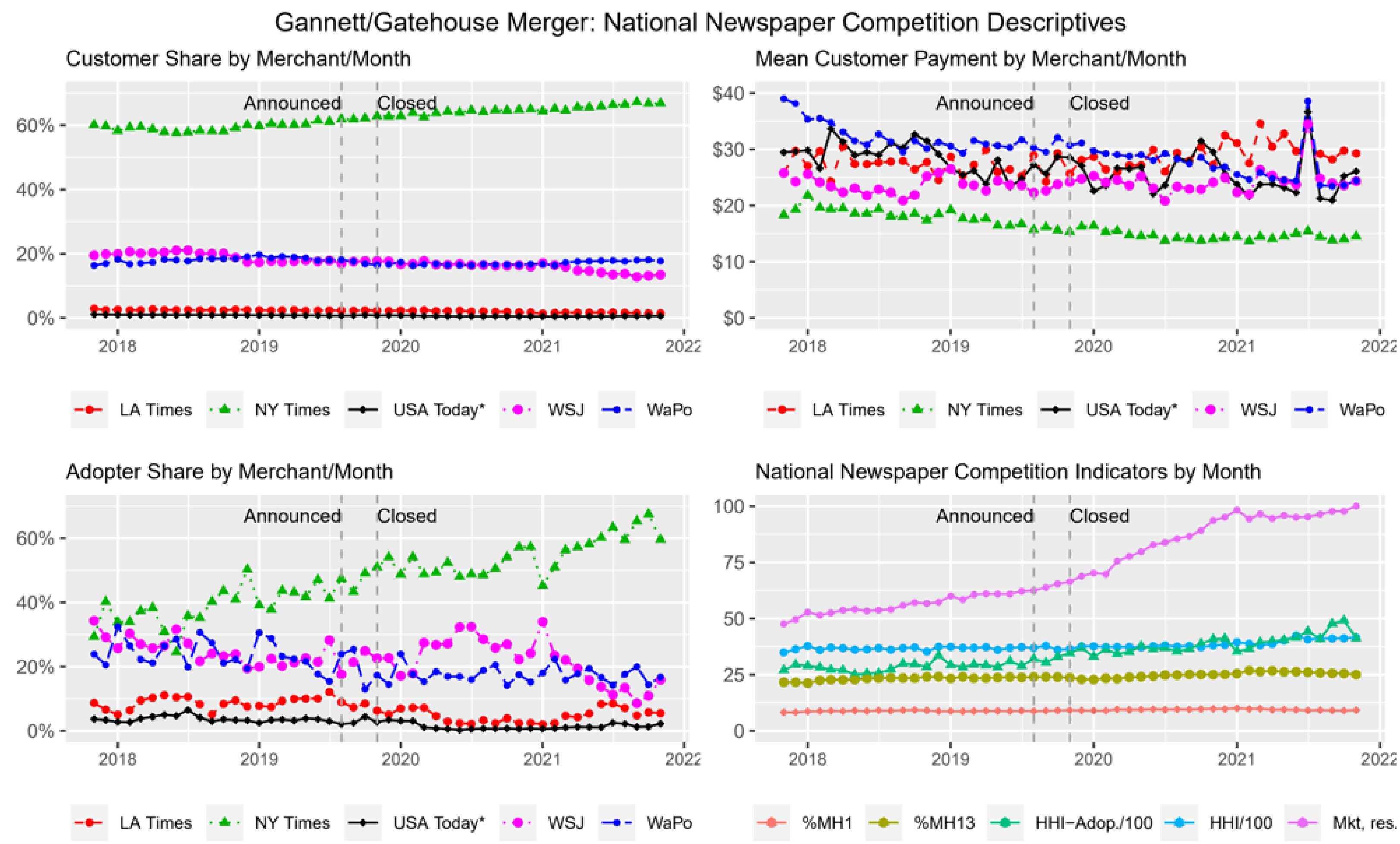
The Sirius XM/Pandora merger closed in Feb. 2019 for $3.5B. This figure graphs competition indicators in the direct consumer payment market for music streaming. The category is defined as the six largest brands. 'Adopters' are customers observed to pay a brand for the first time in the sample, including new category customers and brand switchers. %MH1 is the share of customers who multihomed by paying 2+ brands in the same month. %MH13 is the share of customers in that month who multihomed by paying 1+ other brands within the previous 12 months. HHI is the Herfindahl−Hirschman Index; higher values indicate greater market concentration. HHI−Adop. is HHI calculated using adopter shares. 'Mkt, res.' is the number of paying category customers each month, rescaled to fit. By @d_mccar and @kennethcwilbur using @earnestinsights data.

