

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON AT SEATTLE**

REX – Real Estate Exchange, Inc.,

Plaintiff,

v.

ZILLOW, INC., ZILLOW GROUP, INC.,
ZILLOW HOMES, INC., ZILLOW LISTING
SERVICES, INC., TRULIA, LLC, and THE
NATIONAL ASSOCIATION OF
REALTORS,

Defendants.

Case No. 2:21-cv-00312-TSZ

Rebuttal Expert Report of Jeffrey T. Prince, Ph.D.

April 26, 2023

CONFIDENTIAL – ATTORNEYS’ EYES ONLY

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I. INTRODUCTION

A. Qualifications

1. My name is Jeffrey T. Prince. I am an economist, a tenured professor, and the Chairperson of Business Economics and Public Policy at the Kelley School of Business, Indiana University. I am also the Harold A. Poling Chair in Strategic Management at the Kelley School, an Advisory Committee Member for the Indiana University Center for Survey Research, a Faculty Affiliate of the Indiana University Data Science Program, and a University Fellow at the Technology Policy Institute. From 2016 to 2022, I served as Co-Director of the Institute for Business Analytics at the Kelley School. Prior to joining the Kelley School, I worked as an Assistant and tenured Associate Professor at Cornell University.

2. From Fall 2019 to Fall 2020, I served as Chief Economist at the Federal Communications Commission where I advised the Chairman on a wide range of telecommunications policy issues and initiatives that involved auction design, data analytics, and antitrust matters. I also led the internal research program at the Commission.

3. I conduct research primarily in the fields of industrial organization and applied econometrics, focusing on topics such as technology markets, telecommunications, consumer demand, valuation of product features, quality competition, data privacy, and regulation in health care and real estate markets. At Cornell, I developed and taught courses on economic regulation, game theory, and industrial organization, the latter two at the Ph.D. level, covering advanced theory and econometric techniques. At the Kelley School, I developed additional courses on data analysis and empirical methods that my colleagues and I have taught to senior undergraduate, MBA, and Ph.D. students, and I am currently designing a course called Digital Economics for Business, which will cover digital economics concepts, as well as strategies and analytics that are

relevant for digital markets. In addition, I am the sole author of an analytics textbook entitled *Predictive Analytics for Business Strategy* and a coauthor of a managerial economics book entitled *Managerial Economics and Business Strategy*, both published by McGraw-Hill Education.

4. I graduated from Miami University with a B.S. in Mathematics and Statistics and a B.A. in Economics in 1998. I then received my Ph.D. in Economics from Northwestern University, specializing in Industrial Organization. Since earning my Ph.D. in 2004, I have published nearly 30 research papers utilizing a wide range of econometric techniques, many in top economics and management journals.

5. My qualifications and experience are summarized in my curriculum vitae, attached hereto as Appendix A.

B. Assignment and Allegations

1. Assignment

6. I have been retained by counsel for the National Association of REALTORS® (“NAR”) in the above-captioned matter that also involves Zillow, Inc., Zillow Group, Inc., Zillow Homes, Inc., Zillow Listing Services, Inc., and Trulia, LLC (collectively, “Zillow”) as Defendants. I was asked to review and provide comments on certain opinions expressed in the Expert Report of David S. Evans (“Evans Report”),¹ submitted on behalf of plaintiff REX – Real Estate Exchange, Inc. (“REX” or “Plaintiff”), including:²

- a. Assertions made by REX and Dr. Evans regarding any alleged anticompetitive

¹ Expert Report of David S. Evans, December 12, 2022 (“Evans Report”).

² My report focuses on evaluating and rebutting material aspects of Dr. Evans’ antitrust analysis, but any claims made by Dr. Evans that I do not explicitly address should not be interpreted as agreement with his analysis.

conduct;

- b. Whether an optional rule in NAR’s Handbook on Multiple Listing Policy that prescribes the separation of “[l]istings obtained through [Internet Data Exchange (“IDX”)] feeds from REALTOR® Association [Multiple Listing Services (“MLSs”)] where the MLS participant holds participatory rights” from “[l]istings obtained from other sources” (“Model Rule 18.3.11” or “Optional Display Rule”)³ is anticompetitive; and
- c. Whether the optional Model Rule 18.3.11 has caused harm to REX.

2. Timeline of Relevant Events

7. Events relevant to the allegations in this case are summarized below.
 - a. In September 2020, Zillow announced that it was in the process of “simplifying the way it collects listing data, moving from thousands of disparate data feeds to MLS Internet Data Exchange (IDX) feeds, which are offered directly through MLSs to their members.”⁴ Prior to this change, Zillow primarily obtained property listings through “syndication agreements” with individual brokers/brokerages, franchisors, and MLSs.⁵ To switch to IDX feeds, Zillow first hired and licensed brokers

³ National Association of REALTORS®, “NAR 2021 Handbook on Multiple Listing Policy,” 2021, available at https://www.nar.realtor/sites/default/files/documents/2021_NAR_HMLP_210112.pdf (“NAR 2021 Handbook”), p. 86.

⁴ “Zillow Offers Will Expand Services in 2021 to Simplify Customer Transactions,” Zillow Group, available at <https://investors.zillowgroup.com/investors/news-and-events/news/news-details/2020/Zillow-Offers-Will-Expand-Services-in-2021-to-Simplify-Customer-Transactions/default.aspx>, accessed on January 10, 2023. *See also* Declaration of Errol Samuelson, April 30, 2021 (“Samuelson Declaration”), ¶ 68.

⁵ Declaration of Matt Hendricks, April 28, 2021 (“Hendricks Declaration”), ¶ 6.

throughout the country to gain membership in local MLSs.⁶ This membership gave Zillow the ability to then execute IDX licensing agreements (between the local MLSs and Zillow’s participant brokers), which provided access to and allowed for display of the MLS’s IDX data by the participant brokers.⁷ The IDX licensing agreements also required compliance by participant brokers with the rules and regulations adopted by each particular MLS.⁸

- b. I understand that on January 12, 2021, Zillow changed the interface on its websites⁹ to display listings in two categories (“Zillow’s display change”): “Agent Listings” (*i.e.*, homes listed by real estate agents on an MLS) and “Other Listings” (*i.e.*, all other homes, such as For Sale by Owner or other non-MLS properties for sale).¹⁰ According to Errol Samuelson, Chief Industry Development Officer at Zillow Group, Zillow’s display change was necessitated by Zillow’s business decision to obtain listings data from IDX feeds.¹¹ As described above, each IDX licensing agreement required compliance with the corresponding MLS’s rules and regulations, including, in some cases, optional Model Rule 18.3.11, which some

⁶ According to Matt Hendricks, Senior Director of Brokerage Operations at Zillow Group, “In some cases, you may also need to join the local Association of REALTORS®. Each individual MLS sets the rules and controls the data flow of their IDX feed.” Hendricks Declaration, ¶¶ 13, 15.

⁷ Hendricks Declaration, ¶ 17.

⁸ Hendricks Declaration, ¶ 17.

⁹ I understand that this interface change affected both of Zillow’s websites, Zillow.com and Trulia.com, at the same time.

¹⁰ Amended Complaint for Injunctive Relief and for Damages, September 30, 2021 (“Amended Complaint”), ¶ 64; “Where Does Zillow Get Its Listings?,” Zillow Group, March 17, 2023, available at <https://zillow.zendesk.com/hc/en-us/articles/213394668-Where-does-Zillow-get-its-listings->, accessed on April 10, 2023.

¹¹ Samuelson Declaration, ¶ 68.

local MLSs (of which Zillow’s brokers were members) had adopted.¹²

3. *Plaintiff’s Allegations*

8. Plaintiff alleges NAR, multiple listing services, and Zillow “agreed and conspired to restrain competition by non-members.”¹³ Plaintiff alleges that “NAR’s policies control the web displays of MLS members,” including through “the segregation rule,” under which “MLS member brokers must display listings received from fellow MLS brokers through the IDX feeds separately from listings received from non-MLS brokers.”¹⁴ According to Plaintiff, “Zillow’s website redesign, which demotes non-MLS listings, is driven by its voluntary membership in the NAR and MLSs and the agreed adherence to their rules.”¹⁵

9. Plaintiff alleges that the changes to Zillow’s website interface caused a decline in customer views of REX’s listings, which in turn allegedly caused REX’s clients to lose confidence in REX’s effectiveness, leading to requests of co-listing with MLS members and the cancellation of listing agreements with REX.¹⁶ Plaintiff further claims that Zillow’s display change in compliance with local MLS rules regarding the display of non-MLS and MLS listings “provides no tangible competitive or pro-consumer benefit.”¹⁷

¹² Deposition of Teresa Thomas, November 2, 2022 (“Thomas Deposition”), Exhibit 3 (*i.e.*, Declaration of Teresa Thomas, April 30, 2021 (“Thomas Declaration”)), p. 6 (“certain MLSs require that the data for that particular MLS be separated from listings received from other non-IDX or non-MLS sources, which means [Zillow] could not display listings received directly from the MLSs (through the IDX feed) together with listings such as for sale by owner or auction, which may come from a different source. How [Zillow] actually display these listings, however, was a decision to be made by Zillow alone.”). *See also* Thomas Deposition, pp. 13:12-16:16; NAR 2021 Handbook, p. 86.

¹³ Amended Complaint, ¶ 124.

¹⁴ Amended Complaint, ¶ 102.

¹⁵ Amended Complaint, ¶ 104.

¹⁶ Amended Complaint, ¶¶ 127-129.

¹⁷ Amended Complaint, ¶ 130.

C. Data and Information Considered

10. My opinions, and the bases for these opinions, are contained in this report and the attached exhibits. In reaching these opinions, I have considered various documents, data, and other information. Appendix B attached to this report provides a list of the information that I considered in preparing this report and its supporting exhibits.

11. In addition to reviewing the information listed in Appendix B, I have relied on my skills, knowledge, training, education, and experience as a professional economist. I reserve the right to update my opinions, should additional relevant documents or information be made available to me.

D. Compensation

12. I am being compensated at my normal and customary rate of \$1,100 per hour for time spent on this matter, and I receive compensation based on the professional fees of Analysis Group. I have been assisted in my work in this matter by staff at Analysis Group working under my direction. Analysis Group is being compensated for time spent by Analysis Group staff on this matter at their normal and customary rates. None of the compensation I or the staff at Analysis Group receive is contingent on the outcome of this dispute or the opinions expressed in this report.

II. BACKGROUND

13. In this section, I provide a brief overview of the economic environment relevant to this case.

A. Overview of Participants in Residential Real Estate Transactions

14. A real estate transaction involves interactions between several participants. As described below, key participants include (but are not limited to) sellers, buyers, and a set of intermediaries.

1. *Sellers and Buyers*

15. According to the U.S. Census Bureau, there were approximately 142 million housing units in the U.S. in 2021, of which nearly two thirds (or 92 million) were owner-occupied.¹⁸ Between 2020 and 2022, approximately 5 to 6 million existing homes were sold each year in the U.S., with a median sales price between \$300,000 and \$400,000.¹⁹ As of December 2022, the housing inventory (*i.e.*, the count of active single-family and condo/townhome listings) was approximately 680,000 homes.²⁰ In recent years, the median duration of homeownership in the U.S. has been about 13 years,²¹ and first-time buyers make up approximately one quarter to one third of all buyers.²²

16. Sellers need to make a number of decisions and undertake a series of activities in order to sell their home. These include deciding on a listing price, deciding when to put the home up for sale, and choosing professionals, if any, to help with the selling process.²³ Then, a seller

¹⁸ “Quick Facts,” U.S. Census Bureau, available at <https://www.census.gov/quickfacts/fact/table/US/HSG445221>, accessed on February 24, 2023.

¹⁹ National Association of REALTORS®, “Existing Home Sales and Sales Price of Existing Homes,” 2023, available at <https://cdn.nar.realtor/sites/default/files/documents/ehs-12-2022-overview-2023-01-20.pdf>.

²⁰ “Housing Inventory: Active Listing Count in the United States,” Economic Research, Federal Reserve Bank of St. Louis, available at <https://fred.stlouisfed.org/series/ACTLISCOUUS>, accessed on April 20, 2023.

²¹ “How Long Do Homeowners Stay in Their Homes?,” National Association of REALTORS®, available at <https://www.nar.realtor/blogs/economists-outlook/how-long-do-homeowners-stay-in-their-homes>, accessed on February 24, 2023. *See also* Kolomatsky, Michael, “Where Do Homeowners Stay in Their Homes the Longest?,” *New York Times*, March 24, 2022, available at <https://www.nytimes.com/2022/03/24/realestate/where-do-homeowners-stay-in-their-homes-the-longest.html>, accessed on April 21, 2023.

²² “NAR Finds Share of First-Time Home Buyers Smaller, Older Than Ever Before,” National Association of REALTORS®, available at <https://www.nar.realtor/newsroom/nar-finds-share-of-first-time-home-buyers-smaller-older-than-ever-before>, accessed on February 24, 2023.

²³ Rafter, Dan, “Selling A House in 5 Steps,” Quicken Loans, October 21, 2021, available at <https://www.quickenloans.com/learn/selling-a-house>, accessed on April 19, 2023. The professionals a seller may work with include a real estate agent, among others. A seller may decide not to work with a real estate agent during the selling process, which is referred to as For Sale by Owner (“FSBO”). When a seller chooses FSBO, all the decisions regarding the selling process, such as setting a listing price and marketing the home, need to be made by the seller without assistance from a real estate agent. *See*, “How to Sell Your House For Sale By Owner,” Zillow,

needs to market, stage, and show the home, which usually occurs both online and offline.²⁴ Once a seller finds an interested potential buyer, the two parties negotiate and attempt to reach agreement on the terms of the transaction.

17. Buyers also need to undertake a number of steps in order to buy a home. These include deciding on the timing and various preferences for buying a home, determining their budget, deciding on financing options and getting preapproved for a mortgage, and choosing professionals, if any, to help with the buying process.²⁵ Then, a buyer needs to begin shopping for a home. Once a buyer finds a home they are interested in, they will make an offer (on price, contingencies, and other contractual terms) and negotiate with the seller.²⁶ Once negotiations are concluded, if a buyer and a seller have come to agreement on the contractual terms, then a buyer typically will perform a home inspection, negotiate for possible repairs or modifications, obtain a home appraisal, and perform a final walkthrough, all before closing on the home.²⁷ The closing process includes completion of paperwork and transfer of funds (*e.g.*, signing a settlement statement, paying for the down payment and closing costs) before the buyer officially becomes a

available at <https://www.zillow.com/sellers-guide/how-to-sell-your-house-for-sale-by-owner/>, accessed on April 19, 2023.

²⁴ Rafter, Dan, “Selling A House in 5 Steps,” Quicken Loans, October 21, 2021, available at <https://www.quickenloans.com/learn/selling-a-house>, accessed on April 19, 2023.

²⁵ Araj, Victoria, “Buying A House in 2023: A Step-by-Step-How-To,” RocketMortgage, March 31, 2023, available at <https://www.rocketmortgage.com/learn/how-to-buy-a-house>, accessed on April 19, 2023. As with sellers, buyers also may decide not to work with a real estate agent during the homebuying process. According to NAR, approximately 13 percent of buyers did not purchase their home through an agent. National Association of REALTORS® Research Group, “2022 Home Buyers and Sellers Generational Trends Report,” 2022, available at <https://www.nar.realtor/sites/default/files/documents/2022-home-buyers-and-sellers-generational-trends-03-23-2022.pdf>, p. 63.

²⁶ Araj, Victoria, “Buying A House in 2023: A Step-by-Step-How-To,” RocketMortgage, March 31, 2023, available at <https://www.rocketmortgage.com/learn/how-to-buy-a-house>, accessed on April 19, 2023.

²⁷ Araj, Victoria, “Buying A House in 2023: A Step-by-Step-How-To,” RocketMortgage, March 31, 2023, available at <https://www.rocketmortgage.com/learn/how-to-buy-a-house>, accessed on April 19, 2023.

homeowner.²⁸

2. *Agents and Brokers*

18. Most buyers and sellers are not real estate professionals. Yet, the purchase and sale of a home is among the most consequential economic transactions that most people conduct in their lifetimes. As a result, most buyers and sellers rely on professional agents to represent their interests throughout the process of buying/selling a home. These agents typically receive compensation for their services in the form of a commission (calculated as a percentage of the transaction price).²⁹

19. A real estate agent is a person who has obtained a professional license to help people buy, sell, or rent housing and real estate, obtained from the state in which the agent wants to engage in the practice of real estate.³⁰ Each state sets its own requirements for real estate licensing, with typical requirements including age (*e.g.*, at least 18 years old), completion of pre-license education, and passing the state’s real estate license examination.³¹ An agent must become

²⁸ Araj, Victoria, “Buying A House in 2023: A Step-by-Step-How-To,” RocketMortgage, March 31, 2023, available at <https://www.rocketmortgage.com/learn/how-to-buy-a-house>, accessed on April 19, 2023.

²⁹ *See, e.g.*, Bruce, Donald, and Rudy Santore. “On Optimal Real Estate Commissions.” *Journal of Housing Economics* 15, no. 2 (2006): 156-166 (“Bruce and Santore (2006)”). Commission rates are set to create an incentive for the agent to exert effort. Sellers, for example, do not necessarily prefer a lower commission rate to a higher one because agents may exert less effort at lower rates. Bruce and Santore (2006), p. 163.

³⁰ “How to Become a Real Estate Agent,” Kaplan Real Estate Education, available at <https://www.kapre.com/resources/real-estate/how-to-become-a-real-estate-agent>, accessed on February 24, 2023; Bortz, Daniel, “Real Estate Agent vs. Broker vs. Realtor: What’s the Difference?,” Realtor.com, available at <https://www.realtor.com/advice/buy/whats-difference-real-estate-salesperson-broker/>, accessed on February 24, 2023.

³¹ “How to Become a Real Estate Agent,” Kaplan Real Estate Education, available at <https://www.kapre.com/resources/real-estate/how-to-become-a-real-estate-agent>, accessed on February 24, 2023; “Requirements to Get a Real Estate License,” Kaplan Real Estate Education, available at <https://www.kapre.com/resources/real-estate/requirements-to-get-a-real-estate-license>, accessed on February 24, 2023.

affiliated with a broker/brokerage in order to legally work with buyers and/or sellers.³²

20. A real estate broker typically manages a team of real estate agents and is a real estate professional with further experience, training, and license requirements compared with an agent.³³ Brokers are licensed by the state to oversee real estate transactions and ensure that agents are adhering to the required legal and ethical standards.³⁴ A broker can own their own brokerage or work for a larger brokerage firm.³⁵

21. An agent or a broker can also be called a REALTOR® if he or she becomes a member of a local association of REALTORS®, which then automatically extends membership to the state association and to NAR.³⁶ The term REALTOR® is a registered collective membership trademark that identifies a real estate professional who is a member of NAR and adheres to its Code of Ethics.³⁷

22. Seller’s agents (or “listing agents”) and buyer’s agents are licensed real estate

³² “Requirements to Get a Real Estate License,” Kaplan Real Estate Education, available at <https://www.kapre.com/resources/real-estate/requirements-to-get-a-real-estate-license>, accessed on February 24, 2023.

³³ “How to Become a Real Estate Agent,” Kaplan Real Estate Education, available at <https://www.kapre.com/resources/real-estate/how-to-become-a-real-estate-agent>, accessed on February 24, 2023; Bortz, Daniel, “What is a Real Estate Broker vs Real Estate Agent – And Who Should You Hire?,” Realtor.com, available at <https://www.realtor.com/advice/buy/what-is-a-real-estate-broker/>, accessed on February 24, 2023.

³⁴ Bortz, Daniel, “How to Become a Real Estate Agent in 5 Steps,” Realtor.com, available at <https://www.realtor.com/advice/buy/should-i-become-a-realtor/>, accessed on February 24, 2023.

³⁵ Bowling, Lauren, “What is a Real Estate Broker and What Do They Do?,” RocketMortgage, available at <https://www.rocketmortgage.com/learn/real-estate-broker>, accessed on February 24, 2023.

³⁶ According to NAR, the “principals of a real estate firm must first join a REALTOR® association before any non-principal can join”; “[o]nce the principal(s) decide to join the REALTOR® association, then all agents, brokers and appraisers that are licensed or affiliated with him or her have the option of also joining as members of the association.” “Who is a Member of the National Association of REALTORS®?,” National Association of REALTORS®, available at <https://www.nar.realtor/membership/how-to-join-nar>, accessed on April 19, 2023.

³⁷ “Definition of Realtor,” National Association of REALTORS®, available at <https://www.nar.realtor/membership-marks-manual/definition-of-realtor>, accessed on January 10, 2023; “When is a Real Estate Agent a Realtor?,” National Association of REALTORS®, available at <https://www.nar.realtor/about-nar/when-is-a-real-estate-agent-a-realtor>, accessed on January 10, 2023.

agents who advise, assist, and coordinate with relevant parties in real estate transactions. The seller’s agent represents the seller, who has entered a legal relationship with the agent to sell their property.³⁸ The buyer’s agent represents and works with the buyer to identify a suitable property and negotiate a successful home purchase.³⁹ While there are situations in which the buyer and the seller have the same agent (“dual agent”), who becomes a facilitator, usually the two parties will be represented by different agents.⁴⁰ Agents’ experience, along with their own research, allows them to assist with crucial aspects of a real estate transaction as described below in detail, which in turn can increase both the quality of a match between a potential buyer and seller and the likelihood of a successful transaction.⁴¹

23. When seller’s/listing agents work with sellers, the agents use their knowledge and experience to help sellers get the best possible deal. The expertise and services provided by listing agents include:

- **Local Housing Expertise.** Listing agents have access to information that sellers would not be able to obtain on their own or would need to expend considerable time and effort to obtain. For example, agents have access to MLSs and market

³⁸ “What Does a Real Estate Agent Do for a Seller?,” Redfin, available at <https://www.redfin.com/guides/sellers-agent>, accessed on April 19, 2023.

³⁹ “How to Hire a Buyer’s Real Estate Agent,” Zillow, available at <https://www.zillow.com/home-buying-guide/hire-real-estate-agent-for-buyers/>, accessed on April 20, 2023. *See also* Marquand, Barbara, and Kate Wood, “How A Buyer’s Agent Can Help Your Home Search,” NerdWallet, available at <https://www.nerdwallet.com/article/mortgages/buyers-real-estate-agent>, accessed on April 21, 2023.

⁴⁰ Nicely, Tyler, “Real Estate Agent vs. Broker: What’s the Difference?,” Zillow, available at <https://www.zillow.com/agent-resources/blog/real-estate-broker-vs-agent/>, accessed on January 10, 2023. *See also* Marquand, Barbara, and Kate Wood, “How A Buyer’s Agent Can Help Your Home Search,” NerdWallet, available at <https://www.nerdwallet.com/article/mortgages/buyers-real-estate-agent>, accessed on April 21, 2023.

⁴¹ Academic research has shown that agents’ experience allows them to better match individual buyers with individual sellers. Moreover, research has shown that the additional services provided by agents (such as marketing and negotiation) are associated with a higher transaction probability and higher prices. *See, e.g.*, Allen, Marcus, et al. “Effects of Real Estate Brokers’ Marketing Strategies: Public Open Houses, Broker Open Houses, MLS Virtual Tours, and MLS Photographs.” *Journal of Real Estate Research* 37, No. 3 (2015): 343-369, pp. 343-344, 346.

conditions reports.⁴² Access to such information allows an agent to, for example, compare all available properties over time in a given geography and thereby gain a more comprehensive understanding of competitive conditions, including the value of property characteristics.⁴³ Agents also develop extensive personal knowledge of properties in a given location by regularly touring neighborhoods, attending open houses, and engaging with customers and other real estate professionals. Listing agents use their expertise to guide sellers in setting the right listing price, recommending home improvements that matter most to buyers in the area, flagging any potential problems that buyers may find about the property, and determining an overall selling strategy.⁴⁴

- **Marketing.** A listing agent can provide recommendations for home staging, hire professional photographers to take listing photos, and draft the listing description.⁴⁵

A listing agent can also help ensure that as many relevant buyers as possible see

⁴² “Why Use a Real Estate Agent to Sell Your Home,” Zillow, available at <https://www.zillow.com/sellers-guide/why-use-a-real-estate-agent/>, accessed on April 19, 2023. *See also* Taylor, Mia, “What is the MLS, and How Does It Work?,” Bankrate, April 11, 2022, available at <https://www.bankrate.com/real-estate/mls-multiple-listing-service/>, accessed on February 28, 2023.

⁴³ “Why Use a Real Estate Agent to Sell Your Home,” Zillow, available at <https://www.zillow.com/sellers-guide/why-use-a-real-estate-agent/>, accessed on April 19, 2023. *See also* “Comparative Market Analysis: A Guide,” RocketMortgage, available at <https://www.rocketmortgage.com/learn/comparative-market-analysis>, accessed on April 19, 2023.

⁴⁴ “Why Use a Real Estate Agent to Sell Your Home,” Zillow, available at <https://www.zillow.com/sellers-guide/why-use-a-real-estate-agent/>, accessed on April 19, 2023. *See also* Miller, Peter, “How Does A Real Estate Agent Set My Home Asking Price?,” The Mortgage Reports, available at <https://themortgagereports.com/42630/how-does-a-real-estate-agent-set-my-home-asking-price>, accessed on April 19, 2023; “What Does a Real Estate Agent Do for a Seller?,” Redfin, available at <https://www.redfin.com/guides/sellers-agent>, accessed on April 19, 2023.

⁴⁵ “Why Use a Real Estate Agent to Sell Your Home,” Zillow, available at <https://www.zillow.com/sellers-guide/why-use-a-real-estate-agent/>, accessed on April 19, 2023. *See also* Bell, Linda, “How to Find the Best Listing Agent,” NerdWallet, May 3, 2022, available at <https://www.nerdwallet.com/article/mortgages/selling-home-find-best-listing-agent>, accessed on April 21, 2023.

the listing, by listing the property on relevant MLSs, as well as by including the property on mailings and advertisements that go out to potential buyers, and hosting open houses and showings.⁴⁶ As part of the marketing step, listing agents may use their professional network to increase reach.⁴⁷

- **Negotiation Facilitation/Handling.** A listing agent will use their expertise to vet all potential buyers and identify the best offers for the seller. Following that, the agent will engage in negotiations, advising the seller on counteroffers and signaling which offer presents the most favorable terms. In addition, an agent can serve as an effective advocate because they can remove emotion from the decision of how to negotiate the best price and contingencies for a given transaction.⁴⁸
- **Paperwork Management.** Throughout a real estate transaction, there are multiple documents that need to be reviewed and prepared. For example, a listing agent will work with the seller to review offers, contracts, and closing statements, to help the seller complete the transaction.⁴⁹

⁴⁶ “Why Use a Real Estate Agent to Sell Your Home,” Zillow, available at <https://www.zillow.com/sellers-guide/why-use-a-real-estate-agent/>, accessed on April 19, 2023. *See also* Bell, Linda, “How to Find the Best Listing Agent,” NerdWallet, May 3, 2022, available at <https://www.nerdwallet.com/article/mortgages/selling-home-find-best-listing-agent>, accessed on April 21, 2023.

⁴⁷ “Why Use a Real Estate Agent to Sell Your Home,” Zillow, available at <https://www.zillow.com/sellers-guide/why-use-a-real-estate-agent/>, accessed on April 19, 2023. *See also* “Top Ten Traits of A Real Estate Agent,” Kaplan Real Estate Education, January 15, 2019, available at <https://www.kapre.com/resources/real-estate/top-ten-traits-real-estate-agent>, accessed on April 21, 2023.

⁴⁸ Araj, Victoria, “The Emotion Behind Buying a House,” RocketMortgage, February 22, 2023, available at <https://www.rocketmortgage.com/learn/the-emotion-behind-buying-a-house>, accessed on April 10, 2023; Graham, Nicole S., “Navigating Clients’ Needs in Emotional Transactions,” National Association of REALTORS®, March 1, 2019, available at <https://www.nar.realtor/magazine/real-estate-news/sales-marketing/navigating-clients-needs-in-emotional-transactions>, accessed on April 10, 2023.

⁴⁹ “Real Estate Agent Roles and Duties,” Indeed, available at <https://www.indeed.com/hire/c/info/real-estate-agent-roles-and-duties>, accessed on April 19, 2023.

- **Communication with Third Parties.** A listing agent will also help a seller with obtaining the services of third parties that generally play a role in real estate transactions, such as lenders, home inspectors, real estate attorneys, appraisers, and escrow companies.⁵⁰ Throughout the duration of the real estate transaction, the listing agent will help manage the relationship with the third parties.

24. Similar to a seller’s real estate agent, a buyer’s real estate agent assists buyers in multiple ways during the buying process. Buyers hire a real estate agent to leverage the agent’s experience and help them find the right property at the right price. The services that buyer’s agents offer, some of which are similar to the services offered by listing agents, include the following:

- **Property Listing Aggregation and Local Housing Expertise.** Generally, after the buyer communicates to the agent the home characteristics that they are interested in, as well as the budget that they have, the real estate agent will collect all available listings with those characteristics and that are within the buyer’s budget.⁵¹ The agent’s industry expertise and access to listings databases allow them to create a comprehensive list of properties that match the buyer’s preferences. For example, agents have access to Multiple Listing Services, which facilitate the collection and dissemination of property-related information for the vast majority of homes in the

⁵⁰ “Real Estate Agent Roles and Duties,” Indeed, available at <https://www.indeed.com/hire/c/info/real-estate-agent-roles-and-duties>, accessed on April 19, 2023.

The agent’s role in helping manage these third-party relationships must comply with the federal Real Estate Settlement Procedures Act (“RESPA”), which I discuss further in Section III. RESPA prohibits “kickbacks and unearned fees,” such as any fee paid in return for a referral of a settlement service. *See* 12 C.F.R. § 1024.14 (2022), available at <https://www.ecfr.gov/current/title-12/chapter-X/part-1024>.

⁵¹ “What a Buyer’s Agent Does to Help Find Your Next Home,” Homelight, January 26, 2023, available at <https://www.homelight.com/blog/buyer-buyers-agent/>, accessed on April 19, 2023.

U.S., as described in detail in the following section.⁵² In addition, agents typically monitor the most popular properties/neighborhoods, attend open houses, engage with customers and other real estate professionals, and review a variety of information, such as daily market activity reports and information on (changes in) interest rates, property taxes, and other industry and economic factors that buyers typically care about.⁵³ Importantly, an agent not only assists a buyer with identifying properties, but with identifying the properties that *best fit their preferences* (e.g., providing insight on whether and how soon the property needs major updates, and how a property compares to other properties in the same neighborhood). In this way, a buyer’s agent does more than ease the process and provide guidance on the terms of a transaction; critically, the agent can influence which property a buyer purchases by identifying and facilitating better matches.

- **Property Showings.** Once the agent identifies properties that match the buyer’s preferences, the agent will connect with listing agents and schedule property showings for the buyer, as well as keep in touch with listing agents for any follow-ups.

⁵² From 2019 to 2022, MLS listings made up approximately 74 to 83 percent of all listings. Bright MLS, “On/Off MLS Study,” 2021, available at https://assets.ctfassets.net/1g8q1frp41ix/69PEVCSSUVfYRCqrSpKKEd/35da1493a4976e721947ccbbbe4c44d8/Bright_MLS_On-Off_MLS_Study.pdf, pp. 5-7, 10; Bright MLS, “On MLS Study,” August 2022, available at https://assets.ctfassets.net/1g8q1frp41ix/4w7hKg9U7Kzu2Z5N7XkD4g/1bc35caddbaca254d7834caefad97ad7/Bright_MLS_-_On_Off_MLS_Study_-_2022.pdf, pp. 3, 7, 10. In addition, approximately 87 percent of buyers purchase their home through an agent. National Association of REALTORS® Research Group, “2022 Home Buyers and Sellers Generational Trends Report,” 2022, available at <https://www.nar.realtor/sites/default/files/documents/2022-home-buyers-and-sellers-generational-trends-03-23-2022.pdf>, p. 65.

⁵³ “What Exactly are Buyer’s Agent Responsibilities,” National Association of Exclusive Buyer Agents, August 29, 2019, available at <https://naeba.org/what-exactly-are-the-responsibilities-of-a-buyer-agent/>, accessed on April 19, 2023. *See also, e.g.*, Crace, Miranda, “How Buyers Can Negotiate House Price,” RocketMortgage, available at <https://www.rocketmortgage.com/learn/how-to-negotiate-house-price>, accessed on January 11, 2023.

- **Negotiation Facilitation/Handling.** A buyer’s agent will advise on the most appropriate price and other terms that fit a buyer’s preferences and present them to the seller’s agent in an offer.⁵⁴ A buyer’s agent will also help the buyer with the negotiation process and with identifying a strategy to ensure their offer contains a combination of price and non-price terms that improves the chance that the seller will accept the offer.⁵⁵ In addition, a buyer’s agent can help the buyer with negotiating repair requests and other requests that the buyer might have and which can be included in an offer.⁵⁶
- **Paperwork Management.** Similar to a listing agent, the buyer’s agent will help the buyer with handling documentation and paperwork for real estate transactions.⁵⁷ The documents with which a buyer’s agent will provide assistance include offers, contracts, and closing statements.⁵⁸ For example, a buyer’s agent will help the buyer with drafting an offer. During the closing process, while real estate attorneys will review documents for legal accuracy, the buyer’s agent will also review documents

⁵⁴ “What Exactly are Buyer’s Agent Responsibilities,” National Association of Exclusive Buyer Agents, August 29, 2019, available at <https://naeba.org/what-exactly-are-the-responsibilities-of-a-buyer-agent/>, accessed on April 19, 2023.

⁵⁵ “What Exactly are Buyer’s Agent Responsibilities,” National Association of Exclusive Buyer Agents, August 29, 2019, available at <https://naeba.org/what-exactly-are-the-responsibilities-of-a-buyer-agent/>, accessed on April 19, 2023.

⁵⁶ “What a Buyer’s Agent Does to Help Find Your Next Home,” Homelight, January 26, 2023, available at <https://www.homelight.com/blog/buyer-buyers-agent/>, accessed on April 19, 2023.

⁵⁷ “What Exactly are Buyer’s Agent Responsibilities,” National Association of Exclusive Buyer Agents, August 19, 2019, available at <https://naeba.org/what-exactly-are-the-responsibilities-of-a-buyer-agent/>, accessed on April 19, 2023.

⁵⁸ “Important Documents in a Real Estate Transaction,” Sommer, Olk Payant, S.C., available at <https://sommerolk.com/important-documents-in-a-real-estate-transaction/>, accessed on April 19, 2023.

to ensure that the terms of the sale are correct and that details involving the property are accurate.⁵⁹

- **Professional Recommendations.** Because the buying process usually requires the help and involvement of other professionals, such as home inspectors, real estate attorneys, mortgage brokers, contractors, and architects, the buyer’s agent might not only have access to reputable local experts but might also help the buyer in handling communications with them and managing the relationship.⁶⁰

25. When buyers and sellers lack the information, resources, or experience to handle these tasks on their own, agents can bring substantial value as intermediaries to real estate transactions, allowing for a more efficient search, better matches, and a more efficient purchasing and closing process. According to survey research conducted by NAR, in 2022, “real estate agents and brokers remain[ed] the top home buying and selling resources for all generations.”⁶¹ Even with extensive use of the Internet, “buyers continue[d] to need the help of a real estate professional to help them find the right home, negotiate terms of sale, and help with price negotiations.”⁶² Most

⁵⁹ “What New Real Estate Agents Should Know About the Closing Process,” De Bruin Law Firm, available at <https://debruinlawfirm.com/new-real-estate-agents-know-closing-process/>, accessed April 10, 2023; Johnson, Kara, “Should You Hire a Real Estate Attorney When Buying a Home?,” MortgageLoan.com, available at <https://www.mortgageloan.com/should-you-hire-a-real-estate-attorney-when-buying-a-home>, accessed April 10, 2023.

⁶⁰ Whytock, Andrew, “What is a Buyer’s Agent?,” Clever, February 8, 2023, available at <https://listwithclever.com/real-estate-blog/buyers-agent/>, accessed on February 28, 2023; Weintraub, Elizabeth, “Using Your Agent’s Recommended Mortgage Lender,” The Balance, March 4, 2021, available at <https://www.thebalancemoney.com/using-your-agent-s-recommended-mortgage-lender-1798449>, accessed on February 28, 2023.

⁶¹ National Association of REALTORS® Research Group, “2022 Home Buyers and Sellers Generational Trends Report,” 2022, available at <https://www.nar.realtor/sites/default/files/documents/2022-home-buyers-and-sellers-generational-trends-03-23-2022.pdf>, p. 9.

⁶² National Association of REALTORS® Research Group, “2022 Home Buyers and Sellers Generational Trends Report,” 2022, available at <https://www.nar.realtor/sites/default/files/documents/2022-home-buyers-and-sellers-generational-trends-03-23-2022.pdf>, p. 9.

home buyers interview an agent (or multiple agents) before hiring one to represent them in the home buying process, and “[e]ighty-seven percent of all buyers purchased their home through an agent.”⁶³ Buyers also tend to not search for properties by themselves for long—only about two weeks—before contacting an agent to help them in the process of buying a home.⁶⁴ Similarly, sellers tend to request the help of a real estate professional particularly when it comes to pricing their home competitively, marketing their home to potential buyers, and selling within a specific timeframe.⁶⁵ In fact, “nine in [ten] home sellers worked with a real estate agent to sell” their home in 2022, with the agent providing “a broad range of services and management of most aspects of the home.”⁶⁶

B. Multiple Listing Services (“MLSs”)

26. Multiple listing services, or “MLSs,” are organizations formed by real estate brokers.⁶⁷ Brokers are called participants (or members) of an MLS, while agents are called subscribers (or users) and typically can only join an MLS if they are affiliated with a participating

⁶³ National Association of REALTORS® Research Group, “2022 Home Buyers and Sellers Generational Trends Report,” 2022, available at <https://www.nar.realtor/sites/default/files/documents/2022-home-buyers-and-sellers-generational-trends-03-23-2022.pdf>, p. 63.

⁶⁴ National Association of REALTORS® Research Group, “2022 Home Buyers and Sellers Generational Trends Report,” 2022, available at <https://www.nar.realtor/sites/default/files/documents/2022-home-buyers-and-sellers-generational-trends-03-23-2022.pdf>, p. 54.

⁶⁵ National Association of REALTORS® Research Group, “2022 Home Buyers and Sellers Generational Trends Report,” 2022, available at <https://www.nar.realtor/sites/default/files/documents/2022-home-buyers-and-sellers-generational-trends-03-23-2022.pdf>, p. 9. *See also* Martin, Erik J., “Do You Need A Real Estate Agent to Sell Your Home?,” Bankrate, March 28, 2022, available at <https://www.bankrate.com/real-estate/do-i-need-an-agent-to-sell-my-house/>, accessed April 21, 2023.

⁶⁶ National Association of REALTORS® Research Group, “2022 Home Buyers and Sellers Generational Trends Report,” 2022, available at <https://www.nar.realtor/sites/default/files/documents/2022-home-buyers-and-sellers-generational-trends-03-23-2022.pdf>, pp. 98, 133. *See also* Mickelson, Steph, “Hiring A Realtor to Sell Your Home: Who Has What it Takes?,” Homelight, January 28, 2023, available at <https://www.homelight.com/blog/hiring-a-realtor-to-sell-your-home/>, accessed April 21, 2023.

⁶⁷ “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

broker.⁶⁸ MLSs establish rules relating to sharing and selling listings and, in particular, each MLS has a private database that is “created, maintained, and paid for by real estate professionals to help their clients buy and sell property.”⁶⁹ Generally, when a listing agent lists a property for sale on behalf of their client, the agent will add it to the relevant MLS database(s), “allowing all [buyer’s] agents and brokers in the region who have access to [that specific MLS database] to review the listing.”⁷⁰

27. Information and data are critical to an MLS’s purpose. MLS databases allow brokers and agents to upload and update listings, as well as to download listings and share them with their clients.⁷¹ A participating broker may provide MLS listing information free-of-charge to their clients or the public, as long as the information does not endanger sellers’ privacy or safety.⁷² When MLSs were first formed in the late 1800s, their “databases” consisted of in-person listing sharing, index cards, and printed MLS books; since then, MLSs have developed digital databases that require data standards as well as technological innovation over time.⁷³ Below is an example

⁶⁸ “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

⁶⁹ “Multiple Listing Service (MLS): What is It,” National Association of REALTORS®, available at <https://www.nar.realtor/nar-doj-settlement/multiple-listing-service-mls-what-is-it>, accessed on January 11, 2023. *See also* “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

⁷⁰ Taylor, Mia, “What is the MLS, and How Does It Work?,” Bankrate, April 11, 2022, available at <https://www.bankrate.com/real-estate/mls-multiple-listing-service/>, accessed on February 28, 2023.

⁷¹ Taylor, Mia, “What is the MLS, and How Does It Work?,” Bankrate, April 11, 2022, available at <https://www.bankrate.com/real-estate/mls-multiple-listing-service/>, accessed on February 28, 2023.

⁷² “Multiple Listing Service (MLS): What is It,” National Association of REALTORS®, available at <https://www.nar.realtor/nar-doj-settlement/multiple-listing-service-mls-what-is-it>, accessed on January 11, 2023. *See also* “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

⁷³ “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

screenshot of a listing that would appear in an MLS database.⁷⁴

Figure 1 – MLS Listing Sheet from the Bay East Association of REALTORS® in California.

RESIDENTIAL
Detached

Active List Price: \$242,000
1150 Fontes Lane Unit:
SALINAS CA 93907

MLS# [MLB1632184](#) Area: 9915 Stories:
Orig Price: \$260,000 Sold Price:
List Date: 11/17/2016 Off Mkt Date:
Pend Date: COE:
D/N/S:
DMLS: 378 CDMLS: 378
Model:

Property Information

Bedrooms: 2	Yr Blt: 1940	Garage Spcs: 0	Total Rms:	Own Type:
Baths/Par: 1 /	Age: 76	Fireplaces:	# of Units:	% Own Occ:
SqFt: 497	Acres: 0.090000	Pool: No	Units Floor:	TIC %:
Source:	Lot SqFt: 3,920	ElemSchool Dist:	High School District:	Not Listed

Showing & Listing Information

Occ By: Owner	Occ Name:	Occ Phone:	Supra Box?:	Spec Info:
Show Info: Call Listing Agent		24 Hr. Notice Req?:	Lockbox Location:	
Directions:		Cross St: Addington Rd	Associated Docs: 0	
List Type: Excl Agency	Comp Selling Ofc: 2.50	% Dual/Variable: No	List Service: Full Service	LA-BRE#: 01416901
List Agt:				Broker BRE#:
Co-List:	List Ofc:			Agent Hit Count:
Zoning: City	APN: 261-061-013-000	Census Tract:	Point of Sale Ord: Yes	City Transfer Tax: Yes
			Client Hit Count:	

Remarks
Good Price for this Small property has 2 Bedrooms 1 Bathroom . has a new roof, new plumbing and is been recently fumigated, has extra storage in the back ,has no foundation, house sold in it's present condition.CASH OFFERS ONLY.

28. I understand that MLSs are separate entities that are not owned by NAR. Some MLSs are owned by a single local association of REALTORS®, while others are owned by multiple associations of REALTORS®, and still others are not owned by any association of REALTORS® but instead are owned by a group/association of brokers (“independent” MLSs).⁷⁵ MLSs that are wholly-owned by an association or associations of REALTORS® (“REALTOR®

⁷⁴ “MLS Real Estate: Multiple Listing Service (ULTIMATE) Guide,” Real Estate Skills, available at <https://www.realestateskills.com/blog/mls-multiple-listing-service>, accessed on April 19, 2023.

⁷⁵ Deposition of Rodney D. Gansho, Vol. I, October 28, 2022 (“Gansho Deposition Vol. I”), pp. 16:16-17:1.

Association MLSs”) are subject to NAR’s mandatory rules and regulations, including those described in NAR’s Handbook on Multiple Listing Policy (“the NAR Handbook,” described in more detail in Section II.D).⁷⁶ Independent MLSs do not need to follow NAR’s mandatory rules.⁷⁷ MLSs are managed and operated in a number of ways. Some MLSs are managed by the association staff or the independent group of brokers who formed the cooperative, while other MLSs split off from the associations as separate organizations.⁷⁸ MLSs typically have staff, technology vendors, data licensing agreements, rules and regulations, and a compliance department.⁷⁹

29. Membership requirements vary by MLS.⁸⁰ Typically, each REALTOR® Association MLS can determine for itself whether non-REALTOR® association members will or will not be permitted to participate in the MLS, though some states have regulations that require non-REALTOR® members be allowed to participate.⁸¹ Any broker can join an independent MLS.⁸² Currently, there are around 500 REALTOR® Association MLSs in the U.S.⁸³ and

⁷⁶ Gansho Deposition Vol. I, pp. 39:11-40:7.

⁷⁷ Gansho Deposition Vol. I, pp. 16:20-17:1.

⁷⁸ “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

⁷⁹ “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

⁸⁰ National Association of REALTORS®, “NAR 2022 Handbook on Multiple Listing Policy,” 2022, available at <https://www.nar.realtor/sites/default/files/documents/mls-handbook-2022-03-10.pdf> (“NAR 2022 Handbook”), pp. 3-5, 13.

⁸¹ “Non-Member Access to REALTOR® Association Multiple Listing Services,” National Association of REALTORS®, available at <https://www.nar.realtor/legal/non-member-access-to-realtor-association-multiple-listing-services>, accessed on January 11, 2023; “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

⁸² “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023; Gansho Deposition Vol. I, p. 18:9-14.

⁸³ Gansho Deposition Vol. I, pp. 16:14-16, 17:4-9.

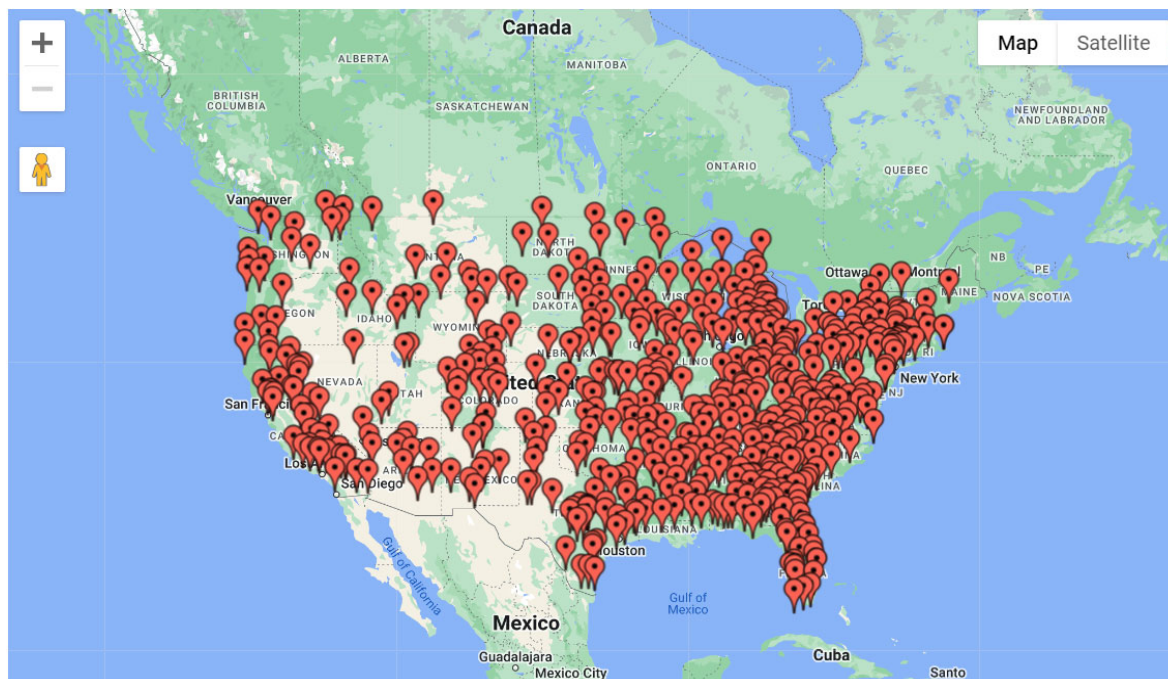
approximately 50 independent MLSs in the U.S.⁸⁴ As shown in the map below (Figure 2), MLSs are located throughout the U.S.⁸⁵ An MLS can serve a specific local area or an entire geographic region spanning multiple states. Also, MLSs may have geographic overlap—“MLSs that formed from local associations can grow and sometimes overlap in other MLS marketplaces.”⁸⁶

⁸⁴ Calculated as the difference between the total number of MLSs in the U.S. (estimated to be 550) and the total number of REALTOR® Association MLSs in the U.S. (around 500, as noted above). Estimates of the total number of MLSs in the U.S. indicate that the number has declined over time due to MLS consolidation. For example, Showcase IDX estimates a total of 608 to 635 MLSs in or around 2019. *See* “Complete List of MLS in Real Estate,” Showcase IDX, available at <https://showcaseidx.com/complete-list-of-multiple-listing-services/>, accessed on April 20, 2023.

Different sources from the 2022–2023 period estimate a total of 522 to 600 MLSs. *See* “Multiple Listing Services,” The Real Estate Almanac, 2023, available at <https://www.realestatealmanac.com/organized-real-estate/multiple-listing-services/>, accessed on April 25, 2023 (estimates 522 total MLSs); “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023 (estimates 597 total MLSs); Taylor, Mia, “What is the MLS, and How Does It Work?,” Bankrate, April 11, 2022, available at <https://www.bankrate.com/real-estate/mls-multiple-listing-service/>, accessed on February 28, 2023 (estimates 600 total MLSs).

⁸⁵ “MLS Map of the National Association of REALTORS®,” National Association of REALTORS®, available at <https://www.nar.realtor/mls-map-of-the-national-association-of-realtors>, accessed on February 24, 2023.

⁸⁶ “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions about MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

Figure 2 – MLS Map of the National Association of REALTORS®.

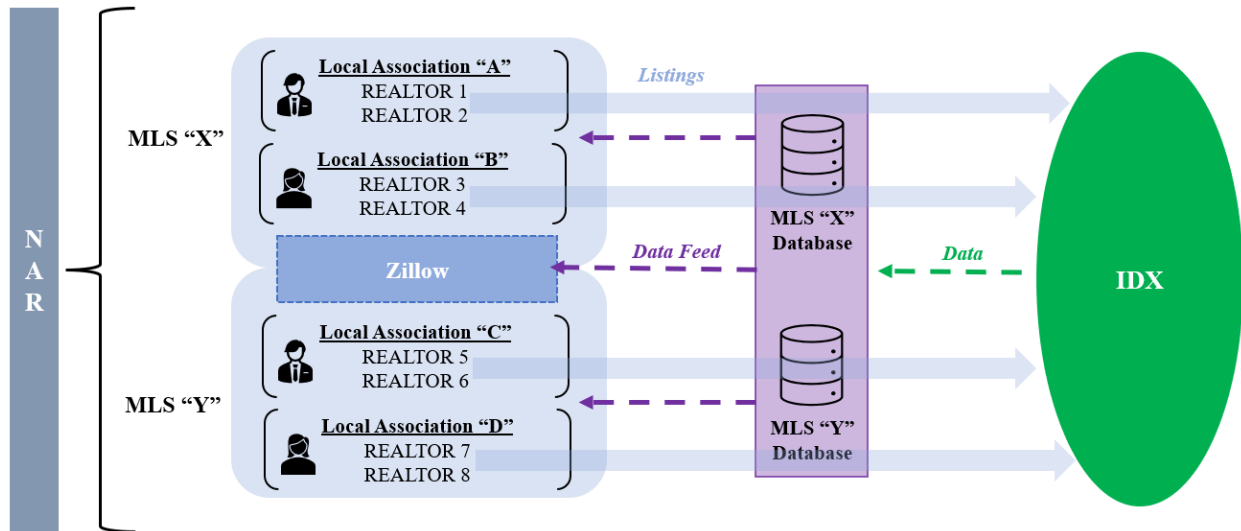
30. An important feature of MLSs that was initiated by NAR in 2000 is Internet Data Exchange (“IDX”).⁸⁷ The term “IDX” broadly refers to a reciprocity agreement (along with the associated policies, rules, software, and data feeds) that “gives MLS participants the ability to authorize limited electronic display and delivery of their listings by other participants[.]”⁸⁸ IDX was initiated by NAR to enable participant brokers in an MLS to share listings with each other via software that allows any MLS participant to populate listings from a local MLS and share those

⁸⁷ “Internet Data Exchange (IDX) Background and FAQ,” National Association of REALTORS®, available at <https://www.nar.realtor/about-nar/policies/internet-data-exchange-idx/internet-data-exchange-idx-background-and-faq>, accessed on January 11, 2023.

⁸⁸ “Advertising (Print and Electronic), Section 1: Internet Data Exchange (IDX) Policy (Policy Statement 7.58),” National Association of REALTORS®, January 1, 2021, available at <https://www.nar.realtor/handbook-on-multiple-listing-policy/advertising-print-and-electronic-section-1-internet-data-exchange-idx-policy-policy-statement-7-58>, accessed on April 10, 2023; Carey, Morgan, “What is IDX?,” Real Estate Webmasters, April 7, 2023, available at <https://www.realestatewebmasters.com/blog/idx-websites-whats-the-deal/>, accessed on April 19, 2023.

MLS listings on their own, third-party website.⁸⁹ The diagram below illustrates the various relationships between IDX, MLSs, local associations, and NAR, as well as how IDX helps facilitate information sharing and display between an MLS database and a third-party website.⁹⁰

Figure 3 – Illustration of Information Flow Between IDX, MLSs, and Other Parties.



31. To obtain access to an IDX data feed, an individual typically needs to comply with at least the following criteria: (i) have a real estate license, (ii) be affiliated with a licensed brokerage entity, and (iii) be a participant in the local MLS where they are seeking the IDX feed.⁹¹ In addition, the MLS participant needs to sign an IDX licensing agreement that provides access to,

⁸⁹ “IDX vs. MLS: What They Are and the Differences Between Them,” Luxury Presence, available at <https://www.luxurypresence.com/blogs/idx-vs-mls-what-they-are-and-the-differences-between-them/>, accessed on January 11, 2023; Bareis MLS, “Internet Data Exchange (IDX) Sites,” available at <https://bareis.com/root-documents/forms/forms-1/idx-forms/120-internet-data-exchange/file.html>.

⁹⁰ As shown in Figure 3, listings information is transmitted from MLS participants to IDX, which aggregates the listings information for MLS databases. MLSs then deliver the IDX data to their participants, who may display the listings data on their own websites. *See, e.g.*, “Organic MLS IDX Integration,” Realtyna, available at <https://realtyna.com/mls-idx-integration/>, accessed on February 24, 2023; Declaration of Errol Samuelson, April 30, 2021 (“Samuelson Declaration”), ¶¶ 5, 60; Declaration of Matt Hendricks, April 28, 2021 (“Hendricks Declaration”), Exhibit 6 (p. 11 of exhibit, titled “Explanation of Internet Data Exchange (IDX)”).

⁹¹ Hendricks Declaration, ¶ 13. Usually, the license must be obtained in the same state as the local MLS one is seeking to join.

and allows for, display of the MLS’s IDX data by the participant broker; this agreement requires compliance with the rules and regulations adopted by that particular MLS.⁹² Model rules and regulations relating to IDX are described in the NAR Handbook, which includes both mandatory and optional rules covering topics such as access to, display of, accuracy of, and confidentiality of the IDX data.⁹³ These rules help facilitate efficient information sharing because the process of transferring and displaying data from multiple sources, such as from different MLSs’ IDX feeds or even from non-MLS sources, can present substantial technological challenges relating to combining and standardizing different data sources.⁹⁴ Although IDX was initiated by NAR, some independent MLSs have also adopted some or all of NAR’s model rules and regulations relating to usage and display of licensed IDX data.⁹⁵

32. Obtaining listings information through an IDX data feed is an efficient way for brokers to receive all listings and all listings fields from a particular MLS.⁹⁶ An alternative is “syndication agreements,” which refer to various data-sharing agreements between, say, an MLS and a non-MLS member.⁹⁷ Syndication agreements can be costly, require renegotiation over time, and do not necessarily provide comprehensive or up-to-date listings information compared to IDX

⁹² Hendricks Declaration, ¶ 17.

⁹³ NAR 2022 Handbook, pp. i, 86-90.

⁹⁴ “Challenges in Aggregating MLS Data,” Mobifilia, available at <https://www.mobifilia.com/challenges-in-aggregating-mls-data/>, accessed on January 11, 2023.

⁹⁵ *See, e.g.*, Hendricks Declaration, ¶¶ 24-26, 30.

⁹⁶ Hendricks Declaration, ¶ 7.

⁹⁷ Gansho Deposition Vol. I, p. 92:1-6. Typical terms of these agreements, which can vary substantially across MLSs, include those relating to licensed data fields, data access, data protection, restrictions on use, derivative works, and display rules, among others. *See, e.g.*, ZG_00693647-671 (syndication agreement between Zillow and ██████████); ZG_00693627-643 (syndication agreement between Zillow and ██████████); ZG_00695790-825 (syndication agreement between Zillow and ██████████).

data feeds.⁹⁸ For example, some MLSs can restrict the listings fields that are shared or allow brokers to individually opt-out of having their listings shared via a syndication data feed.⁹⁹ Thus, the release of IDX data feeds enhances the efficiency of information-sharing and ensures that brokers (and their clients) are viewing the most up-to-date, accurate listings information available.¹⁰⁰

33. Some sellers do not list their properties on MLSs, and instead hire brokers who do not participate in MLSs, like REX, or sell their property themselves (“For Sale by Owner”, or “FSBO”). On average, NAR estimates that 14 percent of home sales originate outside of MLSs,¹⁰¹ and a series of Bright MLS¹⁰² studies focused on the mid-Atlantic region found that, from 2019 to 2022, non-MLS listings made up approximately 17 to 26 percent of all listings.¹⁰³ This

⁹⁸ Hendricks Declaration, ¶¶ 6-7, 9; Bushery, Matthew, “What is IDX? An Explanation for Beginner Real Estate Agents,” Placester, available at <https://placester.com/real-estate-marketing-academy/what-is-idx-explanation-beginner-agent>, accessed on January 11, 2023. *See also* “Checklist of Issues to Address in a Syndication Agreement,” National Association of REALTORS®, available at <https://www.nar.realtor/syndication/checklist-of-issues-to-address-in-a-syndication-agreement>, accessed on April 24, 2023, for a list of items that define the terms of syndication agreements, including, for instance, items relating to how often data will be refreshed, how to remove expired or sold listings, and how to display a property when there are multiple entries for the same property.

⁹⁹ Hendricks Declaration, ¶¶ 6, 9. *See also* Devine, Meghan, “Bright MLS Smart Syndication,” Bright MLS, September 29, 2020, available at <https://www.brightmls.com/article/bright-mls-smart-syndication>, accessed on April 24, 2023. This is an example of how syndication works through one particular MLS, and explains that syndication is “based on the principle of 100% broker’s choice” and allows brokers to choose which syndication channels will receive the broker’s listings.

¹⁰⁰ Bushery, Matthew, “What is IDX? An Explanation for Beginner Real Estate Agents,” Placester, available at <https://placester.com/real-estate-marketing-academy/what-is-idx-explanation-beginner-agent>, accessed on January 11, 2023.

¹⁰¹ National Association of REALTORS® Research Group, “2023 Home Buyers and Sellers Generational Trends Report,” 2023, available at <https://cdn.nar.realtor/sites/default/files/documents/2023-home-buyers-and-sellers-generational-trends-report-03-28-2023.pdf>, p. 121.

¹⁰² Bright MLS is an MLS operating in Delaware, Maryland, Pennsylvania, New Jersey, Virginia, Washington, D.C., and West Virginia. *See* “Our Story,” Bright MLS, available at <https://www.brightmls.com/our-story>, accessed on February 24, 2023.

¹⁰³ Bright MLS, “On/Off MLS Study,” 2021, available at https://assets.ctfassets.net/1g8q1frp41ix/69PEVCSSUVfYRCqrSpKKEd/35da1493a4976e721947ccbbbe4c44d8/Bright_MLS_On-Off_MLS_Study.pdf, pp. 5-7, 10; Bright MLS, “On MLS Study,” August 2022, available at https://assets.ctfassets.net/1g8q1frp41ix/4w7hKg9U7Kzu2Z5N7XkD4g/1bc35caddbaca254d7834caefad97ad7/Bright_MLS_-_On_Off_MLS_Study_-_2022.pdf, pp. 3, 7, 10.

suggests that there are alternatives to MLS listings and that some sellers choose to go with these options.

C. Real Estate Listing Aggregators

34. A real estate listing aggregator is a website-based resource or software that combines information regarding properties from different sources and displays it, providing users with a broad view of the different properties that are available for sale at a given point in time.¹⁰⁴ Popular real estate listing aggregators include Zillow, Realtor.com, Trulia, and HomeFinder.com, among others.

35. Zillow is a real estate listing aggregator that was launched in 2006 and is headquartered in Seattle.¹⁰⁵ It displays the property data it gathers on its website, making it freely available to the public. Zillow currently has a database of more than 110 million U.S. homes, including homes for sale, homes for rent, and homes not currently available for sale/rent.¹⁰⁶ According to Zillow, its website connects buyers and sellers, as well as local real estate professionals, for a variety of real estate transactions, such as buying, selling, renting, financing, and remodeling.¹⁰⁷ Zillow’s main user base consists of homebuyers, sellers, and renters.¹⁰⁸ Although agents and brokers may use Zillow, they typically rely on other resources as well, such as local MLS databases and their professional networks, which provide more comprehensive or

¹⁰⁴ “Real Estate Online Aggregators: More Comprehensive?,” Tech With Tech, available at <https://techwithtech.com/real-estate-online-aggregators-more-comprehensive/>, accessed on April 11, 2023.

¹⁰⁵ “About Us,” Zillow, available at <https://www.zillow.com/corp/About.z>, accessed on January 11, 2023.

¹⁰⁶ “About Us,” Zillow, available at <https://www.zillow.com/corp/About.z>, accessed on January 11, 2023.

¹⁰⁷ “About Us,” Zillow, available at <https://www.zillow.com/corp/About.z>, accessed on January 11, 2023.

¹⁰⁸ “Zillow Business Model,” Business Model Analyst, available at https://businessmodelanalyst.com/zillow-business-model/#Zillow_Customer_Segments, accessed on April 19, 2023.

up-to-date information on current and forthcoming listings.¹⁰⁹

36. Prior to 2021, Zillow acquired data on its listings primarily through bilateral agreements with MLSs and individual brokers (“syndication agreements”).¹¹⁰ As described above, these syndication agreements provided Zillow with access to MLS data feeds but involved certain restrictions.¹¹¹ For example, individual brokers/brokerages could opt in or opt out of sending their listings to Zillow via syndication feed, so Zillow spent “extensive” time on trying to ensure that brokers stayed “opted in.”¹¹² Syndication agreements also required renegotiation and did not always provide all listings fields to Zillow.¹¹³

37. In 2019, Zillow decided to switch from syndication data feeds to IDX data feeds, “to secure better-quality, more comprehensive data with lower risk of losing access,” and in September 2020, Zillow publicly announced that it would make the switch to IDX data feeds beginning in January 2021.¹¹⁴ To do so, Zillow first hired and licensed brokers throughout the

¹⁰⁹ Ayers, Jamie, “6 Things to Know About Houses Not Listed on Zillow,” *Clever*, February 3, 2023, available at <https://listwithclever.com/real-estate-blog/6-things-to-know-about-houses-not-listed-on-zillow/>, accessed on April 10, 2023; “3 Big Reasons Why Buyers and Sellers Shouldn’t Rely on Zillow,” *Berkshire Hathaway Homeservice*, available at <https://bhhsselectstl.com/view-blog/3-reasons-why-you-shouldnt-rely-on-zillow>, accessed on April 19, 2023. The additional information provided by MLSs relative to Zillow may have decreased after Zillow switched to IDX feeds, but MLSs still provide more information in some instances—for example, MLSs provide information to agents on times a home is vacant for showings, which is not available to the public on Zillow. “Multiple Listing Service (MLS): What is It,” *National Association of REALTORS®*, available at <https://www.nar.realtor/nar-doj-settlement/multiple-listing-service-mls-what-is-it>, accessed on January 11, 2023.

¹¹⁰ Hendricks Declaration, ¶ 6. *See also* Devine, Meghan, “Bright MLS Smart Syndication,” *Bright MLS*, September 29, 2020, available at <https://www.brightmls.com/article/bright-mls-smart-syndication>, accessed on April 24, 2023, for a discussion of how syndication arrangements with the Bright MLS work and how they differ from IDX.

¹¹¹ Hendricks Declaration, ¶¶ 6-7.

¹¹² Hendricks Declaration, ¶ 6.

¹¹³ Hendricks Declaration, ¶ 7 (noting that some syndication agreements “contained limitations on how often data could be pulled by Zillow or on the number of fields the MLS would provide (e.g., “The Licensed Content made available to Zillow will be as complete and current as the data that Provider makes available to any similar sites or syndication services.”)”).

¹¹⁴ Samuelson Declaration, ¶¶ 5, 68.

country to gain membership to local MLSs, and then executed IDX licensing agreements between its brokers and the local MLSs.¹¹⁵ These IDX agreements provided systematic access to all listings and all listings fields from a particular MLS and allowed for display of the MLS’s IDX data by the participant brokers.¹¹⁶ The IDX agreements also required compliance by participant brokers with the rules and regulations adopted by each particular MLS.¹¹⁷ As of April 2021, Zillow had executed 218 IDX agreements with MLSs, 204 of which were with REALTOR® Association MLSs.¹¹⁸

38. As described above, an important input to real estate listing aggregators is MLS databases. Unlike third-party aggregators like Zillow, MLSs set rules for membership, data access, and data sharing.¹¹⁹ Most of them do not operate public websites displaying property information like a third-party aggregator does.¹²⁰ Overall, MLSs aid in the aggregation and dissemination of property information, and IDX feeds make it possible for real estate aggregators like Zillow to

¹¹⁵ According to Matt Hendricks, Senior Director of Brokerage Operations at Zillow Group, “In some cases, you may also need to join the local Association of REALTORS®. Each individual MLS sets the rules and controls the data flow of their IDX feed.” Hendricks Declaration, ¶¶ 13, 15, 17.

¹¹⁶ Hendricks Declaration, ¶¶ 7, 17.

¹¹⁷ Hendricks Declaration, ¶ 17.

¹¹⁸ Hendricks Declaration, ¶¶ 25-26. According to Errol Samuelson, Chief Industry Development Officer at Zillow Group, Zillow switched over the 200 largest MLSs (accounting for roughly 90 percent of Zillow’s listings coverage) from syndication agreements to IDX agreements between September 2020 and January 2021. Samuelson Declaration, ¶ 69.

See Deposition of Errol Samuelson, November 29, 2022 (“Samuelson Deposition”), pp. 74:25-75:11.

¹¹⁹ “MLS Aggregator Engine,” Mobifilia, available at <https://www.mobifilia.com/mls-aggregator-engine/>, accessed on January 11, 2023.

¹²⁰ Generally, MLS databases are private, but some MLSs publish (a subset of) the information from their listings online. *See, e.g.*, “Multiple Listing Service (MLS): What Is It,” National Association of REALTORS®, available at <https://www.nar.realtor/nar-doj-settlement/multiple-listing-service-mls-what-is-it>, accessed on January 11, 2023; “How to Access MLS,” Realtyna, June 21, 2019, available at <https://realtyna.com/blog/how-to-access-mls/>, accessed on April 19, 2023; “Find Your NEW Place,” Bright MLS Homes, available at <https://www.brightmlshomes.com/>, accessed on April 10, 2023.

access and display the most up-to-date and comprehensive MLS listing information possible.¹²¹

D. Handbook on Multiple Listing Policy

39. The Handbook on Multiple Listing Policy is published and routinely updated by NAR, and it serves as a guide for member associations of REALTORS® for operating MLSs.¹²² The NAR Handbook lays out policies and model rules.¹²³ According to Rodney D. Gansho, NAR’s Director of Engagement, NAR policies form the foundation for its model rules.¹²⁴ REALTOR® Association MLSs are required to comply with NAR’s mandatory policies, through adoption of mandatory model rules.¹²⁵ While there is overlap between policies and rules, some mandatory policies are not reflected in the rules, and MLSs must self-certify to NAR whether they have fully complied with the mandatory policies.¹²⁶ In addition, the NAR Handbook contains non-mandatory policies and model rules. Each item in the NAR Handbook receives a compliance classification of “Mandatory,” “Recommended,” “Optional,” or “Informational.”¹²⁷ Only the adoption of “Mandatory” rules is required to ensure compliance with NAR’s mandatory policies.¹²⁸

40. The Optional Display Rule (or optional Model Rule 18.3.11, as listed in the 2022 NAR Handbook) at issue in this case appears in the section of the NAR Handbook that describes

¹²¹ Daimler, Susan, “Update on Switch to IDX Feeds & Agents Profiles,” Zillow, January 16, 2021, available at <https://www.zillow.com/agent-resources/blog/listings-and-idx-feeds/>, accessed on April 19, 2023.

¹²² NAR 2022 Handbook, p. iii.

¹²³ The NAR Handbook also contains “regulations” (*e.g.*, postal and tax regulations), “bylaws,” a Code of Ethics, and other information/provisions for member associations. NAR 2022 Handbook, pp. iii, v-ix.

¹²⁴ Gansho Deposition Vol. I, pp. 29:17-21, 66:9-10.

¹²⁵ Gansho Deposition Vol. I, p. 31:11-13.

¹²⁶ Gansho Deposition Vol. I, pp. 15:21-24, 28:7-10, 29:17-30:2.

¹²⁷ NAR 2022 Handbook, p. i.

¹²⁸ NAR 2022 Handbook, p. i.

model rules and regulations pertaining to IDX, and it reads as follows:¹²⁹

Listings obtained through IDX feeds from REALTOR® Association MLSs where the MLS participant holds participatory rights must be displayed separately from listings obtained from other sources. Listings obtained from other sources (e.g., from other MLSs, from non-participating brokers, etc.) must display the source from which each such listing was obtained. (*Amended 05/17*)¹³⁰

In addition, Model Rule 18.2.10¹³¹ (which also appears in the section of the NAR Handbook that describes model rules and regulations pertaining to IDX) reads as follows:

An MLS participant (or where permitted locally, an MLS subscriber) may comingle the listings of other brokers received in an IDX feed with listings available from other MLS IDX feeds, provided all such displays are consistent with the IDX rules, and the MLS participant (or MLS subscriber) holds participatory rights in those MLSs. As used in this policy, “comingling” means that consumers are able to execute a single property search of multiple IDX data feeds resulting in the display of IDX information from each of the MLSs on a single search results page; and that participants may display listings from each IDX feed on a single webpage or display. (*Adopted 11/14*)¹³²

41. A version of the Optional Display Rule, which has been amended multiple times,¹³³ has been part of NAR’s handbook for several years, and the earliest iteration of this model rule

¹²⁹ NAR 2022 Handbook, pp. 89-90, 137 (emphasis in original).

¹³⁰ NAR 2022 Handbook, p. 89. Original footnote to optional Model Rule 18.3.11: “Displays of minimal information (e.g., “thumbnails”, text messages, “tweets”, etc., of two hundred [200] characters or less) are exempt from this requirement but only when linked directly to a display that includes all required disclosures. For audio delivery of listing content, all required disclosures must be subsequently delivered electronically to the registered consumer performing the property search or linked to through the device’s application. (*Amended 5/17*).”

¹³¹ NAR 2022 Handbook, p. 89.

¹³² Model Rule 18.2.10 is classified as a mandatory rule. NAR 2022 Handbook, p. 88.

¹³³ The three most recent amendments took place in 2012, 2014, and 2017. See NAR 2022 Handbook, Section 18.3.11; National Association of REALTORS®, “NAR 2016 Handbook on Multiple Listing Policy,” 2016, available at <https://www.nar.realtor/sites/default/files/policies/2016/2016-MLS-Handbook.pdf> (“NAR 2016 Handbook”), Section 18.3.11; National Association of REALTORS®, “NAR 2013 Handbook on Multiple Listing Policy,” 2013, (NAR0000438-605), Section 18.3.11.

dates back approximately 20 years.¹³⁴ As stated above, the rule is *optional*. REALTOR® Association MLSs around the country can and do choose not to adopt the rule or otherwise impose requirements on the comingled display of non-MLS and MLS listings.¹³⁵ According to Rodney D. Gansho, Director of Engagement at NAR,¹³⁶ NAR’s adoption of language regarding the optional separation of listings was motivated in the early 2000s by the need to protect the data integrity of listings.¹³⁷ The option of requiring that listings obtained through IDX feeds be searched/displayed separately from listings obtained from other sources gave MLSs “discretionary ability to have [information obtained by external sources] separate from the MLS’s information so that that information did not diminish the quality and the services of the MLS that provided the listing information for IDX.”¹³⁸ Maintaining data integrity of listings is extremely important for the consumer experience, as well as for real estate professionals. For example, high-quality data can help brokers “make an [evidence-based] case to clients about listing prices, alternative properties to consider or where the greatest ROI potential on an investment property might lie.”¹³⁹ Similarly, appraisers rely on the accuracy of MLS data to help them identify comparable sales and assess the

¹³⁴ National Association of REALTORS®, “NAR 2002 Handbook on Multiple Listing Policy,” 2002 (NAR0000177-308), at 224, 259, 287.

¹³⁵ As I explain later in this section, 159 of the 532 REALTOR® Association MLSs and REALTOR® associations that had submitted information to NAR prior to 2021 about their rules had not adopted the Optional Display Rule. *See* NAR’s Supplemental Responses and Objections to REX’s Interrogatory No. 4, October 27, 2022, p. 3. This count only includes information about adoption by MLSs and associations that submitted copies of their rules by the end of 2020.

¹³⁶ Gansho Deposition Vol. I, Exhibit 5.

¹³⁷ Gansho Deposition Vol. I, pp. 104:20-105:25, Exhibit 8.

¹³⁸ Gansho Deposition Vol. I, p. 105:7-11.

¹³⁹ Moreno, Hugo, “Data Quality and The Real Estate Customer Experience,” *Forbes*, November 15, 2017, available at <https://www.forbes.com/sites/forbesinsights/2017/11/15/data-quality-and-the-real-estate-customer-experience/?sh=3c5a0b474997>, accessed on April 19, 2023.

value of various aspects of a home.¹⁴⁰ On the other hand, technological challenges in combining data from different sources may diminish the user experience and cause reputational harm to the broker/brokerage displaying that data, if databases are structured differently and are difficult to effectively integrate.¹⁴¹

42. Moreover, I understand that, in 2008, NAR was required by court order to adopt a rule that “[a]n MLS may not prohibit Participants from downloading and displaying or framing listings obtained from other sources, e.g., other MLSs or from brokers not participating in that MLS, etc., **but may require either that (i) such information be searched separately from listings obtained from other sources, including other MLSs, or (ii) if such other sources are searched in conjunction with searches of the listings available on the VOW [Virtual Office Website], require that any display of listings from other sources identify such other source.**”¹⁴² Provision (i) is consistent with the Optional Display Rule in that it gives the option to REALTOR® Association MLSs to separately display listings obtained through IDX feeds from REALTOR® Association MLSs where the MLS participant holds participatory rights from listings obtained from other sources.

43. According to NAR, 159 (or 30 percent) of the 532 REALTOR® Association MLSs and REALTOR® associations that had submitted information to NAR prior to 2021 about their

¹⁴⁰ Clark, Kim, “The Importance of Accurate MLS Information,” Silver City Realtor Organization, March 11, 2022, available at <https://www.silvercityrealtors.org/post/the-importance-of-accurate-mls-information>, accessed on April 19, 2023.

¹⁴¹ Moreno, Hugo, “Data Quality and The Real Estate Customer Experience,” Forbes, November 15, 2017, available at <https://www.forbes.com/sites/forbesinsights/2017/11/15/data-quality-and-the-real-estate-customer-experience/?sh=3e5a0b474997>, accessed on April 19, 2023.

¹⁴² “Final Judgment: U.S. v. National Association of Realtors,” U.S. Department of Justice, November 18, 2008, available at <https://www.justice.gov/atr/case-document/final-judgment-142>, accessed on April 19, 2023. Emphasis added.

rules had not adopted the Optional Display Rule.¹⁴³

III. REX’S BUSINESS MODEL WAS FAILING PRIOR TO ZILLOW’S DISPLAY CHANGE AND IT WAS NOT THE DISRUPTOR THAT DR. EVANS CLAIMS

44. Dr. Evans suggests that REX’s business was thriving prior to Zillow’s display change¹⁴⁴ and that this success was underpinned by a “disruptive” and innovative business model.¹⁴⁵ Neither of these arguments is supported by the evidence in this case. REX’s business was in decline well before Zillow’s display change, and there is scant evidence of the “disruptive business model” that Dr. Evans alludes to.¹⁴⁶ In this section, I first describe REX’s business and its evolution. Second, I explain that the company was experiencing a downward trend that had started well before January 2021. Last, I discuss why REX’s business model failed to confer specific competitive advantages or to disrupt the industry.

A. A Brief Introduction to REX’s Business

45. REX was founded in 2015 and started operating in the residential real estate brokerage industry with the goal of providing a lower-cost service to sellers and buyers.¹⁴⁷ REX

¹⁴³ This count only includes information about adoption by MLSs and associations that submitted copies of their rules by the end of 2020. NAR’s Supplemental Responses and Objections to REX’s Interrogatory No. 4, October 27, 2022, p. 3. Mr. Gansho testified that prior to 2021, MLSs sent their model rules and regulations to NAR, but starting in 2021, NAR began a self-certification process in which REALTOR® Association MLSs only reported compliance with mandatory policies. NAR currently does not track whether or not an MLS has adopted an optional rule. Gansho Deposition Vol. I, pp. 15:21-24, 27:10-19, 28:1-24, 31:22-32:7. Moreover, an MLS can change whether or not it adopts the Optional Display Rule—for instance, at least one multiple listing service, REColorado, has recently repealed its rule regarding the display of non-MLS and MLS listings. *See* “REColorado Approves Commingling of Listings on Broker IDX Sites,” REColorado, August 18, 2022, available at <https://www.recolorado.com/news/commingling-listings-broker-idx-sites>, accessed on April 19, 2023.

¹⁴⁴ *See, e.g.*, Evans Report, ¶¶ 387, 399 (“REX’s performance in Q1 2020 indicated that it was on a successful growth path and on track to meeting its business plan before the impact of the COVID-19 pandemic began to be felt.”; “Despite the pandemic, during 2020 REX grew substantially.”).

¹⁴⁵ *See, e.g.*, Evans Report, ¶¶ 369-370.

¹⁴⁶ *See, e.g.*, Evans Report, ¶ 369.

¹⁴⁷ *See, e.g.*, “About Us,” REX Homes, available at <https://www.rexhomes.com/about>, accessed on February 24, 2023.

has publicly described its business model as one that relies on big data and machine learning to match sellers and buyers through platforms such as Zillow, Google, and Facebook.¹⁴⁸ REX’s co-founder, President, and COO, Lynley Sides, testified that REX used “propensity models” to target advertising toward clients who were more likely to purchase REX’s inventory.¹⁴⁹ In addition to using its own proprietary technology, REX relied heavily on Google’s and Facebook’s advertising technology because of their superior effectiveness in targeting customers and optimizing conversions.¹⁵⁰ According to REX, this model has allowed the company to charge fees as low as 2.5 percent, compared to 5 or 6 percent charged by “traditional agents.”¹⁵¹

46. REX listed its first home in April 2015 in the Los Angeles area. During the entirety of 2015, REX listed only 13 properties, and closed four, all in Los Angeles.¹⁵² In the following four years, REX expanded its business both by increasing the number of listings within existing REX “market areas,”¹⁵³ and by expanding to additional market areas, reaching a peak in new listings in 2019, when REX listed 2,402 properties across 26 market areas.¹⁵⁴ By December 2021, REX was present in more than 35 market areas, including Chicago, Miami, New York, Salt Lake

¹⁴⁸ See, e.g., “About Us,” REX Homes, available at <https://www.rexhomes.com/about>, accessed on February 24, 2023.

¹⁴⁹ Deposition of Lynley Sides, January 20, 2023 (“Sides Deposition”), pp. 86:12-87:17.

¹⁵⁰ Sides Deposition, pp. 365:25-367:3, and Exhibit 33, at REX_0460806.

¹⁵¹ See, e.g., “About Us,” REX Homes, available at <https://www.rexhomes.com/about>, accessed on February 24, 2023. (“We use data modeling and machine learning to match sellers and buyers of homes as accurately and speedily as possible on Zillow, Google, Facebook and more. And by doing that, we can reduce costs for all involved - REX covers both sides of the transaction with a total seller fee as low as 2.5%, instead of the 5-6% traditional agents charge.”)

¹⁵² Appendix D.1; Appendix D.2.

¹⁵³ Throughout the report I refer to a “market area” as a specific locality in which REX operates, as defined in REX’s data production. See, e.g., REX_0000002. Note that some of REX’s defined market areas are metropolitan areas, while others appear to be entire states. For example, Los Angeles, California, and New Jersey are both defined as market areas in REX’s data.

¹⁵⁴ Appendix D.1.

City, and Seattle,¹⁵⁵ with most of its geographic expansions taking place in 2019 and 2021. In 2021 specifically, REX added fourteen market areas, which represented an increase of nearly 60 percent over the number of market areas in the previous year.¹⁵⁶ REX listed a small number of properties in each market area; on average, in a given month, REX added 6 new listings per market area¹⁵⁷ and relied (at least in part) on geographic expansion to grow its listings.¹⁵⁸ After reaching a peak in mid-2019, REX’s listings experienced a steep decline from which it never recovered, despite the subsequent addition of new market areas.

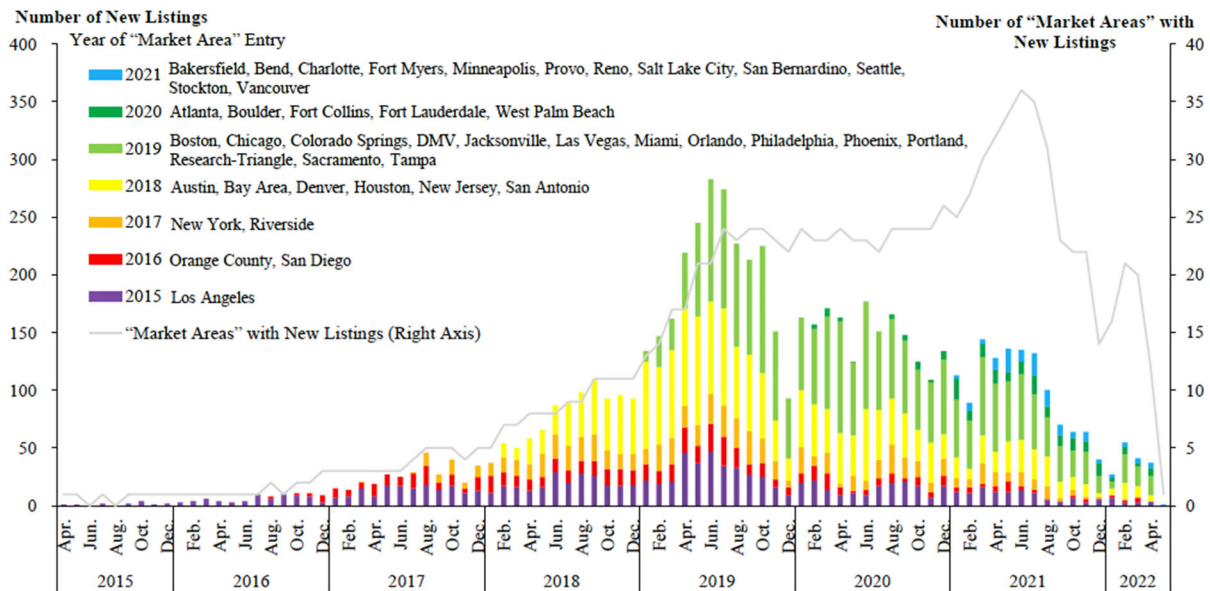
¹⁵⁵ Exhibit 1.

¹⁵⁶ REX_0000377-417, at 398. Calculated as 38 market areas in 2021 minus 24 market areas in 2020, divided by 24 market areas in 2020 = 58.3 percent increase.

¹⁵⁷ Appendix D.1. This statistic covers the period from April 2015 through December 2021 and does not count the months with zero listings in a given market area. When only looking at 2019 listings, the number is 10. For comparison, across all MSAs in the U.S., on average, in 2019, 441 properties were listed per MSA per month, which would imply that REX’s average is around 2.3 percent of the MSA average. Note that this is likely an overstatement of REX’s presence in the market areas it entered because the MSA average includes all MSAs available, while REX entered particularly large MSAs with higher numbers of listings. In particular, out of the 42 “market areas” in which REX listed any property, 20 were among the top 25 MSAs in terms of listings. National listings data are from “Housing Data”, Zillow, available at <https://www.zillow.com/research/data/>, accessed on January 23, 2023, selected under “INVENTORY” and “New Listings (Raw, All Homes, Monthly)” in the drop-down menu.

¹⁵⁸ See, e.g., Sides Deposition, pp. 208:17-209:7.

Figure 4 – REX’s Monthly New Listings by Year of “Market Area” Entry.¹⁵⁹



Source: Exhibit 2.

47. REX’s revenue was primarily driven by its brokerage services, though the company also offered a range of home-related services that started generating limited revenue in 2017.¹⁶⁰ For brokerage services, from August 2015 through October 2022, REX charged a commission (*i.e.*, a listing fee) to sellers of 2.0 percent of the closing price, on average.¹⁶¹ For some time, REX

¹⁵⁹ Note that, as specified in the legend, the gray line in the graph shows the number of “market areas” with new listings in a given month. A decline in the gray line from one month to the next could be due to REX exiting specific market areas or to REX not posting any new listings in a specific month in specific market areas, despite continuing to have a presence in those market areas. Similarly, in Exhibit 3, I show REX’s closings by year of market area entry (colored bars), and the cumulative number of market areas with new closings in each month (gray line). In that graph too, the number of market areas with closings is a count of market areas with non-zero closings in a given month.

¹⁶⁰ Exhibits 8A-8C.

¹⁶¹ Appendix E.

charged a flat fee of \$9,000 for properties sold for less than \$450,000.¹⁶² I understand that sales of REX-listed properties generally involved a buyer’s agent fee unless either (i) the buyer was not assisted by an agent or (ii) the buyer was exclusively assisted by a REX employee. According to Dr. Evans, during the period from Q1 2017 to Q1 2020, roughly 45 percent of REX’s transactions in “established market areas” did not involve a buyer’s agent.¹⁶³ If a non-REX buyer’s agent was involved in the transaction, then REX’s sellers often would pay a buyer’s agent’s commission.¹⁶⁴

48. REX started expanding its portfolio with ancillary services beyond broker services in 2017. According to REX, “the federal law known as ‘RESPA’ prevents [REX’s] competition from adding on the additional services that consumers need to buy a home. RESPA precludes 1099 agents from receiving compensation from any other service or service provider which closes at the time of the brokerage transaction. Therefore, [REX’s] competition operationally has a very difficult time adding mortgage, escrow, insurance, title services, etc. to the brokerage transaction. Because REX is entirely composed of full-time W-2 employees, with good salaries, REX is able to add all these additional services at very high rates of attachment. It also means [REX] can charge much less for brokerage services than [its] competitors, because REX derives substantial ancillary

¹⁶² REX_0000010, at rec_sid REe47d1049e97f1b48e1cd8b5c2f9d443b. *See also* REX Homes, “REX Affiliated Business Arrangement Disclosure,” 2020, available at <https://www.rexhomes.com/assets/docs/REX-ABAD-Affiliated-Business-Arrangement-Disclosure-Website.pdf>.

¹⁶³ Evans Report, ¶ 454, Table VII-1. Dr. Evans defines “established market areas” as “those where REX had its first home closing in 2018 or earlier. Evans Report, fn. 446. REX’s business model also had a service that assisted only buyers, called “AllHomes Cash Back” (“AHCB”), which is excluded from this calculation. AHCB aimed to serve buyers who were not interested in purchasing REX homes but were interested in purchasing MLS-listed homes. After earning a buyer’s agent commission, REX would rebate a portion of the commission earnings to their buyer client. *See* “Cash Back at REX,” REX Homes, available at <https://www.rexhomes.com/buyer-rebate>, accessed on April 19, 2023; Sides Deposition, 102:2-20. Other companies, such as Redfin and Clever Real Estate, also have created buyer rebate programs. *See, e.g.*, “Save Thousands with Redfin,” Redfin, available at <https://www.redfin.ca/why-redfin-how-you-save>, accessed on April 19, 2023; “Find Top Local Agents, Get Cash Back,” Clever, available at <https://go.realestatewitch.com/buy-with-clever-save/>, accessed on April 19, 2023.

¹⁶⁴ Sides Deposition, pp. 228:19-229:7.

revenues from the services a customer needs to buy a home.”¹⁶⁵

49. REX started implementing the above-described business model by acquiring state licenses to operate in the mortgage business as a broker in 2017.¹⁶⁶ The following year the company acquired licenses to offer property and casualty insurance, title and escrow, and home warranty services.¹⁶⁷ Finally, in 2020, REX acquired life insurance licenses and licenses to operate as a banker in the mortgage industry.¹⁶⁸ The vast majority of REX’s gross profits from 2015 to 2021 came from its residential real estate brokerage business, which, in 2021, accounted for 76 percent of REX’s gross profit, with the remaining 24 percent attributed to REX’s other operations.¹⁶⁹ Nevertheless, over time, ancillary services may have become an increasingly important—perhaps even crucial—part of REX’s plan to become profitable.¹⁷⁰ REX’s co-founder, President, and Chief Operating Officer (“COO”) Lynley Sides testified that—when computing margins on successful transactions, which would result in overall positive margins per transacted

¹⁶⁵ REX_0778186-192, at 186. In the above quote from REX, “RESPA” refers to the Real Estate Settlement Procedures Act, and “1099” refers to an IRS designation for independent contractors, who provide services to other businesses and generally are considered self-employed. According to the IRS, “[t]he general rule is that an individual is an independent contractor if the payer has the right to control or direct only the result of the work and not what will be done and how it will be done.” See “Form 1099 NEC & Independent Contractors,” Internal Revenue Service, available at <https://www.irs.gov/faqs/small-business-self-employed-other-business/form-1099-nec-independent-contractors/form-1099-nec-independent-contractors>, accessed on April 10, 2023; “Independent Contractor Defined,” Internal Revenue Service, available at <https://www.irs.gov/businesses/small-businesses-self-employed/independent-contractor-defined>, accessed on April 10, 2023. Most real estate professionals, including licensed real estate agents, are considered self-employed for tax purposes. “Licensed Real Estate Agents - Real Estate Tax Tips,” Internal Revenue Service, available at <https://www.irs.gov/businesses/small-businesses-self-employed/licensed-real-estate-agents-real-estate-tax-tips>, accessed on April 10, 2023.

¹⁶⁶ REX_0000377-417, at 400.

¹⁶⁷ REX_0000377-417, at 400.

¹⁶⁸ REX_0000377-417, at 400.

¹⁶⁹ Exhibits 8A and 8B, from [G][3], \$3,952,399 / \$5,203,940 = 0.76. See also REX_0001655.

¹⁷⁰ Sides Deposition, p. 276:14-17. (“Q REX’s plan to profitability assumed that it would be able to up sell its brokerage customers into purchasing ancillary services, correct? A That is true, yes.”)

home—REX would have lost money on home sales without the provision of ancillary services.¹⁷¹ Overall, REX failed to operate profitably and instead generated substantial (and accelerating) negative operating profits in every year from 2015 (-\$1.4 million) through 2021 (-\$69.7 million).¹⁷²

B. REX’s Business Was on A Declining Path, and It Was Failing Prior to Zillow’s Display Change

50. In this section, I describe the evidence showing that REX’s business was on a declining path well before Zillow’s display change. Failing to account for this preexisting downward path would render an analysis of REX’s decline unreliable (as I discuss in detail with respect to Dr. Evans’ analysis, in Section IX).

51. Between April 2015 and December 2021, REX listed around 6,760 properties, and sold fewer than 3,500 properties.¹⁷³ Largely due to the geographic expansion mentioned above, REX’s listings grew fastest during 2019, when it reached a peak of monthly new listings (286) in June.¹⁷⁴ Starting in July 2019, however, new listings started to decrease steeply, and by June of 2020, at least six months before the Zillow website change, REX was adding only 177 monthly new listings, or 38 percent fewer than in June 2019 – a much more pronounced decline compared to the approximately 5 percent decline that occurred at the national level over the same time

¹⁷¹ Sides Deposition, pp. 284:6-20, 285:7-10, and Exhibit 26, at REX_0774311. (“Q The cost lines that appear on the second half of the chart on page -4311 A Uh-huh. Q – are all average cost per transaction per market; is that correct? A Yes, they are. Q So if we look at the variable margin per transaction home that’s recorded at the bottom of the chart. Do you see that line? A Yes. Q Would you agree with me that if you remove the revenue attributed to ancillary services from each market, the average variable market – margin per transacted home in each market would be negative? A Yes, it would.”; “Q And the analysis you presented showed that absent the ability to sell ancillary services, REX, on average, would lose money on each home sale? A That’s right.”).

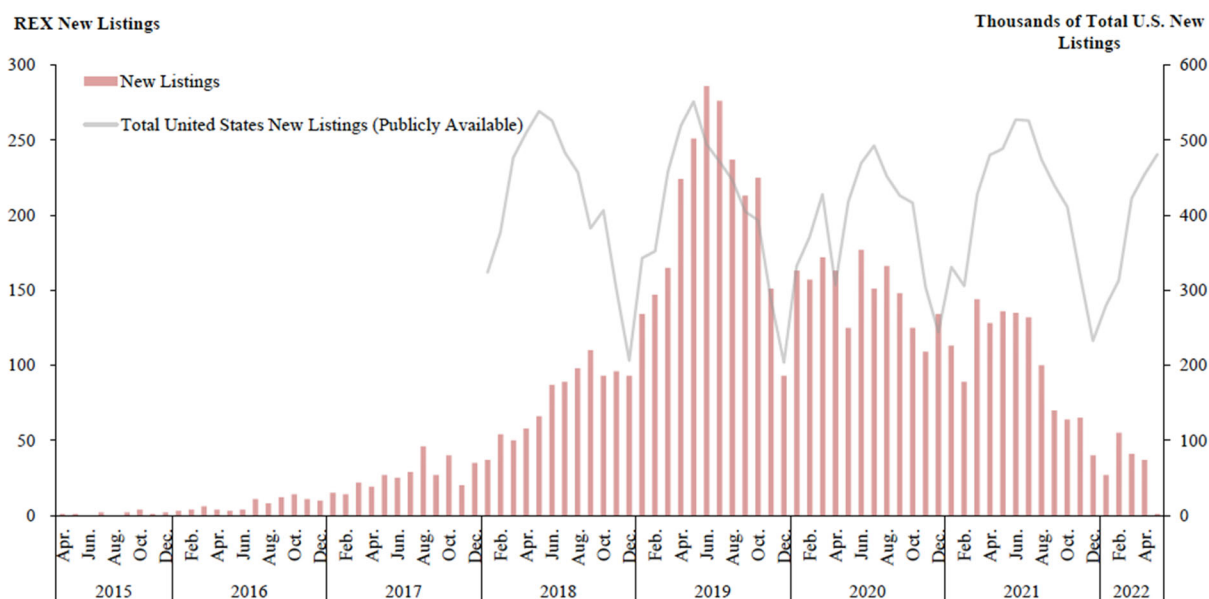
¹⁷² Exhibit 8A.

¹⁷³ See Appendix D.1; Appendix D.2.

¹⁷⁴ Appendix D.1.

period.¹⁷⁵ The decline continued through 2021, when REX registered a year-over-year decline of around 31 percent in June, adding only 135 listings that month.¹⁷⁶

Figure 5 – REX’s New Listings.



Source: Exhibit 4A.¹⁷⁷

52. Right around the time in which new listings started to drop in the summer of 2019, REX started to co-list its properties with other brokerages.¹⁷⁸ Generally, co-listing refers to the

¹⁷⁵ Appendix D.1. See “Housing Data”, Zillow, available at <https://www.zillow.com/research/data/>, accessed on January 23, 2023, selected under “INVENTORY” and “New Listings (Raw, All Homes, Monthly)” in the drop-down menu. 494,395 listings in June 2019 and 469,340 in June 2020, implies a decrease by $100 \times 469,340 / 494,395 - 1 = 5.1\%$.

¹⁷⁶ Exhibit 4A; Appendix D.1.

¹⁷⁷ Exhibit 4B shows a version of Exhibit 4A with the addition of the pattern of REX’s closings.

¹⁷⁸ REX’s first co-listed property was in June 2019. Starting in October 2019 REX started to increase its co-listed listings. Appendix F.2.

practice of two real estate brokerages working together to sell a property.¹⁷⁹ For REX specifically, co-listing meant paying a fee to partner with an MLS member, so that a REX listing could be displayed in the MLS database.¹⁸⁰ The share of properties that were ultimately co-listed grew steadily throughout 2019 and 2020, from 2.5 percent of the 276 new listings in July 2019¹⁸¹ to 18 percent of the 151 new listings in July 2020¹⁸² and 32 percent of the 134 new listings in December 2020.¹⁸³ Overall, REX co-listed 1,020 properties through April 2022, amounting to 15 percent of the 6,921 total properties that it listed from April 2015 to April 2022.¹⁸⁴ Around the same period, from April 2015 through June 2022, REX sold approximately 2 out of 3 co-listed properties (66 percent), but only sold one out of two (51 percent) of the properties that were not co-listed.¹⁸⁵

¹⁷⁹ In these situations, the two brokerages typically divide an agreed-upon commission between themselves. *See, e.g.*, “Why Real Estate Agents Should Consider Co-Listing,” Aceable, available at <https://www.aceableagent.com/blog/why-real-estate-agents-should-consider-co-listing/>, accessed on April 10, 2023.

¹⁸⁰ REX’s former COO, Ms. Sides, testified that REX would engage in co-listing “to get the home sold.” Ms. Sides also testified that the fee REX paid sometimes “was a very small flat fee and other times it was a percentage.” Sides Deposition, pp. 139:21-139:25, 140:9-140:14.

¹⁸¹ $7 / 276 = 0.025$. Appendix F.1.

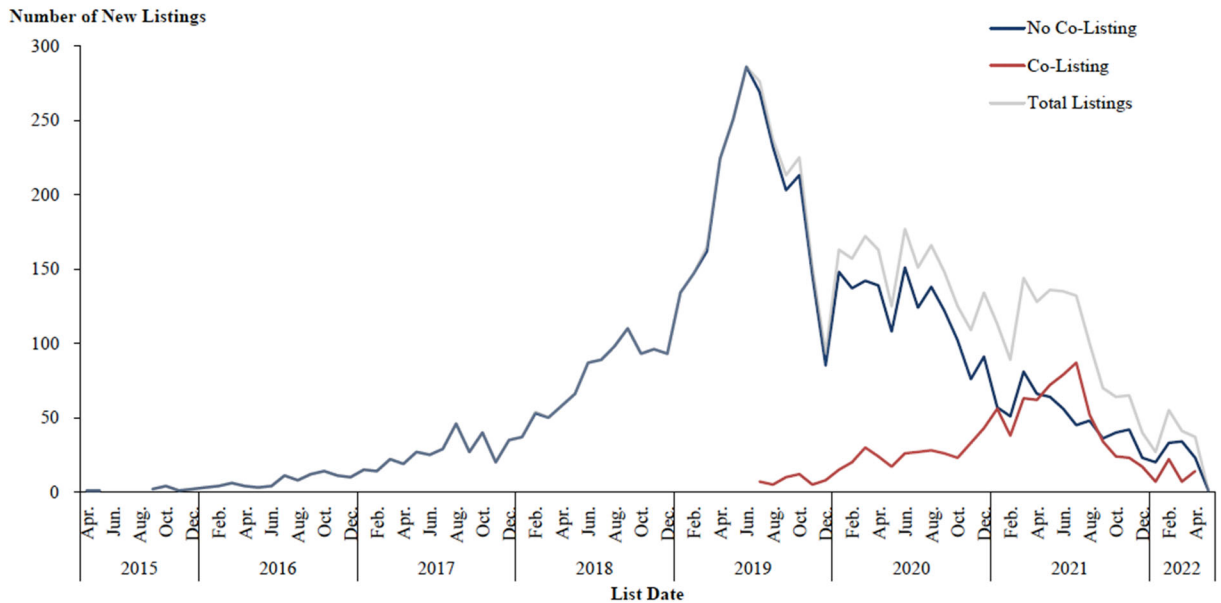
¹⁸² $27 / 151 = 0.179$. Appendix F.1.