Figure 1: Music Streaming



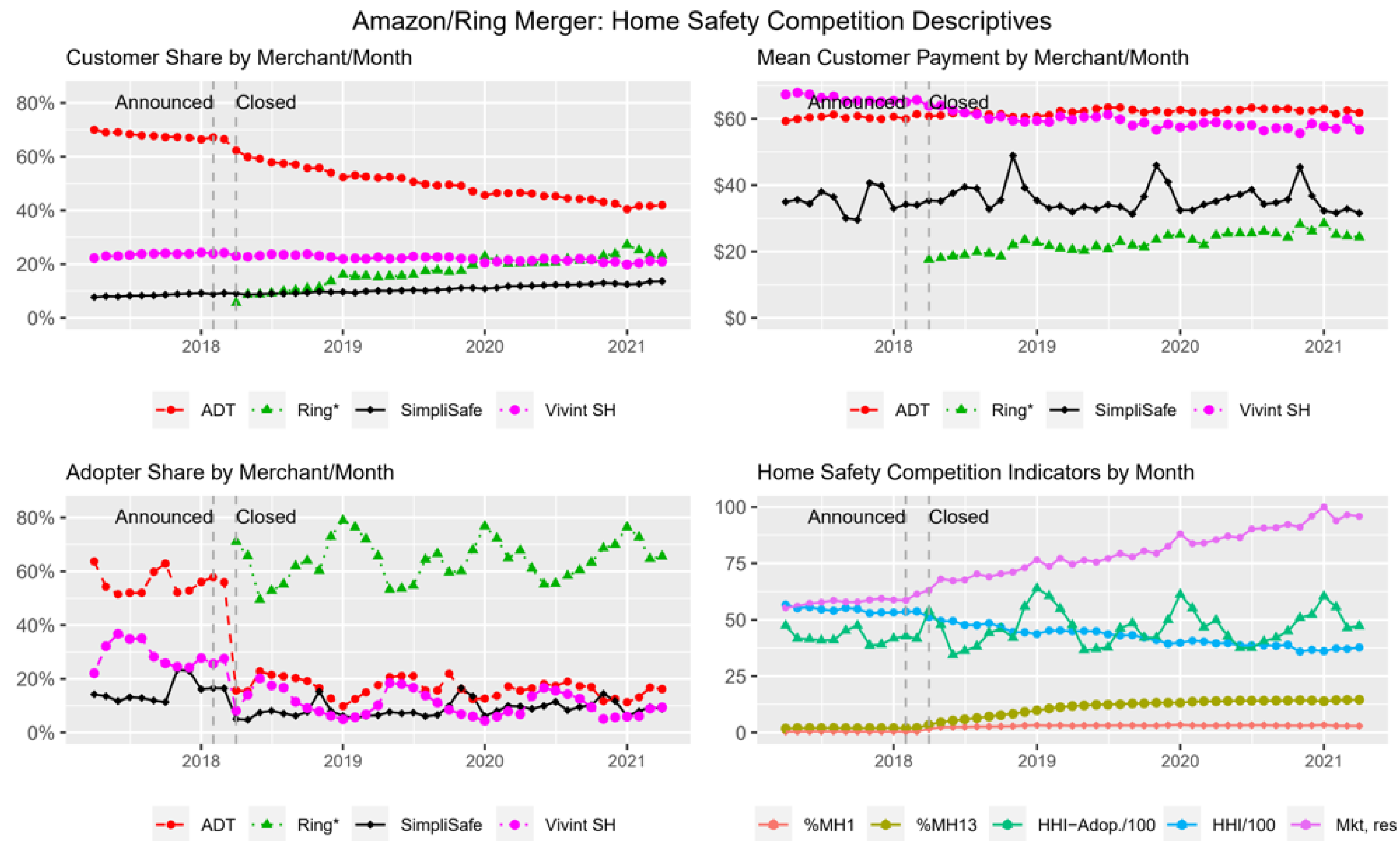
The Etsy/Depop merger closed in Jun. 2021 for $1.6B. This figure graphs competition indicators in the direct consumer payment market for clothing marketplaces. The category is defined as the four available brands. 'Adopters' are customers observed to pay a brand for the first time in the sample, including new category customers and brand switchers. %MH1 is the share of customers who multihomed by paying 2+ brands in the same month. %MH13 is the share of customers in that month who multihomed by paying 1+ other brands within the previous 12 months. HHI is the Herfindahl−Hirschman Index; higher values indicate greater market concentration. HHI−Adop. is HHI calculated using adopter shares. 'Mkt, res.' is the number of paying category customers each month, rescaled to fit. By @d_mccar and @kennethcwilbur using @earnestinsights data.