¹⁸³ $43 / 134 = 0.321$. Appendix F.1.

¹⁸⁴ Exhibit 6A. *See also* Appendix F.1. 6,921 properties listed between April 2015 and April 2022 calculated as 6,922 properties listed between April 2015 and May 2022 *minus* one property listed in May 2022.

¹⁸⁵ $675 / 1,020 = 0.66$; $2,999 / 5,902 = 0.51$. *See* Appendix F.1. *See also* Exhibits 6A, 7A.

Figure 6 – REX’s Co-listing.



Source: Exhibit 6A.¹⁸⁶

53. The evidence suggests that REX’s increasing reliance on co-listing was driven by explicit demands from clients. Indeed, as early as the fourth quarter of 2019, multiple clients recognized that REX’s model alone did not work well for them, and that listing on MLSs helped sellers increase the likelihood of selling their home. For example, a client in the DMV (D.C., Maryland, Virginia) area ultimately sold their home “only after REX chose to list it on [the Metropolitan Regional MLS Systems Inc.¹⁸⁷],” after a 90-day period of “minimal activity” using the “straight REX model.”¹⁸⁸ A client in the same geographical area, who had a similar experience

¹⁸⁶ Exhibit 6B is a version of Exhibit 6A in which the data are shown as stacked areas. Exhibits 7A and 7B are versions of 6A and 6B in which REX’s closings are plotted, instead of listings.

¹⁸⁷ “Metropolitan Regional Info System (MRIS),” Realtyna, available at <https://realtyna.com/mls-coverage/mls/metropolitan-regional-info-system-mris/>, accessed on April 19, 2023. Metropolitan Regional MLS Systems Inc. (“MRIS”) is now a branch of Bright MLS.

¹⁸⁸ REX_0653170, Worksheet “Raw Data.”

of selling their property only after it got listed on the MLS, noted: “unless there is a rapid and dramatic improvement in how you operate here, I cannot and will not recommend your services to anyone else.”¹⁸⁹ Another client in the Houston area suggested that “REX should consider MLS for every listing and then make it up to the seller if they want to pay a buyers agents [*sic*] commission.”¹⁹⁰ Even a client from Philadelphia who had left a review with high ratings suggested that REX list their properties on the MLS either at least “for a limited time” or potentially “after a month or so of inactivity.”¹⁹¹ Consistent with a strategy aimed at addressing the issues raised by some of its clients, REX ultimately co-listed 50 of the properties it listed in 2019, on average about 5 months after their initial (REX-exclusive) list date.¹⁹²

54. As shown in Figures 4, 5, and 6, by the second half of 2019, REX was slowly losing its primary revenue-generating input for its brokerage business: its listings. Specifically, REX’s listings peaked in June 2019—*i.e.*, more than 18 months *prior* to Zillow’s display change.¹⁹³ While there may be multiple factors behind REX’s inability to consistently attract new listings, in my review of the evidence one important candidate is that REX’s clients started to lose confidence in the quality and effectiveness of the services provided by REX. In fact, Plaintiff’s own claims reveal that REX would expect its clients to either demand cancellation of listing agreements or request

¹⁸⁹ REX_0653170, Worksheet “Raw Data.”

¹⁹⁰ REX_0653170, Worksheet “Raw Data.”

¹⁹¹ REX_0653170, Worksheet “Raw Data.”

¹⁹² Appendix F.3. 5 months calculated as (155 days) / (approximately 30 days/month) = 5.2 months.

¹⁹³ Note that, as shown in Exhibit 5B, this peak in listings in 2019 is also visible when measuring REX’s listings as a share of U.S. total listings. This supports the conclusion that the 2019 peak and the subsequent decline were not driven by seasonality or industry-wide trends, but by a REX-specific pattern of listings. Exhibit 5A shows the same lines as in Exhibit 5B but compared to the range of REX’s share of U.S. home sales (by 2031) as assumed in the Evans Report. *See* Evans Report, Table VIII-8, ¶¶ 533-535.

their properties be co-listed, should they question the effectiveness of REX’s services.¹⁹⁴ The large decrease in new listings, the steep increase in lost opportunities, and the steady growth in co-listed properties—all of which started in 2019—are therefore consistent with a drop in REX’s clients’ trust in the services they were receiving starting more than a year prior to Zillow’s display change.

55. Documents produced by REX in this matter provide further corroboration that REX’s clients were dissatisfied and that this dissatisfaction preceded Zillow’s display change.¹⁹⁵ For example, in a March 2019 internal email thread—which started from a customer complaint about higher-than-advertised commissions on her home sale—a REX employee noted that another client had complained that REX “pulled a bait and switch.”¹⁹⁶ In addition, internal REX analyses show that, between 2018 and 2019, REX’s closing performance was worse than performance by MLS listings. In particular, REX’s loss rate (calculated as the share of listings that were closed within 90 days of the listing date) was higher in 21 out of 25 market areas.¹⁹⁷ Moreover, consistent with an impact of low customer confidence on revenues, a 2019 year-end REX shareholder update

¹⁹⁴ Plaintiff’s unsubstantiated claim that Zillow’s compliance with optional Model Rule 18.3.11 caused REX’s failure relies on the assumption that, due to Zillow’s actions, REX’s clients lost trust in REX’s effectiveness, and as a consequence “have requested that REX co-list properties with MLS members to increase its online profile, and have cancelled their listing agreements with REX.” Amended Complaint, ¶ 128.

¹⁹⁵ Between the end of 2019 and through the first quarter of 2020, REX had a *negative* “Net Promoter Score” (a customer satisfaction metric that REX described as “critical” and “universal”). See REX_0454603-709, at 613. A net promoter score is calculated by conducting a survey of customers, categorizing those customers as promoter, passively satisfied, or detractor, and then subtracting the percentage of customers who are detractors from the percentage of customers who are promoters of a brand or company. By construction, a negative score implies that there are more “detractors” (*i.e.*, “unhappy customers who can damage [the] brand and impede growth through negative word-of-mouth”) than “promoters” (*i.e.*, “loyal enthusiasts who will keep buying and refer others, fueling growth”). See Reichheld, Frederick F. “The One Number You Need to Grow.” *Harvard Business Review* 81, no. 12 (2003): 46-55. See also “What is Net Promoter?,” NICE Satmetrix, available at <https://www.netpromoter.com/know/>, accessed on January 11, 2023.

¹⁹⁶ REX_0015538 (Customer complaint: “agent said all I pay in commission was 5K..., I ended up paying the traditional 6% commission. You are all a fraud! Shame on you”; REX employee comment: “I have another guy [] saying the same thing – that we pulled a bait and switch.”).

¹⁹⁷ Deposition of Andrew Terrel, March 24, 2023 (“Terrel Deposition”), Exhibit 11.

stated that REX “fell short of [their] revenue goal for the year.”¹⁹⁸

56. In summary, the evidence shows that signs of lost confidence and client dissatisfaction in REX’s business were visible up to 18 months prior to Zillow’s display change, supporting the conclusion that REX’s business was failing prior to Zillow’s display change.

C. REX’s Supposed Innovations Failed to Disrupt the Industry or Confer Competitive Advantage

57. Dr. Evans claims that “REX developed an innovative business model that disrupted the traditional residential real estate brokerage industry” in which it operated.¹⁹⁹ According to Dr. Evans, REX’s business model relied on two primary choices: REX was not a participant of REALTOR® Association MLSs, and it offered ancillary home-related services to its clients.²⁰⁰ These two choices made by REX are not direct evidence of innovative disruption, nor did they confer any particular competitive advantage. First, as I explain in Section V, Dr. Evans does not consider in his report the value that buyer’s agents—whose services REX attempted to leave out of the home-buying process for its clients—generate, and therefore his analysis disregards the risks (or costs) of not relying on buyer’s agents’ services. Second, REX’s “innovation” was to use salaried employees for its brokerage services, rather than independent contractors, to avoid violating the federal Real Estate Settlement Procedures Act (RESPA) when offering ancillary services.²⁰¹ In this section, I explain that: (1) REX’s choice to employ salaried agents had potential

¹⁹⁸ REX_0000093.

¹⁹⁹ Evans Report, Section VI.B.

²⁰⁰ Evans Report, ¶¶ 366-368.

²⁰¹ *See, e.g.*, Evans Report, ¶ 478. *See also* “Real Estate Settlement Procedures Act (RESPA),” National Association of REALTORS®, available at <https://www.nar.realtor/real-estate-settlement-procedures-act-respa>, accessed on February 24, 2023. (Discussing an “example[] for real estate professionals to follow when engaging in activities with other settlement service providers related to []referral fees...” “...A real estate broker pays its real estate agents \$20 for each referral the agents make to the real estate broker’s affiliated mortgage company. This is a

and actual negative consequences that are not considered in the Evans Report; (2) REX’s strategy to avoid buyer’s agent fees by attempting to exclude buyer’s agents from the transaction was not compatible with actual buyer behavior (which left many of REX’s selling clients unhappy due to paying commissions higher than advertised); (3) REX’s technology investments and technological achievements were inferior compared to those of competitors such as Redfin; and (4) REX’s proprietary technology was not disruptive to the industry, and its data infrastructure relied heavily on being assisted by the superior technology of leading digital marketing players such as Google and Facebook.

58. While Dr. Evans discusses REX’s choice of employing full-time salaried agents as a feature of REX’s “unique business model,” he exclusively considers the “regulatory reasons that provided REX with an advantage.”²⁰² In other words, Dr. Evans only focuses on REX’s ability to circumvent RESPA provisions, disregarding the potential costs of its choice to adopt a model with salaried agents instead of independent contractors. First, leveraging a specific regulatory provision may not be a sustainable business strategy because a change in regulation (which is entirely outside of REX’s control) could have forced REX to immediately stop offering its ancillary services, threatening its entire business. Second, from an economic standpoint, even holding regulation fixed, Dr. Evans has not considered the potential economic costs of salary- and bonus-based compensation schemes (typical, for example, of executive-level employees or data scientists) as

violation of RESPA. Although RESPA provides an exception for payments made from an employer to its employees, payments between a real estate broker and its salespeople do not qualify for this exception. Real estate professionals are considered independent contractors, rather than employees of the real estate broker. As a result, the \$20 payments constitute payments in return for the referral of business in violation of RESPA.” (emphasis added.) See also REX_0000775-825, at 777 (“Unconstrained by RESPA, the only platform that allows for high-rate attachment of settlement services (title, escrow, mortgage, insurance, etc.)”).

²⁰² Evans Report, ¶¶ 366-368, 478.

compared to commission-based compensation schemes (common for real estate agents²⁰³).

59. Research has shown that it is key for firms to understand the economics of compensation schemes and to choose the right plan for their salesforce to achieve optimal effort levels.²⁰⁴ In fact, client feedback to REX suggests, at least anecdotally, that REX’s compensation scheme may not have adequately motivated its agents. Customers noted the following in survey responses to REX:

“If REX expects to compete with the private sector, it needs to retain good agents who are motivated, willing to advocate for the client and do due-diligence. **The small percentage of commission saved with REX pales and in no way competes with the services a good agent in the private sector would provide. JUST NOT WORTH IT.** In the end, there was no 'net savings', perhaps even a loss! (I won't get into that.) Worse yet, there was just an excessive amount of ‘self service’ work I had to do with little assistance (or incompetent assistance) from the agents assigned to me. I shutter [*sic*] if I had made a mistake.”²⁰⁵

“[t]he communication with the team was extremely difficult, our house sold for less than it should [have], and **lack of local knowledge was evident.** We advise everyone we speak to against using [REX’s] services. **We would’ve rather have paid full commission than deal with Rex again.**”²⁰⁶

“It's too passive of a system and the communication between all the different people is not great. And it’s a little weird that **the actual broker never actually went to see my house at all.** Frankly **I would rather have paid more for a regular realtor** as I know she would have gone to my house (as I was living 3 hours away) to check on a few issues that we had.”²⁰⁷

By only focusing on the benefits of REX’s choice without discussing its potential costs, Dr. Evans’

²⁰³ See, e.g., “Compensation Plans for Real Estate Agents,” National Association of REALTORS®, available at <https://www.nar.realtor/compensation-plans-for-real-estate-agents>, accessed on January 11, 2023.

²⁰⁴ Chung, Doug J., et al. “Do Bonuses Enhance Sales Productivity? A Dynamic Structural Analysis of Bonus-Based Compensation Plans.” *Marketing Science* 33, no. 2 (2014): 165-187.

²⁰⁵ REX_0653170, Worksheet “Raw Data” (emphasis added).

²⁰⁶ REX_0838517 (emphasis added).

²⁰⁷ REX_0838517 (emphasis added).

conclusions are therefore at best based on an incomplete framework.

60. REX was not even consistently able to avoid buyer’s agents’ costs, despite the promises made to their clients. As I explained above, the strategy adopted by REX to lower commissions was largely based on the decision to not join REALTOR® Association MLSs, and thereby attempt to avoid involving buyer’s agents in real estate transactions and reduce or eliminate the buyer’s agent commission to be paid by REX’s clients.²⁰⁸ Since the vast majority of buyers work with agents,²⁰⁹ however, REX was not always able to avoid the involvement of a buyer’s agent in the transaction,²¹⁰ and home-selling clients were disappointed by the resulting higher fees, which sometimes reached the levels that REX claimed to be able to avoid through its supposedly innovative business model. Consequently, customers provided negative feedback, as shown in the examples below.

“[A]gent said all I pay in commission was 5K..., I ended up paying the traditional 6% commission. You are all a fraud! Shame on you”²¹¹

²⁰⁸ Evans Report, ¶¶ 10, 366. NAR’s Handbook on Multiple Listing Policy discusses the listing broker’s offer of compensation for each active listing. *See*, NAR 2022 Handbook, pp. 39-40, Statement 7.23. “In filing property with the multiple listing service, participants make blanket unilateral offers of compensation to the other MLS participants and shall therefore specify on each listing filed with the service the compensation being offered by the listing broker to the other MLS participants. [] Multiple listing services shall not publish listings that do not include an offer of compensation expressed as a percentage of the gross selling price or as a definite dollar amount, nor shall they include general invitations by listing brokers to other participants to discuss terms and conditions of possible cooperative relationships.”)

²⁰⁹ According to a 2022 survey of home buyers and sellers that was conducted by NAR, approximately 87 percent of buyers purchase their home through an agent. As discussed in Section II.A.2, agents’ expertise can increase both the quality of a match between a potential buyer and seller and the likelihood of a successful transaction. According to the same 2022 NAR survey, “Buyers from all generations primarily wanted their agent’s help to find the right home to purchase [] Buyers were also looking for help to negotiate the terms of sale and to help with price negotiations.” National Association of REALTORS® Research Group, “2022 Home Buyers and Sellers Generational Trends Report,” 2022, available at <https://www.nar.realtor/sites/default/files/documents/2022-home-buyers-and-sellers-generational-trends-03-23-2022.pdf>, p. 63.

²¹⁰ *See, e.g.*, Evans Report, ¶ 454.

²¹¹ REX_0015538 (Customer complaint: “agent said all i pay in commission was 5K..., I ended up paying the traditional 6% commission. You are all a fraud! Shame on you”; REX employee comment: “I have another guy [] saying the same thing – that we pulled a bait and switch.”).

“Bait and switch. We found out that no buyer would ever pay their agents fee! They told us our home market value was \$50 k higher than all other estimates. It sold for \$70k less then REX market value, in addition to the \$45k we paid for repairs. Only one showing by a REX agent, it was in the first week by the owner of the REX agency. All buyers are forced to use the REX platform, which [is] a total mess. Buyers agents cant initially contact the REX agent. More confusing and a waste of time. We finally sold, our home in spite of REX.”²¹²

“I signed up thinking I was going to pay 2% closing costs and ended up paying a whole lot more [than] I expected. So in the end, what was the benefit of choosing your company. There answer is, there was none.”²¹³

“2% is largely a gimmick. It only works with a REX buyer who are extremely rare and the buyer financing to pay their agent is unlikely. Therefore, the most likely scenario is a 4.8% deal, which isn’t as good as 3.8[%] with others who offer 1% listing. Little was done by REX to achieve 2% for me, -you get paid no matter what so no incentive to achieve what you advertise. I feel our house was not being shown by professional people, always leaving lights and not opening the blinds etc to show the house. Upon suspecting something was wrong, given all the other houses nearby sold that summer, I decided to open the house up myself before REX arrived. I stayed to see if REX arrived on time -Of course they were late. In REX’s absence an attendee arrived and I sold my own house. For icing on the cake, in spite of me leaving a note to turn off lights etc., REX left the fireplace and garage light on. REX got their 2%, which is all that matters to them.”²¹⁴

If commission savings were due to superior technology as REX claimed, then clients would not have ended up paying the “traditional” fees that REX’s technology was supposed to reduce.

61. Dr. Evans also frequently compares REX with other companies (in the same industry or even well outside REX’s industry), but does not consider significant differences between REX and the companies he identifies as “comparables.”²¹⁵ In particular, Dr. Evans

²¹² REX_0653170, Worksheet “Raw Data.”

²¹³ REX_0653170, Worksheet “Raw Data.”

²¹⁴ REX_0838517.

²¹⁵ *See, e.g.*, Evans Report, Table VIII-2.

frequently compares REX’s model to Redfin’s,²¹⁶ and even his range of estimates for REX’s enterprise value includes valuations that are remarkably close to the one he reports for Redfin (*e.g.*, around \$1.7 billion and \$1.8 billion, respectively).²¹⁷ Nevertheless, Dr. Evans does not consider the stark difference between Redfin’s business model and its achievements as compared with REX’s.

62. First, Dr. Evans does not consider how disruptive Redfin’s innovation was when it first launched in 2004, in Seattle. In fact, Redfin’s first innovation—which was accompanied by at least two patents filed in June 2005 and granted in 2015²¹⁸—was to layer satellite maps with information (such as historical prices, property taxes, etc.) on properties listed on MLSs,²¹⁹ thereby pioneering the mapping feature of online platforms for home search that users still use today. Second, Dr. Evans does not consider the investments made by Redfin in technology and development. Between 2015 and 2020, Redfin’s investment in technology and development hovered around 30 to 36 percent of total annual operating expenses, while REX was spending on average 18 percent of its operating expenses on technology and development.²²⁰ Moreover, Dr. Evans’ conclusion that “[a]fter 18 years in business Redfin has achieved a small share of housing

²¹⁶ See, *e.g.*, Evans Report, ¶ 519, Tables VI-3, VIII-2, VIII-3.

²¹⁷ Evans Report, Tables VIII-6, and VIII-2, respectively for REX and Redfin.

²¹⁸ Patents US20050288957 and US20050288958. See “Web-based Real Estate Mapping System,” Google Patents, available at <https://patents.google.com/patent/US20050288957>, accessed on April 19, 2023; “Online Marke[t]place for Real Estate Transactions,” Google Patents, available at <https://patents.google.com/patent/US20050288958>, accessed on April 19, 2023.

²¹⁹ See, *e.g.*, Darlin, Damon, “The Last Stand of the 6-Percenter?,” *The New York Times*, September 3, 2006, available at <https://www.nytimes.com/2006/09/03/business/yourmoney/03real.html>, accessed on February 24, 2023.

²²⁰ Total REX “Technology and Development” expenses between 2015 and 2020 are \$23,713,532 and total operating expenses during the same period are \$129,047,726. Hence, $\$23,713,532 / \$129,047,726 = 0.18$ is the share of REX’s technology and development expenses out of total operating expenses between 2015 and 2020. See Exhibit 8A; Redfin Corporation Form 10-K for the fiscal year ended December 31, 2021 (“Redfin 2021 10-K”), p. 27; Redfin Corporation Form 10-K for the fiscal year ended December 31, 2019 (“Redfin 2019 10-K”), p. 29; Redfin Corporation Form 10-K for the fiscal year ended December 31, 2018 (“Redfin 2018 10-K”), p. 28; Redfin Corporation Form 10-K for the fiscal year ended December 31, 2017 (“Redfin 2017 10-K”), p. 34.

sales”²²¹ fails to mention Redfin’s impressive growth over the last several years. According to Dr. Evans’ own data,²²² Redfin’s share of home values for U.S. real estate transactions grew by more than 350 percent during the seven years between 2014 and 2021, with an average annual growth rate of about 20 percent.²²³

63. Not only was REX’s overall business model not an effective disruptor, but its technology also failed to be innovative or to confer significant competitive advantage over other industry participants. While Dr. Evans categorizes REX as a platform using modern digital technology, he does not describe any specific, unique features of REX’s technology.²²⁴ The record I have examined does not clearly describe REX’s unique innovations, if any, nor how these innovations confer an advantage to REX relative to its competitors. To the contrary, the evidence supports the view that REX’s technology was not disruptive to the industry. For example, the head of a financial group that was in talks with REX regarding a loan described REX’s technology as “weak” and “not saleable.”²²⁵ REX’s co-founder, President, and COO, Lynley Sides, testified that REX’s marketing was relying on Google’s and Facebook’s advertising technology to optimize conversions,²²⁶ and that REX relied heavily on Google’s and Facebook’s technology for marketing

²²¹ Evans Report, ¶ 436.

²²² Evans Report, Table VI-8.

²²³ Redfin’s share of the home value of U.S. real estate transactions grew from 0.33 to 1.17 percent in the 7 years between 2014 through 2021; equivalent to a 355 percent growth. Average annual growth rate is calculated as $(1.17 / 0.33)^{(1 / 7)} - 1 = 0.20$.

²²⁴ Evans Report, ¶ 369. Dr. Evans claims that the combination of “high tech” and “low cost” give REX a competitive advantage in the real estate brokerage industry.

²²⁵ PIUS.REX0000868 (“[t]he technology here is frankly weak...it is not a saleable technology”); “About PIUS,” PIUS, available at <https://piusre.com/#about>, accessed on January 13, 2023; “Meet The Team,” PIUS, available at <https://piusre.com/the-pius-team/>, accessed on January 13, 2023.

²²⁶ Sides Deposition, pp. 366:24-367:3, and Exhibit 33, at REX_0460806.

because of their superior effectiveness in targeting customers.²²⁷ This testimony contrasts with REX’s stated value proposition that it was using machine learning and artificial intelligence to identify and target buyers for REX-listed properties.²²⁸ In fact, REX’s own employees thought REX’s technology could not be correctly described as relying on artificial intelligence, despite the company’s claims, as shown in Figure 7 below.²²⁹

Figure 7 –Notes to REX Presentation (2021).

12/3-4/21 Discussions of Slides from Previous Presentations. What tech we have or is in-progress, what we are using or have used

Notes from discussion with Jason, Bret, Panee, Tyler, Will, Lynley

- Using “AI” to characterize our tools on the “wheel slide” (next pg)
 - AI in the strictest definition isn’t the right term for these tools though the next iteration of many tools will be to do this fully and the plans have been to do so for a long time
 - In the loose definition of AI most of the world uses, many of these are – see notes on subsequent slides

Source: REX_0460804

64. Finally, REX’s self-description as a leader in technology and marketing in the real estate industry, which suggests that the company could have created a successful alternative platform, is at odds with its actual performance. For example, a REX presentation states, “REX is the first and only digital platform and real estate service where homeowners list, discover and

²²⁷ Sides Deposition, pp. 365:25-366:11, and Exhibit 33, at REX_0460806; Terrel Deposition, pp. 49:2-51:17.

²²⁸ REX_0000377-417, at 383-385; REX_0000530-563, at 532-534; PIUS.REX0000329-331, at 329, 331; Declaration of Jack Ryan, March 8, 2021, ¶¶ 7, 24.

²²⁹ REX_0460804 (notes to investor presentation: “AI in the strictest definition isn’t the right term for these tools”).

purchase homes outside of the MLS,”²³⁰ and goes on to say that “REX is pushing the limits of digital marketing.”²³¹ If this description of REX’s business were accurate, REX could have leveraged its technology to create an alternative platform. Moreover, REX could have used its marketing capabilities to at least inform its clients about the consequences it expected from the placement on Zillow websites’ second tab, yet there is no evidence that it did so. In fact, in a “sales talk tracks” script from March 11, 2021 (see screenshots below), REX suggested that its agents inform their clients that “REX homes are still on Zillow, in one of the two tabs,” and that REX’s agents were still getting the best outcome possible for their clients.²³²

Figure 8 – REX’s Sales Talk Tracks, March 11, 2021.

Q. But doesn’t your lawsuit say that REX homes are hidden on Zillow?

A. REX homes are still on Zillow, in one of the two tabs. In this competitive market, buyers are looking for homes across every possible digital platform. We are continuing to use Zillow, Trulia, Homes.com, Google, and Yahoo in ways that no one else does. We are getting the best possible results for our customers. Many of our homes are selling in just a couple days.

Q. But isn’t Zillow the biggest portal site? How can you succeed without them?

A. REX uses leading edge technology to market directly to consumers that no one else has. Along with Zillow, our data-driven marketing uses ad technology to put your home in front of interested buyers and keeps reminding them of your home with ads to keep your home top of mind for them. In this competitive market, buyers are looking everywhere, including REX and the many places where REX homes are displayed.

Source: REX_0264945-948, at 945.

²³⁰ REX_0000988-1007, at 989.

²³¹ REX_0000988-1007, at 994.

²³² REX_0264945-948, at 945.

IV. THE EVANS REPORT MISCHARACTERIZES THE ECONOMICS AT ISSUE IN THIS MATTER

65. Dr. Evans states that the economics of two-sided platforms and of pass-through are relevant for assessing the issues in this case.²³³ He uses these two economic concepts to make the following claims: that two-sided platforms such as REX can collapse from the “vicious cycle” and that Zillow’s display change initiated this cycle for REX;²³⁴ and that commissions lead sellers to raise the purchase price and therefore both home sellers and buyers bear costs due to supra-competitive commissions.²³⁵

66. In this section, I explain why the Evans Report mischaracterizes the economics at issue in this matter. First, I introduce the concept of multi-sided platforms, discuss their salient characteristics, and outline the benefits that multi-sided platforms bring to marketplace participants. Second, I explain that MLSs are an example of multi-sided platforms. Third, I explain why REX does not embody the characteristics of multi-sided platforms. Finally, I turn to Dr. Evans’ pass-through arguments and discuss whether there is evidence that sellers pass through commissions in the form of higher property prices, as Dr. Evans claims.

A. Two-Sided Platforms Generate Indirect Network Effects and Reduce Search and Transaction Costs

67. A multi-sided platform facilitates transactions between parties that otherwise would have been unlikely to happen in its absence. In Dr. Evans’ own words, multi-sided platforms are “matchmakers.”²³⁶ Specifically, a multi-sided platform is a platform where interactions take place

²³³ Evans Report, Section II, ¶¶ 62-64.

²³⁴ Evans Report, ¶ 331.

²³⁵ Evans Report, ¶¶ 64, 83.

²³⁶ Evans, David, and Richard Schmalensee. *Matchmakers: The New Economics of Multisided Platforms*. Boston: Harvard Business Review Press, 2016 (“Matchmakers”), pp. 9-12. *See also* Evans, David, and Richard

between two or more groups of users who need each other in some way (e.g., home seller agents and home buyer agents; merchants and consumers; game developers and game users) but cannot capture the value from their mutual attraction *on their own* and need to rely on the platform to facilitate value-creating interactions between them.²³⁷

68. An important characteristic of multi-sided platforms is that demand on one side depends on demand from the other (e.g., buyers are more likely to use a two-sided platform if many sellers use it, and vice versa).²³⁸ This is what economists refer to as (positive) indirect network effects. Given the existence of these indirect network effects, the platform needs to ensure that there are enough of the right kind of users in each group such that the platform can solve the coordination problem between both sides of the platform. In their book about multi-sided platforms, *Matchmakers: The New Economics of Multisided Platforms*, Dr. Evans and his coauthor use the example of OpenTable to illustrate this point and how difficult it is for most start-ups to solve the coordination problem.²³⁹ Specifically, OpenTable “can’t attract diners without restaurants, but no hungry consumer would use a reservation system that had no restaurants available. OpenTable eventually solved this puzzle [attract participants on both sides: diners and

Schmalensee. “Multi-sided Platforms.” In *The New Palgrave Dictionary of Economics.*, edited by Matias Vernengo, et al., 1-9. London: Palgrave Macmillan, 2017.

²³⁷ Evans, David, and Richard Schmalensee. “The Industrial Organization of Markets with Two-Sided Platforms.” *Competition Policy International* 3, no. 1 (2007): 151-179 (“Evans and Schmalensee (2007)”), p. 151.

²³⁸ Evans, David. “Some Empirical Aspects of Multi-Sided Platform Industries.” *Review of Network Economics* 2, no. 3 (2003): 191-209.

²³⁹ OpenTable is an online restaurant-reservation system. For restaurants, it not only provides, for a subscription fee, an online reservation system, but also analytics, table management, marketing, and payment solutions. For consumers, it provides, for free, access to reservations at all restaurants on the platform, a reward system, a discovery feature, and integrations to delivery platforms (such as UberEats and SkipTheDishes). See, “Our Solutions,” OpenTable, available at <https://restaurant.opentable.com/our-solutions/>, accessed on February 24, 2023. See also “The Benefits of Booking with OpenTable,” OpenTable, available at <https://help.opentable.com/s/article/The-Secret-Behind-OpenTable-s-Real-Time-Reservations-1505260791871>, accessed on February 24, 2023.

restaurants]. Most matchmaker start-ups don’t.”²⁴⁰

69. To encourage participation on all sides, a platform can use price and other incentives. For pricing, the platform sets a price structure that considers the effects of more participation by one group on the other(s); as a result, prices can be skewed so that, for example, one side of a platform may be charged almost nothing (or even a negative price), while the second side is responsible for most of the platform’s revenues and effectively subsidizes the first side.²⁴¹ This is often the case with multi-sided platforms such as search engines and credit cards.²⁴² In addition to price incentives that encourage participation on all sides, successful platforms need to ensure that “they are getting more participants on each side with whom participants on the other side want to interact.”²⁴³ Going back to the OpenTable example, “[a] restaurant reservation platform needs to have enough of the right restaurants, in the right city, at the right time. It can’t make up for this deficit by having many restaurants that aren’t relevant to the people making reservations.”²⁴⁴

70. Successful multi-sided platforms also recognize that they can create processes or policies to affect participant behavior and, consequently, improve the quality of information and/or services provided on the platform.²⁴⁵ For example, a platform can create incentives that encourage

²⁴⁰ Matchmakers, p. 14.

²⁴¹ U.S. Federal Trade Commission, “Roundtable on Two-Sided Markets: Note by the Delegation of the United States,” June 4, 2009, available at <https://www.ftc.gov/system/files/attachments/us-submissions-oecd-2000-2009/roundtabletwosided.pdf>, p. 3.

²⁴² For example, for credit cards with rewards programs, consumers’ price is negative since the cost of the transactional service is subsidized by the rewards consumers get. Merchants, however, often pay substantial fees for credit card transactions. See Matchmakers, Table 2-1, p. 34.

²⁴³ Matchmakers, p. 30.

²⁴⁴ Matchmakers, pp. 30, 124.

²⁴⁵ Rysman, Marc. “The Economics of Two-Sided Markets.” *Journal of Economic Perspectives* 23, no. 3 (2009): 125-143.

participants to innovate and improve,²⁴⁶ introduce information standards that allow for an easier comparison of options,²⁴⁷ and put policies in place to facilitate trust between participants²⁴⁸ and advertised products or services.²⁴⁹ Overall, successful platforms consider these strategies (among others) and the way participants react to them. Not engaging in these practices can negatively affect the quality of the platform and deter participation by the desired kind of users on each side of the platform.²⁵⁰

²⁴⁶ A platform may introduce quality standards that aim to incentivize innovation (even though they may also reduce the number of participants on each side of the platform). In the context of operating systems for mobile phones, for example, research has found that more innovation is achieved in operating systems with a relatively small set of software vendors (e.g., Apple’s closed iOS environment) compared to platforms with larger sets of vendors. See, Boudreau, Kevin. “Open Platform Strategies and Innovation: Granting Access vs. Devolving Control.” *Management Science* 56, no. 10 (2010): 1849-1872.

²⁴⁷ For example, software platforms enable developers to reach a large number of customers quickly, while requiring that a developer’s applications comply with the platform’s rules. These rules may include requiring developers to use features that were created by the platform itself to help serve user needs and maintain certain standards for the platform. See, Hagi, Andrei. “Software Platforms.” In *The Oxford Handbook of the Digital Economy*, edited by Martin Peitz and Joel Waldfogel, 59-82. Oxford and New York: Oxford University Press, 2012. See also Farrell, Joseph, and Timothy Simcoe. “Four Paths to Compatibility.” In *The Oxford Handbook of the Digital Economy*, edited by Martin Peitz and Joel Waldfogel, 34-58. Oxford and New York: Oxford University Press, 2012.

²⁴⁸ As discussed above, the purchase and sale of a home is among the most consequential economic transactions that most people conduct in their lifetimes, and buyers/sellers typically must complete a transaction without the benefit of having repeated interactions. Platforms can put systems in place to enable trust between its users. For example, research has shown that the introduction of rating systems on eBay has enabled trust between users, acting as a disciplining force in which sellers with low ratings have lower revenue, charge lower prices, and ultimately exit from the platform. See, Ba, Sulin, and Paul A. Pavlou. “Evidence of the Effect of Trust Building Technology in Electronic Markets: Price Premiums and Buyer Behavior.” *MIS Quarterly* 26, no. 3 (2002): 1-26. See also Cabral, Luís, and Ali Hortaçsu. “The Dynamics of Seller Reputation: Evidence from eBay.” *Journal of Industrial Economics* 58, no. 1 (2010): 54-78.

²⁴⁹ For example, Amazon and Barnes & Noble display reviews for products, and research has found that books with positive product reviews have higher sales. Yelp also displays reviews for restaurants participating on their platform, and research has found that Yelp increased the demand for independent restaurants (i.e., the ones with arguably higher reputation uncertainty, especially in the absence of reviews) relative to chain restaurants. See Chevalier, Judith A., and Dina Mayzlin. “The Effect of Word of Mouth on Sales: Online Book Reviews.” *Journal of Marketing Research* 43, no. 3 (2006): 345-54. See also Luca, Michael. “Reviews, Reputation, and Revenue: The Case of Yelp.com.” *Harvard Business School Working Paper* (2011): 1-39.

²⁵⁰ Maintaining the quality of information/services is a common challenge for platforms. Airbnb, for instance, has received recent criticism about their user screening process, which led a property owner to file a lawsuit alleging that Airbnb did not identify a user who had vandalized multiple properties listed on Airbnb. Similarly, Amazon Marketplace has faced problems relating to sellers that list banned, unsafe, or misleading products. See Berg, Lauren, “Airbnb Stiffs Homeowners of Promised Protection, Co. Says,” Law360, December 5, 2022, available at <https://www.law360.com/articles/1555260/airbnb-stiffs-homeowners-of-promised-protection-co-says>, accessed on

71. Multi-sided platforms realize indirect network effects through one or both of two mechanisms: platforms reduce search costs and/or reduce transaction costs. Search costs are costs incurred by the multiple sides before they actually interact, such as when buyers and sellers want to search for each other on eBay. Transaction costs are costs incurred after the search has taken place and when the transacting parties have found each other. Payment systems, for example, ease transactions between buyers and sellers by eliminating the need for barter, and videogame consoles provide basic functionalities (graphics, sound, etc.) that do not have to be duplicated by developers/users for each new videogame.²⁵¹

72. There are many examples of multi-sided platforms that generate indirect network effects through the reduction of search and transaction costs. For example, Airbnb connects people searching for a place to stay with homeowners renting their properties, Amazon Marketplace connects shoppers with merchants selling their goods, Tinder connects users with each other, and Google Play connects software developers with potential users. All these platforms have put in place incentives to encourage participation by (the right type of) users on all sides of the platform, reducing search and transaction costs, and hence, generating indirect network effects. Below, I explain why MLSs also fall within the category of multi-sided platforms, and why REX’s business does not have the necessary characteristics to be a multi-sided platform.

B. MLSs are Two-Sided Platforms

73. MLSs are two-sided platforms that help real estate agents on the buyer and seller sides come together through their use of a comprehensive listings database, which reduces search

April 19, 2023. *See also* Berzon, Alexandra, et al., “Amazon Has Ceded Control of Its Site. The Result: Thousands of Banned, Unsafe or Mislabeled Products,” *The Wall Street Journal*, August 23, 2019.

²⁵¹ *See, e.g.*, Hagiu, Andrei. “Strategic Decisions for Multisided Platforms.” *MIT Sloan Management Review* 55, no. 2 (2014).

and transaction costs (thereby generating indirect network effects) and facilitates real estate transactions. Dr. Evans does not dispute this point.²⁵²

74. Sellers want an agent who can help them with a variety of tasks, one of which is connecting them to enough buyers and to the right buyers, so that the seller can ultimately match with the best buyer for their property (*i.e.*, the one who will make and can deliver on the most attractive offer). Conversely, a buyer wants an agent who can show them as many available and appropriate homes as possible. An MLS provides a platform that connects seller’s agents and buyer’s agents and reduces their search and transaction costs. The efficiencies (*i.e.*, reductions in search and transaction costs) produced by MLSs are well documented. In particular, an MLS reduces search costs by granting buyer’s agents access to a large number of listings and by providing seller’s agents with wider exposure to buyer’s agents.²⁵³ MLSs can also reduce transaction costs by, for example, allowing buyer’s agents to set up showings with seller’s agents at various companies. Moreover, MLSs include historical data on prior sales, days on market, and offers made on the home, thereby allowing sellers to “more accurately value their homes” and

²⁵² Evans Report, ¶¶ 19-20. In fact, in his book on platform economics, Dr. Evans described how “[r]eal estate agents place [a] property on [the] common [MLS] database, [] where sellers are able to show their homes to a large audience of buyers, thus potentially increasing the number of offers that they would otherwise receive[.]” Evans, David S. *Antitrust Economics of Two-Sided Markets: Essays on Multi-Sided Businesses*. Boston: Competition Policy International, 2011, p. 81.

²⁵³ U.S. Department of Justice and Federal Trade Commission, “Competition in the Real Estate Brokerage Industry,” April 2007, available at <https://www.justice.gov/atr/competition-real-estate-brokerage-industry> (“2007 DOJ and FTC Report”), pp. 13-14 (“The efficiencies associated with use of an MLS in the real estate industry are well documented in the real estate, legal, and economic literature and in court decisions. In the seminal case, *United States v. Realty Multi-List, Inc.*, the Fifth Circuit described the various benefits offered by an MLS. First, the MLS reduces the “obstacles brokers must face in adjusting supply to demand: market imperfections are overcome in that information and communication barriers are reduced, along with the easing of the built-in geographical barrier confronting the buyer-seller relationship. Moreover, a realistic price structure is engendered. In effect, real estate becomes by virtue of the multiple listing service ‘a more liquid commodity.’” Second, sellers benefit from wider exposure of their listings, while buyers benefit from reduced search costs. Finally, the court noted that “[t]he broker is particularly benefited by having immediate access to a large number of listings and at the same time by being furnished with a method for quickly and expansively exposing his own listings to a broader market.””).

buyers to more accurately “determine the amount to bid on a home.”²⁵⁴

75. The two-sidedness of an MLS is crucial for achieving these efficiencies and thereby realizing positive indirect network effects, in which each side of the platform (buyer’s agents and seller’s agents) benefits from increased participation by the other side.²⁵⁵

C. REX Failed to Build a Business with the Benefits of a Two-Sided Platform

76. Despite Dr. Evans’ claims, REX’s business model does not show the key characteristics and benefits of a two-sided platform.²⁵⁶ In fact, as discussed above, multi-sided platforms ensure there are enough users (and the right users) on each side so that efficiencies can be realized and transactions can successfully take place. REX’s value proposition, however, was fundamentally one-sided as it largely depended on reducing costs by using “AdTech [to] replace [buyer] agents” from the home-buying process.²⁵⁷ This meant that in practice, REX’s business model was that of a direct-to-consumer service provider²⁵⁸ that primarily provided services on one side—the seller side—and relied on third-party platforms such as Zillow, Google, and Facebook

²⁵⁴ 2007 DOJ and FTC Report, pp. 10-11 (“The MLS allows broker-members to search and filter homes based on detailed criteria, including property and neighborhood information, offers made on the home, prior sales history, and days on the market. In addition to the database of currently available homes, an MLS maintains a database of homes sold through the MLS. Brokers can use this database to provide their clients with information on sales of comparable homes so that the clients can more accurately value their homes or determine the amount to bid on a home.”).

²⁵⁵ As discussed throughout this section, MLSs are two-sided platforms for buyer’s and seller’s *agents*, who act on behalf of buyers and sellers. Real estate listing aggregators (described in Section II.C), on the other hand, provide an option for buyers and sellers to interact directly, such as in the case of a buyer (who does not have an agent) searching for FSBO properties.

²⁵⁶ While REX sometimes presented itself as a “platform,” its business documents also compared it to residential brokers, including “small individual” brokerage firms. *See* REX_0000377-417, at 386; REX_0772791; and REX_0001141-174, at 148.

²⁵⁷ REX_0000377-417, at 385. *See also e.g.*, Evans Report, ¶ 366.

²⁵⁸ REX marketed itself as a direct-to-consumer service provider. *See, e.g.*, REX_0000377-417, at 384-385.

to acquire participants on the other side—the buyer side.²⁵⁹

77. If REX truly wanted to build a multi-sided platform, then it would not have primarily relied on third parties to gain access to the buyer side, and instead would have designed a business model and incentives to directly attract and serve buyers itself. Instead, REX attempted to remove buyer’s agents from the process, did not design adequate processes to attract enough buyers, and consequently failed to attract enough sellers as well. Furthermore, REX began operating in 2015, at a time when many of the information and coordination issues in the real estate industry had already been successfully addressed by other aggregators,²⁶⁰ and REX failed to bring incremental value to the industry in terms of reducing search or transaction costs.

78. Finally, even if one were to consider REX a multi-sided platform (which it was not), Dr. Evans completely disregards the fact that, by removing the buyer’s agent from the home-buying process, REX was effectively eliminating or at least reducing the scope of services provided to potential buyers. A reduction in buyer services would in turn lead to a potential reduction in the participation of customers on one of the two sides of the marketplace (*i.e.*, the buyers) and a consequent *increase* in search and transaction costs and *decrease* in the likelihood of a transaction to occur.²⁶¹ In other words, Dr. Evans did not consider how, under his own flawed analysis of the marketplace, REX’s actions would be detrimental for its customers and therefore

²⁵⁹ “About Us,” REX Homes, available at <https://www.rexhomes.com/about>, accessed on February 24, 2023. *See also e.g.*, REX_0000377-417, at 384-385.

²⁶⁰ For example, Redfin was founded in 2006, Realogy in 2006, and Zillow in 2004. *See*, Redfin Corporation Form 10-K for the fiscal year ended December 31, 2020, p. 1; Realogy Holdings Corp. and Realogy Group LLC Form 10-K for the fiscal year ended December 31, 2020, p. F-44; and Zillow Group, Inc. Form 10-K for the fiscal year ended December 31, 2020, p. 73.

²⁶¹ As discussed in Section II, most buyers and sellers are amateurs. Therefore, if a buyer decided to participate on their own (for example, replying to a REX ad and lacking a buyer’s agent) in a transaction in which REX acts as the seller’s agent, then there likely would be a lower probability of finalizing the transaction, due to the buyer’s lack of knowledge and experience with various steps of the home-buying process.

for its business.

D. Dr. Evans’ Claims about Pass-Through are Incorrect and are Not Relevant to This Matter

79. Dr. Evans uses the economics of pass-through to claim that “most home sellers and buyers likely lose” if commissions are higher than necessary.²⁶² He bases his claim on the assumption that a portion of the buyer’s agent commission is passed through by the seller to the buyer via the purchase price.²⁶³ His claim is irrelevant to this matter, and also lacks empirical support.

80. First, Dr. Evans does not provide evidence of the existence, or importance, of pass-through in real estate transactions. Actual buyer’s agent commissions are generally private information and are not reported in MLS data sets. This is one of the main reasons why academic research on this topic has been limited.²⁶⁴ To circumvent the lack of data, Dr. Evans uses his own survey of the empirical literature on pass-through to justify his assumptions. However, this survey mostly focused on imported and retail goods,²⁶⁵ not services like the ones provided in the real estate industry, which, as I described in Section II, is unique in many ways. Therefore, generalizing

²⁶² Evans Report, ¶¶ 74, 83.

²⁶³ Evans Report, ¶ 74.

²⁶⁴ I understand that buyer broker offers of compensation may, sometimes, be public information on listings. However, actual commissions paid in transactions are generally private information between buyers and sellers. *See* Han, Lu, and William C. Strange. “Chapter 13: The Microstructure of Housing Markets: Search, Bargaining and Brokerage.” In Vol. 5B, *Handbook of Regional and Urban Economics*, edited by Gilles Duranton, et al., 813-886. Amsterdam: Elsevier, 2015, p. 858.

²⁶⁵ In footnote 33 of his report, Dr. Evans cited a 2015 published paper as a source for this survey. However, that paper states that the source is a 2011 working paper that surveyed 20 studies and showed a median of a 50 percent pass-through across the surveyed studies. Moreover, it shows that the industries analyzed correspond to mostly imported and retail goods. *See* Evans, David, et al. “The Impact of the U.S. Debit Card Interchange Fee Regulation on Consumer Welfare.” *Journal of Competition Law & Economics* 11, no. 1 (2015): 23-67. *See also* Evans, David, and Abel Mateus. “How Changes in Payment Card Interchange Fees Affect Consumers Fees and Merchant Prices: An Economic Analysis with Applications to the European Union.” SSRN Working Paper (2011): 1-48.

results from a study that does not include or account for the particularities of this industry could be misleading, suggesting pass-through, if it exists, is significant in the real estate industry when in fact there is no such empirical evidence.

81. The crux of Dr. Evans’ argument is that “sellers will increase their prices somewhat to account for the commission.”²⁶⁶ Dr. Evans’ economic reasoning is incorrect. Sellers will always want to capture the highest price possible from a willing buyer. In other words, sellers are rational economic agents. The goal of achieving the highest possible price is served by making sure that as many relevant buyers as possible see the listing. In the short term, the price a willing buyer would pay should be unaffected by a change in the commission a seller is required to pay.

82. To illustrate this point, I refer to Dr. Evans’ example, wherein a seller agrees to a sale price of \$400,000 with a 2 percent commission, *i.e.*, the seller nets \$392,000 from the sale of the home.²⁶⁷ If the listing broker increased the commission from 2 to 3 percent, Dr. Evans assumes that the seller “would seek to recover some of that higher cost” by raising the sale price[.] With a roughly 50 percent pass-through rate, the seller would increase the price of the home to \$402,000.”²⁶⁸ Under Dr. Evans’ scenario, the seller would increase the sale price to offset the increase in commission, and would net \$389,940 from the sale of the home. However, if the seller could find a willing buyer to purchase the house for \$402,000, then the seller should have set the sale price at \$402,000 from the very beginning, *regardless of the commission* set by the listing broker. Thus, the entire premise of Dr. Evans’ example is flawed and misleading.

83. Finally, Dr. Evans’ claims about pass-through suggest that absent buyer’s agents,

²⁶⁶ Evans Report, ¶ 78.

²⁶⁷ Evans Report, ¶ 80.

²⁶⁸ Evans Report, ¶ 80.

real estate transactions would have lower prices only through the mechanism of lower commissions.²⁶⁹ This argument lacks theoretical and empirical support, and it ignores key elements such as the “match quality” of a transaction. Without buyer’s agents, buyers will have less assistance in shopping for the right homes, assessing a potential home’s worth, and negotiating with the seller. Dr. Evans’ claims about pass-through essentially assume that buyer’s agents bring no to limited value to transactions and thereby only influence negotiated home prices through their commissions. There is no basis in the literature that Dr. Evans cites for this crucial assumption.²⁷⁰

V. DR. EVANS’ OPINIONS ABOUT THE BUYER BROKER COMMISSION RULE ARE IRRELEVANT AND ARE NOT SUPPORTED BY HIS ANALYSIS

84. Dr. Evans’ opinions about the Buyer Broker Commission Rule are irrelevant to the case and are not supported by evidence. First, as I explained above, REX alleges that Zillow’s compliance with the Optional Display Rule led to a “group boycott of non-members” that denied REX access to an input that was critically important for competition in the provision of real estate brokerage services.²⁷¹ This allegation is related to the details of how REX’s listings are displayed on a third-party platform that REX utilizes (for free) to reach potential buyers. It bears no connection with the existence of the Buyer Broker Commission Rule that governs the compensation of buyer’s agents/brokers.

85. Second, Dr. Evans provides no compelling evidence proving that commissions are

²⁶⁹ Evans Report, ¶ 77.

²⁷⁰ In fact, recent research using novel data sets that include millions of interactions between sellers and buyers in the U.S. shows that there is a relevant bargaining role played by buyer’s agents in a real estate transaction. *See* Mateen, Haaris, et al. “The Microstructure of the U.S. Housing Market: Evidence from Millions of Bargaining Transactions.” SSRN Working Paper (2021): 1-56, pp. 1, 6.

²⁷¹ Amended Complaint, ¶¶ 124-126.

supra-competitive, nor that the Buyer Broker Commission Rule “results in a supra-competitive ‘profit pool’ that real estate agents share.”²⁷² Dr. Evans does not consider the value that buyer’s agents create, as I discussed in Section II.A.2. Specifically, Dr. Evans claims, “the buyer’s agent commission is typically about half of the seller commission even though the buyer’s agent provides minimal services to the buyer.”²⁷³ Dr. Evans does not provide any support for his statement regarding the supposedly “minimal” services that a buyer’s agent provides, and he ignores an extensive literature describing the various ways that a buyer’s agent adds value to a real estate transaction.²⁷⁴ As I discuss above, intermediaries like a buyer’s agent are industry specialists who facilitate communication between the two sides of a marketplace, provide information that saves buyers time (and therefore reduces search costs), identify properties that best fit a buyer’s preferences (and therefore may result in a better match), and assist with negotiations that could save the buyer money.²⁷⁵ Because the buyer and the seller each have an agent on their side, and agents are usually experienced in local real estate and in negotiations, the process of closing a deal can become more efficient than if the buyer were to directly negotiate with the seller’s agent. In other words, a buyer’s agent can help reduce transaction costs for their client.

86. In fact, Dr. Evans contradicts his own claim about the “minimal” services

²⁷² Evans Report, ¶ 85.

²⁷³ Evans Report, ¶ 85.

²⁷⁴ See, e.g., Han, Lu, and William C. Strange. “Chapter 13: The Microstructure of Housing Markets: Search, Bargaining and Brokerage.” In Vol. 5B, *Handbook of Regional and Urban Economics*, edited by Gilles Duranton, et al., 813-886. Amsterdam: Elsevier, 2015, p. 857.

²⁷⁵ “Buyer’s Agents,” Greater Boston Home Team, available at <https://www.greaterbostonhometeam.com/buyers-agents/>, accessed on January 16, 2023. See also Crace, Miranda, “How Buyers Can Negotiate House Price,” RocketMortgage, available at <https://www.rocketmortgage.com/learn/how-to-negotiate-house-price>, accessed on January 11, 2023. See also Section II.A.3.

provided by buyer’s agents when, elsewhere in his report, he refers to some of the assistance provided by buyer’s agents: “The buyer agents then interact with listing brokers on the MLS and assist in closing a sale, usually physically, and locally.”²⁷⁶ Dr. Evans also states that “[u]nder the Buyer Broker Commission Rule, the buyer agents have unilateral incentives to steer buyers away from listing agents who do not pay the customary buyer broker commission” and thereby maintain the “high-commission scheme.”²⁷⁷ However, this statement is at odds with Dr. Evans’ claim that buyers select listings based on their online research.²⁷⁸

87. Dr. Evans conducts an analysis comparing the level of commissions paid in the U.S. with commissions paid across other developed countries, based on which he concludes that U.S. commissions are higher.²⁷⁹ Dr. Evans’ assessment is not supported by his analysis.

- First, Dr. Evans compares an average of the entire U.S. with entire other countries. However, as I explain in more detail in Section VII, residential brokerage services markets are local, and therefore economic conditions vary significantly from local area to local area, implying that national averages provide limited meaningful information.²⁸⁰

²⁷⁶ Evans Report, ¶ 362 (emphasis added).

²⁷⁷ Evans Report, ¶ 27 (emphasis added).

²⁷⁸ Evans Report, ¶ 242.

²⁷⁹ Evans Report, Table III-3, Table III-4, ¶ 120.

²⁸⁰ Dr. Evans’ analysis focuses on national averages even though there is substantial local variation within countries. Within the U.S., some local areas have REALTOR® Association MLSs while other local areas have independent MLSs (as described in Section II.B). For example, NWMLS, the MLS covering Seattle and parts of Washington State, is an independent MLS. *See, e.g.*, NAR’s Supplemental Responses and Objections to REX’s Interrogatory No. 4, October 27, 2022, pp. 3-35 (NWMLS does not appear in list of REALTOR® associations and REALTOR® Association MLSs).

- Second, even if nationwide averages were relevant, Dr. Evans does not establish the causes underlying the differences in typical commission rates across countries. Dr. Evans states that the U.S. is unique in that it is the only country with a Buyer Broker Commission Rule (with the exception of Canada, which Dr. Evans claims has a similar rule).²⁸¹ However, his analysis does not establish a link between this provision and commission rates. By only conducting a cross-country comparison, Dr. Evans cannot disentangle the various regulatory, economic, and other factors that vary across countries and potentially contribute to differences in commission rates. Instead, he effectively *assumes* that the Buyer Broker Commission Rule is the cause behind the higher commission rates.
- Third, Dr. Evans compares commissions that resulted from real estate transactions that were enabled by two agents (in the U.S.) with commissions that resulted from real estate transactions that were enabled by a single agent and potentially other parties (in the other countries in his sample). From an economics perspective, Dr. Evans fails to analyze the *net* value (benefits minus costs) of a buyer broker commission and only focuses on the potential costs. He completely disregards the value added by a buyer’s agent, which could justify a higher commission. For example, if a buyer does not use an agent, there are a number of actions that the buyer needs to take him/herself, such as contacting seller’s agents, arranging viewings, deciding on the price and terms of an offer, and conducting follow-up negotiations. A buyer’s agent can save the buyer time on these steps and potentially

²⁸¹ Evans Report, ¶¶ 126-129, 141.

also money if the agent is able to negotiate a lower purchase price (or better non-financial terms) than the buyer would have been able to negotiate alone. Additionally, when using an agent, a buyer might end up purchasing a different home than they would have without the agent (*e.g.*, the agent introduced the buyer to a property that the buyer did not know about or used their industry expertise to provide information about a property that the buyer would not have ascertained on their own). Such an outcome indicates that a buyer’s agent can add substantial value by facilitating a better match for the buyer—which, in turn, can also benefit the seller, who can obtain better price/non-price terms from more enthusiastic buyers. Dr. Evans’ analysis ignores these considerations.

- Fourth, even under his flawed analysis, Dr. Evans fails to explain why countries that, according to his own analysis, do not have a Buyer Broker Commission Rule still have significantly higher commission rates than the U.S. In particular, France and Italy show commission rates that are respectively 8 percent and 20 percent *higher* than the typical rate reported for the U.S.²⁸²

88. Finally, Dr. Evans claims that “REX originated an innovative business model that could bypass the MLS, and the buyer agent gatekeepers, by attracting home listings through low commissions, using internet-based technologies to find buyers directly.”²⁸³ If one were to agree with Dr. Evans that REX is an innovative business²⁸⁴ (see Section III.C for my explanation of why

²⁸² Evans Report, Table III-2. France and Italy have typical commission rates of 5.4% and 6.0%, respectively. The typical commission rate in the U.S. is 5.0%. $(0.054 - 0.05) / 0.05 = 8\%$ and $(0.06 - 0.05) / 0.05 = 20\%$.

²⁸³ Evans Report, ¶ 91.

²⁸⁴ Evans Report, Section VI.B.

I disagree with his assessment), that REX is able to provide services at lower fees,²⁸⁵ and that generally commissions are supra-competitive, then it should be a simple matter for a company like REX to compete and succeed. REX would have benefited from the existing competitive environment because it was operating in an industry in which homeowners are supposedly paying excessive fees for selling and buying homes.²⁸⁶ Otherwise stated, even if Dr. Evans were right that NAR rules increased commissions—a proposition for which he does not provide reliable evidence—REX itself would have benefited rather than have been harmed by such rules. REX’s allegedly significantly lower commissions and its goal to drive fees down for consumers broadly²⁸⁷ would have favorably differentiated REX from firms following rules that allegedly elevate commissions. Hence, if REX truly had differentiated itself by charging lower commissions for similarly effective services, then REX would have been helped (and not hurt) if NAR’s rules truly increased commissions, because REX’s supposedly comparatively low fees would have been able to increase the demand for its services and boost its sales. This did not occur and, as described in Section III.B, REX was on the path to failure well before the alleged conduct occurred.

VI. THE EVANS REPORT MISCHARACTERIZES MODEL RULES 18.3.11 AND 18.2.10

89. In this section, I turn to the specific NAR model rules at issue in this matter. As I describe below, the history of the rules at issue are consistent with a procompetitive motivation, and behaviors taken by industry participants in this matter do not support Dr. Evans’ assertion that Model Rule 18.3.11 and Model Rule 18.2.10 are anticompetitive.

²⁸⁵ Sides Deposition, pp. 290:25-291:5; Evans Report, ¶ 363.

²⁸⁶ Evans Report, ¶ 82.

²⁸⁷ Sides Deposition, pp. 291:6-292:7.

A. The History of the Rules at Issue Demonstrates that there is a Procompetitive Motivation Underlying the Model Rules

90. Dr. Evans claims that NAR’s Optional Display Rule (*i.e.*, Model Rule 18.3.11), along with Model Rule 18.2.10, forecloses entry and degrades non-MLS listings.²⁸⁸ Dr. Evans’ claims do not reflect the available evidence regarding the history of the rules at issue, which, as I explain in this section, suggests that one motivation behind the rules was the preservation and enhancement of data quality and integrity at the local level. As explained by Dr. Hubbard,²⁸⁹ higher quality data provided through an IDX feed benefits consumers, and is therefore procompetitive. Furthermore, given local variation in technological capabilities and data structure, the optionality of the Optional Display Rule is again consistent with a procompetitive motivation relating to data integrity.

91. According to Rodney D. Gansho, Director of Engagement at NAR, the Optional Display Rule was motivated in the early 2000s by the need to protect the data integrity of listings.²⁹⁰ The option for MLSs to require that listings obtained through IDX be searched/displayed separately from listings obtained from other sources gave MLSs “discretionary ability to have [information obtained by external sources] separate from the MLS’s information so that that information did not diminish the quality and the services of the MLS that provided the listing information for IDX.”²⁹¹ In other words, the rule reflects that there was a relatively high cost—from a technological perspective and also from a user experience perspective—of comingling data from heterogeneous sources. As described in Section II.D, technological

²⁸⁸ Evans Report, ¶¶ 223, 229, 232.

²⁸⁹ Declaration of Glenn Hubbard, April 30, 2021 (“Hubbard Declaration”), ¶¶ 80-81.

²⁹⁰ Gansho Deposition Vol. I, pp. 104:13-105:25, Exhibit 8.

²⁹¹ Gansho Deposition Vol. I, p. 105:1-11.

challenges in combining data from different sources may diminish the user experience and cause reputational harm to the broker/brokerage displaying that data.

92. The language in the original version of the IDX policy underlying the Optional Display Rule is consistent with Mr. Gansho’s testimony. In the 2002 edition of the Handbook on Multiple Listing Policy, Statement 7.58 (Internet Data Exchange (IDX) Policy) stated, “**MLSs cannot prohibit Participants from downloading and displaying or framing other brokers’ listings obtained from other sources, e.g., other MLSs, non-participating brokers, etc.,** but can, as a matter of local option, require that listings obtained through IDX be searched separately from listings obtained from other sources, including other MLSs.”²⁹² Furthermore, the original version of the corresponding MLS model rule, as described in Section 18.3.13 of the 2002 Handbook (“Listings obtained through IDX must be displayed separately from listings obtained from other sources, including information provided by other MLSs”) was designated as *optional* for MLSs.²⁹³ In other words, an MLS cannot restrict the ability of brokers to display information from other/outside sources; it can only restrict how the information is displayed.

93. The wording in the original version of the IDX policy and corresponding model rules clearly says that 1) MLSs cannot implement exclusionary policies against brokers’ listings obtained from, *e.g.*, other MLSs or non-participating brokers, but that 2) MLSs have the *option* to require that listings from different sources be searched/displayed separately.²⁹⁴ The choice to

²⁹² National Association of REALTORS®, “NAR 2002 Handbook on Multiple Listing Policy,” 2002, at p. 7-20 (NAR0000177, at 224) (emphasis added).

²⁹³ National Association of REALTORS®, “NAR 2002 Handbook on Multiple Listing Policy,” 2002, at pp. 12-17, 15-17 (NAR0000177, at 259, 287).

²⁹⁴ According to Dr. Evans, “[a]s originally enacted in 2001, the Segregation Rule **permitted** NAR MLSs to require the segregation of listings provided by the MLS from other listings.” *See* Evans Report, ¶ 232 (emphasis added). In other words, Dr. Evans acknowledges that the so-called Segregation Rule did not *mandate* or *compel*, but

require separation of displayed listings may be done based on local considerations including, for instance, differences in data structure or data quality across sources (e.g., if a broker wanted to display their own listings along with MLS listings on their website), or local variation in whether buyers want to see listings from multiple sources.²⁹⁵ Dr. Evans’ characterization of the Optional Display Rule, while accurate, fails to consider these motivations. Instead, he claims, “[a]s originally enacted in 2001, the Segregation Rule permitted NAR MLSs to require the segregation of listings provided by the MLS from other listings.”²⁹⁶

94. Subsequent versions, including the current version, also show that the rules are related to data integrity and local considerations, such as differences in data structure/quality across sources in a given local area. In 2014, NAR amended the Optional Display Rule with the following language: “Listings obtained through IDX feeds from REALTOR® Association MLSs where the MLS participant holds participatory rights must be displayed separately from listings obtained from other sources. Listings obtained from other sources (e.g., from other MLSs, from non-participating brokers, etc.) must display the source from which each such listing was obtained.”²⁹⁷ This language was accompanied by a note, corresponding to (mandatory) Model Rule 18.2.10, stating that “[a]n MLS participant (or where permitted locally, an MLS subscriber) **may** comingle the listings of other brokers received in an IDX feed with listings available from other MLS IDX feeds, **provided all such displays are consistent with the IDX rules**, and the MLS

rather *permitted* (as a matter of local option) MLSs to implement policies regarding separate searches for listings obtained from different sources. *See also* Deposition of Rodney Gansho, Vol. II, December 8, 2022 (“Gansho Deposition Vol. II”), pp. 55:1-56:7.

²⁹⁵ *See, e.g.*, Gansho Deposition Vol. I, pp. 104:20-105:20, 107:8-17; Gansho Deposition Vol. II, pp. 117:1-11, 129:5-17, 137:10-16.

²⁹⁶ Evans Report, ¶ 232 (emphasis added).

²⁹⁷ *See, e.g.*, NAR 2016 Handbook, p. 83.

participant (or MLS subscriber) holds participatory rights in those MLSs.”²⁹⁸ In addition, IDX policy as described in Policy Statement 7.58 specified that “MLSs cannot prohibit participants from downloading and displaying or framing other brokers’ listings obtained from other sources, e.g., other MLSs, non-participating brokers, etc., but can, as a matter of local option, require that listings obtained through IDX feeds from REALTOR® Association MLSs be searched separately from listings obtained from other sources.”²⁹⁹

95. Again, the amended language in the rules indicates that 1) MLSs cannot implement exclusionary policies against brokers’ listings obtained from, *e.g.*, other MLSs or non-participating brokers, but that 2) MLSs have the *option*, based on local considerations, to require that listings from different sources be searched/displayed separately.³⁰⁰ While Model Rule 18.2.10 allows for comingling of listings from multiple MLSs, it does not require such comingling from all MLSs or MLS participants (an MLS participant “may comingle”) and it specifies conditions under which such comingling can occur (“provided all such displays are consistent with the IDX rules”).³⁰¹ An MLS participant may choose not to comingle, for instance, if they do not handle buyers or sellers in the region of another MLS. Similarly, an MLS may want to separate listings obtained from other sources, for example, if there are concerns about the quality or veracity of non-MLS listings.³⁰²

96. Dr. Evans claims that the amended language in Model Rules 18.3.11 and 18.2.10

²⁹⁸ See, e.g., NAR 2016 Handbook, pp. 82-83, 128-129 (emphasis added).

²⁹⁹ See, e.g., NAR 2016 Handbook, p. 27.

³⁰⁰ See, e.g., Gansho Deposition Vol. II, pp. 55:1-56:7.

³⁰¹ See, e.g., NAR 2016 Handbook, pp. 82-83, 128-129 (emphasis added).

³⁰² See, e.g., Malatesta, Parker, “Fraudulent Zillow Listings Continue String of Real Estate Scams in Wasatch Back,” KPCW, available at <https://www.kpcw.org/summit-county/2022-11-30/fraudulent-zillow-listings-continue-string-of-real-estate-scams-in-wasatch-back>, accessed on January 13, 2023 (discussion of fraudulent, non-MLS listings on Zillow).

“put non-MLS listings collectively at a substantial competitive disadvantage compared to MLS listing[s].”³⁰³ In making this statement, though, he fails to consider the potential benefits of maintaining data integrity or the potential downsides of forcibly combining data that are structured differently or vary in completeness and quality.³⁰⁴ Data integrity is an important consideration that applies not only to real estate but broadly across many sectors.³⁰⁵ According to industry reports, lack of data integrity can result in reputational and financial losses, as well as worse decision-making.³⁰⁶ Current data-collection and -management systems tend to use data from many different sources, which means that overall data integrity can rapidly degrade if the quality and consistency of information across the sources are not controlled.³⁰⁷ In such situations, when multiple entities may serve as sources of information, it is common and useful to enact quality standards and guidelines³⁰⁸—like the ones governing data integrity for MLSs.

97. Dr. Evans also makes the claim that “because of the mandatory Co-Mingling Rule

³⁰³ Evans Report, ¶ 233 (emphasis added).

³⁰⁴ REX’s Chief Data Scientist noted in his deposition that “[uniform, standardized, and clean data] just makes it easier to process. It takes less processing time. It adds -- just makes it easier for everyone to work through things.” Terrel Deposition, pp. 262:20-263:5.

³⁰⁵ Wang, R., and Diane Strong. “Beyond Accuracy: What Data Quality Means to Data Consumers.” *Journal of Management Information Systems* 12, No. 4 (1996).

³⁰⁶ See, e.g., “What is Data Quality,” IBM, available at <https://www.ibm.com/topics/data-quality>, accessed on April 19, 2023. See also, e.g., Grande, Davide, et al., “Reducing Data Costs without Jeopardizing Growth,” McKinsey & Company, July 31, 2020, available at <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/reducing-data-costs-without-jeopardizing-growth>, accessed on April 19, 2023.

³⁰⁷ Batini, C., et al. “Methodologies for Data Quality Assessment and Improvement.” *ACM Computing Surveys* 41, no. 3 (2009).

³⁰⁸ Research has shown that in situations where data is crowdsourced, it is important to create training materials to ensure consistency in the data input across sources. See See, Linda, et al. “Comparing the Quality of Crowdsourced Data Contributed by Expert and Non-Experts.” *PLOS ONE* 8, no. 7 (2013). Data integrity initiatives are important in many settings, including the public sector. For example, governments have been launching initiatives that provide guidelines to ensure data quality and consistency across government agencies. See, e.g., Office of Management and Budget, “Information Quality Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Agencies,” 2001, available at https://obamawhitehouse.archives.gov/omb/fedreg_final_information_quality_guidelines/.

[Model Rule 18.2.10], NAR MLSs were not allowed to require the segregation of listings from IDX feeds, even if those listings came from different MLSs, provided certain technical requirements were met.”³⁰⁹ In fact, the “mandatory Co-Mingling Rule,” as explained above, states that MLS participants “may co-mingle” and specifies technical conditions under which such comingling can occur. In other words, Model Rule 18.2.10 does not force any MLS participant to comingle listings from different MLSs, and the language of the rule is consistent with considerations about data integrity when comingling does occur.

98. In addition, Mr. Gansho provided further context for the historical motivations behind the amended language in Model Rule 18.2.10: “That policy was changed in 2014 based on correspondence received from a group called LeadingRE, talking about certain frustrations of the brokerage community where participants were participating in more than one MLS and that there were duplication [*sic*] of listings in these separate searches. And at that time LeadingRE requested to NAR that the policy be changed so that IDX information provided from NAR MLSs could be combined and only information from outside sources that differed from that would be displayed separately.”³¹⁰ Thus, according to this testimony, the motivation for the amended language in Model Rule 18.2.10 was to improve the quality of the data/information provided to brokers.

B. NAR Does Not Dictate Whether Any MLS Should or Should Not Allow Comingling with Non-IDX Feeds, or Whether a Broker or Aggregator Must Comingle Different IDX Feeds

99. Dr. Evans makes the claim that NAR is “a bottoms-up and top-down organization which coordinates its members’ conduct and facilitates cooperation between them.”³¹¹ In addition,

³⁰⁹ Evans Report, ¶ 234.

³¹⁰ Gansho Deposition Vol. II, pp. 128:13-129:4.

³¹¹ Evans Report, ¶ 18.

he claims that “there is no economic distinction between NAR, which promulgated the Segregation Rule, and the NAR MLSs who adopted it given the bottoms-up, top-down structure of NAR.”³¹² As I discuss below, Dr. Evans’ claims do not fully address the realities of the industry, which includes substantial heterogeneity in broker and MLS behaviors with respect to NAR membership, adoption (and creation of) rules, and characteristics such as technological capabilities.

100. An individual broker/agent has the choice whether to join an MLS. As described in Section II.B, some REALTOR® Association MLSs allow non-REALTOR® association members to participate in the MLS.³¹³ In other words, a real estate broker/agent can decide whether to (i) join a REALTOR® association (and thereby become a NAR member) or (ii) not join but in some cases have access to the REALTOR® association-owned MLS by paying fees.³¹⁴ Furthermore, some MLSs are owned by a non-REALTOR® association of brokers and therefore are independent from NAR and do not require that their brokers have NAR membership.³¹⁵

101. In addition, an MLS can create its own rules—including rules outside of the NAR Handbook, provided that the MLS’s rules do not conflict with a mandatory NAR Handbook rule. According to Rodney D. Gansho, Director of Engagement at NAR, “When it comes to an optional rule, if they don’t agree with the advice or application of that rule, yeah, they have the ability to

³¹² Evans Report, fn. 43.

³¹³ “Non-Member Access to REALTOR® Association Multiple Listing Services,” National Association of REALTORS®, available at <https://www.nar.realtor/legal/non-member-access-to-realtor-association-multiple-listing-services>, accessed on January 11, 2023; *See also* “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

³¹⁴ “Non-Member Access to REALTOR® Association Multiple Listing Services,” National Association of REALTORS®, available at <https://www.nar.realtor/legal/non-member-access-to-realtor-association-multiple-listing-services>, accessed on January 11, 2023.

³¹⁵ “What is an MLS and How Many MLSs Are There? (Multiple Listing Service): Frequently Asked Questions About MLSs,” RESO, available at <https://www.reso.org/blog/mls-faq/>, accessed on January 11, 2023.

modify the rule or not have the rule at all if they choose to.”³¹⁶ The fact that the NAR Handbook includes both mandatory and optional policies is consistent with striking a balance between the benefits that a national association and its associated policies can bring to its association members (as discussed in Section VII), and the benefits of optionality to reflect local conditions.

102. Furthermore, with respect to the Optional Display Rule, Mr. Gansho testified, “It’s optional because it gives local MLSs the ability to in their [*sic*] markets where they have concerns about the quality of other outside property information, to call for that information to be separated so it does not mislead the public and the public can rely on the same good information that they have grown to trust coming from the multiple listing services in those areas.”³¹⁷ The optionality of the Optional Display Rule is consistent with Mr. Gansho’s testimony about the data integrity motivation behind the rule. Mr. Gansho’s testimony also highlights an important role of multi-sided platforms, which is to create processes or policies to improve the quality of the information and/or services provided on the platform, and thereby encourage participation on each side of the platform.³¹⁸

103. In practice, the Optional Display Rule has been optional for decades, and MLSs have not all opted-in to the rule. According to NAR, prior to 2021, 159 (or 30 percent) of the 532 REALTOR® Association MLSs and REALTOR® associations that submitted information about their rules had *not* adopted the Optional Display Rule.³¹⁹ For MLSs that have adopted the optional rule, Dr. Evans has failed to show any anticompetitive effects, and ignored that there may continue

³¹⁶ Gansho Deposition Vol. II, p. 213:6-12.

³¹⁷ Gansho Deposition Vol II., p. 129:5-17.

³¹⁸ See Section IV.A.

³¹⁹ NAR’s Supplemental Responses and Objections to REX’s Interrogatory No. 4, October 27, 2022, p. 3.

to be data integrity concerns driven by a variety of considerations, such as varying technological capabilities or different technological vendors used by different MLSs in a given geography or even concerns about fraudulent listings from non-MLS sources.³²⁰

C. Zillow’s Behavior Is Consistent with Unilateral Profit Maximization

104. Dr. Evans claims that when Zillow was “unaffiliated with NAR,” it made “unilateral profit decision[s],” yet “[t]hat changed after Zillow joined NAR and its MLSs and agreed to enforce NAR’s Segregation Rule.”³²¹

105. I understand that Zillow is not a member of NAR or any local REALTOR® associations but obtains IDX data through its brokers who are MLS participants. From an economic standpoint, Zillow’s behaviors have been consistent with unilateral profit maximization, regardless of its business relationships with NAR and MLSs. Prior to gaining MLS membership for its brokers and signing IDX agreements with local MLSs to obtain access to their IDX data feeds, Zillow maintained a series of syndication agreements with MLSs that provided data for Zillow’s sites.³²² These syndication agreements did not obligate Zillow to comply with MLS model rules and regulations, including the Optional Display Rule. According to Errol Samuelson, Chief Industry Development Officer at Zillow Group, Zillow made a unilateral business decision to hire brokers who would become MLS members, sign IDX agreements with local MLSs, and thereby secure listings data from IDX feeds: “In 2019, Zillow made the business decision to switch the

³²⁰ See, e.g., Malatesta, Parker, “Fraudulent Zillow Listings Continue String of Real Estate Scams in Wasatch Back,” KPCW, available at <https://www.kpcw.org/summit-county/2022-11-30/fraudulent-zillow-listings-continue-string-of-real-estate-scams-in-wasatch-back>, accessed on January 13, 2023 (discussion of fraudulent, non-MLS listings on Zillow).

³²¹ Evans Report, ¶¶ 253-254.

³²² Some of these syndication agreements continue to exist. [REDACTED]

See Samuelson Deposition, pp. 74:18-21, 74:25-75:11.

data licenses under which it obtains this critical [listings] data, to secure better-quality, more comprehensive data with lower risk of losing access. This was achieved through switching to data sources called ‘IDX Feeds[.]’ [...] Previously, Zillow was not a participant broker in any MLS, and instead licensed data as a third party, outside of any MLS system. While the change to IDX Feeds required reshaping aspects of our business, [...] it was critical because it would allow us to continue to innovate in a manner that would benefit the broader real estate industry, and consumers and advertisers who use our products. Zillow made this business decision independently, and Zillow alone decided the design changes to its platforms adopted to comply with requirements in its new IDX agreements.”³²³

106. Zillow could have continued using syndication agreements (and, indeed, continues to do so with certain MLSs), but it switched to IDX data, which—according to Mr. Samuelson’s testimony—offered greater coverage, more listing volume, and less latency (in obtaining updated listings) overall.³²⁴ In addition, Zillow changed its website uniformly, even though the Optional Display Rule has not been adopted by approximately 30 percent of REALTOR® Association MLSs and REALTOR® associations. According to Mr. Samuelson, it was technologically advantageous for Zillow to uniformly comply with the Optional Display Rule: “from a technology point of view, it’s easier if the display rules are the same nationwide. You don’t need to write

³²³ Declaration of Errol Samuelson, April 30, 2021, ¶ 5; *see also* Hendricks Declaration, ¶ 7 (“For our purposes, IDX feeds were the best way to ensure that we were receiving all listings from a particular MLS (as opposed to receiving only listings from the participant brokers who opted in or did not opt out). It also ensured we received all listings fields, which was not the case under some syndication agreements where MLSs or other contracting parties restricted the data sent to Zillow. And switching to these feeds eliminated the need to continually renegotiate agreements with participant brokers in those markets.”).

³²⁴ Declaration of Errol Samuelson, April 30, 2021, ¶¶ 5, 39-47; *see also* Samuelson Deposition, pp. 78:3-79:16.

different code for different geographies and then support that code afterwards.”³²⁵ Also according to Mr. Samuelson, there were no communications between Zillow and NAR regarding the Optional Display Rule prior to Zillow’s display change.³²⁶ From an economic standpoint, Mr. Samuelson’s observations are consistent with Zillow complying with the Optional Display Rule only because Zillow unilaterally benefited from entering into IDX licensing agreements, which required compliance with the model rules and regulations adopted by each local MLS.³²⁷

107. In other words, compliance with the rules adopted by local MLSs and the consequent uniform change to their website display are consistent with Zillow having a unilateral interest in switching to IDX feeds.

VII. REX OPERATES IN LOCAL RESIDENTIAL BROKERAGE SERVICES MARKETS

108. In this section, I explain why REX operates in local residential brokerage services markets. I further explain why Dr. Evans’ assertion that there is a national relevant market (and his reliance on national averages³²⁸) is flawed.

109. Residential brokerage services encompass all actions related to buying and selling a home, including marketing properties, reviewing and drafting contracts, negotiating prices, locating prospective buyers or prospective sellers, arranging meetings for buyers and sellers, and

³²⁵ Samuelson Deposition, p. 24:7-10. *See also* Samuelson Deposition, p. 23:13-20 (“One of the challenges with a -- with an optional rule in the sort of NAR time framework is that some MLSs choose to implement it. Some don't. And technically, it's difficult to support, you know, an MLS in one geography which has a rule and an MLS in a neighboring geography that doesn't have a rule. So for us, we thought there was a consumer advantage, and there also was a technical advantage for us.”).

³²⁶ Samuelson Deposition, pp. 12:22-15:3.

³²⁷ As described in Section II.D, the earliest iteration of Model Rule 18.3.11 dates back to the early 2000s, while Zillow did not launch until 2006. Zillow Group, Inc., Form 10-K for the fiscal year ended December 31, 2015, p. 5.

³²⁸ *See, e.g.*, Evans Report, Table III-6.

providing useful information to buyers and sellers to facilitate a transaction.³²⁹ The relevant product market includes brokerages, which vary in size and could include REALTORS® or non-NAR-affiliated brokers, as well as for sale by owner (“FSBO”), who typically do not participate in/contribute to MLS databases but can advertise through personal networks, yard signs, third-party websites, or other channels.³³⁰ As described in Section II.A, residential real estate brokerage is characterized by low barriers to entry and a large number of competitors—there are over 100,000 brokerage firms in the U.S.³³¹ Indeed, individual brokerage shares of home sales in the industry are notoriously low and suggest a competitive industry.³³² REX’s own documents have highlighted competitiveness in residential brokerage services, stating, for example, “REX [has been] competing with small individual businesses, whose brand name they are often renting, all of whom collectively have miniscule market shares.”³³³

110. The economics literature indicates that residential brokerage services are local in nature—“[m]ost observers agree that real estate markets are local.”³³⁴ Several factors contribute to the local nature of residential brokerage services. First, when a homeowner chooses to sell their

³²⁹ See Section II.A. See also “Brokerage Services,” U.S. Department of Justice, available at <https://www.justice.gov/atr/brokerage-services>, accessed on January 16, 2023.

³³⁰ “Quick Real Estate Statistics,” National Association of REALTORS®, available at <https://www.nar.realtor/research-and-statistics/quick-real-estate-statistics>, accessed on January 11, 2023 (shows that friends, relatives, or neighbors; yard sign; third party aggregator; and social networking websites accounted for approximately 84 percent of FSBO methods used to market a home). See also “List Your Home With Confidence & Save,” For Sale By Owner, available at <https://www.forsalebyowner.com/>, accessed on April 25, 2023; “Search FSBO Properties,” FSBO.com, available at <https://fsbo.com/>, accessed on April 25, 2023.

³³¹ Beck, Jason, et al. “Concentration and Market Structure in Local Real Estate Markets,” *Real Estate Economics* 40, no. 3 (2012): 422-460, p. 422. See also REX_0772791, Worksheet “Sheet1.”

³³² REX_0772791, Worksheets “Sheet1” and “REX Market Share Growth.”

³³³ REX_0772791, Worksheet “Sheet1.” See also, e.g., REX_0000775-825 (REX 4/2021 Presentation), at 786 (“REX is Strongly Positioned to Take Market Share in a Large, Highly Fragmented Industry”) (emphasis added).

³³⁴ Beck, Jason, et al. “Concentration and Market Structure in Local Real Estate Markets.” *Real Estate Economics* 40, no. 3 (2012): 422-460, p. 423. As Dr. Evans acknowledges, “The relevant geographic markets are local because sellers’ homes are in specific fixed locations and buyers typically look for homes in a specific geographic area.” See Evans Report, ¶ 270.

home, they compete with other sellers in the same local area targeting potential homebuyers who are searching for a home in that local area. Sellers are not interested in buyers who are searching for a home in other locations, and buyers likewise are not interested in sellers whose properties are located outside buyers’ preferred geography. In addition, “[c]ompetition among brokers is primarily local because real estate is fixed in a geographic location, and buyers and sellers often want some in-person interaction with a broker who has experience and expertise relevant to that particular location.”³³⁵ Furthermore, brokers/agents often rely on MLS databases to provide accurate and comprehensive information, and MLSs are typically formed at the local level. For these reasons, residential brokerage services markets are local in nature, and the geographic market is likely no larger than the area in which an MLS operates.

111. Dr. Evans claims that a national market for residential brokerage services “is also relevant because NAR imposes rules and policies that result in uniform practices across local markets and because internet-based companies such as Redfin typically operate nationally in uniform ways.”³³⁶ Dr. Evans’ logic about residential brokerage services is flawed. First, as described above, sellers compete at a local level and not at a national level. In other words, sellers do not have the ability to sell their product (home) in a different location, and most buyers are not indifferent or flexible when it comes to geographic preferences.³³⁷

³³⁵ 2007 DOJ and FTC Report, p. 14. Another contributing factor to the local nature of residential brokerage services markets is pricing. For example, real estate professionals often perform a comparative market analysis to “estimate the value of their client’s home by comparing recently sold properties that have similar locations, square footage, and features.” See Burris, Rachel, “Comparative Market Analysis (CMA) In Real Estate: How To Set Your Asking Price,” Rocket Homes, available at <https://www.rockethomes.com/blog/home-selling/comparative-market-analysis>, accessed on April 19, 2023. Thus, location typically plays a significant role in determining the price of a home and, as a result, in setting the geographic boundaries of the market.

³³⁶ Evans Report, ¶ 270.

³³⁷ According to the Horizontal Merger Guidelines, “the arena of competition affected by the merger may be geographically bounded if geography limits some customers’ willingness or ability to substitute to some products, or

112. In addition, a national company can compete in many local markets. For example, restaurants and consumers (diners) use OpenTable,³³⁸ a platform that operates in many locations across the world and that “provide[s] solutions that form an online network connecting reservation-taking restaurants and people who dine at those restaurants.”³³⁹ Although OpenTable operates worldwide, its business is based on *local* demand for restaurants and diners—specifically, a restaurant can only offer services in a particular location and, therefore, only competes with other restaurants in that particular location, while consumers, who are already present in a certain location, will only look for restaurants in that location and might not be willing to substitute to restaurants that are farther away from the desired location. While the existence of a national platform may provide certain benefits to users—for example, consumers who travel may desire a familiar platform when seeking out dining reservations in new locations—the existence of OpenTable’s national or worldwide platform does not change the scale of the geographic market for dining options.

113. Similarly, the members of a national association (or platform) can operate and

some suppliers’ willingness or ability to serve some customers.” See “Horizontal Merger Guidelines,” U.S. Department of Justice and Federal Trade Commission, available at <https://www.justice.gov/atr/horizontal-merger-guidelines-08192010>, accessed on January 16, 2023.

³³⁸ OpenTable is a popular example in Dr. Evans’ own publications. See e.g., Evans, David S., and Richard Schmalensee. “The Antitrust Analysis of Multi-Sided Platform Businesses.” *NBER Working Paper Series*, Working Paper 18783 (2013): 1-72, pp. 4-5.

³³⁹ OpenTable, Inc. Form 10-K for the fiscal year ended December 31, 2013, p. 2. More broadly, there are many examples of national companies that compete in local markets. For example, fast food chains like McDonald’s are global companies but compete locally and even serve locally relevant menus. See McDonald’s Corporation Form 10-K for the fiscal year ended December 31, 2021. Similarly, there are several national brands of retail gasoline, but individual stations compete in local markets—a nationally-branded gasoline station located in Chicago does not compete against, say, a gasoline station located in New York. Furthermore, according to McKinsey, fuel retail margins can depend on local market characteristics. See, “Fuel Retail in the Age of New Mobility,” McKinsey & Company, April 1, 2021, available at <https://www.mckinsey.com/industries/oil-and-gas/our-insights/fuel-retail-in-the-age-of-new-mobility>, accessed on April 19, 2023.

compete in local geographic markets despite sharing certain national interests.³⁴⁰ Physicians, for example, form the membership of the American Medical Association—which has created an ethics guide for physicians, provides trainings, and engages in other activities at the national level³⁴¹—but primary care physicians (along with many other medical specialties) operate in local geographic markets.³⁴² In the same way, NAR provides certain national services such as maintaining statistics related to real estate, offering education and professional development, and developing a standardized code of ethics for REALTORS®.³⁴³

114. Finally, Dr. Evans’ references to national firms like Zillow (or Redfin, which is a brokerage but also has become an aggregator) in his discussion of market definition³⁴⁴ confuse these aggregators with provision of local residential real estate brokerage services. As described above, aggregators like Zillow gather data from a wide variety of sources and serve as an *input* to

³⁴⁰ Generally, national associations are “country-based membership networks whose [purpose] is to represent the collective interests of members.” Civicus, “Understanding National Associations,” available at https://www.civicus.org/images/Civicus_Resource_Guide_for_Nat_Ass.1.pdf, p. 1.

³⁴¹ “Code of Medical Ethics,” American Medical Association, available at <https://code-medical-ethics.ama-assn.org/>, accessed on April 20, 2023.

³⁴² “Statements of Antitrust Enforcement Policy in Health Care,” Department of Justice, August 1996, available at <https://www.justice.gov/atr/statements-antitrust-enforcement-policyin-health-care>, accessed on February 24, 2023, footnote 26.

³⁴³ “Research & Statistics,” National Association of REALTORS®, available at <https://www.nar.realtor/research-and-statistics>, accessed on April 19, 2023; “Education,” National Association of REALTORS®, available at <https://www.nar.realtor/education>, accessed on April 19, 2023; “The Code of Ethics,” National Association of REALTORS®, available at <https://www.nar.realtor/about-nar/governing-documents/the-code-of-ethics>, accessed on January 16, 2023. Other national associations also have developed their own version of an ethics code, including The American Medical Association, National Association of Social Workers, National Education Association, and National Association for Home Care and Hospice. *See*, “Code of Medical Ethics,” American Medical Association, available at <https://code-medical-ethics.ama-assn.org/>, accessed on April 20, 2023; “Read the Code of Ethics,” National Association of Social Workers, available at <https://www.socialworkers.org/About/Ethics/Code-of-Ethics/Code-of-Ethics-English>, accessed on January 16, 2023; “Code of Ethics for Educators,” National Education Association, available at <https://www.nea.org/resource-library/code-ethics-educators>, accessed on April 19, 2023; “NAHC Code of Ethics,” National Association for Home Care and Hospice, available at <https://www.nahc.org/about/code-of-ethics/>, accessed on April 11, 2023.

³⁴⁴ Evans Report, ¶ 309.

the local residential brokerage services market.³⁴⁵ In other words, aggregators like Zillow operate in a separate market that is important, but ancillary, to the brokerage services market.

VIII. DR. EVANS’ ANALYSIS OF COMPETITION IN THE RELEVANT MARKETS IS INCONSISTENT WITH THE EVIDENCE

115. Dr. Evans claims that local residential brokerage services markets are characterized by a coordinated equilibrium and lack of competition, which has led to supra-competitive commission rates and suppression of competitors, including REX.³⁴⁶ In this section I explain that this claim is inconsistent with the evidence, including evidence presented in Dr. Evans’ report. First, there is evidence of competitive behavior between market participants. Second, even within NAR and MLSs, members compete on prices. Third, the evidence presented by Dr. Evans suggests that in recent years, an increase in REALTORS® per home sales has been associated with a drop in commission rates. Fourth, barriers to entry to the real estate profession are relatively low.

116. First, the evidence is consistent with competition in the relevant markets, with different companies charging wide ranges of fees, suggesting that coordination is unlikely. REX’s own presentations indicate that there are a variety of off-MLS brokerages and businesses that operate in the real estate industry and utilize a range of commission rates. According to REX, for example, rates range from 3 percent for HomeLister and Trelora, to 4 to 4.5 percent for Redfin and Openlistings, to 5 to 6 percent for Compass and Coldwell, and up to 8 to 12 percent for Opendoor,

³⁴⁵ Zillow displays a database of properties that are available for sale or rent. Brokerages then use aggregators as a tool to find listings or to post listings on their own websites. *See, e.g.*, “Real Estate Online Aggregators: More Comprehensive?,” Tech with Tech, available at <https://techwithtech.com/real-estate-online-aggregators-more-comprehensive/>, accessed on April 11, 2023. Additionally, potential buyers use platforms like Zillow to browse properties as well as to get in touch with real estate agents.

³⁴⁶ *See, e.g.*, Evans Report, Section VI.

OfferPad, and Zillow.³⁴⁷ A series of Bright MLS³⁴⁸ studies focused on the mid-Atlantic region found that, from 2019 to 2022, off-MLS listings made up approximately 17 to 26 percent of all listings,³⁴⁹ suggesting that MLSs face significant competitive constraints because sellers have other relevant options if they want to avoid using MLSs.

117. Second, Dr. Evans disregards that even within NAR and MLSs, commissions vary depending on individual brokers, geographies, and business models.³⁵⁰ NAR members have different business models, such as discount brokerages, iBuyers, or traditional brokerages, and each of these businesses can set their own commission level.³⁵¹ For example, most traditional brokerages charge a variable commission that is negotiated between the seller and the seller’s agent,³⁵² while Redfin typically charges the seller a listing fee of 1.5% plus the buyer’s agent fee

³⁴⁷ See, e.g., REX_0000988-1007, at 997; REX_0000775-825 (REX 4/2021 Presentation), at 785.

³⁴⁸ Bright MLS is an MLS operating in Delaware, Maryland, Pennsylvania, New Jersey, Virginia, Washington, D.C., and West Virginia. See “Our Story,” Bright MLS, available at <https://www.brightmls.com/our-story>, accessed on February 24, 2023.

³⁴⁹ Bright MLS, “On/Off MLS Study,” 2021, available at https://assets.ctfassets.net/1g8q1frp41ix/69PEVCSSUVfYRCqrSpKKEd/35da1493a4976e721947ccbbbe4c44d8/Bright_MLS_On-Off_MLS_Study.pdf, pp. 5-7, 10; Bright MLS, “On MLS Study,” August 2022, available at https://assets.ctfassets.net/1g8q1frp41ix/4w7hKg9U7Kzu2Z5N7XkD4g/1bc35caddbaca254d7834caefad97ad7/Bright_MLS_-_On_Off_MLS_Study_-_2022.pdf, pp. 3, 7, 10.

³⁵⁰ Furthermore, Rodney Gansho testified that NAR does not and cannot “suggest, fix, or recommend” commission rates for NAR MLS members per their strict antitrust compliance policy, and that “[decisions on commissions are] made in local markets by the brokers who work in those markets, in conjunction with the clients that they serve.” Gansho Deposition Vol. II, pp. 79:15-20, 80:1-10, 93:3-15.

³⁵¹ Gansho Deposition Vol. II, pp. 208:1-20. (“Q. Does NAR have members that have all kinds of different business models? A. The whole spectrum of different business models in the real estate market, from discount brokers to no service brokers, to iBuyers, to traditional brokerage. The National Association of Realtors embraces and recognizes all different business models and doesn’t – doesn’t exclude any business practice that -- that may not comply with the others. Q. And so in theory, a – an NAR member could charge zero commissions and NAR wouldn’t care? A. We would care less if they charged zero. They wouldn’t be in business for long, but they can charge whatever they choose to charge.”).

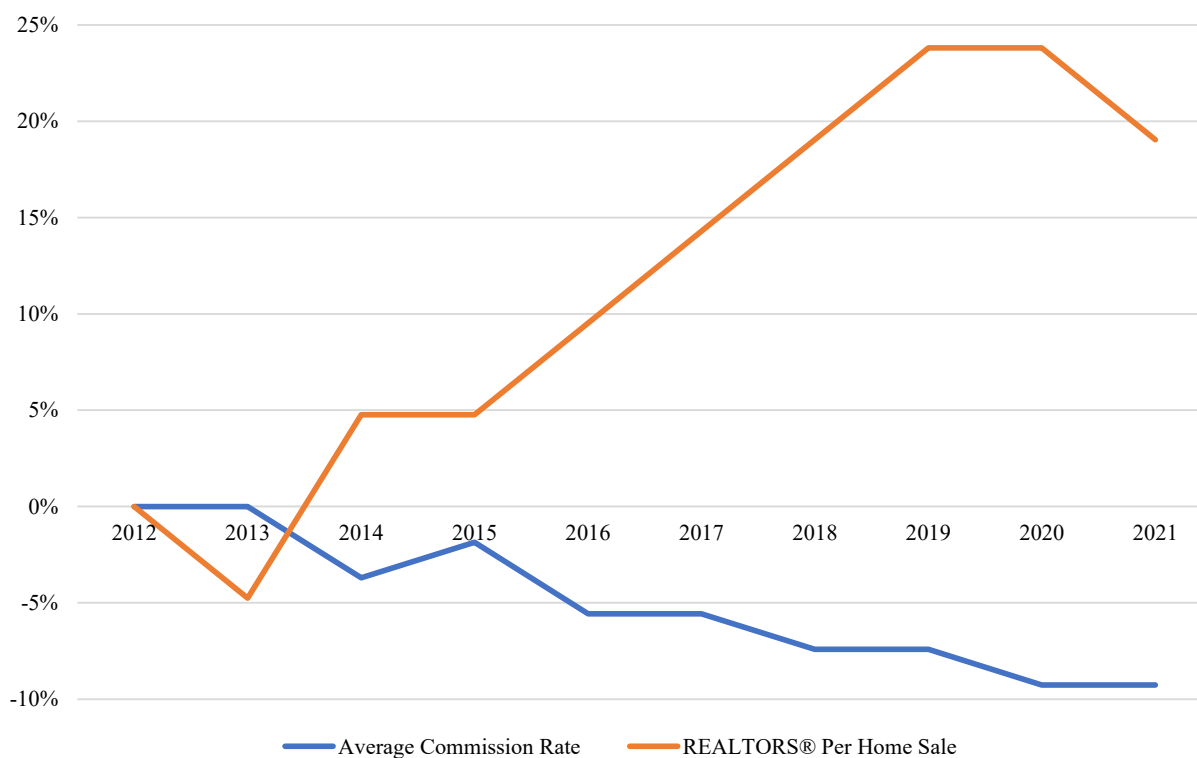
³⁵² See, e.g., Bortz, Daniel, “The Real Estate Commission: How Much Are Realtor Fees?,” Realtor.com, January 31, 2023, available at <https://www.realtor.com/advice/sell/real-estate-commission-explained/>, accessed on April 10, 2023.

(or, a listing fee of 1% plus the buyer’s agent fee, if the seller also buys with Redfin).³⁵³

118. Third, Dr. Evans’ own analysis shows that the evidence on average commissions is consistent with a recent decrease in average rates as a share of transaction home values. In particular, Table III-9 in the Evans Report suggests that over the period between 2012 and 2021, the increase in REALTORS® (as measured by a change from 0.21 REALTORS® per existing sale in 2012 to 0.25 in 2021 – or an increase of 19 percent) was associated with a *reduction* in the average commission rate by more than 9 percent (from a rate of 5.4 percent in 2012 to 4.9 percent in 2021). This is contrary to what Dr. Evans concludes from his own analysis, and consistent with what economic theory would predict about the effects of increased competition.

³⁵³ See, e.g., “Real Estate Agent Commission Fees Explained,” Redfin, available at <https://www.redfin.com/home-selling-guide/commission-fees-explained>, accessed on April 10, 2023.

Figure 9 – Percent Change in REALTORS® Per Home Sale and Average Commission Rates Relative to 2012.



Source: Evans Report, Table III-9.

119. Finally, the requirements (or what economists would call barriers to entry) for becoming a real estate agent or even a broker appear to be relatively low compared with many other professions.³⁵⁴ In Massachusetts, for example, a person can become an agent by taking a 40-hour real estate education course, completing a licensing exam with a minimum of a 70 percent score to pass, and paying a licensing fee that is between \$103 and \$150.³⁵⁵ To become a broker, a

³⁵⁴ See, e.g., Hsieh, Chang-Tai, and Enrico Moretti. “Can Free Entry Be Inefficient? Fixed Commissions and Social Waste in the Real Estate Industry.” *Journal of Political Economy* 111, no. 5 (2003): 1076–1122, pp. 1077, 1081.

³⁵⁵ Massachusetts Division of Professional Licensure Board of Registration of Real Estate Brokers and Salesperson, “Examination Candidate Information Bulletin (CIB),” January 27, 2021, available at <https://www.mass.gov/doc/psi-candidate-information-bulletin-12921/download>, p. 16.

person needs to have three years of experience working for a broker, take an additional 40-hour real estate education course, and pay a licensing fee that is between \$142 and \$200.³⁵⁶ There are more than 3 million active real estate licensees in the U.S.,³⁵⁷ and according to the U.S. Census, there were nearly 107,000 real estate brokers in the U.S. in 2017.³⁵⁸ Moreover, about 20 percent of licensed agents are inactive at any given point in time,³⁵⁹ indicating that it is not unusual to enter and exit the industry as an agent.

120. Substantial entry (and exit) in the real estate industry occurs not only at the individual level but also at the brokerage/company level. For example, Compass, a major residential real estate brokerage firm in the U.S., entered the industry in 2012.³⁶⁰ Since then, the company has raised \$1.5 billion, grown to operate in 67 geographies, and has more than 300 offices and more than 28,000 agents.³⁶¹ In 2021, Compass represented buyers or sellers in more than 500,000 transactions, which translated into \$559 billion of total sales, corresponding to 5.6 percent

³⁵⁶ “Apply for a Real Estate License by Examination,” The Commonwealth of Massachusetts, available at <https://www.mass.gov/how-to/apply-for-a-real-estate-license-by-examination>, accessed on January 10, 2023. *See also* Massachusetts Division of Professional Licensure Board of Registration of Real Estate Brokers and Salesperson, “Examination Candidate Information Bulletin (CIB),” January 27, 2021, available at <https://www.mass.gov/doc/psi-candidate-information-bulletin-12921/download>, p. 16.