Figure 2: Clothing Marketplaces



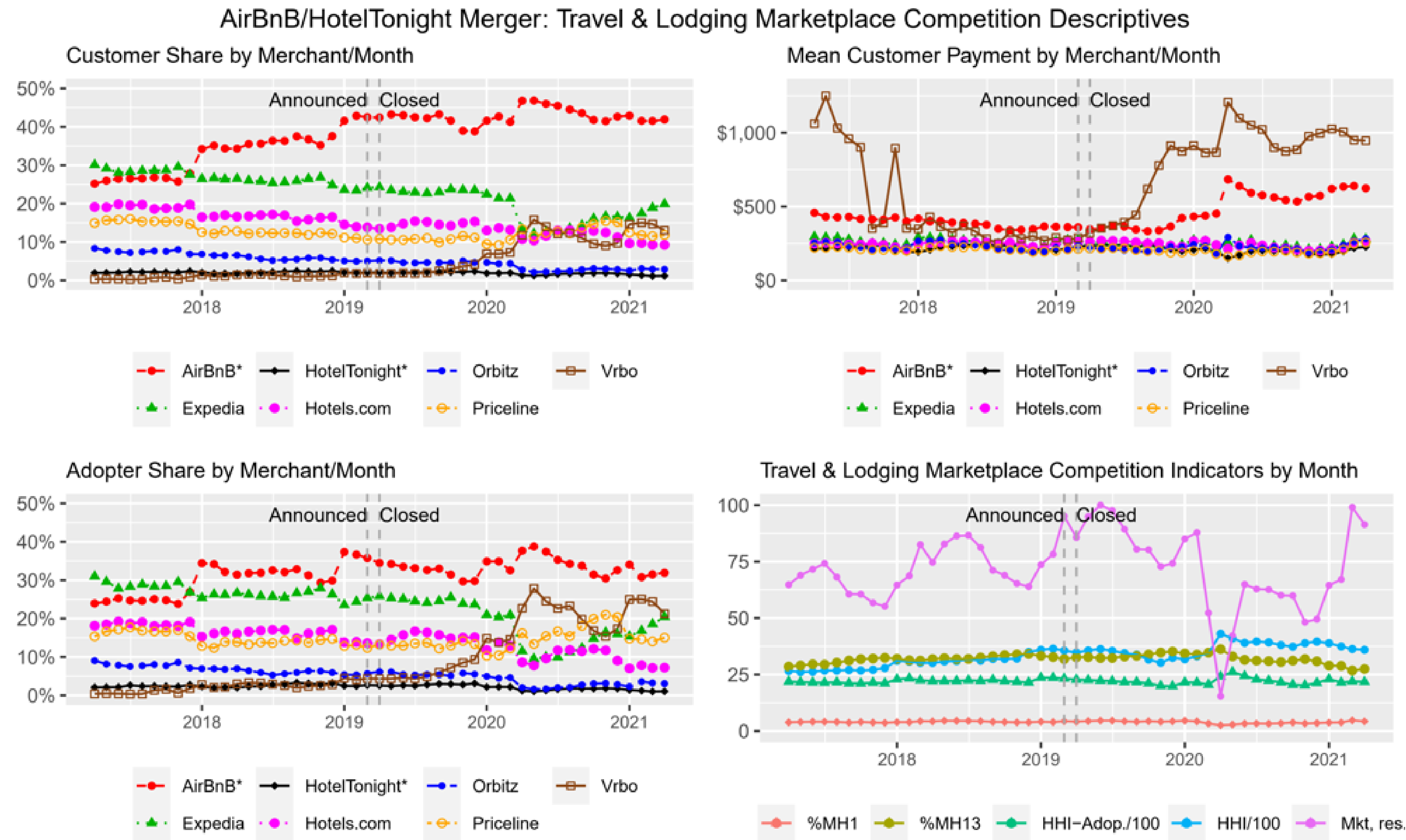
The Gatehouse/Gannett merger, which included USA Today, closed in Nov. 2019 for a reported $1.2B. This figure graphs competition indicators in the direct consumer payment market for national newspapers. The category is defined as the five largest brands. 'Adopters' are customers observed to pay a brand for the first time in the sample, including new category customers and brand switchers. %MH1 is the share of customers who multihomed by paying 2+ brands in the same month. %MH13 is the share of customers in that month who multihomed by paying 1+ other brands within the previous 12 months. HHI is the Herfindahl−Hirschman Index; higher values indicate greater market concentration. HHI−Adop. is HHI calculated using adopter shares. 'Mkt, res.' is the number of paying category customers each month, rescaled to fit. By @d_mccar and @kennethcwilbur using @earnestinsights data.