³⁵⁷ “Quick Real Estate Statistics,” National Association of REALTORS®, available at <https://www.nar.realtor/research-and-statistics/quick-real-estate-statistics>, accessed on January 11, 2023.

³⁵⁸ “EC1753BASIC: Real Estate and Rental and Leasing: Summary Statistics for the U.S., States, and Selected Geographies,” U.S. Census Bureau, available at <https://data.census.gov/table?q=EC1753BASIC:+Real+Estate+and+Rental+and+Leasing:+Summary+Statistics+for+the+U.S.,+States,+and+Selected+Geographies:+2017&n=N0600.00>, accessed on January 11, 2023.

³⁵⁹ Hsieh, Chang-Tai, and Enrico Moretti. “Can Free Entry Be Inefficient? Fixed Commissions and Social Waste in the Real Estate Industry.” *Journal of Political Economy* 111, no. 5 (2003): 1076–1122, p. 1081.

³⁶⁰ “Compass,” Crunchbase, available at <https://www.crunchbase.com/organization/compassinc>, accessed on January 11, 2023.

³⁶¹ “About Us,” Compass, available at <https://www.compass.com/about/>, accessed on January 11, 2023. *See also* “Compass,” Crunchbase, available at <https://www.crunchbase.com/organization/compassinc>, accessed on January 11, 2023.

of the value of home sales in the U.S. in that year.³⁶² Other examples of relatively recent entries include Clever Real Estate and Anywhere Real Estate. Clever Real Estate was founded in the U.S. in 2017,³⁶³ and its service involves “review[ing] thousands of agents” and facilitating matches between sellers/buyers and Clever Real Estate’s partner agents.³⁶⁴ Clever Real Estate advertises that sellers can “[g]et a full service agent for just 1.5%. We only work with top agents from major brands or local brokerages that outperform the competition. [] Our agents have agreed to list your home for 1.5%, and offer a typical buyer’s agent commission in your market (2-3%).”³⁶⁵ For buyers, Clever Real Estate provides a cash back program.³⁶⁶ Anywhere Real Estate, formerly known as Realogy Holdings Corp, was founded in 2006.³⁶⁷ Currently, the company operates its brokerage business in more than 50 of the 100 largest metropolitan areas in the U.S. and has approximately 675 owned and operated brokerage offices, as well as approximately 56,000 independent sales agents.³⁶⁸

³⁶² Compass, Inc. Form 10-K for the fiscal year ended on December 31, 2021 (“Compass, Inc. 2021 10-K”) pp. 3, 60-61. Compass calculates their market share by dividing the total dollar value of transactions closed by agents on their platform by the aggregate dollar value of U.S. existing home sales as reported by NAR multiplied by two (to account for the sell-side and buy-side of each transaction). Compass, Inc. 2021 10-K, p. 3, footnote 1.

³⁶³ “Clever Real Estate,” Crunchbase, available at <https://www.crunchbase.com/organization/clever-real-estate>, accessed on January 11, 2023.

³⁶⁴ “How Our Free Service Works,” Clever, available at <https://start.listwithclever.com/save-on-realtor-fees/>, accessed on February 24, 2023.

³⁶⁵ “How Our Free Service Works,” Clever, available at <https://start.listwithclever.com/save-on-realtor-fees/>, accessed on February 24, 2023.

³⁶⁶ “How Our Free Service Works,” Clever, available at <https://start.listwithclever.com/save-on-realtor-fees/>, accessed on February 24, 2023.

³⁶⁷ “Anywhere Real Estate Inc.,” Forbes, available at <https://www.forbes.com/companies/anywhere-real-estate/?sh=74b1bedd3346>, accessed on January 11, 2023.

³⁶⁸ “Our Brands & Services,” Anywhere, available at <https://www.anywhere.re/brands-services>, accessed on January 11, 2023. REX identified Anywhere Real Estate (as Realogy) as a direct competitor in residential real estate brokerage services. See REX_0000044-088, at 048.

IX. THE OPTIONAL DISPLAY RULE DID NOT HAVE AN IMPACT ON REX’S ABILITY TO COMPETE

121. Dr. Evans claims that Zillow’s display change in compliance with the Optional Display Rule *caused* a sudden drop in REX’s closings and eventually led REX to close its business and incur losses.³⁶⁹ In particular, Dr. Evans purports to show empirically that Zillow’s display change had a negative causal impact on REX’s ability to generate revenue through closings,³⁷⁰ which he then estimates led to purported damages of \$440 million.³⁷¹ In this section I first elucidate Dr. Evans’ closings analysis, and then I empirically test the reliability of his analysis and show that it does not support the existence of a causal link between Zillow’s display change and a decline in REX’s closings.

A. The Closings Analysis in the Evans Report

122. Section VI.C.2 of the Evans Report presents an analysis of closings. Dr. Evans shows two main sets of results: (1) two regression analyses—which I will refer to in shorthand as the “yearly comparison analysis” and the “trend break analysis”—purportedly supporting his conclusion that REX’s closings were affected by Zillow’s display change,³⁷² and (2) a “counterfactual” exercise based on the trend break analysis, in which Dr. Evans purports to estimate the level of closings that REX would have achieved through 2028, but-for Zillow’s display change.³⁷³

123. Dr. Evans presents his yearly comparison analysis in Table VI-5 of his report.

³⁶⁹ Evans Report, Sections VI.C and VIII.

³⁷⁰ *See, e.g.*, Evans Report, ¶¶ 417-420.

³⁷¹ Evans Report, ¶ 60.

³⁷² Results of these analyses are shown at Tables VI-5 and VI-6, Evans Report.

³⁷³ Evans Report, ¶¶ 422-423.

Specifically, Dr. Evans estimates what is known as a Poisson model. The basic structure of a Poisson model resembles a standard regression, as it is comprised of a dependent variable (typically a variable we wish to “explain” or predict) and independent variables (variables that may “explain” or predict the dependent variable). A Poisson model is among a class of models that are typically used when the dependent variable is a so-called “count variable,” which only takes integer values, and cannot take negative values.³⁷⁴

124. In his application, Dr. Evans’ Poisson model has closings in a given REX “market area” and in a given month (a count variable) as the dependent variable, and what are known as fixed effects – for the month (*e.g.*, November 2017) and market area (*e.g.*, Los Angeles) – as independent variables. The fixed effects are binary variables – taking on the values of just 0 or 1 – that “click on” (*i.e.*, equal 1) when an observation satisfies their criteria and “click off” (*i.e.*, equal zero) otherwise. For example, Dr. Evans’ fixed effect for Los Angeles equals 1 when an observation of closings for a given market area and month is in the Los Angeles market area, and it equals 0 if an observation captures closings for any other market area (*e.g.*, New Jersey). The same is true for his month fixed effects; if an observation of closings for a given market area and month is during November of 2017, then his fixed effect for November 2017 equals 1, and it equals zero if an observation captures closings for any other month (*e.g.*, December 2017). Constructed

³⁷⁴ See, *e.g.*, Wooldridge, Jeffrey M. *Introductory Econometrics: A Modern Approach*, Fifth Edition. Boston: Cengage Learning, 2012 (“Wooldridge”), p. 604. In a Poisson model, the expected value of the outcome variable, conditional on the independent variables, is an exponential function of the sum of the independent variables weighted by their respective coefficients, and since the exponential function can never be negative, this functional form ensures that the predicted count of closings is never negative. In the case of Table VI-5 in the Evans Report, the model is specified as follows:

$$E(closings|m, t) = e^{\delta_t + \gamma_m},$$

where δ_t and γ_m are the “fixed effects” corresponding with month t , market area m . The notation used here is my own but reflects the model specified by Dr. Evans.

this way, the month fixed effects (which can be expressed as δ_t) are meant to measure how closings changed on average over time, controlling for market area, and the market area fixed effects (which can be expressed as γ_m) are meant to measure how closings differed across market areas, controlling for the time period (month).

125. After estimating the model, Dr. Evans takes averages of the twelve month fixed effect estimates for each year between 2016 and 2021 and compares yearly averages pairwise (*e.g.*, the average for 2020 vs. 2019, and the average for 2021 vs. 2020). By doing so, he appears to be attempting to measure how closings changed, on average, across years, controlling for market area. He concludes that the average month fixed effects³⁷⁵ increase with each year, except in 2021, when the average month effect is lower than the average in 2020.³⁷⁶ Put more simply, he is claiming his model finds that, controlling for market area, closings were trending up year-over-year until 2020, and then trended slightly downward between 2020 and 2021.

126. Table VI-5 in the Evans Report presents results for a Poisson regression with month fixed effects (a collection of binary variables for each month) and market area fixed effects (a collection of binary variables for each market area) as independent variables.³⁷⁷ At each point in

³⁷⁵ These are defined in the Evans Report as “period effects” or “period fixed effects.” *See, e.g.*, Evans Report, Appendix C, ¶¶ 11-12.

³⁷⁶ Evans Report, ¶¶ 419-420.

³⁷⁷ To be complete, in the case of month fixed effects, one month serves as the “base month,” and Dr. Evans’ model does not include a binary variable for that month. Instead, it serves as the “reference month” for all other months, meaning the estimates for all the month fixed effects measure how the number of closings for a given month compared to the number of closings for the base month (chosen to be December 2020), controlling for market area. In the case of market area fixed effects, Dr. Evans’ model does not have a “base market area” but instead is estimated using a method that automatically expresses variables as deviations from their average within the respective market area, effectively removing average differences in the number of closings across market areas. This method does not change the interpretation of the other coefficients (*i.e.*, month fixed effects will still measure how closings change on average over time, “controlling” for variation across market areas), and it only means that Dr. Evans’ model does not produce estimates for the “market area fixed effects.” *See* 2-main-regressions.do in Dr. Evans’ work papers.

time in a given market area, the predicted closings are a function of what Dr. Evans calls “period effects” and “market area fixed effects,” *i.e.*, the month and market area fixed effects that I just described.³⁷⁸ Furthermore, in his Table VI-5, Dr. Evans has chosen December of 2020 to be his “base month,” meaning there is no fixed effect included for that month and consequently all other month fixed effects are measured relative to December 2020.³⁷⁹ In other words, after a mathematical transformation, the estimate for each month fixed effect can be translated into a percent change in closings relative to December 2020.³⁸⁰ For example, if the estimate for the June 2020 fixed effect (or, using Dr. Evans’ language, the June 2020 “period effect”) is $\delta_{June\ 2020} = 0.074$, then controlling for market area, closings in June 2020 are predicted by Dr. Evans’ model to be on average 7.7 percent higher than in December 2020.³⁸¹ And similarly, if on average the “period effects” in 2019 are equal to -0.49, it means that in the average month during 2019, controlling for market area, closings were 38.7 percent lower than in December 2020.³⁸²

127. Next, Dr. Evans presents his trend break analysis in Table VI-6 of his report. Dr. Evans estimates the same model as in his yearly comparison analysis (Table VI-5), but with the addition of two independent variables (specifically, a logarithmic function of time in market for a

³⁷⁸ In particular, predicted closings are equal to the exponential function of the sum of “period effects” and “market area fixed effects.” *See, e.g.*, Evans Report, Appendix C, ¶ 11.

³⁷⁹ Evans Report, ¶ 418.

³⁸⁰ Expressed in terms of the parameter defined above, the month fixed effect for December 2020 is set to be equal to 0 (*i.e.*, $\delta_t = 0$ if $t = December\ 2020$). Therefore, the percent change in expected closings between any month t other than December 2020 and December 2020 for a given market area, m , is equal to:

$$100\% \times \left[\frac{E(closings|m, t)}{E(closings|m, December\ 2020)} - 1 \right] = 100\% \times \left[\frac{e^{\delta_t + \gamma m}}{e^{\gamma m}} - 1 \right] = 100\% \times [e^{\delta_t} - 1]$$

See Wooldridge, p. 605 for an explanation of coefficient interpretation in a Poisson model.

³⁸¹ $100\% \times (e^{0.074} - 1) = 7.7\%$.

³⁸² $100\% \times (e^{-0.49} - 1) = -38.7\%$.

given market area and a logarithmic function of months since January 2021³⁸³) that he interprets as the “pre-2021 trend” and the “2021 change in trend,” respectively.³⁸⁴ He considers a positive coefficient on the former term as indicating a positive trend in closings prior to Zillow’s display change, and a negative coefficient on the latter as indicating a negative change in trend (in other words, a slowdown in closings growth), which he attributes to Zillow’s display change.³⁸⁵

128. Finally, using the results from his trend break analysis, Dr. Evans constructs in his Table VI-7 REX’s “counterfactual” closings, *i.e.*, the closings that REX purportedly would have achieved through 2028, but-for Zillow’s display change. He constructs these “counterfactual” values by using the estimates from his trend break analysis but assuming that the “2021 change in trend” did not exist (*i.e.*, setting it to zero).³⁸⁶

³⁸³ Specifically, the model is:

$$\begin{aligned} E(\text{closings}|m, t) &= e^{\delta_t + \gamma_m + \beta_1 \ln(\text{time in market} + 1) + \beta_2 \ln(\text{time post event} + 1)} \\ &= (\text{time in market} + 1)^{\beta_1} \times (\text{time post event} + 1)^{\beta_2} \times e^{\delta_t + \gamma_m}, \end{aligned}$$

where β_1 and β_2 are the two coefficients of interest. Note that the specification chosen by Dr. Evans does not allow for the trend in closings as a function of time in market to become negative (*i.e.*, decline) at any point in time, which for example would be reflected in a quadratic term or a higher-order polynomial. Dr. Evans’ specification is at odds with REX’s own experience in certain market areas such as Houston, which, as explained by Dr. Evans, REX exited prior to January 2021. Evans Report, Appendix C, ¶ 9.

³⁸⁴ Evans Report, ¶¶ 421-422. In the actual model, the variables “pre-2021 trend” and “2021 change in trend” are equal to the natural logarithm of time in market for each market area (as measured by months since the month of the first closing in a given market area) plus one, and the natural logarithm of the count of months after January 2021 plus one, respectively.

³⁸⁵ Evans Report, ¶¶ 422-423. Based on the functional form adopted by Dr. Evans, the interpretation of the coefficients displayed in Table VI-6 is as follows. The coefficient 0.996 on $\ln(\text{time in market} + 1)$ indicates that in a given market area, an increase in time in market + 1 by 10 percent (*e.g.*, from 20 to 22 months) is associated on average with a change in closings by $100\% \times [e^{\ln(1.1) \times 0.996} - 1] = +10\%$. The coefficient -0.479 on the variable $\ln(\text{time post event} + 1)$ indicates that an increase in time post event + 1 by 10 percent is associated on average with a change in closings by $100\% \times [e^{\ln(1.1) \times -0.479} - 1] = -4.5\%$. Considering the two coefficients in isolation, however, is misleading because after January 2021 both time in market and time post event will increase, and the “net trend” will be different depending on the date of first entry for a given market area.

³⁸⁶ Note that counterfactual closings estimated using this model form the basis of Dr. Evans’ calculation of but-for profits discussed in Section VIII.B, Evans Report.

B. The Closings Analysis in the Evans Report is Wrong and Produces Unreliable Results

129. In this section, I show that Dr. Evans’ closings analysis is wrong, and its results are unreliable. First, I show that, despite Dr. Evans’ claims, his analysis is not suited to estimate “counterfactual” closings in the absence of Zillow’s display change, because his approach does not demonstrate causality.³⁸⁷ Second, I empirically demonstrate that Dr. Evans’ analysis of closings disregards that REX’s listings—a primary and necessary input to generate closings—had started to decrease much earlier than January 2021. Third, I show how “counterfactual” projections based on Dr. Evans’ trend break analysis are overstated at best and lead to implausible closing counts that far exceed the projected listing counts that Dr. Evans’ own model would imply.

130. First, Dr. Evans’ analysis does not establish any causal impact of Zillow’s display change on REX’s closings because his analysis relies exclusively on market areas that were covered by Zillow’s display change. In other words, Dr. Evans’ analysis does not have a “control group” of geographies or listings that were *not* covered by the event he is claiming to be analyzing. The presence of a control group is routinely used by economists to account for changes over time that affect all units in the same way and that are unrelated to the event of interest.³⁸⁸ For example,

³⁸⁷ By definition, a counterfactual value for a but-for world in which an event did not take place (*e.g.*, Dr. Evans’ “No Segregation Event”) can only be constructed if the economist can first identify the causal impact of the event. As I will explain below, Dr. Evans’ closings analysis does not identify the causal impact of the event, and therefore any counterfactual analysis he performs is unreliable.

³⁸⁸ Economists routinely analyze impacts of policies or decisions by comparing units over time, and in doing so consider “treated” units and “control” units, where the latter—by design—cannot be affected by the event of interest. The presence of a control group allows researchers to control for factors that change over time and are common to treated units and control units. For example, the 2021 Prize in Economic Sciences in Memory of Alfred Nobel was awarded to David Card in part for his study of minimum wage in which he compared over time New Jersey (the treated group, where minimum wage increased in 1992) with Pennsylvania (the control group, where no change in minimum wage had taken place during the study period). This allowed Card and his co-author to control for labor market conditions that were common to New Jersey and Pennsylvania (two bordering states) and isolate the impact of the increase in minimum wage. Finally, note that the choice of a control group is not always obvious, and researchers are required to select control groups that are as similar as possible to the treated groups in all

in this case, factors unrelated to Zillow’s display change that could affect closings are macroeconomic conditions (*e.g.*, mortgage rates, labor market conditions, realized and expected inflation), changes in institutions and regulations (*e.g.*, property taxes, zoning laws), or changes in home buyers’ preferences (*e.g.*, shifts in preferences toward single-family homes). Without a control group, except in rare circumstances which Dr. Evans does not claim exist here, regression analysis of the form that Dr. Evans conducted will not identify a causal effect. Therefore, Dr. Evans’ approach cannot disentangle any purported impact of Zillow’s display change from a host of other factors unrelated to Zillow’s display change that could have affected REX’s closings. Given this fundamental shortcoming, Dr. Evans’ approach can only offer evidence on changes in the number of closings over time (by market area), but it cannot (and it does not) speak to what *caused* any of the potential changes. The inability to capture a causal impact in Dr. Evans’ regression analyses renders his “counterfactual” analysis—which purportedly estimates how many closings would have taken place absent Zillow’s display change—uninformative. This is because estimating a counterfactual value (in a world in which an event of interest, such as Zillow’s display change, did not take place) can only be reliably performed if an economist first estimates the causal impact of the event (*e.g.*, the impact of Zillow’s display change on REX closings), and Dr. Evans’ analysis is inadequate for this task.

131. The fundamental shortcoming of Dr. Evans’ approach to causal inference cannot be solved using his data or his model. However, to provide an illustrative example of how the

respects, except the policy they are studying. For example, David Card in his minimum wage study chose Pennsylvania because it is adjacent to New Jersey, which may suggest that the two states share similar characteristics related to supply and demand of labor. *See* Card, David, and Alan Krueger. “Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania.” *American Economic Review* 84, no. 4 (1994): 772-793. *See also* The Committee for the Prize in Economic Sciences in Memory of Alfred Nobel, “Scientific Background on the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2021: Answering Causal Questions Using Observational Data,” October 11, 2021.

model captures variation that is unrelated to Zillow’s display change, I perform a “placebo” exercise. “Placebo” exercises are often used in economics and econometrics as part of the set of tests—often referred to as “robustness checks”—that researchers perform to assess the validity of their models. The idea behind a placebo exercise is that a model that is meant to capture the impact of a certain event on a certain outcome variable (or set of variables) should only identify changes in the outcome variable that are *solely* due to (caused by) the event of interest. Therefore, if the researcher creates a “fake” event by modifying the terms of the event of interest (for example, by moving the date to an arbitrary date that is different from the one in which the actual event took place), a valid model should *not* detect any impact of such a “fake” event. As described in an introductory textbook on causal inference and research design,

A placebo test is [] a test where you pretend that treatment is being assigned somewhere it isn’t, and you check whether you estimate an effect. If you find an effect of “treatment,” that tells you that there must be a bad assumption somewhere, since you’re finding that the effect of *nothing* is *something*!³⁸⁹

132. To perform the placebo exercise, I eliminate data from 2021 and arbitrarily assume a “placebo” (or “fake”) event date of January 2020, *i.e.*, I assume for purposes of this illustrative example that Zillow’s display change occurred in January 2020. In doing so, I am not using data covering the period allegedly impacted by Zillow’s display change, and I am arbitrarily shifting the event date ahead by 12 months. Under this exercise, Dr. Evans’ “pre-2021 trend” and “2021 change in trend” become a “pre-2020 trend” and “2020 change in trend,” respectively. If Dr. Evans’ analysis were conceptually valid, such a placebo exercise should produce a null result

³⁸⁹ Huntington-Klein, Nick. “Chapter 11 – Causality with Less Modeling.” In *The Effect: An Introduction to Research Design and Causality*. Boca Raton: CRC Press, 2021, pp. 161-172. Original emphasis.

because the arbitrarily-selected “event” in January 2020 did not take place and therefore would not have had any impact on REX closings. Specifically, there should not be a statistically significant change in trend taking place in January 2020 (*i.e.*, there should not be a statistically significant coefficient on the “2020 change in trend” variable).³⁹⁰ However, applying only these two simple changes to the data and the model, Dr. Evans’ regression yields *a similar result to his original findings* (from Table VI-6 of the Evans Report). In particular, the variable that in this case would be interpreted as the “pre-2020 trend” is positive and statistically significant, and the variable that in this case would be interpreted as the “2020 change in trend” is negative and also statistically significant.³⁹¹ The result of this placebo exercise suggests that Dr. Evans’ model, which—as explained above—only captures differences over time among properties that are all allegedly affected, erroneously estimates the “impact” of a nonexistent “event” and therefore cannot be relied upon to estimate the alleged impact of Zillow’s display change.³⁹²

133. Second, Dr. Evans’ sole focus on closings ignores the primary and necessary input that is needed to generate REX’s closings, *i.e.*, REX’s listings.³⁹³ As I explain in Section III.B,

³⁹⁰ “Statistically significant” means that a value is statistically distinguishable from zero. *See, e.g.*, Davidson, Russell, and James G. MacKinnon. “Chapter 4: Hypothesis Testing in Linear Regression Models.” In *Econometric Theory and Methods*, 122-176. New York: Oxford University Press, 2004.

³⁹¹ Exhibit 11B, Column [B].

³⁹² To further demonstrate the inadequacy of the empirical specifications presented in the closings analysis in the Evans Report and their interpretation, I perform an additional “placebo” exercise in which I show that after splitting the sample between pre-January 2021 and post-January 2021, Dr. Evans’ model estimates two coefficients for the “trend” variable $\ln(\text{time in market} + 1)$ that are almost exactly the same in magnitude, and statistically indistinguishable across the two periods before and after Zillow’s display change. This shows that Dr. Evans’ interpretation of the “trend” variable $\ln(\text{time in market} + 1)$ is inaccurate, because if the conclusion that growth in closings over time in market slowed down after January 2021 were true, the coefficient on $\ln(\text{time in market} + 1)$ for the period post-January 2021 would have been significantly lower than for the period pre-January 2021. *See* Exhibit 11B, Columns [C] and [D].

³⁹³ Since listings are an input for closings, there is a lagged relationship between them, *i.e.*, closings lag listings. For example, REX’s former COO, Lynley Sides, recognized this lagged relationship when she testified that closings in March 2021 likely were attributable to listings from a period prior to January 2021. *See* Sides Deposition, p. 144:5-10 and Exhibit 10.

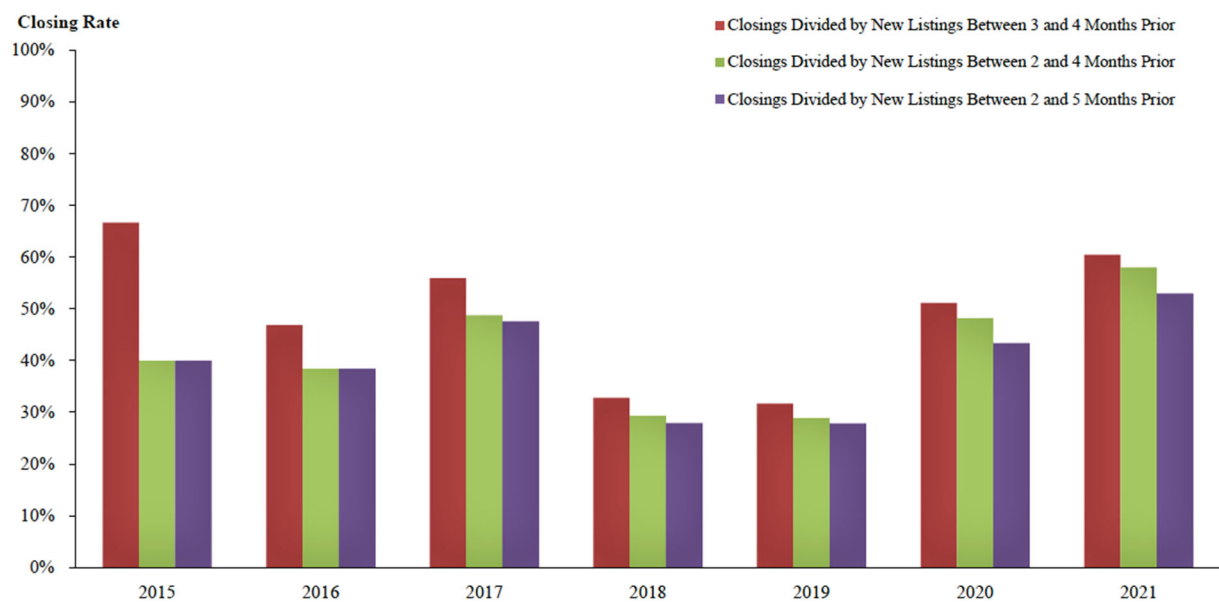
REX’s new listings peaked in the summer of 2019 and after the peak they started a decline from which they never recovered. To empirically demonstrate the shortcomings of not accounting for this primary and necessary input, I take a three-step approach.

- 1) I estimate a model that is identical to the models in Dr. Evans’ yearly comparison analysis, except that I use listings as an outcome variable, to demonstrate that Dr. Evans’ own model shows that listings were declining prior to 2021, consistent with the evidence I presented in Section III. Using Dr. Evans’ own interpretation of his model, these results, presented in Exhibit 9, confirm that the difference between 2019 and 2020 “period effects” is negative. This shows, according to Dr. Evans’ own framework, the presence of a negative trend in listings that substantially *pre-dated* Zillow’s display change in January 2021.
- 2) Then, I construct measures of REX’s “closing rate” by dividing the number of closings in a given month-year by lagged new listings. Conceptually, a closing rate is a measure of the share of inventory that REX was able to sell. Therefore, a change (such as Zillow’s display change) that purportedly affected REX’s ability to sell³⁹⁴ should affect the closing rate. Furthermore, by construction, the closing rate is meant to capture REX’s ability to sell *conditional on* the available inventory, *i.e.*, if listings (an input) decline but REX’s ability to sell remains the same, then the closing rate should be relatively unchanged. Data produced by REX show that most listings that eventually closed had a closing date between approximately 2 and 5

³⁹⁴ As purportedly shown in Dr. Evans’ closings analysis. *See* Evans Report, Section VI.C.2.

months after the listing date,³⁹⁵ so I construct various closing rates using new listings lagged by 2 to 5 months in the denominator. Figure 10 shows that, regardless of how the closing rate is constructed, closing rates were consistently *higher* in 2021 than in 2020, suggesting that closings as a share of different measures of relevant inventory did not go down in 2021 compared to 2020. For example, over all months in 2021, REX closed 53 percent of the total new listings added 2 to 5 months prior to the closing date (*i.e.*, new listings added from August 2020 through October 2021), while this share was only 43 percent in 2020.³⁹⁶

Figure 10 – REX Closing Rates, 2015 – 2021.



Source: Exhibit 10.

³⁹⁵ The median difference between closing and listing date is 99.5 days, the 25th percentile is 70 days, the 75th percentile is 142 days, implying that the majority of the listings eventually closed between 2 and 5 months after the listing date. See Appendix F.3.

³⁹⁶ To compute this average at an annual level, I divide the closings in a given year by the sum of new listings with a list date 2, 3, 4, or 5 months prior to the close date. For example, the rate in 2019 is computed by dividing the total number of closings in 2019 by the sum of new listings with list dates between August 2018 and October 2019.

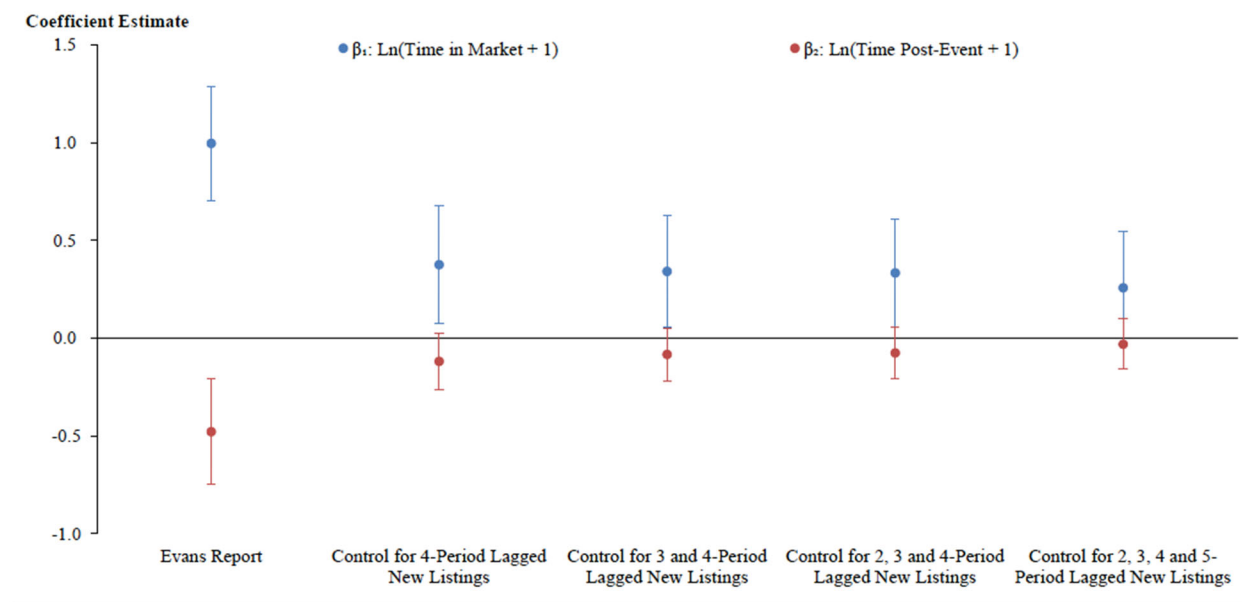
3) Finally, I replicate Dr. Evans’ trend break analysis, with the sole addition of control variables for lagged new listings.³⁹⁷ Adding this control allows me to empirically test the hypothesis that the decline in closings after January 2021 (as measured, according to Dr. Evans’ interpretation, by the coefficient on the logarithmic function of months after January 2021) is a lagged manifestation of the pre-existing decline in listings that I documented above. In other words, notwithstanding other criticisms laid out in my report that show fundamental shortcomings of the closings analysis in the Evans Report, this analysis is testing whether Dr. Evans’ model measures a post-event decline in closings that is just the lagged result of REX’s earlier decline in listings, which preceded the event, and consequently is unrelated to the event itself. One way to implement this test is to add lagged new listings (which, as I have shown earlier in this section and in Section III.B, started declining more than one year prior to January 2021) as control variables in Dr. Evans’ regression. If the coefficient for the “change in 2021 trend” estimated in Dr. Evans’ regression is unrelated to pre-existing patterns of listings, it should be unchanged after the addition of these control variables. In fact, the results of this specification, presented in Figure 11 below (see also Exhibit 11A), show that the coefficient Dr. Evans interprets as determining the “2021 change in trend”³⁹⁸ becomes statistically indistinguishable from zero. In other words, under Dr. Evans’ own interpretation of his model, the regression suggests that there is no change in trend in 2021, once the

³⁹⁷ Based on my analysis of the distribution of time between listing and closing – which shows that the average, and the 25th, 50th, and 75th percentiles of the difference are 117, 70, 99.5, and 142 days, respectively – I estimate models using lags of 2, 3, 4 and 5 months. See Exhibit 11A.

³⁹⁸ Evans Report, ¶ 422.

pre-existing trends in listings are accounted for.

Figure 11 – Illustrative Examples of Regression Coefficients from Dr. Evans’ Trend Break Model with Additional Controls for Lagged New Listings.



Note: β_1 is the coefficient interpreted by Dr. Evans as the “pre-2021 trend” and β_2 is the coefficient interpreted by Dr. Evans as the “2021 change in trend.” The dots in the graph represent the estimated coefficients, and the vertical lines represent 95%-level confidence intervals.

Source: Evans Report, Table VI-6. Exhibits 11A and 12.

134. Third, Dr. Evans’ analysis of “counterfactual” closings—which is based on a projection from his unreliable trend break analysis—yields predictions that appear overstated at best, even assuming such an analysis could produce reliable results (which it cannot for the reasons explained above). For example, Dr. Evans’ model projects 5,103 closings in 2023,³⁹⁹ while the

³⁹⁹ Evans Report, Table VI-7. See also Exhibit 13, in which I graphically show the monthly evolution of actual, observed REX closings through December 2021 (red bars) and closings projected by Dr. Evans’ model through December 2028 (blue and purple bars).

same model applied to new listings⁴⁰⁰ projects only 3,603 new listings in 2023.⁴⁰¹ Consequently, Dr. Evans’ model predicts that in 2023 REX would have closed 1.4 properties for each listing it added.⁴⁰² In 2028, Dr. Evans’ model predicts 2.8 as many closings as new listings.⁴⁰³ These projections, shown in Figure 12, imply an implausible scenario. In order for a closing to take place, there must be at least one listing; in other words, there can be at most one closing per listing. However, Dr. Evans’ model implies that over the eight years between 2021 and 2028, REX will have closed a total of 73,149 transactions while having listed only 36,997 properties; hence, over this eight-year-long time frame, his model implies the impossible ratio of about 2 closings per new listing.⁴⁰⁴

⁴⁰⁰ The model corresponds to the same trend break analysis discussed earlier in this section, except that the dependent (*i.e.*, outcome) variable is number of new listings in a given market area and given month instead of number of closings. Following Dr. Evans’ interpretation of the model, a positive coefficient on the “pre-2021 trend” term would indicate a positive trend in new listings prior to Zillow’s display change, and a negative coefficient on the “2021 change in trend” term would indicate a negative change in trend (in other words, a slowdown in listings growth) following Zillow’s display change.

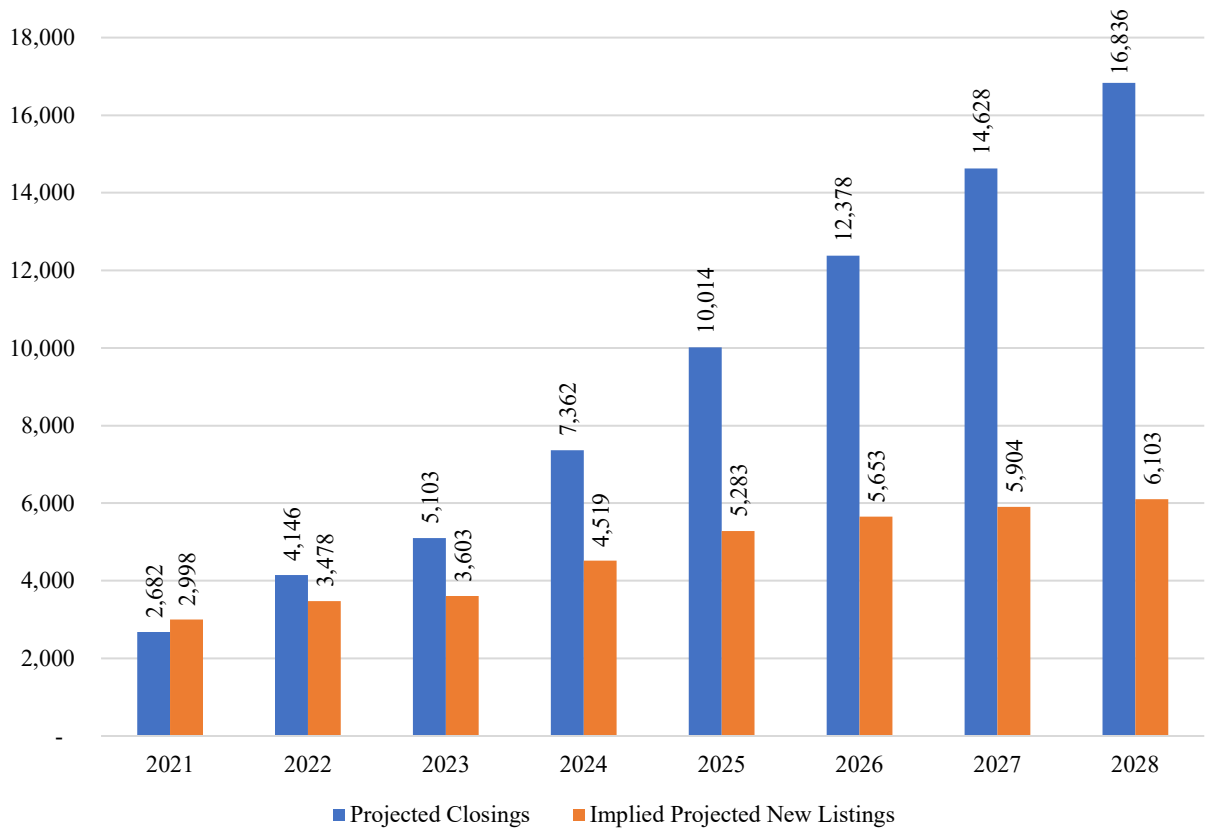
⁴⁰¹ Figure 12. *See also* Exhibit 14. Note that in his closings analysis, Dr. Evans makes an adjustment to the projected closings to account for potential changes in forecasted home sales after global events of 2020. I apply the same adjustment to predicted new listings. To implement Dr. Evans’ adjustments, I follow his procedure from the file “Counterfactual Gross Profits and Related Calculations.xlsx” in his work papers. In summary, Dr. Evans adjusts (*i.e.*, reduces or increases) monthly closings predicted by his model between 2022–2023 “by multiplying by the percentage change in Freddie Mac’s forecasted home sales for that quarter between its last forecast in 2020 (released in October 2020) and its most recent forecast (released in October 2022)” (Evans Report, Appendix C, ¶ 27). For example, if Freddie Mac’s forecast for 2023 Q1, based on its October 2022 forecast, were 10 percent lower than it was for that same quarter, based on its October 2020 forecast, then Dr. Evans’ adjustment would reduce predicted monthly closings for 2023 Q1 by 10 percent. For the months after 2023, Dr. Evans uses the adjustment computed for 2023 Q4, assuming that the 2023 Q4 adjustment declines by 10 percent in each subsequent quarter (*e.g.*, an adjustment by 10 percent for months in 2023 Q4 would become 9 percent for months in the following quarter). *See* Evans Report, Appendix C, ¶¶ 27-29.

⁴⁰² $5,103 / 3,603 = 1.42$.

⁴⁰³ $16,836 / 6,103 = 2.76$. *See* Figure 12, Exhibit 14; *see also* Evans Report, Table VI-7.

⁴⁰⁴ $73,149 / 36,997 = 1.98$.

Figure 12 – Projected Closings and Implied Projected New Listings Using Dr. Evans’ Trend Break Model, 2021 – 2028.



Source: Exhibits 13 and 14; Evans Report, Table VI-7.

April 26, 2023

Jeffrey T. Prince, Ph.D.

EXHIBIT 1

**REX “CLOSED WON” SELLER OPPORTUNITIES
BY “MARKET AREA”
AUGUST 2015 – JUNE 2022**

	“Market Area”	Number of Transactions	Average Closing Price	First Transaction	Last Transaction
	[A]	[B]	[C]	[D]	[E]
[1]	Los Angeles	624	\$674,762	08/2015	05/2022
[2]	New Jersey	213	\$446,442	12/2018	05/2022
[3]	Denver	204	\$457,563	06/2018	05/2022
[4]	San Diego	201	\$615,735	01/2017	03/2022
[5]	Austin	197	\$408,456	04/2018	05/2022
[6]	Bay Area	197	\$797,792	08/2018	04/2022
[7]	New York	194	\$572,870	12/2017	04/2022
[8]	Riverside	177	\$493,918	06/2017	05/2022
[9]	Sacramento	169	\$503,750	04/2019	05/2022
[10]	Orlando	159	\$327,111	04/2019	06/2022
[11]	Jacksonville	154	\$325,628	11/2019	06/2022
[12]	Portland	142	\$451,927	04/2019	04/2022
[13]	DMV (D.C., Maryland, Virginia)	111	\$524,258	09/2019	01/2022
[14]	Orange County	105	\$695,408	12/2016	04/2022
[15]	Philadelphia	101	\$346,160	06/2019	04/2022
[16]	Phoenix	101	\$408,473	07/2019	04/2022
[17]	Las Vegas	92	\$369,968	10/2019	05/2022
[18]	Colorado Springs	61	\$415,379	07/2019	04/2022
[19]	Chicago	59	\$311,416	08/2019	11/2021
[20]	San Antonio	50	\$281,377	01/2019	10/2021
[21]	Boston	48	\$600,889	09/2019	09/2021
[22]	Tampa	47	\$348,364	08/2019	10/2021
[23]	Research-Triangle	42	\$324,849	10/2019	09/2021
[24]	Fort Lauderdale	37	\$430,710	03/2021	04/2022
[25]	West Palm Beach	35	\$389,857	02/2021	06/2022
[26]	Atlanta	34	\$291,287	06/2020	04/2022
[27]	Houston	19	\$225,403	12/2018	04/2020
[28]	Bakersfield	18	\$346,778	04/2021	04/2022

EXHIBIT 1

**REX “CLOSED WON” SELLER OPPORTUNITIES
BY “MARKET AREA”
AUGUST 2015 – JUNE 2022**

	“Market Area”	Number of Transactions	Average Closing Price	First Transaction	Last Transaction
	[A]	[B]	[C]	[D]	[E]
[29]	Seattle	16	\$527,688	03/2021	04/2022
[30]	Reno	15	\$561,814	06/2021	03/2022
[31]	Fort Myers	10	\$370,050	05/2021	11/2021
[32]	Miami	7	\$413,429	10/2019	12/2021
[33]	Fort Collins	5	\$494,160	04/2021	09/2021
[34]	San Bernardino	5	\$551,000	04/2021	03/2022
[35]	Boulder	4	\$763,217	03/2021	10/2021
[36]	Vancouver	4	\$654,606	08/2021	02/2022
[37]	Bend	3	\$478,300	06/2021	10/2021
[38]	Minneapolis	3	\$369,167	07/2021	09/2021
[39]	New Area Request*	3	\$348,680	09/2017	06/2019
[40]	Provo	3	\$438,333	06/2021	08/2021
[41]	Salt Lake City	3	\$394,333	06/2021	08/2021
[42]	Not Specified*	1	\$320,000	03/2022	03/2022
[43]	Stockton	1	\$322,000	01/2022	01/2022
[44]	Total	3,674	\$451,007	08/2015	06/2022

Notes & Sources:

* Unspecified “Market Areas”. The three transactions with a “Market Area” designated as “New Area Request” are located in California, while the single transaction with a “Market Area” equal to “Not Specified” is located in Fort Myers, Florida. These locations are determined by the variable ‘Opportunity Name’.

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning.

Cleaned, merged data set contains 6,938 observations (Seller Opportunities). Restricted to “Closed Won” Seller Opportunities, which are identified by the ‘Close Date’ variable and by the variable ‘Stage’ equal to “Closed Won”.

[B] Number of transactions are determined by summing the number of observations in the ‘Opportunity Name’ variable for a given “Market Area”. Each ‘Opportunity Name’ is assumed to be a unique transaction. See Appendix C.

[D]-[E] Month of first and last transactions are determined by the ‘Close Date’ variable.

[44][B] = Sum of [1] to [43].

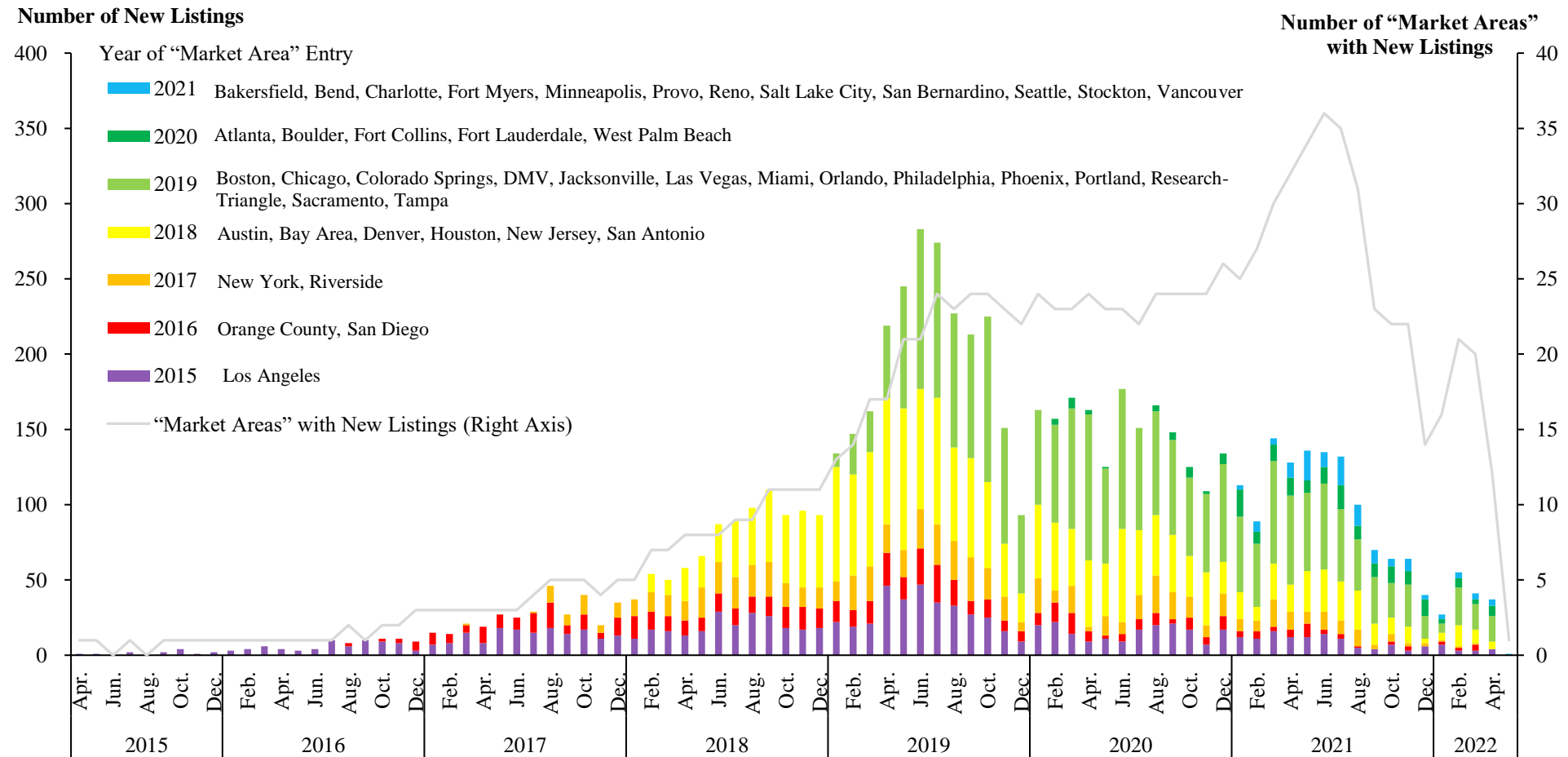
[44][C] = Average of [1] to [43].

[44][D] = Minimum of [1] to [43].

[44][E] = Maximum of [1] to [43].

EXHIBIT 2

**REX MONTHLY NEW LISTINGS
SELLER OPPORTUNITIES BY YEAR OF “MARKET AREA” ENTRY
APRIL 2015 – MAY 2022**

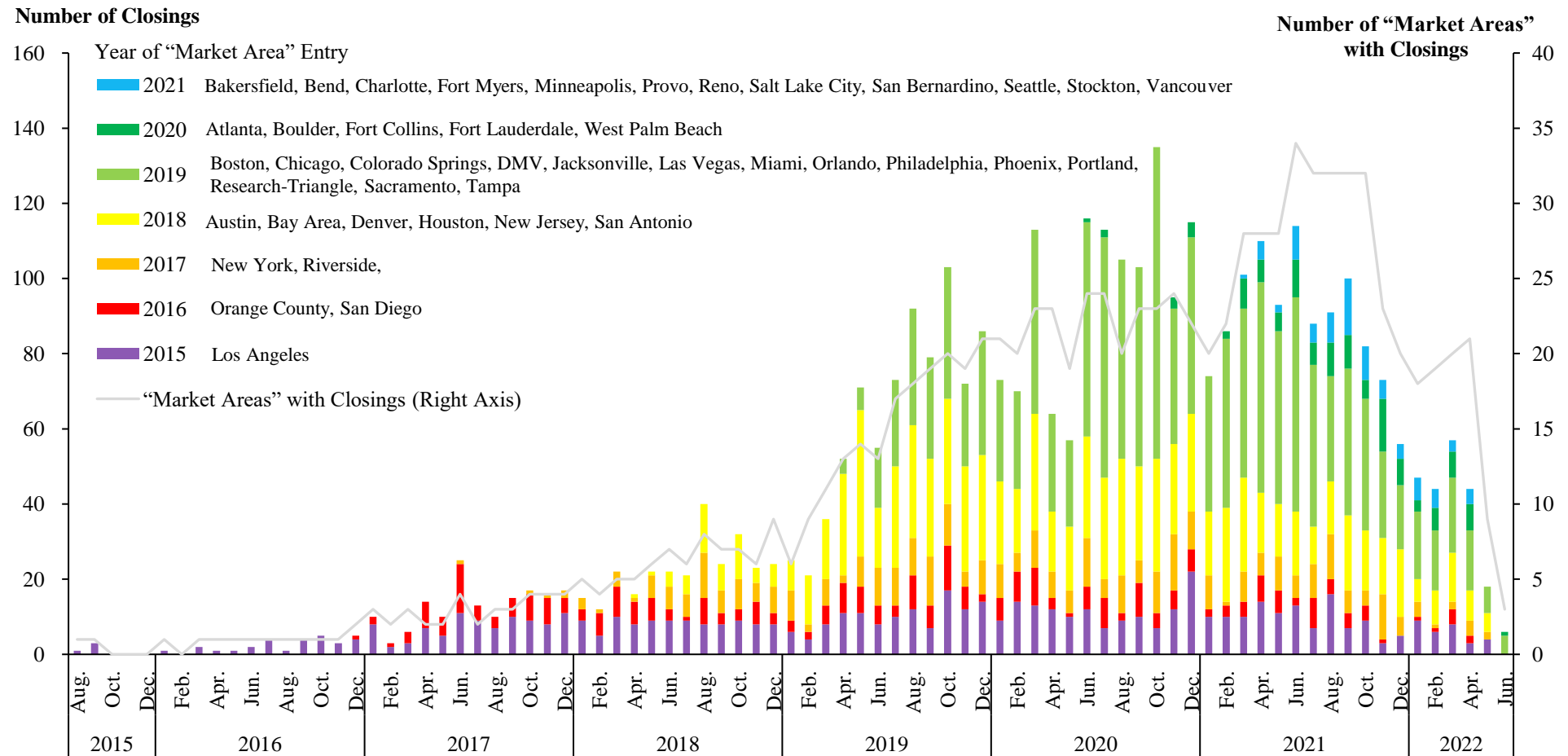


Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning. Cleaned, merged data set contains 6,938 observations (Seller Opportunities), consisting of 3,144 (45.3%) “Closed Lost” opportunities, 3,674 (52.9%) “Closed Won” opportunities, 2 (0.0%) “Consultation” opportunities, 46 (0.7%) “In Escrow” opportunities, 2 (0.0%) “Listing Agreement” opportunities, 53 (0.8%) “Live” opportunities, 1 (0.0%) “Nurturing” opportunity, 5 (0.1%) “Qualification” opportunities, and 11 (0.2%) “Setup Listing” opportunities. 16 (0.2%) opportunities that do not have a list date are excluded from this chart. 31 new listings across eight months in the “Market Area” “New Area Request” and 8 listings across five months in the “Market Area” “Not Specified” are excluded from the counts of new listings and “Market Areas” with new listings. Year of “Market Area” entry is determined based on the listing date of the first new listing in a given “Market Area”. Number of “Market Areas” with New Listings is computed by counting the “Market Areas” with one or more new listings in a given month.

EXHIBIT 3

**REX MONTHLY CLOSINGS
“CLOSED WON” SELLER OPPORTUNITIES BY YEAR OF “MARKET AREA” ENTRY
AUGUST 2015 – JUNE 2022**



Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning. Cleaned, merged data set contains 6,938 observations (Seller Opportunities). Closings are restricted to “Closed Won” Seller Opportunities. “Closed Won” opportunities are identified by the ‘Close Date’ variable and by the variable ‘Stage’ equal to “Closed Won”.

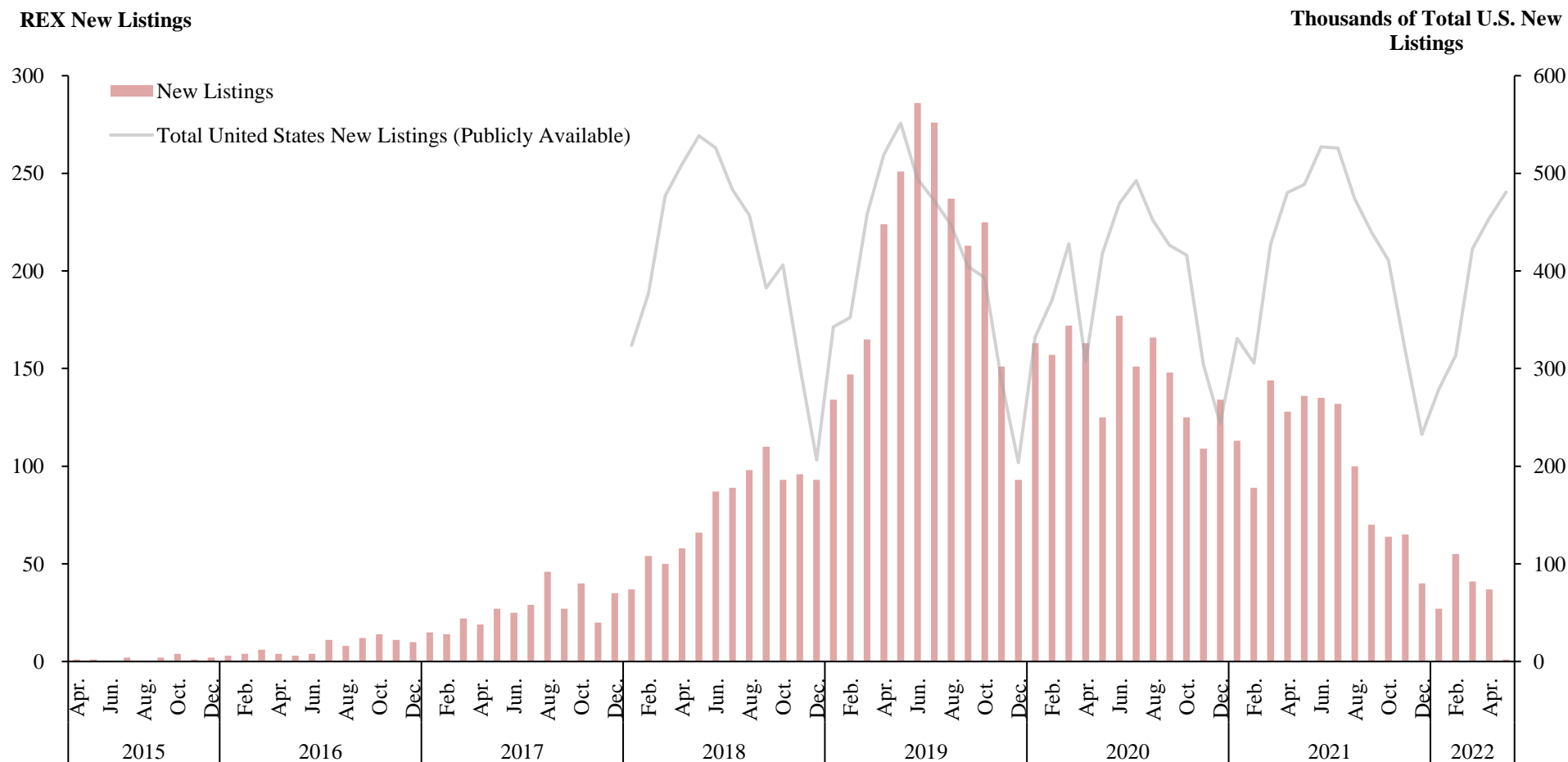
3 closings across two months in the “Market Area” “New Area Request” and 1 closing in one month in the “Market Area” “Not Specified” are excluded from the counts of closings and “Market Areas” with closings.

Year of “Market Area” entry is determined based on the listing date of the first new listing in a given “Market Area”.

Number of “Market Areas” with Closings is computed by counting the “Market Areas” with one or more closings in a given month.

EXHIBIT 4A

**REX MONTHLY INVENTORY
LISTED SELLER OPPORTUNITIES
APRIL 2015 – MAY 2022**



Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning.

United States data from “Housing Data”, Zillow, available at <https://www.zillow.com/research/data/>, accessed on January 23, 2023, selected under “INVENTORY” and “New Listings (Raw, All Homes, Monthly)” in the drop-down menu. New listings data is available from Zillow beginning in January 2018.

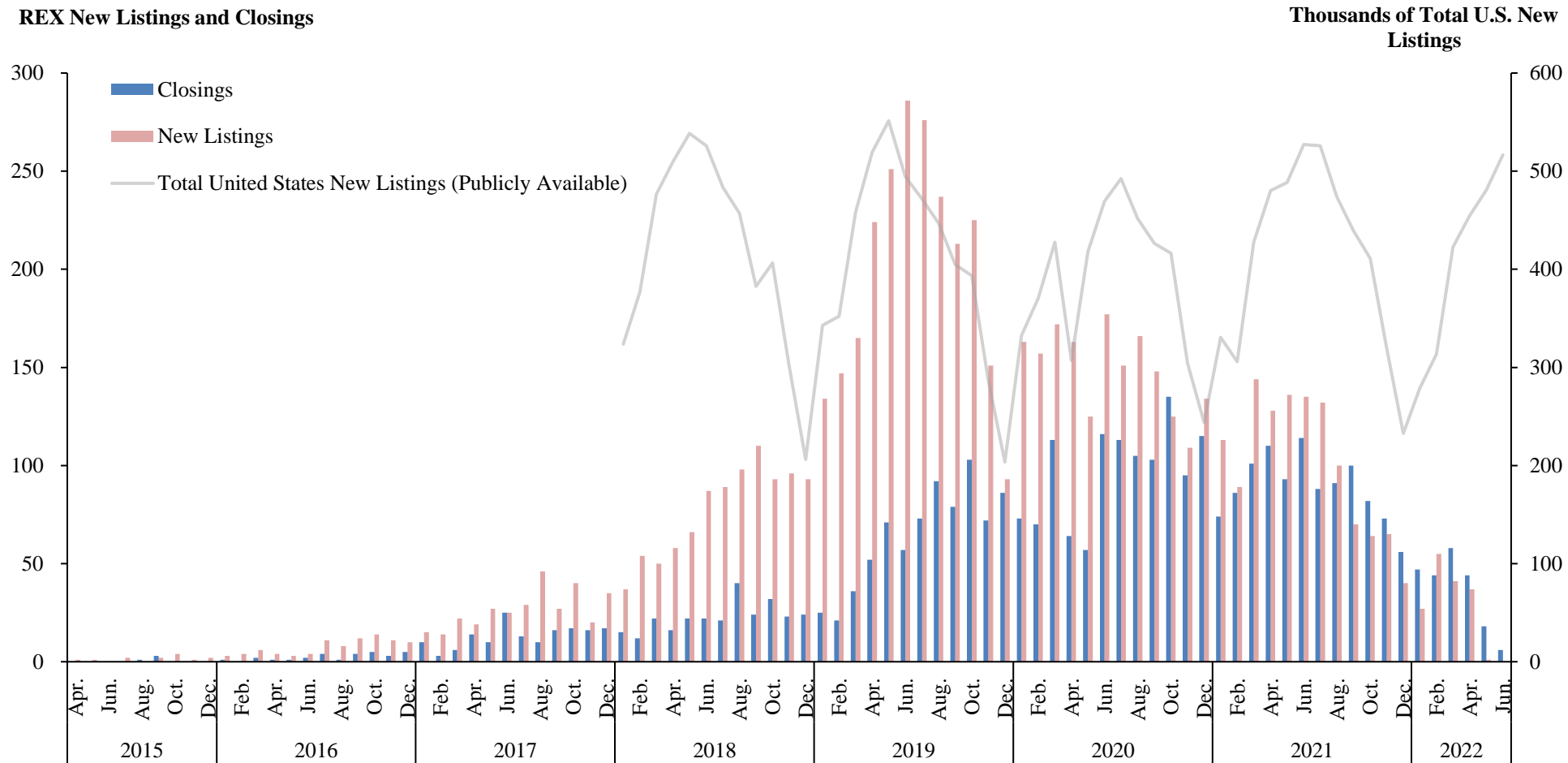
Cleaned, merged data set contains 6,938 observations (Seller Opportunities), consisting of 3,144 (45.3%) “Closed Lost” opportunities, 3,674 (52.9%) “Closed Won” opportunities, 2 (0.0%) “Consultation” opportunities, 46 (0.7%) “In Escrow” opportunities, 2 (0.0%) “Listing Agreement” opportunities, 53 (0.8%) “Live” opportunities, 1 (0.0%) “Nurturing” opportunity, 5 (0.1%) “Qualification” opportunities, and 11 (0.2%) “Setup Listing” opportunities.

New Listings are identified by the ‘Listing Date’ variable.

16 (0.2%) opportunities that do not have a list date are excluded from this chart.

EXHIBIT 4B

**REX MONTHLY INVENTORY
LISTED AND “CLOSED WON” SELLER OPPORTUNITIES
APRIL 2015 – JUNE 2022**



Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning.

United States data from “Housing Data”, Zillow, available at <https://www.zillow.com/research/data/>, accessed on January 23, 2023, selected under “INVENTORY” and “New Listings (Raw, All Homes, Monthly)” in the drop-down menu. New listings data is available from Zillow beginning in January 2018.

Cleaned, merged data set contains 6,938 observations (Seller Opportunities), consisting of 3,144 (45.3%) “Closed Lost” opportunities, 3,674 (52.9%) “Closed Won” opportunities, 2 (0.0%) “Consultation” opportunities, 46 (0.7%) “In Escrow” opportunities, 2 (0.0%) “Listing Agreement” opportunities, 53 (0.8%) “Live” opportunities, 1 (0.0%) “Nurturing” opportunity, 5 (0.1%) “Qualification” opportunities, and 11 (0.2%) “Setup Listing” opportunities.

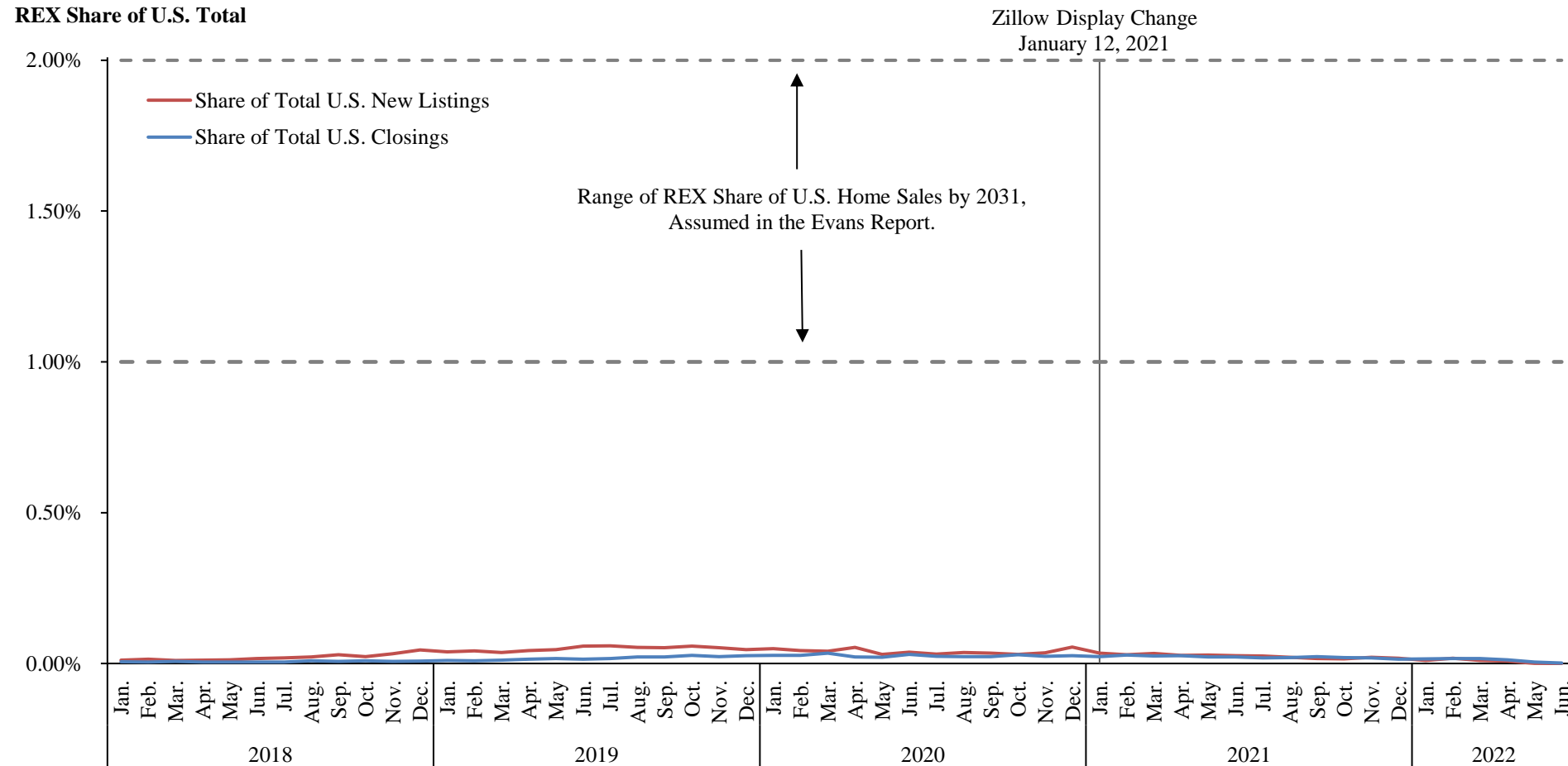
New Listings are identified by the ‘Listing Date’ variable. Closings are identified by the ‘Close Date’ variable and by the variable ‘Stage’ equal to “Closed Won”.

16 (0.2%) opportunities that do not have a list date are excluded from this chart.

When data are filtered to only opportunities where the ‘Stage’ variable is equal to “Closed Won”, the average difference between close date and list date is 117.1 days, the median difference is 99.5 days, while the 25th percentile difference is 70.0 days, and the 75th percentile difference is 142.0 days. See Appendix F.3.

EXHIBIT 5A

**REX MONTHLY NEW LISTINGS AND CLOSINGS
AS SHARE OF U.S. TOTAL
JANUARY 2018 – JUNE 2022**



Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”) and Expert Report of David S. Evans, December 12, 2022, Table VIII-8, ¶ 535. See Appendix C for description of data cleaning. United States data from “Housing Data”, Zillow, available at <https://www.zillow.com/research/data/>, accessed on January 23, 2023. New listings selected under “INVENTORY” and “New Listings (Raw, All Homes, Monthly)” in the drop-down menu and closings selected under “SALE COUNTS AND PRICE CUTS” and “Sales Count Nowcast (Raw, All Homes)” in the drop-down menu. New listings data is available from Zillow beginning in January 2018.

Cleaned, merged data set contains 6,938 observations (Seller Opportunities), consisting of 3,144 (45.3%) “Closed Lost” opportunities, 3,674 (52.9%) “Closed Won” opportunities, 2 (0.0%) “Consultation” opportunities, 46 (0.7%) “In Escrow” opportunities, 2 (0.0%) “Listing Agreement” opportunities, 53 (0.8%) “Live” opportunities, 1 (0.0%) “Nurturing” opportunity, 5 (0.1%) “Qualification” opportunities, and 11 (0.2%) “Setup Listing” opportunities.

EXHIBIT 5A

**REX MONTHLY NEW LISTINGS AND CLOSINGS
AS SHARE OF U.S. TOTAL
JANUARY 2018 – JUNE 2022**

Notes & Sources (continued):

New Listings are identified by the ‘Listing Date’ variable. Closings are identified by the ‘Close Date’ variable and by the variable ‘Stage’ equal to “Closed Won”.

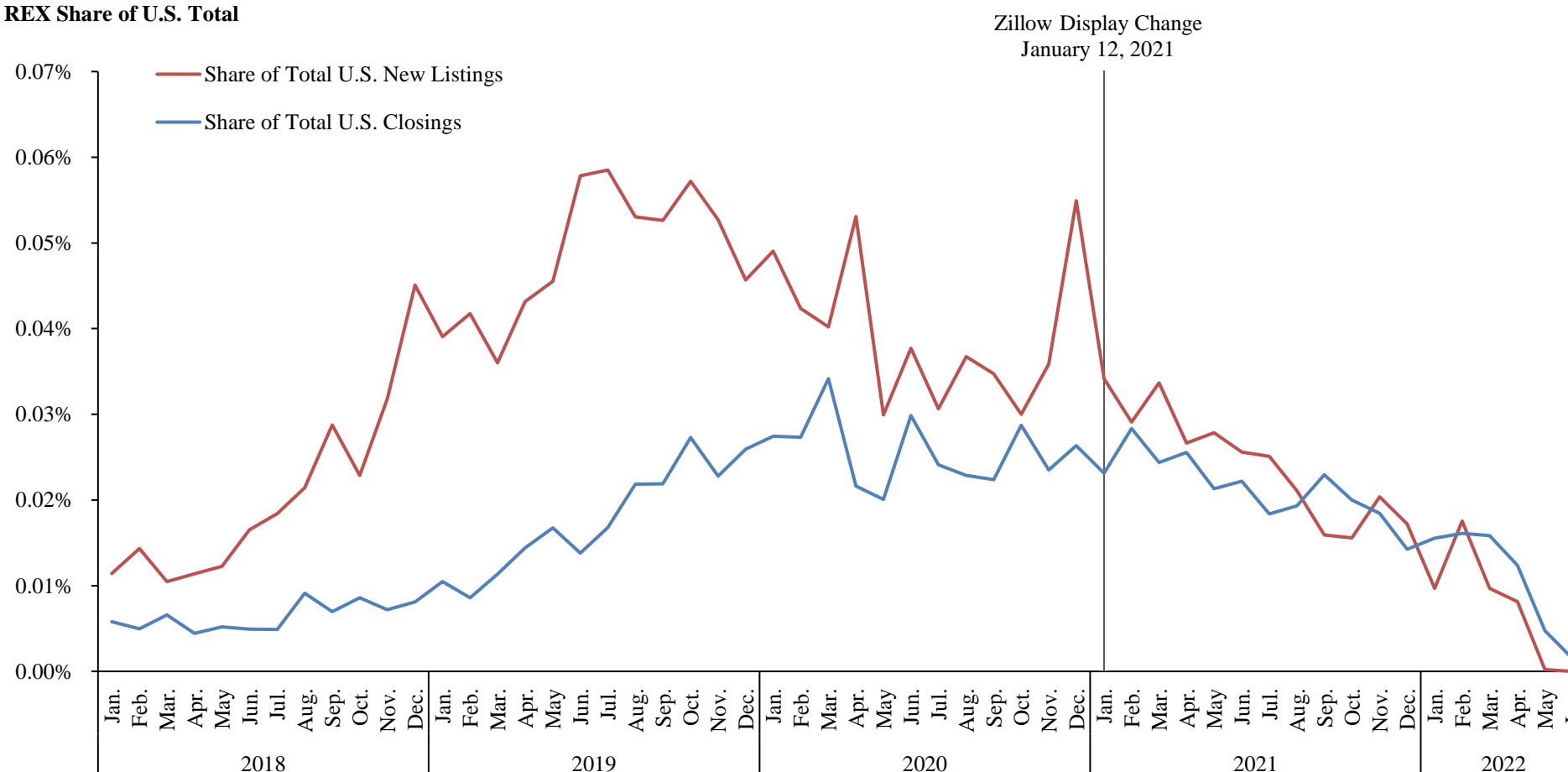
16 (0.2%) opportunities that do not have a list date are excluded from this chart.

The red and blue lines in this exhibit are equivalent to those in Exhibit 5B, with the exception that the Y axis is of a different scale.

EXHIBIT 5B

**REX MONTHLY NEW LISTINGS AND CLOSINGS
AS SHARE OF U.S. TOTAL
JANUARY 2018 – JUNE 2022**

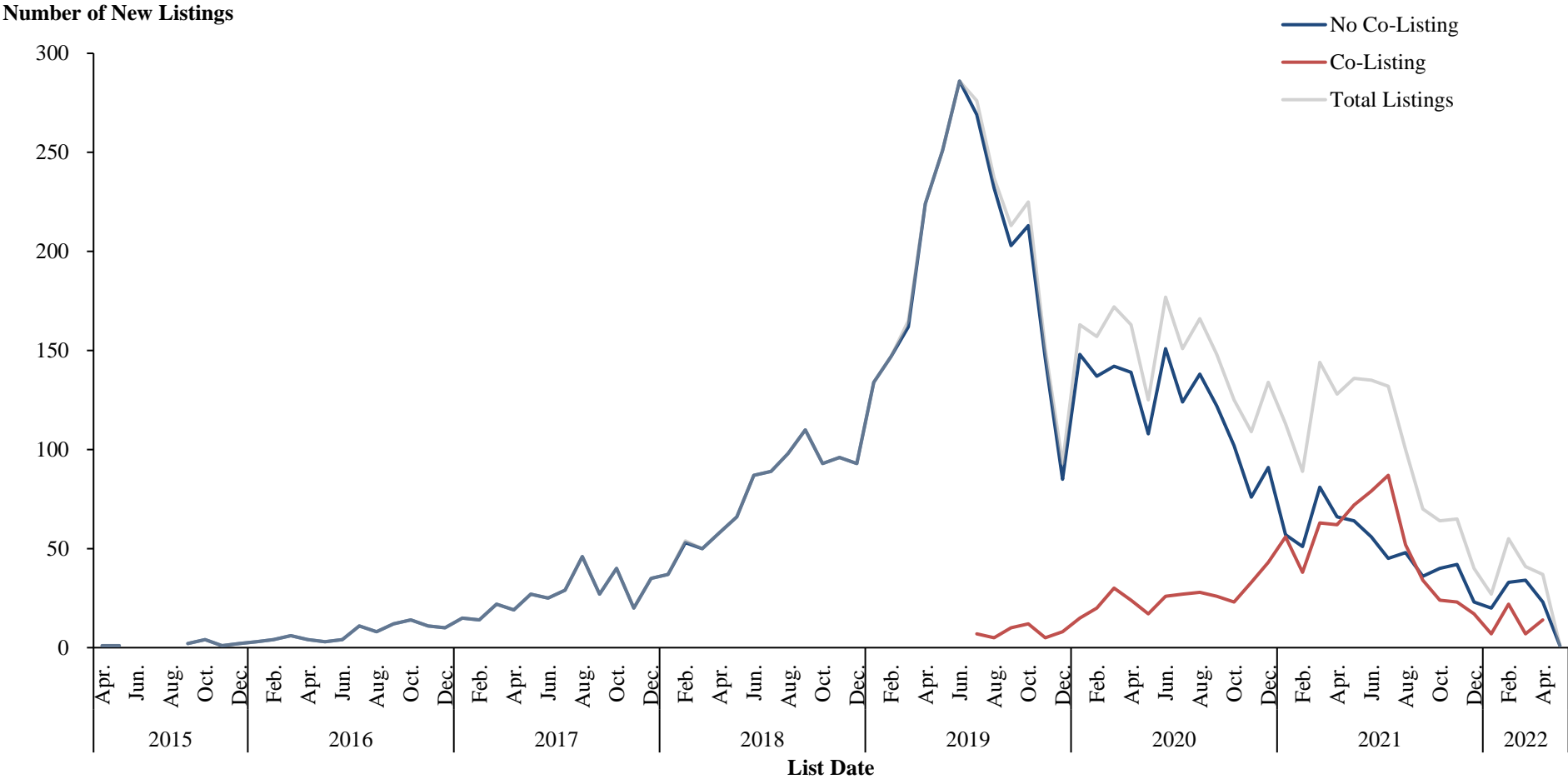
REX Share of U.S. Total



Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning. United States data from “Housing Data”, Zillow, available at <https://www.zillow.com/research/data/>, accessed on January 23, 2023. New listings selected under “INVENTORY” and “New Listings (Raw, All Homes, Monthly)” in the drop-down menu and closings selected under “SALE COUNTS AND PRICE CUTS” and “Sales Count Nowcast (Raw, All Homes)” in the drop-down menu. New listings data is available from Zillow beginning in January 2018. Cleaned, merged data set contains 6,938 observations (Seller Opportunities), consisting of 3,144 (45.3%) “Closed Lost” opportunities, 3,674 (52.9%) “Closed Won” opportunities, 2 (0.0%) “Consultation” opportunities, 46 (0.7%) “In Escrow” opportunities, 2 (0.0%) “Listing Agreement” opportunities, 53 (0.8%) “Live” opportunities, 1 (0.0%) “Nurturing” opportunity, 5 (0.1%) “Qualification” opportunities, and 11 (0.2%) “Setup Listing” opportunities. New Listings are identified by the ‘Listing Date’ variable. Closings are identified by the ‘Close Date’ variable and by the variable ‘Stage’ equal to “Closed Won”. 16 (0.2%) opportunities that do not have a list date are excluded from this chart.

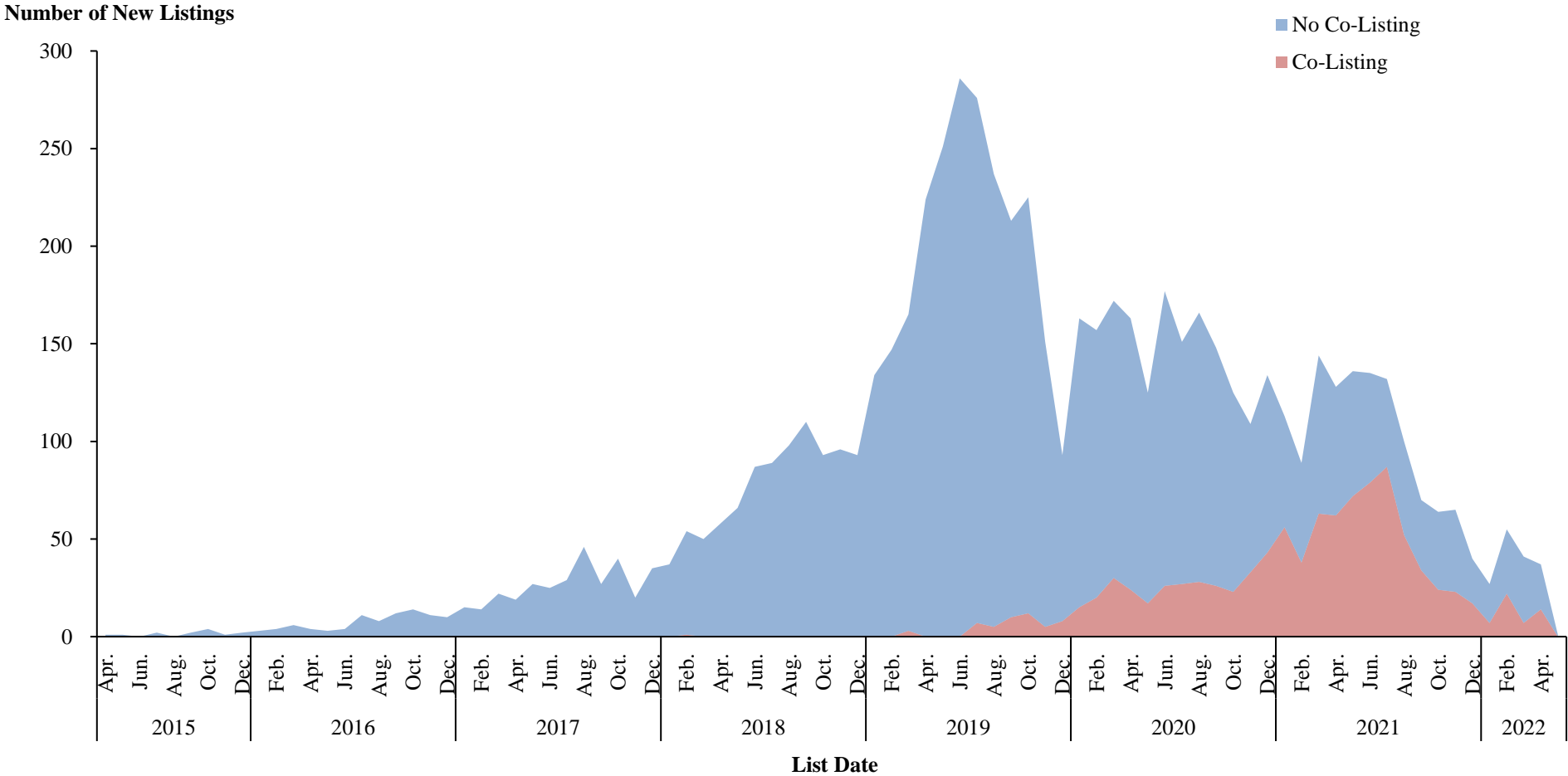
EXHIBIT 6A
REX MONTHLY NEW LISTINGS
SELLER OPPORTUNITIES BY CO-LISTING STATUS
APRIL 2015 – MAY 2022



Notes & Sources:
From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning. Graph displays the monthly sum of new listings across all geographies, disaggregated by the presence or absence of a co-listing being offered. A listing is considered to be co-listed if the variable ‘Co-Listing Offered’ is equal to “Yes - Accepted”, while a listing is considered as never co-listed if ‘Co-Listing Offered’ is missing, equal to “Yes - Declined”, or “No”. List Date is determined based on the ‘Listing Date’ variable and does not reflect the co-listing date for co-listed properties. Cleaned, merged data set contains 6,938 observations (Seller Opportunities). New listings are restricted to Seller Opportunities and are determined by the ‘Listing Date’ variable. 16 (0.2%) opportunities that do not have a list date are excluded from this chart.

EXHIBIT 6B

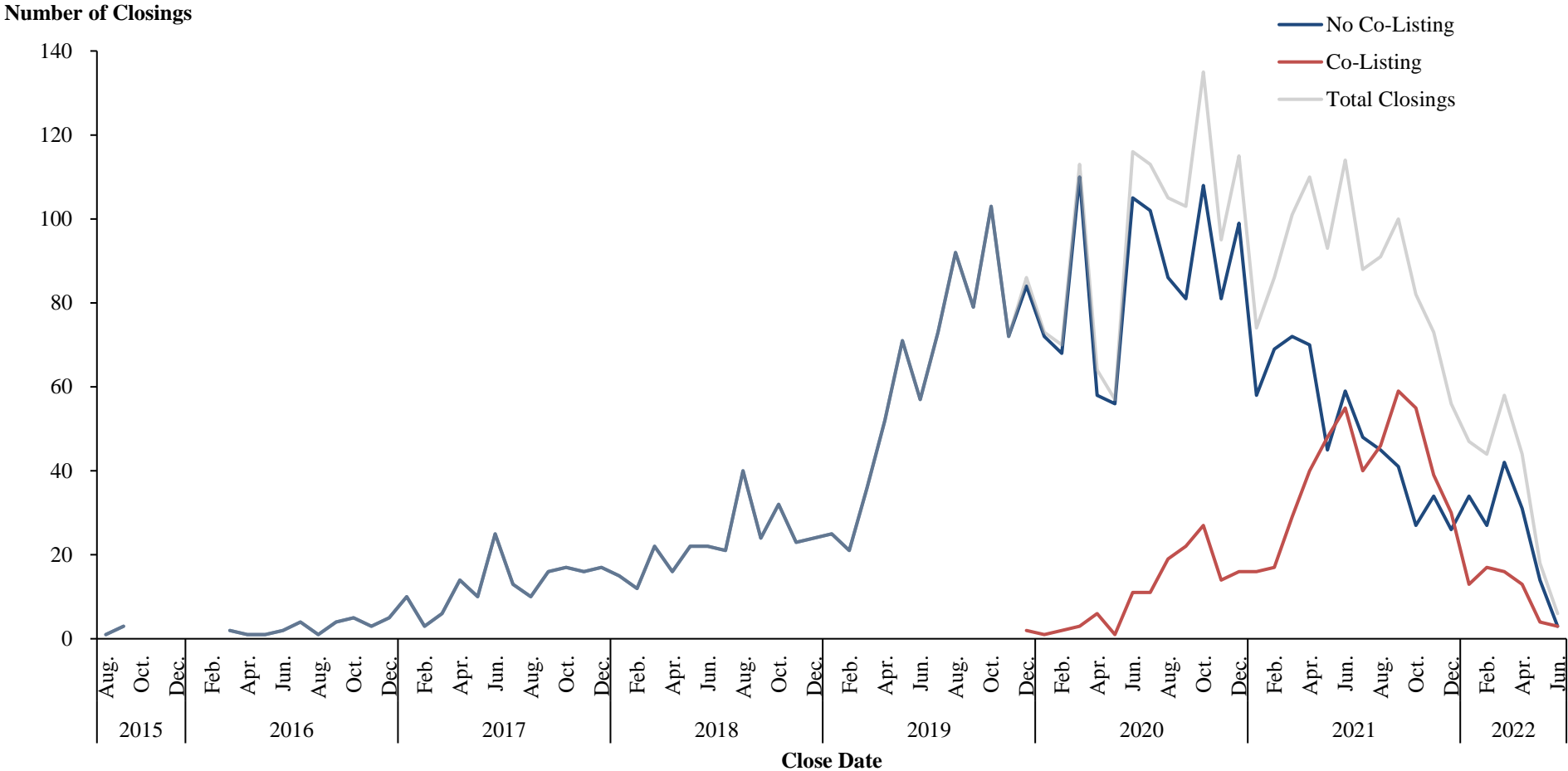
**REX MONTHLY NEW LISTINGS
TOTAL SELLER OPPORTUNITIES BY CO-LISTING STATUS
APRIL 2015 – MAY 2022**



Notes & Sources:

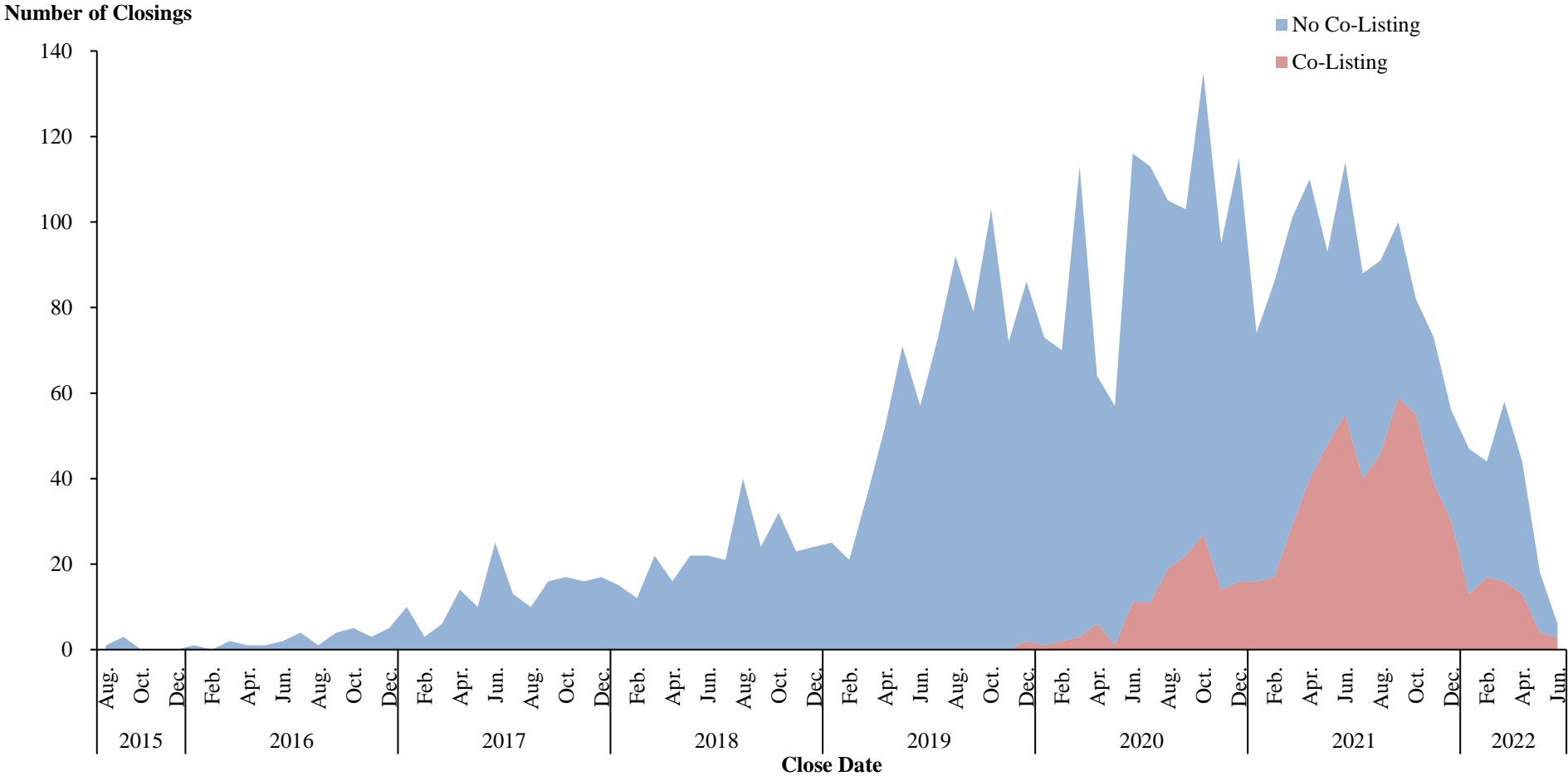
From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning. Graph displays the monthly sum of new listings across all geographies, disaggregated by the presence or absence of a co-listing being offered. A listing is considered to be co-listed if the variable ‘Co-Listing Offered’ is equal to “Yes - Accepted”, while a listing is considered as never co-listed if ‘Co-Listing Offered’ is missing, equal to “Yes - Declined”, or “No”. List Date is determined based on the ‘Listing Date’ variable and does not reflect the co-listing date for co-listed properties. Cleaned, merged data set contains 6,938 observations (Seller Opportunities). New listings are restricted to Seller Opportunities and are determined by the ‘Listing Date’ variable. 16 (0.2%) opportunities that do not have a list date are excluded from this chart.

EXHIBIT 7A
REX MONTHLY CLOSINGS
“CLOSED WON” SELLER OPPORTUNITIES BY CO-LISTING STATUS
AUGUST 2015 – JUNE 2022



Notes & Sources:
From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning. Graph displays the monthly sum of closings across all geographies, disaggregated by the presence or absence of a co-listing being offered. A closing is considered to be co-listed if the variable ‘Co-Listing Offered’ is equal to “Yes - Accepted”, while a closing is considered as never co-listed if ‘Co-Listing Offered’ is missing, equal to “Yes - Declined”, or “No”.
Cleaned, merged data set contains 6,938 observations (Seller Opportunities), 3,674 of which are closings. Closings are restricted to “Closed Won” Seller Opportunities. “Closed Won” opportunities are identified by the ‘Close Date’ variable and by the variable ‘Stage’ equal to “Closed Won”.

EXHIBIT 7B
REX MONTHLY CLOSINGS
TOTAL “CLOSED WON” SELLER OPPORTUNITIES BY CO-LISTING STATUS
AUGUST 2015 – JUNE 2022



Notes & Sources:
From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning. Graph displays the monthly sum of closings across all geographies, disaggregated by the presence or absence of a co-listing being offered. A closing is considered to be co-listed if the variable ‘Co-Listing Offered’ is equal to “Yes - Accepted”, while a closing is considered as never co-listed if ‘Co-Listing Offered’ is missing, equal to “Yes - Declined”, or “No”.
Cleaned, merged data set contains 6,938 observations (Seller Opportunities), 3,674 of which are closings. Closings are restricted to “Closed Won” Seller Opportunities. “Closed Won” opportunities are identified by the ‘Close Date’ variable and by the variable ‘Stage’ equal to “Closed Won”.

EXHIBIT 8A

REX - REAL ESTATE EXCHANGE, INC.
CONSOLIDATED STATEMENT OF OPERATIONS
REX - REAL ESTATE EXCHANGE, INC. TOTAL
2015 – 2021

	For Twelve Months Ending December 31,						
	2015	2016	2017	2018	2019	2020	2021
	[A]	[B]	[C]	[D]	[E]	[F]	[G]
[1] Revenue	\$479,790	\$252,097	\$2,012,933	\$3,864,958	\$10,007,639	\$15,960,409	\$16,396,593
[2] Cost of Revenue	\$10,400	\$98,630	\$1,849,677	\$2,247,476	\$7,526,670	\$9,050,677	\$11,192,653
[3] Gross Profit (Loss)	\$469,390	\$153,467	\$163,256	\$1,617,482	\$2,480,969	\$6,909,732	\$5,203,940
[4] Sales and Marketing Expenses	\$315,128	\$1,304,683	\$3,672,859	\$10,948,992	\$27,517,836	\$26,357,615	\$40,885,668
[5] General and Administrative Expenses	\$1,507,057	\$2,792,796	\$2,029,738	\$4,450,247	\$10,359,052	\$14,078,189	\$19,470,798
[6] Technology and Development	\$60,926	\$293,418	\$2,554,443	\$3,970,391	\$7,203,166	\$9,631,188	\$14,525,995
[7] Total Operating Expenses	\$1,883,111	\$4,390,898	\$8,257,040	\$19,369,630	\$45,080,054	\$50,066,993	\$74,882,460
[8] Income (Loss) From Operations	(\$1,413,720)	(\$4,237,431)	(\$8,093,784)	(\$17,752,147)	(\$42,599,085)	(\$43,157,262)	(\$69,678,520)
[9] Interest Income	\$17	\$938	\$40	\$180,180	\$323,179	\$92,539	\$43,075
[10] Interest Expense	\$530	-	-	-	-	\$44,028	\$65,398
[11] Other	-	-	-	(\$11,212)	-	\$61,883	(\$20,000)
[12] Other Income (Loss)	(\$513)	\$938	\$40	\$168,968	\$323,179	\$110,394	(\$42,323)
[13] Net Income (Loss)	(\$1,414,233)	(\$4,236,493)	(\$8,093,744)	(\$17,583,179)	(\$42,275,906)	(\$43,046,868)	(\$69,720,843)

Notes & Sources:

From REX_0001655. REX total from column labeled “Amount”.

[3] = [1] – [2].

[7] = Sum of [4] to [6].

[8] = [3] – [7].

[10] Interest expense expressed as a positive value for calculation.

[12] = [9] – [10] + [11].

[13] = [8] + [12].

EXHIBIT 8B

REX - REAL ESTATE EXCHANGE, INC.
CONSOLIDATED STATEMENT OF OPERATIONS
REX BROKERAGE
2015 – 2021

	For Twelve Months Ending December 31,						
	2015	2016	2017	2018	2019	2020	2021
	[A]	[B]	[C]	[D]	[E]	[F]	[G]
[1] Revenue	\$479,790	\$252,097	\$2,007,561	\$3,410,259	\$8,573,363	\$12,764,696	\$12,765,776
[2] Cost of Revenue	\$10,400	\$98,630	\$1,849,614	\$2,212,802	\$6,963,364	\$7,477,529	\$8,813,376
[3] Gross Profit (Loss)	\$469,390	\$153,467	\$157,947	\$1,197,457	\$1,609,998	\$5,287,166	\$3,952,399
[4] Sales and Marketing Expenses	\$315,128	\$1,304,683	\$3,672,859	\$10,862,934	\$27,471,041	\$26,353,573	\$40,777,316
[5] General and Administrative Expenses	\$1,507,057	\$2,792,796	\$2,006,253	\$3,798,437	\$8,814,522	\$11,612,227	\$15,927,663
[6] Technology and Development	\$60,926	\$293,418	\$2,554,443	\$3,970,391	\$7,166,620	\$9,583,256	\$14,383,643
[7] Total Operating Expenses	\$1,883,111	\$4,390,898	\$8,233,555	\$18,631,761	\$43,452,183	\$47,549,056	\$71,088,622
[8] Income (Loss) From Operations	(\$1,413,720)	(\$4,237,431)	(\$8,075,608)	(\$17,434,305)	(\$41,842,184)	(\$42,261,890)	(\$67,136,223)
[9] Interest Income	\$17	\$938	\$40	\$180,160	\$323,061	\$90,442	\$42,881
[10] Interest Expense	\$530	-	-	-	-	\$2,427	-
[11] Other	-	-	-	-	-	\$61,883	(\$20,000)
[12] Other Income (Loss)	(\$513)	\$938	\$40	\$180,160	\$323,061	\$149,898	\$22,881
[13] Net Income (Loss)	(\$1,414,233)	(\$4,236,493)	(\$8,075,568)	(\$17,254,145)	(\$41,519,123)	(\$42,111,992)	(\$67,113,342)

Notes & Sources:

From REX_0001655.

[3] = [1] – [2].

[7] = Sum of [4] to [6].

[8] = [3] – [7].

[10] Interest expense expressed as a positive value for calculation.

[12] = [9] – [10] + [11].

[13] = [8] + [12].

EXHIBIT 8C

REX - REAL ESTATE EXCHANGE, INC.
CONSOLIDATED STATEMENT OF OPERATIONS
OTHER REX BUSINESS SEGMENTS
2015 – 2021

	For Twelve Months Ending December 31,						
	2015	2016	2017	2018	2019	2020	2021
	[A]	[B]	[C]	[D]	[E]	[F]	[G]
[1] Revenue	-	-	\$5,372	\$454,699	\$1,434,276	\$3,195,713	\$3,630,817
[2] Cost of Revenue	-	-	\$63	\$34,673	\$563,306	\$1,573,148	\$2,379,277
[3] Gross Profit (Loss)	-	-	\$5,309	\$420,026	\$870,971	\$1,622,565	\$1,251,541
[4] Sales and Marketing Expenses	-	-	-	\$86,058	\$46,795	\$4,042	\$108,352
[5] General and Administrative Expenses	-	-	\$23,485	\$651,810	\$1,544,530	\$2,465,962	\$3,543,135
[6] Technology and Development	-	-	-	-	\$36,546	\$47,932	\$142,351
[7] Total Operating Expenses	-	-	\$23,485	\$737,868	\$1,627,871	\$2,517,937	\$3,793,838
[8] Income (Loss) From Operations	-	-	(\$18,176)	(\$317,842)	(\$756,900)	(\$895,372)	(\$2,542,297)
[9] Interest Income	-	-	\$0	\$20	\$118	\$2,099	\$194
[10] Interest Expense	-	-	-	-	-	\$41,601	\$65,398
[11] Other	-	-	-	(\$11,212)	-	-	-
[12] Other Income (Loss)	-	-	\$0	(\$11,192)	\$118	(\$39,502)	(\$65,204)
[13] Net Income (Loss)	-	-	(\$18,176)	(\$329,034)	(\$756,783)	(\$934,874)	(\$2,607,501)

Notes & Sources:

From REX_0001655.