Figure 3: National Newspapers



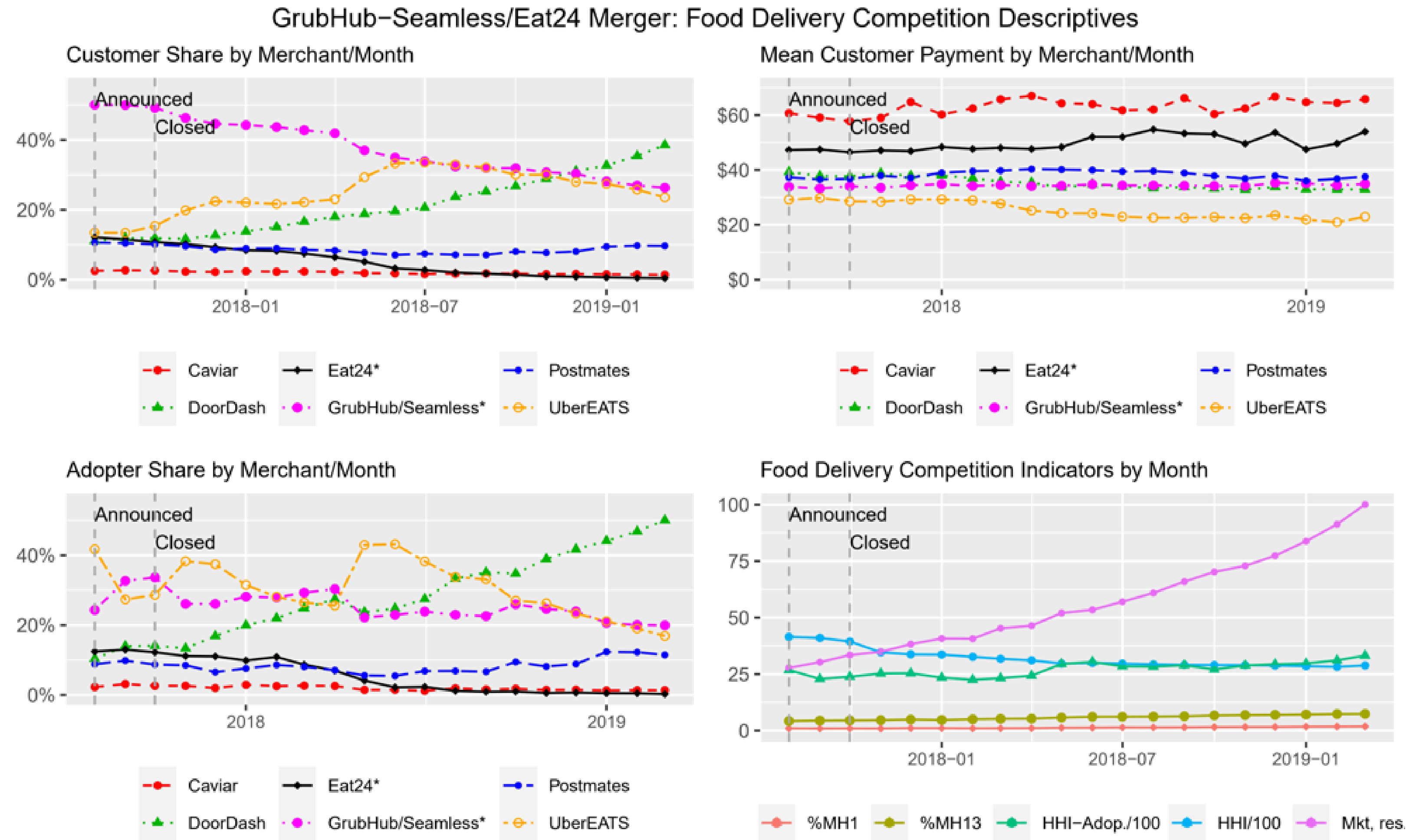
The Amazon/Ring merger closed in Apr. 2019 for a reported $1B. This figure graphs competition indicators in the direct consumer payment market for home safety products and services. Ring data only became available in April 2018, so the category is defined as the three available brands until March 2018, and as the four available brands after March 2018. 'Adopters' are customers observed to pay a brand for the first time in the sample, including new category customers and brand switchers. %MH1 is the share of customers who multihomed by paying 2+ brands in the same month. %MH13 is the share of customers in that month who multihomed by paying 1+ other brands within the previous 12 months. HHI is the Herfindahl−Hirschman Index; higher values indicate greater market concentration. HHI−Adop. is HHI calculated using adopter shares. 'Mkt, res.' is the number of paying category customers each month, rescaled to fit. By @d_mccar and @kennethcwilbur using @earnestinsights data.

Figure 4: Home Security



The AirBnB/HotelTonight merger closed in Apr. 2019 for a reported $465M. This figure graphs competition indicators in the direct consumer payment market for travel and lodging marketplaces. The category is defined as the seven available brands. 