The above Statement of Operations for “Other REX Business Segments” reflects the operations of REX Home Loans, Inc., REX Home Loans, LLC, RHI, California First, REX Homes Plus, Ballista, INCTH, INCTA, INCT, INCTW, INCTU, INCTC, and Titleshield. “RHL Inc.” represents REX Home Loans, Inc. and “RHL LLC” represents REX Home Loans, LLC. The source document does not provide descriptions about the other REX business segments. Based on my review of REX_0001655 and REX’s Affiliated Business Arrangement Disclosure, it appears that “RHI” could be related to REX Insurance Group, Inc., “REX Homes Plus” could be related to one of REX’s affiliated busienss, and “INCTH”, “INCTA”, “INCT”, “INCTW”, “INCTU”, and “INCTC” could be related to one of the Iron Crest National Title affiliates. “Cal First” represents California First, a “Non-Independent

EXHIBIT 8C**REX - REAL ESTATE EXCHANGE, INC.
CONSOLIDATED STATEMENT OF OPERATIONS
OTHER REX BUSINESS SEGMENTS
2015 – 2021**Notes & Sources (continued):

Broker Escrow, which ... is a DBA [“Doing Business As”] of REX”, and “Ballista” represents Ballista Real Estate, LLC. *See* Rex Homes, “REX Affiliated Business Arrangement Disclosure,” 2020, available at <https://www.rexhomes.com/assets/docs/REX-ABAD-Affiliated-Business-Arrangement-Disclosure-Website.pdf>. “Titleshield” could be related to REX’s buyer rebate program, serving as title and escrow service and protection. *See* “AllHomes Cashback”, REX Homes, available at <https://www.rexhomes.com/service/buyerrebate>, accessed on December 6, 2022.

[3] = [1] – [2].

[7] = Sum of [4] to [6].

[8] = [3] – [7].

[10] Interest expense expressed as a positive value for calculation.

[12] = [9] – [10] + [11].

[13] = [8] + [12].

EXHIBIT 9

**EVANS REPORT BASELINE SPECIFICATION (TABLE VI-5)
PAIRWISE YEARLY COMPARISON OF AVERAGE MONTH/YEAR FIXED EFFECTS
NEW LISTINGS AS THE OUTCOME VARIABLE**

	$\frac{1}{12} \left[\sum_{m_t} \delta_t - \sum_{m_{t-1}} \delta_t \right]$	Evans Report	Alternative Outcome Variable		
			New Listings	REX’s New Listings Share	Total New Listings Control
	[A]	[B]	[C]	[D]	[E]
[1]	2016 – 2017	1.030 (0.000***)	0.725 (0.000***)	<i>n/a</i> <i>n/a</i>	<i>n/a</i> <i>n/a</i>
[2]	2017 – 2018	0.045 (0.822)	0.450 (0.001***)	<i>n/a</i> <i>n/a</i>	<i>n/a</i> <i>n/a</i>
[3]	2018 – 2019	0.390 (0.064*)	0.278 (0.007***)	0.041 (0.151)	0.384 (0.000***)
[4]	2019 – 2020	0.347 (0.001***)	-0.381 (0.000***)	-0.075 (0.000***)	-0.381 (0.000***)
[5]	2020 – 2021	-0.189 (0.001***)	-0.623 (0.000***)	-0.081 (0.000***)	-0.561 (0.000***)
[6]	Outcome Variable:	Closings	New Listings	REX New Listings / Total New Listings	New Listings
[7]	Additional Controls:	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	Publicly Available Total New Listings
[8]	Number of Observations:	1,162	1,162	987	987
[9]	Regression Model:	Poisson	Poisson	Linear	Poisson

Notes & Sources:

Standard errors are clustered at the “Market Area” level.

The unit of observation is a “Market Area” for a given month and year.

Poisson model specification: $\log[E(Y_{mt}|X)] = \delta_t + \gamma_m + Z_{mt}$

Where Y is the outcome variable, δ_t is the month/year fixed effect, γ_m is the “Market Area” fixed effect, and Z_{mt} are additional controls, if any.

Linear model specification: $E(Y_{mt}|X) = \delta_t + \gamma_m + Z_{mt}$

Where Y is the outcome variable, δ_t is the month/year fixed effect, γ_m is the “Market Area” fixed effect, and Z_{mt} are additional controls, if any.

P-values shown in parentheses. “***” represents significance at the 1% level, “**” represents significance at the 5% level, and “*” represents significance at the 10% level.

From Expert Report of David S. Evans, December 12, 2022, Table VI-5, ¶ 419 and REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”, 1-import-data.do, and 2-main-regressions.do in Dr. Evans’ work papers.

[C]-[E] Consistent with Dr. Evans’ methodology, “Market Areas” Charlotte and Stockton, which have their first listings in 2021 and their first closings in 2022, are excluded from these specifications. See Expert Report of Dr. David S. Evans, December 12, 2022, Appendix C, ¶ 26.

[D]-[E] Publicly available new listings data is only available beginning in January 2018, and therefore the pairwise yearly comparison of average month/year fixed effects is not available for 2016 – 2017 and 2017 – 2018. Publicly available data from “Housing Data”, Zillow, available at <https://www.zillow.com/research/data/>, accessed January 23, 2023. New listings selected under “INVENTORY” and “New Listings (Raw, All Homes, Monthly)” in the drop-down menu.

EXHIBIT 10
REX ANNUAL CLOSING RATE
CLOSINGS AS A SHARE OF LAGGED NEW LISTINGS
2015 – 2021



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”.

The data set contains 7,333 new listings and 3,482 closings over the time frame displayed in this chart. One closing in the Boulder “Market Area” in March 2021 has been dropped as it appeared in the data before Boulder’s first listing in April 2021.

To compute the annual closing rates, closings in a given year are divided by the sum of new listings with list dates between 2, 3, 4, and/or 5 months prior to the close date.

For example, the rate in 2019 for closings divided by new listings between 2 and 5 months prior is computed by dividing the total number of closings in 2019 by the sum of monthly new listings with list dates between August 2018 (five months prior to January 2019) and October 2019 (two months prior to December 2019).

EXHIBIT 11A

EVANS REPORT BASELINE SPECIFICATION WITH LOGARITHMIC TRENDS (TABLE VI-6)
ESTIMATED REGRESSION COEFFICIENTS
LAGGED NEW LISTINGS CONTROLS

	Evans Report	Lagged New Listings Controls			
		4-Period Lagged	3 and 4-Period Lagged	2, 3 and 4-Period Lagged	2, 3, 4 and 5-Period Lagged
	[A]	[B]	[C]	[D]	[E]
[1] Ln (Time in Market + 1)	0.996*** (0.150)	0.375** (0.153)	0.341** (0.145)	0.333** (0.142)	0.257* (0.148)
<i>If time in market + 1 increases by 10%, closings change by...</i>	10.0%	3.6%	3.3%	3.2%	2.5%
[2] Ln (Time Post-Event + 1)	-0.479*** (0.137)	-0.119 (0.074)	-0.083 (0.069)	-0.076 (0.068)	-0.032 (0.066)
<i>If time post-event + 1 increases by 10%, closings change by...</i>	-4.5%	-1.1%	-0.8%	-0.7%	-0.3%
[3] 2-Period Lagged New Listings				0.004 (0.007)	0.004 (0.007)
<i>If lagged new listings increase by 1, closings change by...</i>				0.4%	0.4%
[4] 3-Period Lagged New Listings			0.014** (0.007)	0.013** (0.006)	0.013** (0.005)
<i>If lagged new listings increase by 1, closings change by...</i>			1.4%	1.3%	1.3%
[5] 4-Period Lagged New Listings		0.023*** (0.007)	0.017*** (0.005)	0.016*** (0.005)	0.013*** (0.004)
<i>If lagged new listings increase by 1, closings change by...</i>		2.3%	1.7%	1.6%	1.3%
[6] 5-Period Lagged New Listings					0.007* (0.004)
<i>If lagged new listings increase by 1, closings change by...</i>					0.7%
[7] Outcome Variable:	Closings	Closings	Closings	Closings	Closings
[8] “Market Area” Fixed Effects:	Yes	Yes	Yes	Yes	Yes
[9] Month/Year Fixed Effects:	Yes	Yes	Yes	Yes	Yes
[10] Additional Controls:	<i>n/a</i>	4-Period Lagged New Listings	3 and 4-Period Lagged New Listings	2, 3 and 4-Period Lagged New Listings	2, 3, 4 and 5-Period Lagged New Listings
[11] Number of Observations:	1,162	1,014	1,014	1,014	966
[12] Number of “Market Areas”:	37	37	37	37	34
[13] Post-Event Starting Date:	January 2021	January 2021	January 2021	January 2021	January 2021
[14] Time Span:	March 2016 – December 2021	March 2016 – December 2021	March 2016 – December 2021	March 2016 – December 2021	March 2016 – December 2021
[15] Regression Model:	Poisson	Poisson	Poisson	Poisson	Poisson

EXHIBIT 11A

**EVANS REPORT BASELINE SPECIFICATION WITH LOGARITHMIC TRENDS (TABLE VI-6)
ESTIMATED REGRESSION COEFFICIENTS
LAGGED NEW LISTINGS CONTROLS**

Notes & Sources:

“***” represents significance at the 1% level, “**” represents significance at the 5% level, and “*” represents significance at the 10% level.

Standard errors are clustered at the “Market Area” level.

The unit of observation is a “Market Area” for a given month and year.

Poisson model specification: $\log[E(Y_{mt}|X)] = \delta_t + \gamma_m + \beta_1 \text{Ln}(\text{time in market} + 1)_{mt} + \beta_2 \text{Ln}(\text{time post-event} + 1)_{mt} + Z_{mt}$

Where Y_{mt} is the outcome variable, δ_t is the month/year fixed effect, γ_m is the “Market Area” fixed effect, and Z_{mt} are additional controls, if any.

From Expert Report of David S. Evans, December 12, 2022, Table VI-6, ¶ 421 and REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”, 1-import-data.do, and 2-main-regressions.do in Dr. Evans’ work papers.

When data are filtered to only opportunities where the ‘stage’ variable is equal to “Closed Won”, the average difference between close date and list date is 117.1 days, the median difference is 99.5 days, while the 25th percentile difference is 70.0 days, and the 75th percentile difference is 142.0 days. *See* Appendix F.3.

The coefficient corresponding to a 10% increase in the time variables, Time in Market + 1 and Time Post-Event + 1, is calculated as $(\text{Exp}(\text{Coefficient} * \text{Ln}(1 + 10\%)) - 1) * 100\%$. The coefficient corresponding to a unit increase in lagged new listings is calculated as $(\text{Exp}(\text{Coefficient}) - 1) * 100\%$.

EXHIBIT 11B

EVANS REPORT BASELINE SPECIFICATION WITH LOGARITHMIC TRENDS (TABLE VI-6)
ESTIMATED REGRESSION COEFFICIENTS
ALTERNATIVE SPECIFICATIONS

	Alternative Specification			
	Evans Report	“Placebo” Specification	Pre-Event Trend	Post-Event Trend
	[A]	[B]	[C]	[D]
[1] Ln (Time in Market + 1)	0.996*** (0.150)	1.112*** (0.189)	1.106*** (0.156)	1.143*** (0.207)
<i>If time in market + 1 increases by 10%, closings change by...</i>	<i>10.0%</i>	<i>11.2%</i>	<i>11.1%</i>	<i>11.5%</i>
[2] Equality Test	P-Value for Test [1][C] = [1][D] = 0.888			
[3] Ln (Time Post-Event + 1)	-0.479*** (0.137)	-0.254* (0.137)	<i>n/a</i> <i>n/a</i>	<i>n/a</i> <i>n/a</i>
<i>If time post-event + 1 increases by 10%, closings change by...</i>	<i>-4.5%</i>	<i>-2.4%</i>		
[4] Outcome Variable:	Closings	Closings	Closings	Closings
[5] “Market Area” Fixed Effects:	Yes	Yes	Yes	Yes
[6] Month/Year Fixed Effects:	Yes	Yes	Yes	Yes
[7] Number of Observations:	1,162	738	738	410
[8] Number of “Market Areas”:	37	26	26	36
[9] Post-Event Starting Date	January 2021	January 2020	January 2021	January 2021
[10] Time Span	March 2016 – December 2021	March 2016 – December 2020	March 2016 – December 2020	January 2021 – December 2021
[11] Regression Model	Poisson	Poisson	Poisson	Poisson

Notes & Sources:

“***” represents significance at the 1% level, “**” represents significance at the 5% level, and “*” represents significance at the 10% level.

Standard errors are clustered at the “Market Area” level.

The unit of observation is a “Market Area” for a given month and year.

Poisson model specification: $\log[E(Y_{mt}|X)] = \delta_t + \gamma_m + \beta_1 \text{Ln}(\text{time in market} + 1)_{mt} + \beta_2 \text{Ln}(\text{time post-event} + 1)_{mt}$

Where Y_{mt} is the outcome variable, δ_t is the month/year fixed effect, and γ_m is the “Market Area” fixed effect.

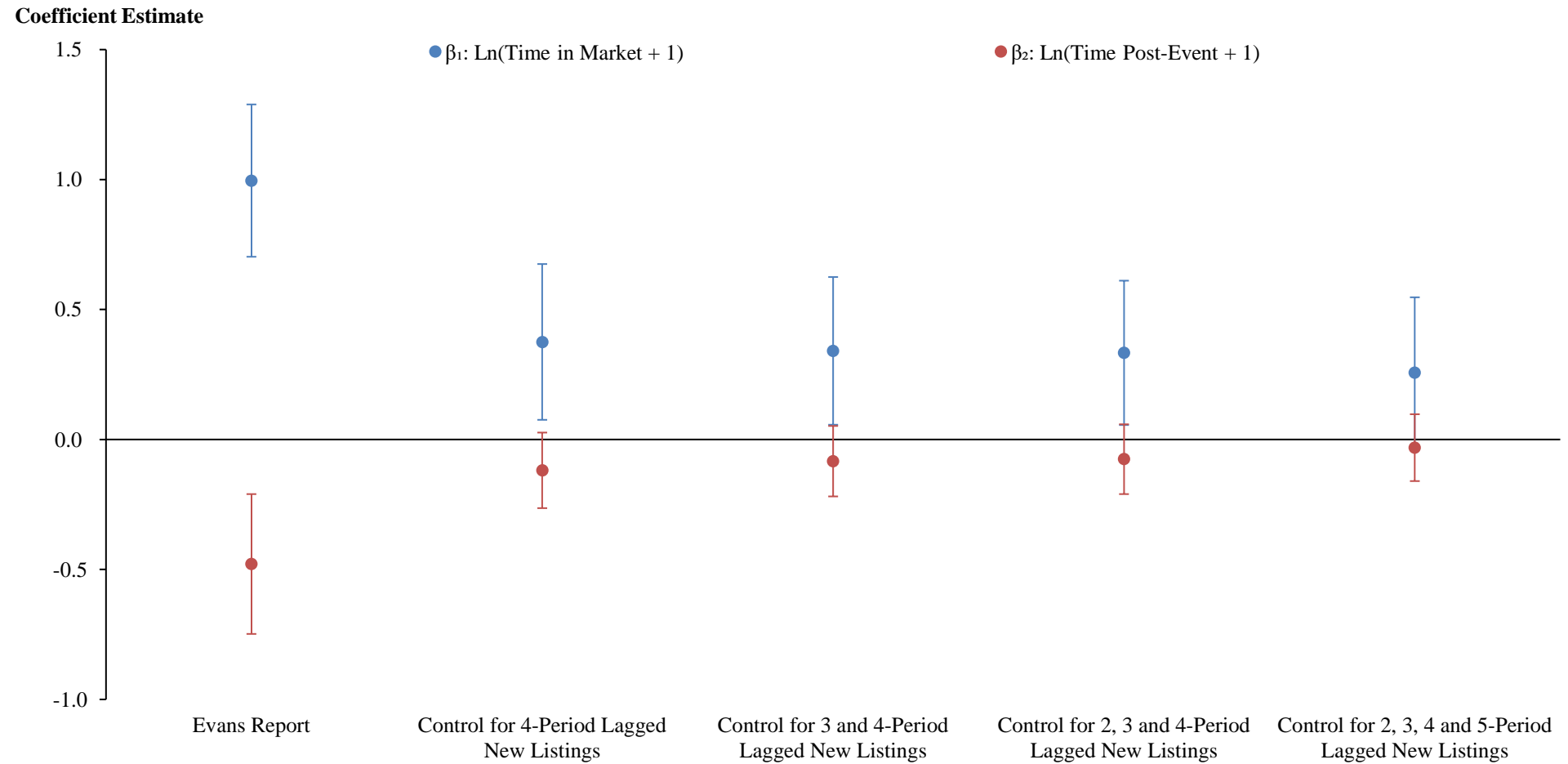
From Expert Report of David S. Evans, December 12, 2022, Table VI-6, ¶ 421 and REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”, 1-import-data.do, and 2-main-regressions.do in Dr. Evans’ work papers.

The coefficient corresponding to a 10% increase in the time variables, Time in Market + 1 and Time Post-Event + 1, is calculated as

$(\text{Exp}(\text{Coefficient} * \text{Ln}(1 + 10\%)) - 1) * 100\%$.

EXHIBIT 12

**EVANS REPORT BASELINE SPECIFICATION WITH LOGARITHMIC TRENDS (TABLE VI-6)
ESTIMATED REGRESSION COEFFICIENTS
LAGGED NEW LISTINGS CONTROLS**



Notes & Sources:

From Exhibit 11A.

Standard errors are clustered at the “Market Area” level. Chart displays 95% confidence intervals.

Poisson model specification: $\log[E(Y_{mt}|X)] = \delta_t + \gamma_m + \beta_1 \text{Ln}(\text{time in market} + 1)_{mt} + \beta_2 \text{Ln}(\text{time post-event} + 1)_{mt} + Z_{mt}$

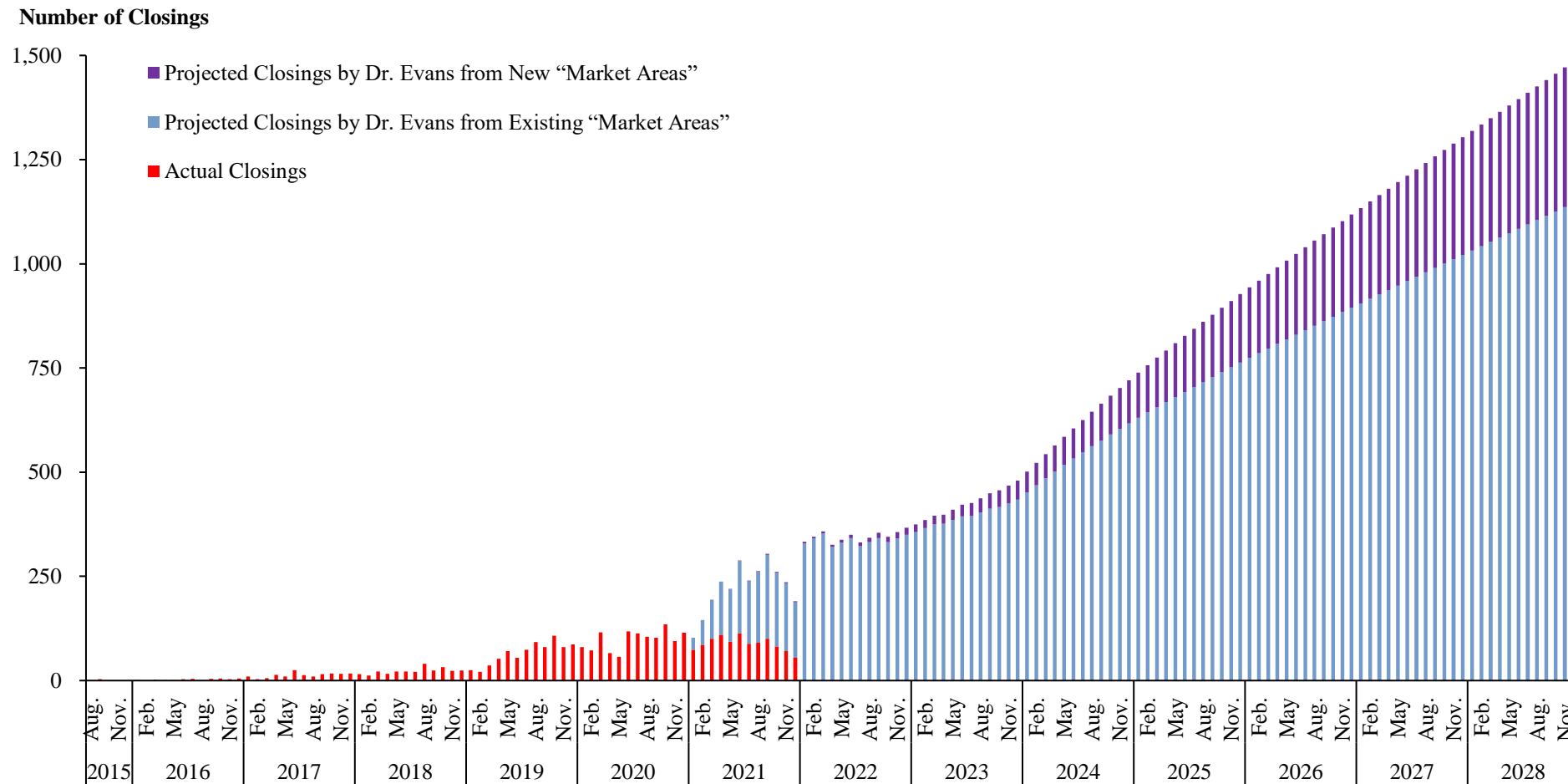
Where Y_{mt} is the outcome variable, δ_t is the month/year fixed effect, γ_m is the “Market Area” fixed effect, and Z_{mt} are additional controls, if any.

From Expert Report of David S. Evans, December 12, 2022, Table VI-6, ¶ 421 and REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”, 1-import-data.do, and 2-main-regressions.do in Dr. Evans’ work papers.

When data are filtered to only opportunities where the ‘Stage’ variable is equal to “Closed Won”, the average difference between close date and list date is 117.1 days, the median difference is 99.5 days, while the 25th percentile difference is 70.0 days, and the 75th percentile difference is 142.0 days. See Appendix F.3.

EXHIBIT 13

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
AUGUST 2015 – DECEMBER 2028**



Notes & Sources:

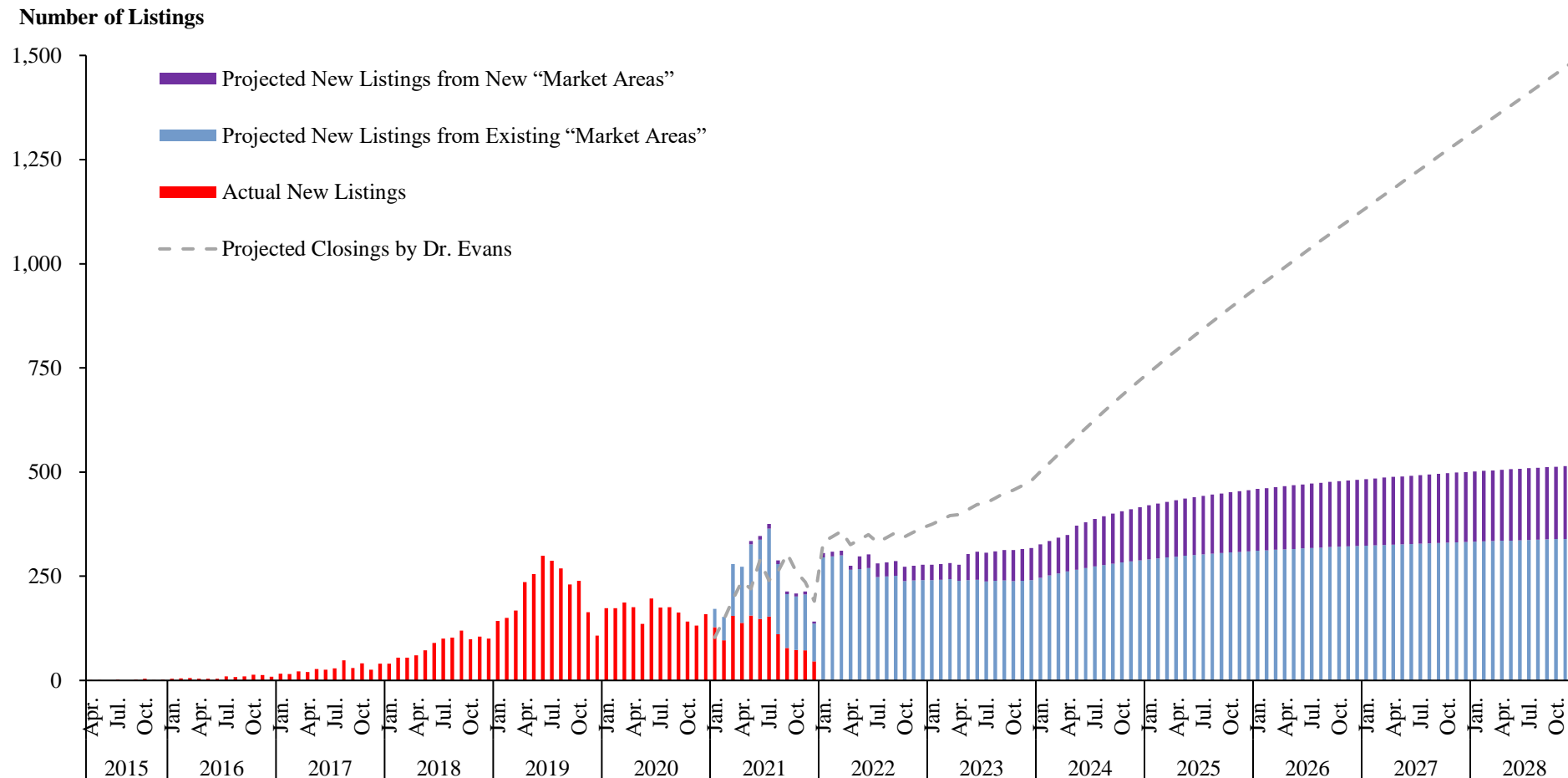
From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”. The data set contains 3,482 actual closings (shown in red) over the time frame displayed in this chart. One closing in the Boulder “Market Area” in March 2021 has been dropped as it appeared in the data before Boulder’s first listing in April 2021.

Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In 2021 as displayed above, the projected closings from existing “Market Areas” are the number additional closings that were projected over the amount of actual closings. In total, Dr. Evans projects 73,149 closings from 2021 – 2028. According to Dr. Evans’ methodology, REX is projected to enter 7 markets in 2022, 10 markets in 2023, and 6 markets in 2024. Consistent with Dr. Evans’ methodology, “Market Areas” Charlotte and Stockton, which have their first listings in 2021 and their first closings in 2022, are considered to be new “Market Areas” in the projected monthly closings. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Appendix C, ¶ 26.

EXHIBIT 14

**REX MONTHLY NEW LISTINGS PROJECTIONS IMPLIED BY DR. EVANS’ TREND BREAK ANALYSIS
APRIL 2015 – DECEMBER 2028**



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”. The data set contains 7,333 actual new listings (shown in red) over the time frame displayed in this chart.

Beginning in January 2021, number of new listings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected new listings are obtained from estimating a version of Dr. Evans’ “trend break” closings analysis that replaces closings with new listings as the outcome variable. Following the methodology described in Dr. Evans’ Report Appendix C, ¶¶ 27-31, projected new listings are adjusted based on Freddie Mac forecasted home sales. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In 2021 as displayed above, the projected new listings from existing “Market Areas” are the number of additional new listings that were projected over the amount of actual new listings. In total, 37,541 new listings are projected from 2021 – 2028. According to Dr. Evans’ methodology, REX is projected to enter 7 markets in 2022, 10 markets in 2023, and 6 markets in 2024. Similar to the closings projections shown in Exhibit 13, “Market Areas” Charlotte and Stockton, which have their first listings in 2021 and their first

EXHIBIT 14**REX MONTHLY NEW LISTINGS PROJECTIONS IMPLIED BY DR. EVANS’ TREND BREAK ANALYSIS
APRIL 2015 – DECEMBER 2028**Notes & Sources (continued):

closings in 2022, are considered to be new “Market Areas” in the projected monthly listings. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Appendix C, ¶ 26.

In 2021, actual new listings for Charlotte and Stockton are included in the Actual New Listings bar, and their additional projected listings appear in the Projected New Listings from New “Market Areas” bar.

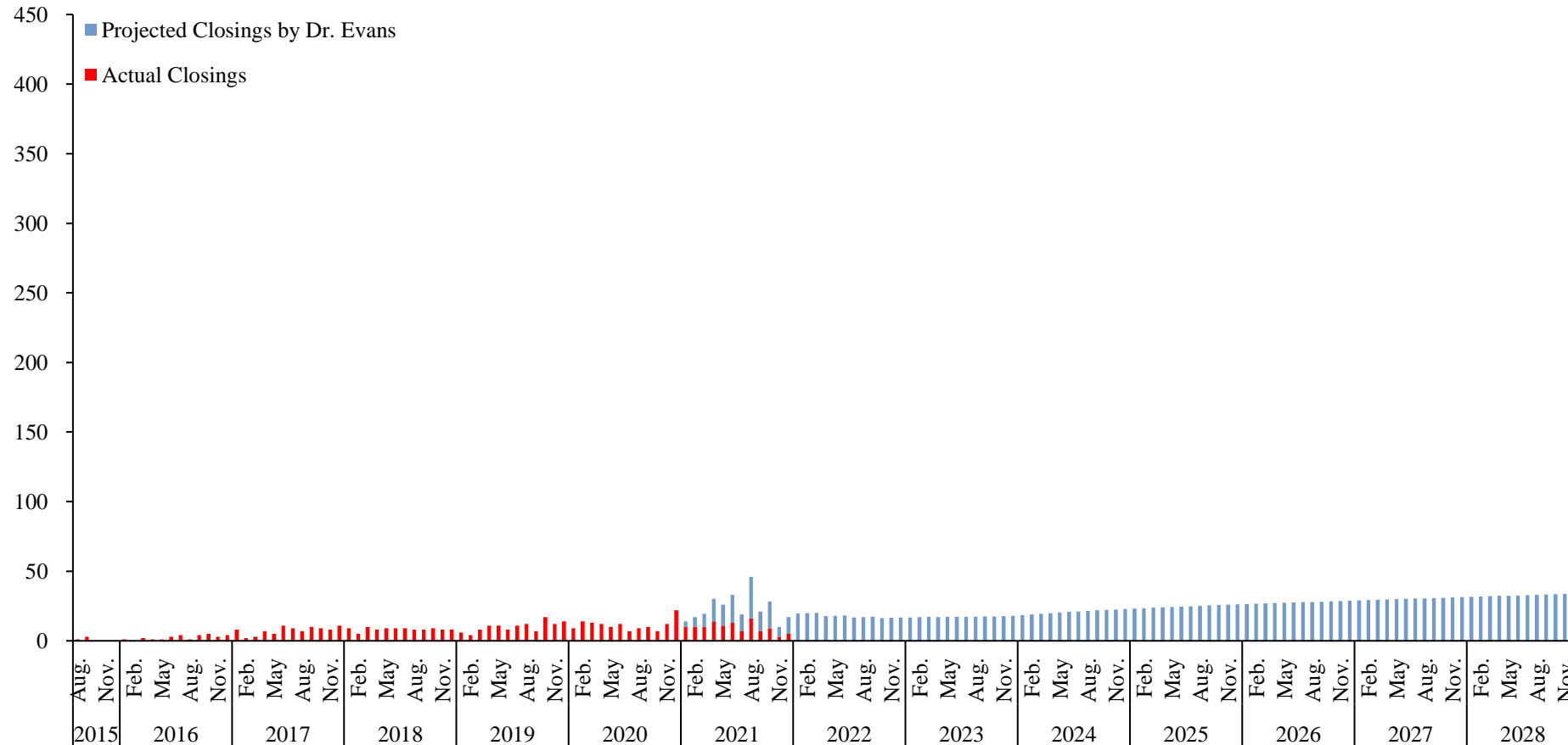
Poisson model specification: $\log[E(Y_{mt}|X)] = \delta_t + \gamma_m + \beta_1 \ln(\text{time in market} + 1)_{mt} + \beta_2 \ln(\text{time post-event} + 1)_{mt}$

Where Y_{mt} is the outcome variable, δ_t is the month/year fixed effect, γ_m is the “Market Area” fixed effect β_1 is 0.215***, β_2 is -0.424***. The standard error of β_1 is 0.062 and the standard error of β_2 is 0.064.

APPENDIX EXHIBIT 1A

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
 “MARKET AREA” ENTRY IN 2015 (1 “MARKET AREA”)
 AUGUST 2015 – DECEMBER 2028**

Number of Closings



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”. The data set contains 3,482 actual closings (shown in red) over the time frame displayed in this chart. One closing in the Boulder “Market Area” in March 2021 has been dropped as it appeared in the data before Boulder’s first listing in April 2021.

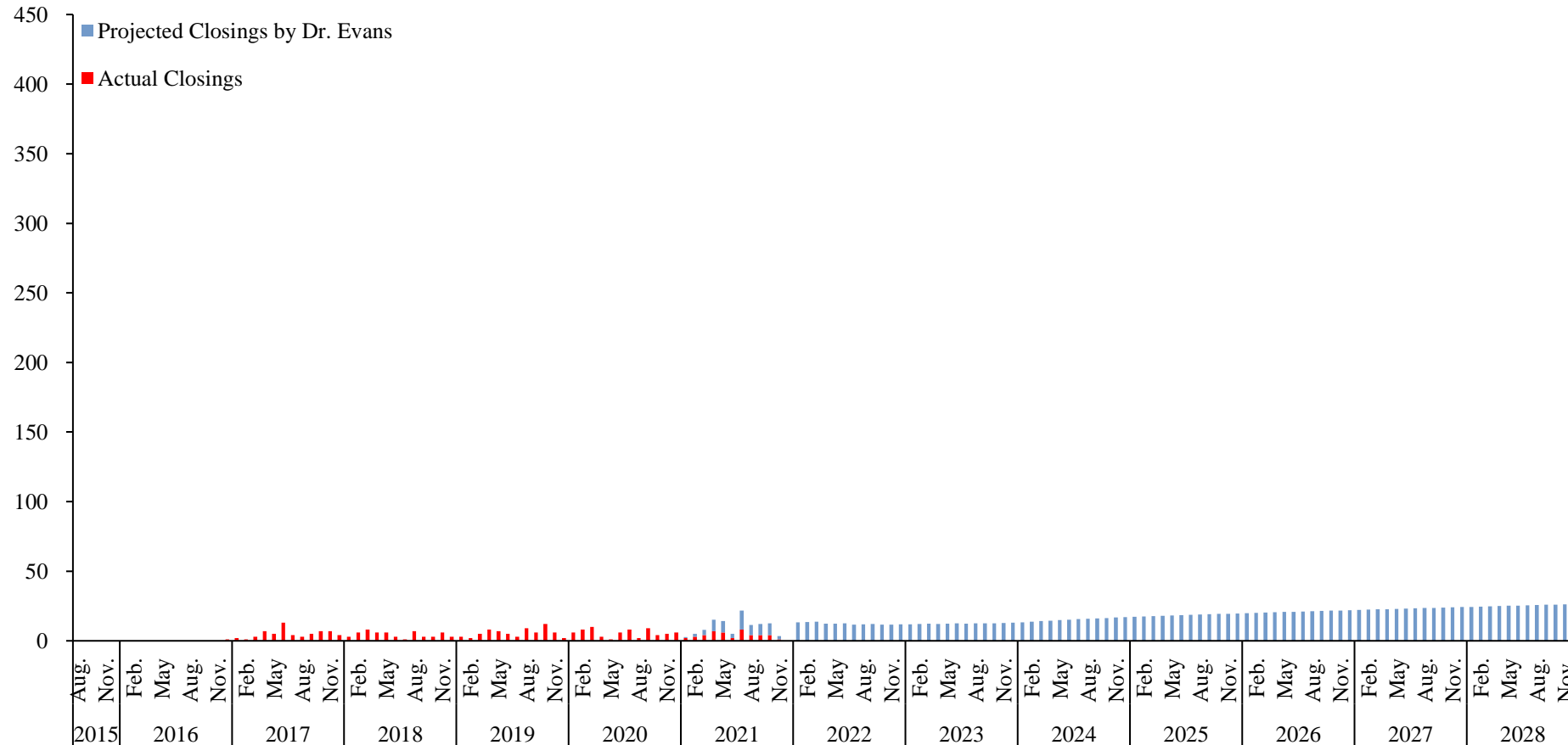
Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In 2021 as displayed above, the projected closings from existing “Market Areas” are the number additional closings that were projected over the amount of actual closings. In total, Dr. Evans projects 2,336 closings from 2021 – 2028 for “Market Areas” that REX entered in 2015. Year of “Market Area” entry is determined based on the listing date of the first new listing in a given “Market Area”. In this data set, Los Angeles was the only “Market Area” REX entered in 2015.

APPENDIX EXHIBIT 1B

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
 “MARKET AREA” ENTRY IN 2016 (2 “MARKET AREAS”)
 AUGUST 2015 – DECEMBER 2028**

Number of Closings



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”. The data set contains 3,482 actual closings (shown in red) over the time frame displayed in this chart. One closing in the Boulder “Market Area” in March 2021 has been dropped as it appeared in the data before Boulder’s first listing in April 2021.

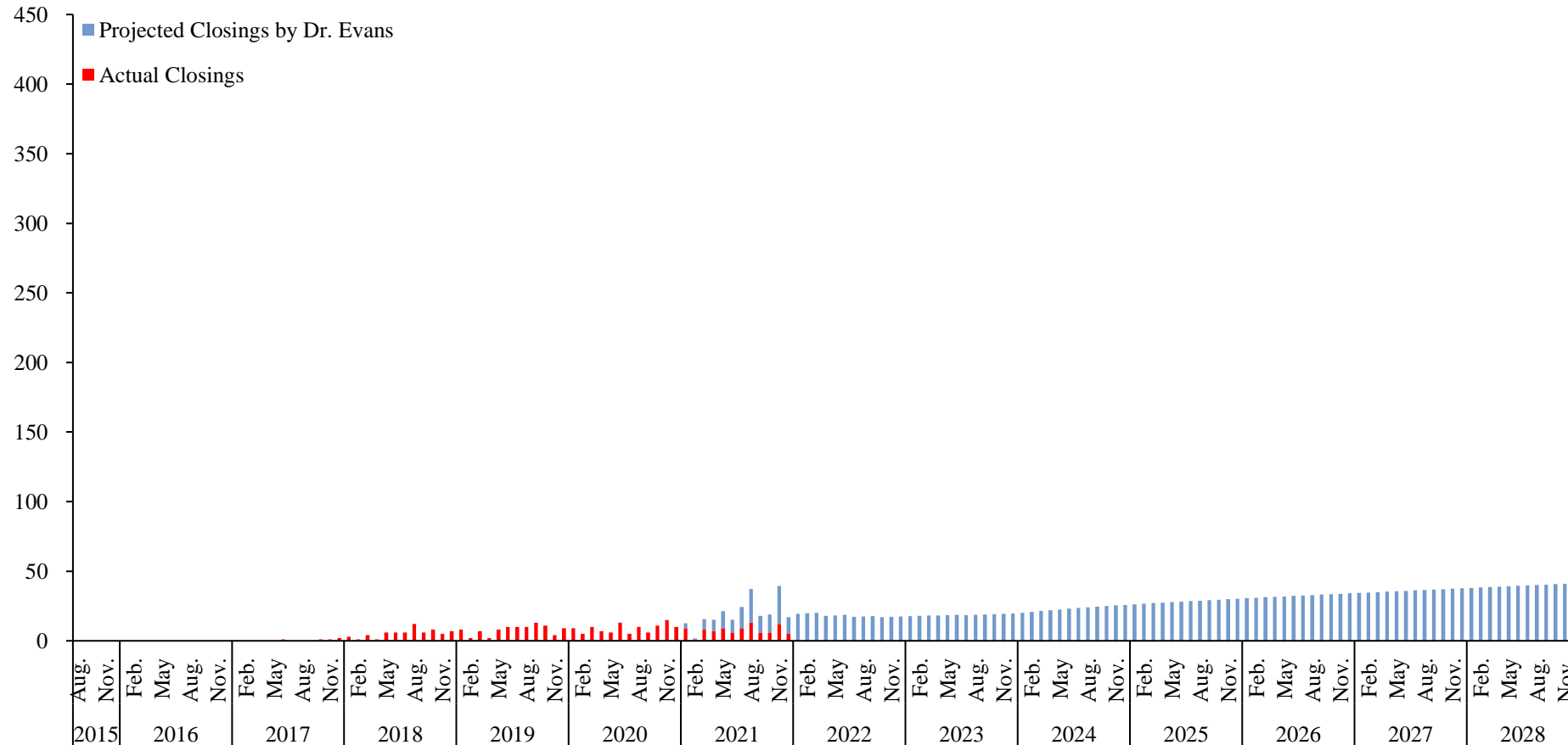
Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In 2021 as displayed above, the projected closings from existing “Market Areas” are the number additional closings that were projected over the amount of actual closings. In total, Dr. Evans projects 1,650 closings from 2021 – 2028 for “Market Areas” that REX entered in 2015. Year of “Market Area” entry is determined based on the listing date of the first new listing in a given “Market Area”. In this data set, REX entered the Orange County and San Diego “Market Areas” in 2016.

APPENDIX EXHIBIT 1C

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
 “MARKET AREA” ENTRY IN 2017 (2 “MARKET AREAS”)
 AUGUST 2015 – DECEMBER 2028**

Number of Closings



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”. The data set contains 3,482 actual closings (shown in red) over the time frame displayed in this chart. One closing in the Boulder “Market Area” in March 2021 has been dropped as it appeared in the data before Boulder’s first listing in April 2021.

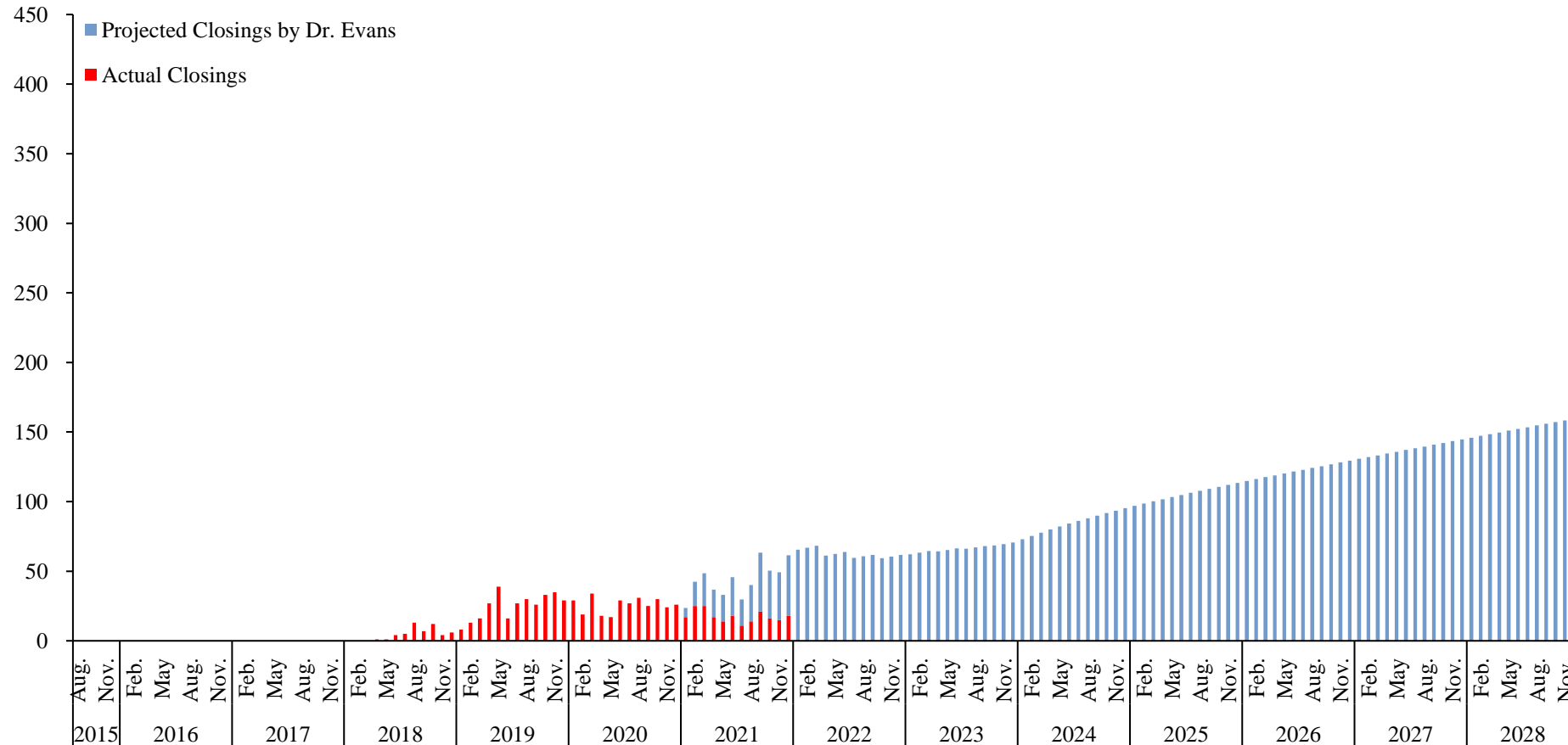
Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In 2021 as displayed above, the projected closings from existing “Market Areas” are the number additional closings that were projected over the amount of actual closings. In total, Dr. Evans projects 2,595 closings from 2021 – 2028 for “Market Areas” that REX entered in 2017. Year of “Market Area” entry is determined based on the listing date of the first new listing in a given “Market Area”. In this data set, REX entered the New York and Riverside “Market Areas” in 2017.

APPENDIX EXHIBIT 1D

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
 “MARKET AREA” ENTRY IN 2018 (6 “MARKET AREAS”)
 AUGUST 2015 – DECEMBER 2028**

Number of Closings



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”. The data set contains 3,482 actual closings (shown in red) over the time frame displayed in this chart. One closing in the Boulder “Market Area” in March 2021 has been dropped as it appeared in the data before Boulder’s first listing in April 2021.

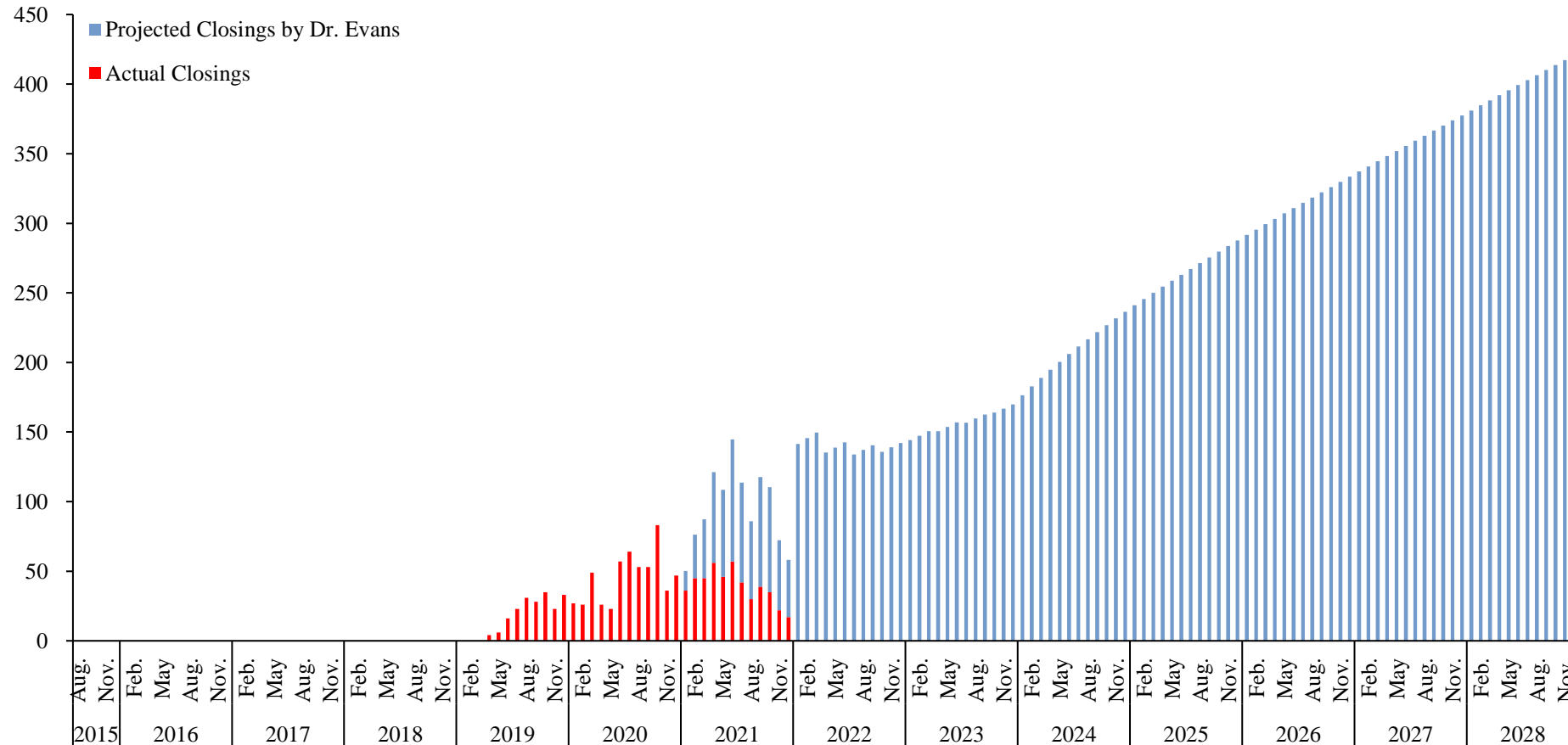
Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In 2021 as displayed above, the projected closings from existing “Market Areas” are the number additional closings that were projected over the amount of actual closings. In total, Dr. Evans projects 9,307 closings from 2021 – 2028 for “Market Areas” that REX entered in 2018. Year of “Market Area” entry is determined based on the listing date of the first new listing in a given “Market Area”. In this data set, REX entered the Austin, Bay Area, Denver, Houston, New Jersey, and San Antonio “Market Areas” in 2018.