'Adopters' are customers observed to pay a brand for the first time in the sample, including new category customers and brand switchers. %MH1 is the share of customers who multihomed by paying 2+ brands in the same month. %MH13 is the share of customers in that month who multihomed by paying 1+ other brands within the previous 12 months. HHI is the Herfindahl−Hirschman Index; higher values indicate greater market concentration. HHI−Adop. is HHI calculated using adopter shares. 'Mkt, res.' is the number of paying category customers each month, rescaled to fit. By @d_mccar and @kennethcwilbur using @earnestinsights data.

Figure 5: Travel & Lodging Marketplaces



The Grubhub−Seamless/Eat24 merger closed in Oct. 2017 for a $287.5M. This figure graphs competition indicators in the direct consumer payment market for food delivery. The category is defined as the six available brands. 'Adopters' are customers observed to pay a brand for the first time in the sample, including new category customers and brand switchers. %MH1 is the share of customers who multihomed by paying 2+ brands in the same month. %MH13 is the share of customers in that month who multihomed by paying 1+ other brands within the previous 12 months. HHI is the Herfindahl−Hirschman Index; higher values indicate greater market concentration. HHI−Adop. is HHI calculated using adopter shares. 'Mkt, res.' is the number of paying category customers each month, rescaled to fit. By @d_mccar and @kennethcwilbur using @earnestinsights data.

Figure 6: Food Delivery Services