APPENDIX EXHIBIT 1E

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
 “MARKET AREA” ENTRY IN 2019 (14 “MARKET AREAS”)
 AUGUST 2015 – DECEMBER 2028**

Number of Closings



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”. The data set contains 3,482 actual closings (shown in red) over the time frame displayed in this chart. One closing in the Boulder “Market Area” in March 2021 has been dropped as it appeared in the data before Boulder’s first listing in April 2021.

Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In 2021 as displayed above, the projected closings from existing “Market Areas” are the number additional closings that were projected over the amount of actual closings. In total, Dr. Evans projects 23,236 closings from 2021 – 2028 for “Market Areas” that REX entered in 2019. Year of “Market Area” entry is determined based on the listing date

APPENDIX EXHIBIT 1E

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
“MARKET AREA” ENTRY IN 2019 (14 “MARKET AREAS”)
AUGUST 2015 – DECEMBER 2028**

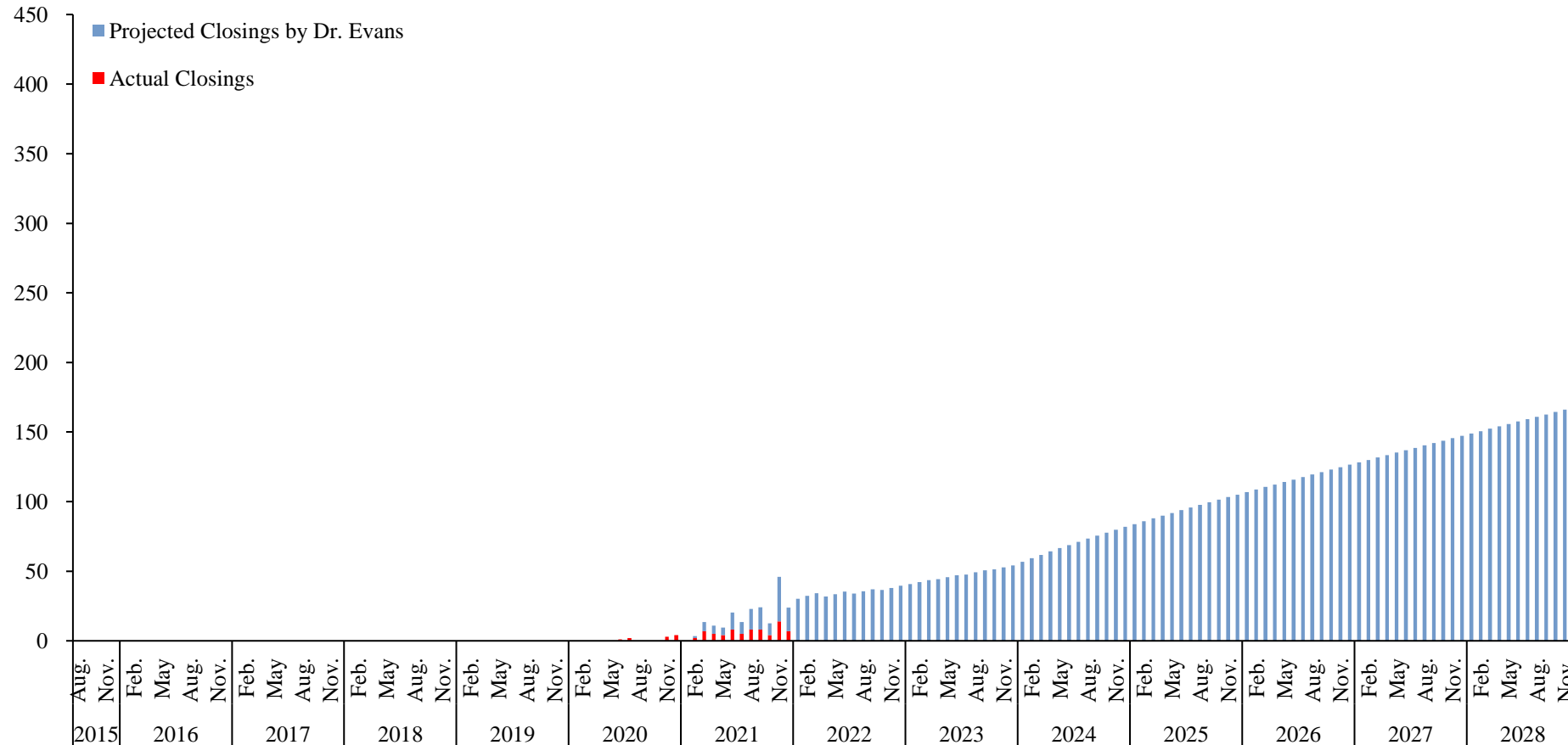
Notes & Sources (continued):

of the first new listing in a given “Market Area”. In this data set, REX entered the Boston, Chicago, Colorado Springs, DMV, Jacksonville, Las Vegas, Miami, Orlando, Philadelphia, Phoenix, Portland, Research-Triangle, Sacramento, and Tampa “Market Areas” in 2019.

APPENDIX EXHIBIT 1F

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
 “MARKET AREA” ENTRY IN 2020 (3 “MARKET AREAS”)
 AUGUST 2015 – DECEMBER 2028**

Number of Closings



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”. The data set contains 3,482 actual closings (shown in red) over the time frame displayed in this chart. One closing in the Boulder “Market Area” in March 2021 has been dropped as it appeared in the data before Boulder’s first listing in April 2021.

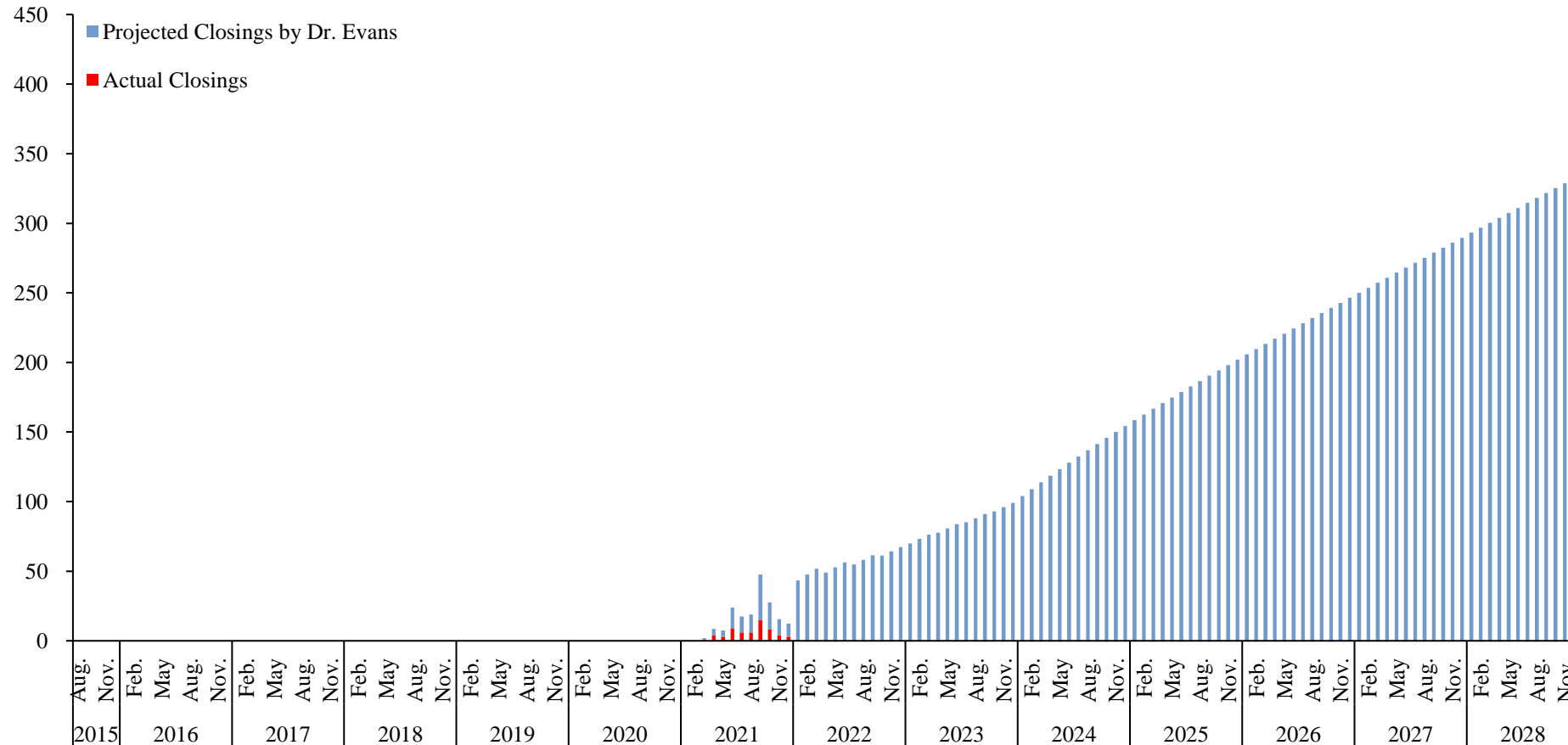
Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In 2021 as displayed above, the projected closings from existing “Market Areas” are the number additional closings that were projected over the amount of actual closings. In total, Dr. Evans projects 8,117 closings from 2021 – 2028 for “Market Areas” that REX entered in 2020. Year of “Market Area” entry is determined based on the listing date of the first new listing in a given “Market Area”. In this data set, REX entered the Atlanta, Fort Lauderdale, and West Palm Beach “Market Areas” in 2020.

APPENDIX EXHIBIT 1G

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
 “MARKET AREA” ENTRY IN 2021 (11 “MARKET AREAS”)
 AUGUST 2015 – DECEMBER 2028**

Number of Closings



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”. The data set contains 3,482 actual closings (shown in red) over the time frame displayed in this chart. One closing in the Boulder “Market Area” in March 2021 has been dropped as it appeared in the data before Boulder’s first listing in April 2021.

Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In 2021 as displayed above, the projected closings from existing “Market Areas” are the number additional closings that were projected over the amount of actual closings.

In total, Dr. Evans projects 15,296 closings from 2021 – 2028 for “Market Areas” that REX entered in 2021. Year of “Market Area” entry is determined based on the listing date of the first new listing in a given “Market Area”. In this data set, REX entered the Bakersfield, Bend, Boulder, Charlotte, Fort Myers / Cape Coral / Naples, Minneapolis, Provo,

APPENDIX EXHIBIT 1G

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
“MARKET AREA” ENTRY IN 2021 (11 “MARKET AREAS”)
AUGUST 2015 – DECEMBER 2028**

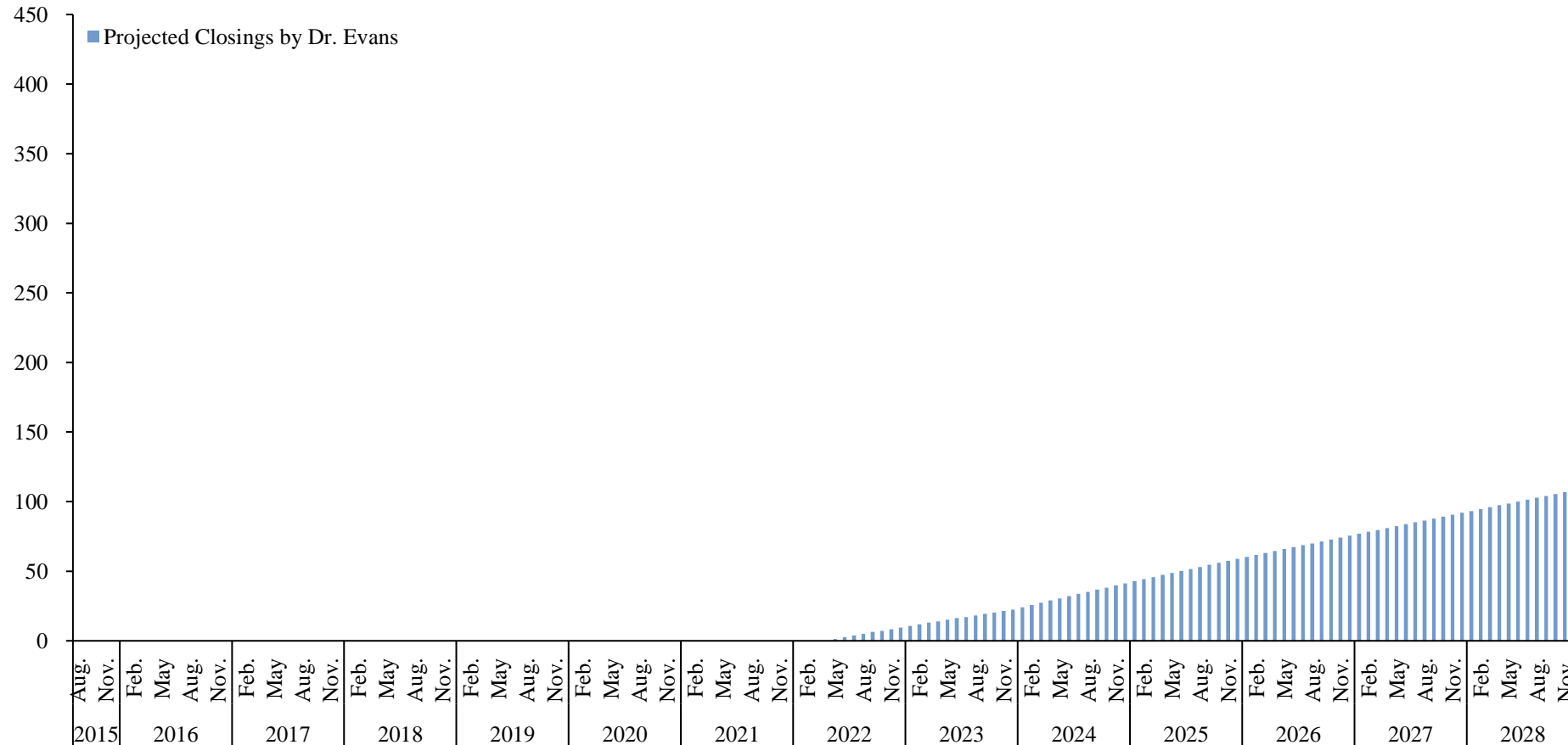
Notes & Sources (continued):

Reno (+N. Tahoe), Salt Lake City, Seattle, and Stockton “Market Areas” in 2021. Dr. Evans considers Stockton and Charlotte to be new “Market Areas” as neither have positive actual closings in the data in 2022, despite having their first new listings in 2021. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Appendix C, ¶ 26.

APPENDIX EXHIBIT 1H

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
 “MARKET AREA” ENTRY IN 2022 (7 “MARKET AREAS”)
 AUGUST 2015 – DECEMBER 2028**

Number of Closings



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”.

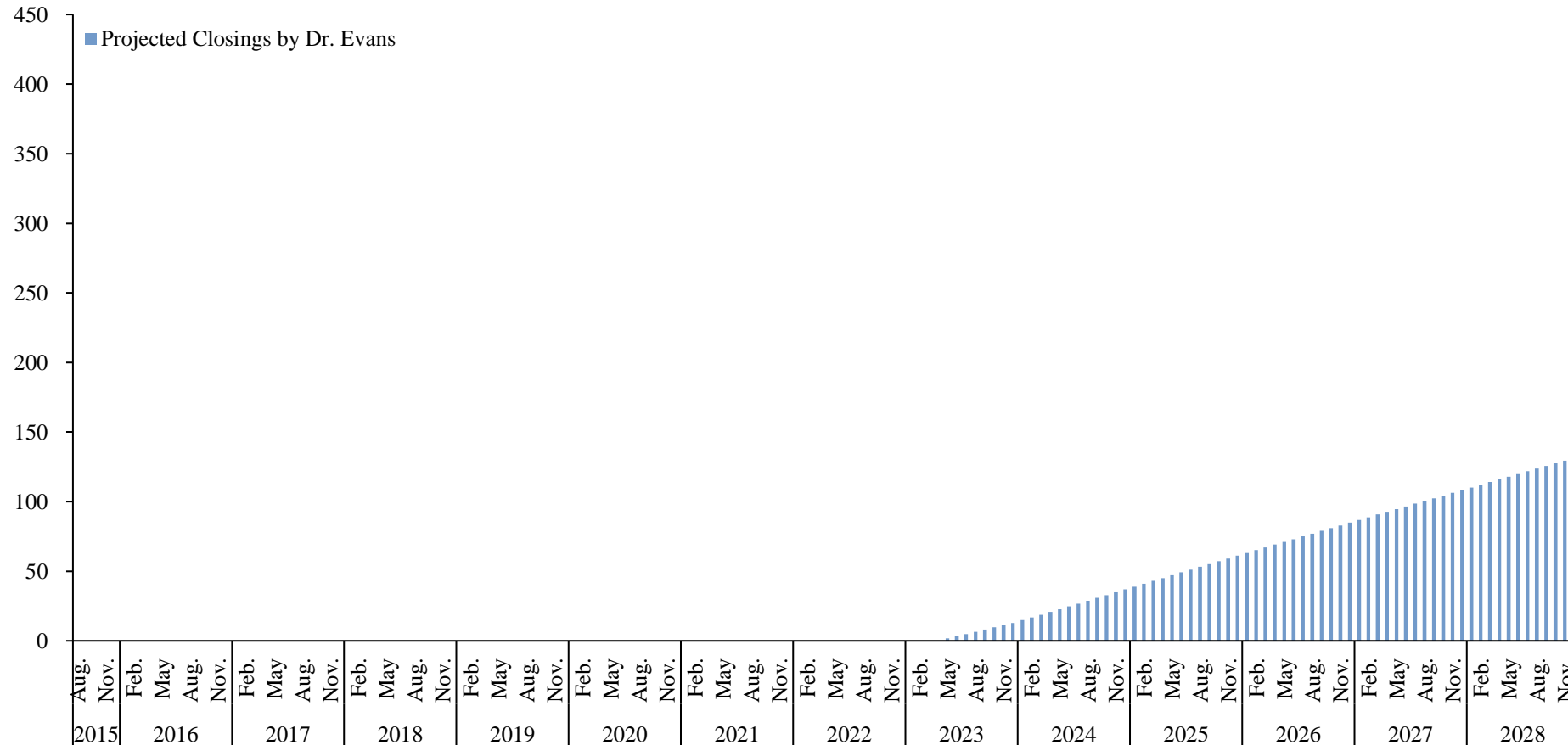
Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In total, Dr. Evans projects 4,287 closings from 2021 – 2028 for “Market Areas” that REX entered in 2022. According to Dr. Evans’ methodology, REX is projected to enter 7 markets in 2022. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Appendix C, ¶ 26.

APPENDIX EXHIBIT 1I

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
 “MARKET AREA” ENTRY IN 2023 (10 “MARKET AREAS”)
 AUGUST 2015 – DECEMBER 2028**

Number of Closings



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”.

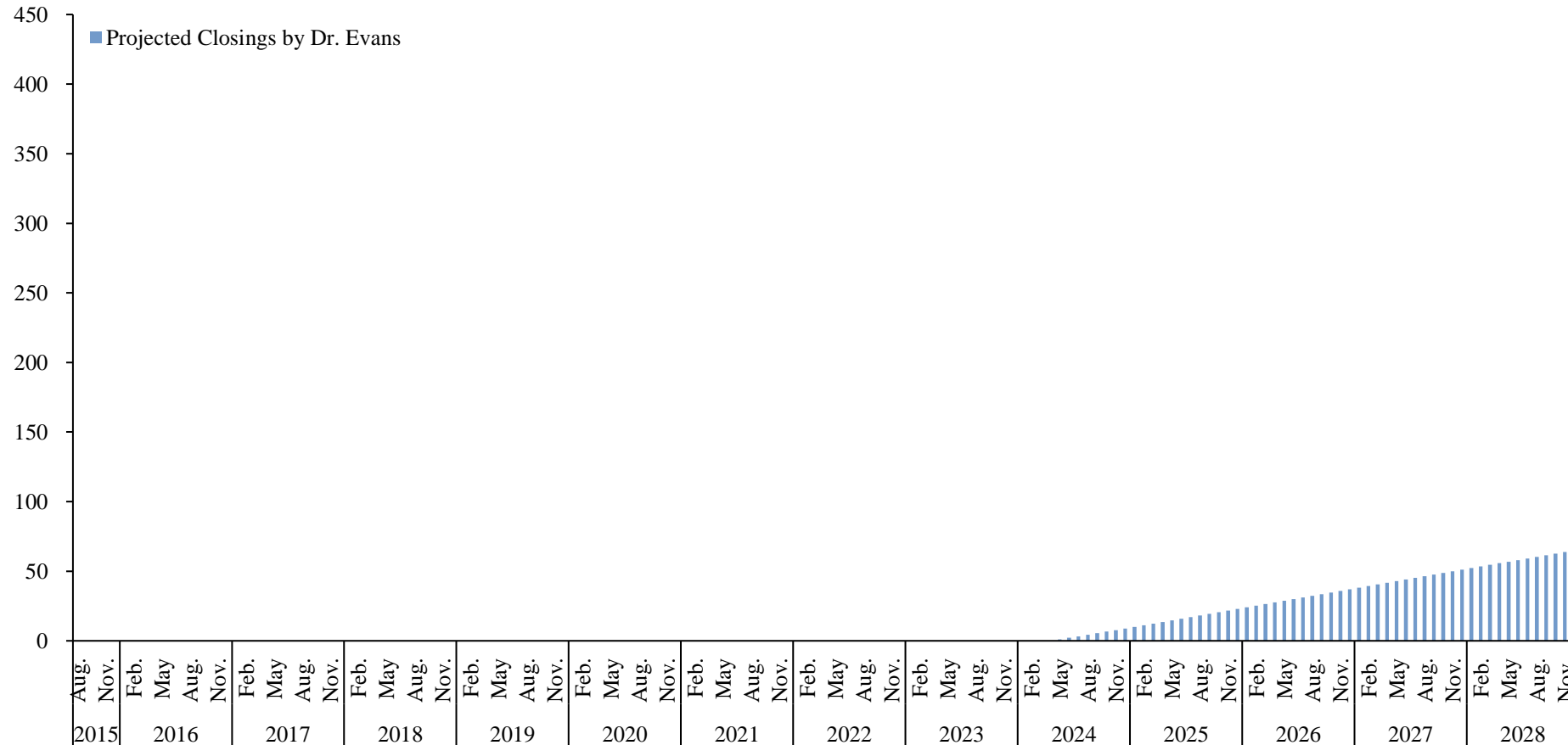
Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In total, Dr. Evans projects 4,479 closings from 2021 – 2028 for “Market Areas” that REX entered in 2023. According to Dr. Evans’ methodology, REX is projected to enter 10 markets in 2023. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Appendix C, ¶ 26.

APPENDIX EXHIBIT 1J

**REX MONTHLY CLOSINGS PROJECTIONS BASED ON EVANS REPORT TABLE VI-7
 “MARKET AREA” ENTRY IN 2024 (6 “MARKET AREAS”)
 AUGUST 2015 – DECEMBER 2028**

Number of Closings



Notes & Sources:

From REX_0000192 (“REX Financial Data”), at tab “Brokerage Revenue Build”.

Beginning in January 2021, number of closings is projected according to the counterfactual that there was no Zillow display change, as assumed by Dr. Evans, based on his own interpretation of his results in Table VI-7. Projected closings are constructed based on Dr. Evans’ methodology and adjusted based on Freddie Mac forecasted home sales, also based on Dr. Evans’ methodology. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Table VI-7, ¶ 422, Appendix C, ¶¶ 27-31. *See also* 2-main-regressions.do, 3a-counterfactual-extrapolation.do, and Counterfactual Gross Profits and Related Calculations.xlsx, at tab “Freddie Mac Forecast” in Dr. Evans’ work papers.

In total, Dr. Evans projects 1,845 closings from 2021 – 2028 for “Market Areas” that REX entered in 2024. According to Dr. Evans’ methodology, REX is projected to enter 6 markets in 2024. *See* Expert Report of Dr. David S. Evans, December 12, 2022, Appendix C, ¶ 26.

APPENDIX A

VITA

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PERSONAL INFORMATION

Born: April 29, 1976 at Cincinnati, OH

Citizenship: USA

Married to Ann Prince

Children: Katherine Prince, Elizabeth Prince, Henry Prince

EDUCATION

Ph.D.: Economics, Department of Economics, Northwestern University, 2004.

Dissertation Title: The Diffusion of Durable Information Technology Products.

M.A.: Economics, Department of Economics, Northwestern University, 2000.

B.A.: Economics, Miami University, 1998, *Summa Cum Laude*.

B.S.: Mathematics/Statistics, Miami University, 1998, *Summa Cum Laude*.

FIELDS OF SPECIALIZATION

Primary: Industrial Organization

Secondary: Applied Econometrics, Strategy, Regulation

ACADEMIC POSITIONS HELD

Professor of Business Economics and Public Policy (with tenure), Kelley School of Business, Indiana University, 2017-present.

Harold A. Poling Chair in Strategic Management, Kelley School of Business, Indiana University, 2015-present.

Chairperson, Department of Business Economics and Public Policy, Kelley School of Business, Indiana University, 2016-2019 & 2020-present.

Faculty Affiliate, Indiana University Data Science Program, 2018-present.

Advisory Committee Member, Indiana University Center for Survey Research, 2018-present.

University Fellow at the Technology Policy Institute, 2021-present.

Co-Director, Kelley Institute for Business Analytics, 2016-2022.

APPENDIX A

Chief Economist, Federal Communications Commission, 2019-2020.

Associate Professor (with tenure) of Business Economics and Public Policy, Kelley School of Business, Indiana University, 2010-2017.

Visiting Scholar, Strategy Department, Kellogg Graduate School of Management, Northwestern University, Summer and Fall, 2015.

Visiting Scholar, Center of Business and Public Policy, McDonough School of Business, Georgetown University, Fall, 2015.

Cathie and Jerry Anderson Faculty Fellow, Kelley School of Business, Indiana University, 2013-2015.

Assistant Professor, Applied Economics and Management, Cornell University, 2004-2010 (promoted to Associate with tenure, July, 2010).

NONACADEMIC EXPERIENCE

National Security Agency, Cryptologic Mathematician in Director’s Summer Program, Fort George G. Meade, Maryland, Summer 1998.

UNEXT, Consultant and Co-author for Online Masters Business Course in Vertical Integration, Chicago, Illinois, Summer 2001.

Nationwide Insurance, Actuarial Intern, Columbus, Ohio, Summer 1997.

EDITORIAL POSITIONS

Co-editor, *Journal of Economics and Management Strategy*, 2015-present.

Editorial Board member, *Information Economics and Policy*, 2008-present.

Co-editor, *Journal of Economics and Management Strategy Special Edition on Digital Transformation and the Business Revolution*, 2023 (expected).

BOOKS

The Metaverse: What Everyone Needs to Know, with Scott J. Shackelford and Michael Mattioli, Oxford University Press, in progress.

Managerial Economics and Business Strategy, 10th Edition, with Michael R. Baye, McGraw-Hill Education, 2022.

Predictive Analytics for Business Strategy: Reasoning from Data to Actionable Knowledge, McGraw-Hill Education, 2019.

APPENDIX A

Managerial Economics and Business Strategy, 9th Edition, with Michael R. Baye, McGraw-Hill Education, 2017.

Managerial Economics and Business Strategy, 8th Edition, with Michael R. Baye, McGraw-Hill Education, 2014.

WORKING PAPERS

“Do People Around the World Care Whether Their Data Are Stored Locally?” with Scott Wallsten, 2022.

“Do Consumers View Fees Differently Than Prices?” with Daniel Simon, 2022.

“The Time Elasticity of Online Variety”, with Shane Greenstein, 2022.

“Optimal Promises: Application of a General Framework to Airline Schedule Times”, with Daniel Simon, 2020, under review. ([Working version at SSRN](#))

“The Effect of International Travel on the Spread of Covid-19 in the U.S.”, with Daniel Simon, 2020, under review. ([Working version at SSRN](#))

REFEREED PUBLICATIONS

“The Effect of Domestic Travel on the Spread of Covid-19 in the U.S.”, with Daniel Simon, forthcoming in *Applied Economics Letters*. ([Working version on SSRN](#))

“How Much is Privacy Worth Around the World and Across Platforms?”, with Scott Wallsten, *Journal of Economics and Management Strategy*, 31, pp. 841-861, 2022. ([Working version at SSRN](#))

“Mobile Internet Usage and Usage Based Pricing”, with Shane Greenstein, *Journal of Economics and Management Strategy*, 30, 4, pp. 760-783, 2021. ([Working version at SSRN](#))

“Economics at the FCC: 2019-2020”, with Allison Baker, Patrick Brogan, Octavian Carare, Nicholas Copeland, Patrick DeGraba, Steven Kauffman, Paul LaFontaine, Catherine Matraves, Sean Sullivan, Patrick Sun, and Emily Talaga, *Review of Industrial Organization*, 57, pp. 827-858, 2020.

“The Persistence of Broadband User Behavior: Implications for Universal Service and Competition Policy”, with Andre Boik and Shane Greenstein, *Telecommunications Policy*, 43, 8, 2019. ([Available at SSRN](#)). ([NBER working paper No. w22427](#)). Extended working version titled: Empirical Economics of Online Attention

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- “A Paradigm for Assessing the Scope and Performance of Predictive Analytics”,
Information Economics and Policy, 47, pp. 7-13, 2019. ([Available at SSRN](#)).
- “Distinguishing Bandwidth and Latency in Households’ Willingness-to-Pay for
Broadband Internet Speed,” with Yu-Hsin Liu and Scott Wallsten (lead article),
Information Economics and Policy, 45, pp. 1-15, 2018. ([Available at SSRN](#)).
- “Does Competition Lead to Agglomeration or Dispersion in EMR Vendor Decisions?”,
with Seth Freedman and Haizhen Lin, *Review of Industrial Organization*, 53, 1,
57-79, 2018. ([Working version at SSRN](#)).
- “Information Technology and Patient Health: Analyzing Outcomes, Populations, and
Mechanisms”, with Seth Freedman and Haizhen Lin, *American
Journal of Health Economics*, 4, 1, 51-79, 2018. ([Working version at SSRN](#)).
([NBER working paper No. w21839](#))
- “Measuring Consumer Preferences for Video Content Provision via Cord-Cutting
Behavior”, with Shane Greenstein, (lead article) *Journal of Economics and
Management Strategy*, 26, 2, 293-317, 2017. ([Working version at SSRN](#)).
- “The Impact of Mergers on Quality Provision: Evidence from the Airline Industry”, with
Daniel Simon, *Journal of Industrial Economics*, 65, 2, 336-362, 2017.
([Working version at SSRN](#)).
- “The Effect of Competition on Toxic Pollution Releases”, with Daniel Simon,
Journal of Environmental Economics and Management, 79, 40-54, 2016.
([Working version at SSRN](#)).
- “Determinants of Private Long-Term Care Insurance Purchase in Response to the
Partnership Program”, with Haizhen Lin, *Health Services Research*, 51, 2, 687-
703, 2016. ([Working version at SSRN](#)).
- “Do Incumbents Improve Service Quality in Response to Entry: Evidence from
Airlines’ On-Time Performance”, with Daniel Simon, *Management Science*, 61,
2, 372-390, 2015. ([Working version at SSRN](#)).
- “Does Service Bundling Reduce Churn?”, with Shane Greenstein, *Journal of Economics
and Management Strategy*, 23, 4, 839-875, 2014. ([Working version at SSRN](#)).
- “Indirect Network Effects and the Quality Dimension: A Look at the Gaming Industry”,
with Jin-Hyuk Kim and Calvin Qui, *International Journal of Industrial
Organization*, 37, 6, 99-108, 2014. ([Working version at SSRN](#)).

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- “Is Dual Agency in Real Estate a Cause for Concern?”, with Vrinda Kadiyali and Daniel Simon, *Journal of Real Estate Finance and Economics*, 48, 1, pp. 164-195, 2014. ([Working version at SSRN](#)).
- “The Impact of the Partnership Long-term Care Insurance Program on Private Coverage”, with Haizhen Lin, *Journal of Health Economics*, 32, 6, pp. 1205-1213, 2013. ([Working version at SSRN](#)).
- “Racial Bias in Expert Quality Assessment: A Study of Newspaper Movie Reviews”, with Lona Fowdur and Vrinda Kadiyali, *Journal of Economic Behavior and Organization*, 84, 1, pp. 292-307, 2012. ([Working version at SSRN](#))
- “The Welfare Impact of Reducing Choice in Medicare Part D: A Comparison of Two Regulation Strategies”, with Claudio Lucarelli and Kosali Simon, *International Economic Review*, 53, 4, pp. 1155-1177, 2012. ([Working version at SSRN](#))
- “Relating Inertia and Experience in Technology Markets: An Analysis of Households’ Personal Computer Choices”, *Applied Economics*, 43, 29, pp. 4501-4514, 2011. ([Working version at SSRN](#))
- “Are Risk Preferences Stable across Contexts? Evidence from Insurance Data”, with Levon Barseghyan and Joshua Teitelbaum, *American Economic Review*, 101, 2, pp. 591-631, 2011. ([Working version at SSRN](#))
- “Is Time Inconsistency Primarily a Male Problem?”, with Dan Shawhan, (lead article) *Applied Economics Letters*, 18, 6, pp. 501-504, 2011. ([Working version at SSRN](#))
- “Has the Internet Accelerated the Diffusion of New Products?”, with Daniel Simon, *Research Policy*, 38, 8, pp. 1269-1277, 2009. ([Working version at SSRN](#))
- “How Do Households Choose Quality and Time to Replacement for a Rapidly Improving Durable Good?”, *International Journal of Industrial Organization*, 27, 2, pp. 302-311, 2009. ([Working version at SSRN](#))
- “Multi-market Contact and On-Time Performance in the US Airline Industry”, with Daniel Simon, *Academy of Management Journal*, 52, 2, pp. 336-354, 2009. ([Working version at SSRN](#))
- “Repeat Purchase amid Rapid Quality Improvement: Structural Estimation of the Demand for Personal Computers”, (lead article) *Journal of Economics and Management Strategy*, 17, 1, pp. 1-33, 2008. ([Working version at SSRN](#))

APPENDIX A

“Internet Adoption and Usage Patterns are Different: Implications for the Digital Divide”, with Avi Goldfarb, (lead article) *Information Economics and Policy*, 20, 1, pp. 2-15, 2008. (Listed as the #1 most cited article for this journal since 2008: <http://www.journals.elsevier.com/information-economics-and-policy/most-cited-articles/>). ([Working version at SSRN](#))

“The Beginning of Online/Retail Competition and Its Origins: An Application to Personal Computers”, *International Journal of Industrial Organization*, 25, 1, pp. 139-156, 2007. ([Working version at SSRN](#))

“The Diffusion of the Internet and the Geography of the Digital Divide in the United States”, with Shane Greenstein, in (eds) Robin Mansell, Chrisanthi Avgerou, Danny Quah, and Roger Silverstone, The Oxford Handbook of Information and Communication Technologies, Oxford University Press, pp. 168-195, 2007. ([NBER working paper No. W12182](#))

NON-REFEREED PUBLICATIONS

“Coordinated Effects (Merger),” Global Dictionary of Competition Law, eds. Kovacic, W., Whish, R., Healey, D. ([Available here](#)).

“Information,” with Michael R. Baye, Elgar Encyclopedia on the Economics of Competition and Regulation, ed. Noel, M., forthcoming.

“Empirical Evidence of the Value of Privacy”, with Scott Wallsten, *Journal of European Competition Law and Practice*, 12, 8, pp. 648-654, 2021.

“The Economics of Digital Platforms: A Guide for Regulators”, with Michael R. Baye, Global Antitrust Institute Report on the Digital Economy, 2020. ([Available at SSRN](#))

“FCC Comments on Vertical Merger Guidelines”, with Giulia McHenry, Patrick DeGraba, Eric Ralph, Catherine Matraves, Eugene Kiselev, and Aleksandr Yankelevich, February, 2020.

“Does Original Content Help Streaming Services Attract More Subscribers?”, *Harvard Business Review*, April, 2018. ([Available at HBR.org](#))

“Position Statement on Challenges Facing Online Video Distributors”, FCC’s Video Landscape Workshop, March, 2016.

“The Dynamic Effects of Triple Play Bundling in Telecommunications”, Time Warner Research Program on Digital Communications, Winter, 2012. ([Available here](#)).

APPENDIX A

“The Geographical Diffusion of the Internet in the United States”, with Shane Greenstein, in (eds) Munindar Singh, The Practical Handbook of Internet Computing, CRC Press, pp. 56-1 – 56-17, 2004.

TEACHING EXPERIENCE

Lecturer, 2024 (scheduled).

Digital Economics for Business.

Lecturer, 2019-2021.

Predictive Analytics for Business Strategy II. (MBA level)

Lecturer, 2018-2021.

Predictive Analytics for Business Strategy I. (MBA level)

Lecturer, 2011-2017.

Predictive Analytics for Business Strategy.

Lecturer, 2016.

Econometric Methods in Business II (PhD level).

Lecturer, Summer 2012-2014.

Introduction to Economics (Global Business Institute)

Lecturer, 2011.

Managerial Economics.

Lecturer, 2010.

Business Econometrics.

At Cornell:

Lecturer, 2006-2010.

Empirical Analysis of Industrial Organization (PhD level).

Lecturer, 2005-2010.

Introduction to Business Regulation.

Lecturer, 2007-2010.

Game Theory for Applied Economists (PhD level).

Lecturer, Summer 2007.

Gaming: In the Casino and Beyond (Cornell Adult University).

Guest Lecturer, 2005-2006.

Graduate Industrial Organization, Empirical methods (PhD level).

APPENDIX A

At Northwestern:

Teaching Assistant, 2000-2004.

Introductory Econometrics, Transportation, Intermediate Microeconomics,
Honors Thesis Seminar, Advanced Econometrics.

Lecturer, 2002-2003.

Introductory Econometrics, Accelerated Probability and Statistics.

FELLOWSHIPS AND AWARDS

Best Research Poster, Research Conference on Communications, Information and
Internet Policy, 2015.

Trustees Teaching Award, Indiana University, 2015.

Trustees Teaching Award Finalist, Indiana University, 2012, '13, '14, '15.

Certificate of Excellence in Reviewing, Information Economics and Policy, 2014.

Sauvain Teaching Award Nominee, 2014.

Innovative Teaching Award, Kelley School of Business, 2012.

Young Faculty Teaching Excellence Award, Cornell University, 2008.

Outstanding Graduate Student Teacher Award, Northwestern University, 2004.

Distinguished Teaching Assistant Award, Northwestern University, 2001, '02, '03, '04.

University Summer Fellowship, Northwestern University, 2003.

University Fellowship, Northwestern University, 1999-2000.

Teaching Assistant Fellow, Northwestern University.

George W. Thatcher Prize for top student in economics, Miami University, 1998.

Alumni Senior Prize for outstanding student in mathematics and statistics, Miami
University, 1998.

Actuarial Exam P (equivalent based on passing pre-2000 Part 1 and Part 2 exams), 1998.

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GRANTS AND OTHER FUNDING

Advanced Analytics for IU’s Addictions Grand Challenge

NET Institute Summer Research Grant

Research Data Grant, Kelley School of Business

Time Warner Research Stipend

Cornell’s Institute for the Social Sciences Theme Project Faculty Fellow

Cornell Institute for the Social Sciences Small Grant Award

INVITED PAPER PRESENTATIONS

“Do People Around the World Care Whether Their Data Are Stored Locally?”

- University of Nebraska, November, 2022.

“Optimal Promises: Application of a General Framework to Airline Schedule Times”

- International Industrial Organization Conference, May, 2022.

“How Much is Privacy Worth Around the World and Across Platforms?”

- University of Kent, October, 2021.
- Kelley Faculty Research Series, IU Mexico Gateway, May, 2021.
- Game Theoretic and Behavioral Economic Insights on Social Media, February, 2021.
- Research Conference on Communications, Information and Internet Policy, February, 2021.
- NBER Economics of IT and Digitization Workshop, July, 2020.
- FTC PrivacyCon, July, 2020.

“The Effect of International Travel on the Spread of Covid-19 in the U.S.”

- Purdue, November, 2020.

“Mobile Internet Usage and Usage Based Pricing”

- Research Conference on Communications, Information and Internet Policy, February, 2021.
- Federal Communications Commission, October, 2020.
- International Industrial Organization Conference, May, 2020.

“A Paradigm for Assessing the Scope and Performance of Predictive Analytics”

- Technology Policy Institute, February, 2018.

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- “Distinguishing Bandwidth and Latency in Households’ Willingness-to-Pay for Broadband Internet Speed”
- Bureau of Economic Analysis, October, 2017.
 - Technology Policy Institute, October, 2017.
 - Research Conference on Communications, Information and Internet Policy, September, 2017.
- “The Empirical Economics of Online Attention”
- Pomona College, March, 2019.
 - Research Conference on Communications, Information and Internet Policy, September, 2017.
 - Searle 8th Annual Conference on Internet Commerce, June, 2017.
 - Federal Communications Commission, March, 2017.
 - Media Economics Workshop, October, 2016.
 - University of Oklahoma, September, 2016.
 - International Industrial Organization Conference, April, 2016.
 - American Economic Association Annual Meetings, January, 2016.
 - Kellogg School of Management, November, 2015.
 - Georgetown University, October, 2015.
 - Research Conference on Communications, Information and Internet Policy, September, 2015.
- “Does Competition Lead to Agglomeration or Dispersion in EMR Vendor Decisions?”
- International Industrial Organization Conference, April, 2017.
- “The Effect of Competition on Toxic Pollution Releases”
- International Industrial Organization Conference, April, 2015.
 - University of California, Davis, March, 2015.
- “The Impact of Mergers on Quality Provision: Evidence from the Airline Industry”
- Strategic Management Society Conference “Strategies in a World of Networks,” September, 2014.
 - International Industrial Organization Conference, April, 2014.
- “Measuring Consumer Preferences for Video Content Provision via Cord-Cutting Behavior”
- Cable Show Academic Workshop, April, 2014.
 - Research Conference on Communications, Information and Internet Policy, September, 2013.

APPENDIX A

“Information Technology and Patient Health: Analyzing Outcomes, Populations, and Mechanisms”

- IUPUI, January, 2018
- Purdue University, November, 2014.
- ASHEcon Conference, June, 2014.
- University of Massachusetts, April, 2014.
- International Industrial Organization Conference, April, 2014.
- NBER Economics of IT and Digitization Workshop, July, 2013.

“Indirect Network Effects and the Quality Dimension: A Look at the Gaming Industry”

- Indiana University Economics Department, November, 2013.
- International Industrial Organization Conference, May, 2013.

“Does Service Bundling Reduce Churn?”

- NBER Economics of IT and Digitization Workshop, July, 2012.
- International Industrial Organization Conference, March, 2012.
- Federal Trade Commission, March, 2012.
- Michigan University, November, 2011.
- Research Conference on Communications, Information and Internet Policy, September, 2011.

“The Impact of the Partnership Long-term Care Insurance Program on Private Coverage”

- University of Cincinnati, October, 2012.

“Do Incumbents Improve Service Quality in Response to Entry: Evidence from Airlines’ On-Time Performance”

- Ohio State University, November, 2012.
- Econometric Society North American Summer Meeting, June, 2011.
- Temple University, November, 2010.
- Miami University, October, 2010.
- International Industrial Organization Conference, May, 2010.

“Has the Internet Accelerated the Diffusion of New Products?”

- Bureau of Economic Analysis, November, 2009.

“Are Risk Preferences Stable across Contexts? Evidence from Insurance Data”

- Econometric Society North American Summer Meeting, June, 2008.

“Multi-market Contact and On-Time Performance in the US Airline Industry”

- International Industrial Organization Conference, May, 2008.

APPENDIX A

“The Welfare Impact of Reducing Choice in Medicare Part D: A Comparison of Two Regulation Strategies”

- ASHEcon Conference, June, 2010.
- International Industrial Organization Conference, April, 2009.
- Federal Trade Commission, March, 2008.

“Is Dual Agency in Real Estate a Cause for Concern?”

- International Industrial Organization Conference, May, 2008.
- Midwest Economic Association Annual Meeting, March, 2008.

“Internet Adoption Patterns and Usage are Different: Implications for the Digital Divide”

- University of Maryland, April, 2007.

“How Do Households Choose Quality and Time to Replacement for a Rapidly Improving Durable Good?”

- Kelley School of Business, February, 2010.
- Duke University, September, 2007.
- Cornell University, September, 2007.
- Econometric Society North American Summer Meeting, June, 2007.
- International Industrial Organization Conference, April, 2007.

“Relating Inertia and Experience in Technology Markets: An Analysis of Households’ Personal Computer Choices”

- Dartmouth Winter IO Conference, January, 2006.

“The Beginning of Online/Retail Competition and Its Origins: An Application to Personal Computers”

- International Industrial Organization Conference, April, 2006.
- Cornell University, March, 2006.
- ASSA SGE, January, 2006.

“Repeat Purchase amid Rapid Quality Improvement: Structural Estimation of the Demand for Personal Computers”

- Penn State University, April, 2007.
- Econometric Society World Conference, August, 2005.
- International Industrial Organization Conference, April, 2005.
- Miami University, March, 2005.
- ASSA SGE, January, 2005.
- Duke University, November, 2004.
- Cornell University, November, 2004.
- NBER Summer Institute, July, 2004.

APPENDIX A

EXPERT PANELS AND ENGAGEMENTS

Panel on Breaking Developments in Damages Calculations, Litigating Patents and Trade Secret Remedies Summit, January, 2023.

Antitrust: Overview and Recent Developments, University of Nebraska Tech Policy Forum, January, 2023.

Econometrics for Policy Makers, University of Nebraska Tech Policy Forum, January, 2023.

Research Roundtable on Regulating Privacy, George Mason University, December, 2022.

Do People Care Where Their Data Are Stored? Tech Refactored Podcast, Nebraska Governance and Technology Center, November 2022. ([Podcast link](#))

Advertising Markets: Is the Current Ecosystem Stimulating Competition? Concurrences’ Global Antitrust Economics Conference, November, 2021.

Damages from Data Breach and Misuse of Personal Information, Brattle Group, October, 2021.

Broadband Mapping Roundtable, Technology Policy Institute, October, 2021.

Panel on Competition and Innovation, 14th Annual Innovation Economics Conference, August, 2021.

Privacy, Please? American Bar Association Panel on Valuing Privacy, April, 2021.

Two Think Minimum Podcast with Scott Wallsten and Sarah Oh, Technology Policy Institute, February, 2021. ([Podcast link](#))

Panel on the Economy of Spectrum Sharing and Business Development, NSF Virtual Workshop on New Paradigms in Intelligent Spectrum Management and Regulations, December, 2020.

Scientific Sense Podcast Interview with Gill Eapen, October, 2020. ([Podcast link](#))

Panel on the Attention Economy, Technology Policy Institute Aspen Forum, October, 2020. ([Online video](#))

Panel on Antitrust Policy and Intellectual Property (moderator), Northwestern/USPTO Conference on Innovation Economics, August, 2020.

Panel on STELAR/Retransmission Consent, Phoenix Center Telecom Symposium, December, 2019.

APPENDIX A

BU Technology Policy Research Initiative Conference on the Law and Economics of IP, July, 2019.

FTC Merger Retrospective Hearing, Federal Trade Commission, April, 2019 ([Online video](#)).

Panel on Consumer Protection and Regulation, Maurer School of Law, March, 2018.

Terminator or the Jetsons? The Economics and Policy Implications of Artificial Intelligence, Technology Policy Institute, February, 2018.

All Data is Health Data; The Impact of Data and Data Laws on Clinical Care, Innovation, and Research, Symposium at Hall Center for Law and Health, October, 2017.

Tools of Damages Estimation, IPO’s Damages and Injunctions Committee Conference, June, 2017.

The Unlikely Pairing of Payers, Providers and Pharma for Patient Centered Analytics, Kelley Forum on Healthcare Analytics, September, 2016.

Challenges Faced by Online Video Distributors, Federal Communications Commission Video Landscape Workshop, March, 2016 ([Online video](#)).

The Future of Video Policy and Business Models, hosted by the Technology Policy Institute, January, 2014 ([Online audio](#)).

PUBLIC SPEECHES

“State of the Economy”

- Mechanical Contractor Association of Indiana Annual Meeting, June, 2022.

“IoT and Telecom Policy”

- Nelms Distinguished E-Seminar Series, University of Florida, October, 2020.

“Delivering Econometrics Skills within a Business Analytics Curriculum”

- Robert Morris Teaching Economics Conference, February, 2018

“Critical Assessment of Correlation vs. Causality for Business Decisions”

- 180 Degrees Consulting, Indiana University, February, 2017

“Bringing Repeated Games to Life via Empirical Examples”

- McGraw-Hill Education Fall INXPO Event, October, 2016
- University of Phoenix School of Business Symposium, March, 2016
- McGraw-Hill Education Teaching Workshop for Professional Development, March, 2013

APPENDIX A

“Critical Assessment of Correlation vs. Causality for Public Policy”

- Vietnam Initiative with Indiana University, October, 2015

“As Graduates of Elder, You are Ready...”

- Cincinnati Elder High School Graduation Commencement, May, 2005

PUBLIC COMMENTARY

“Comment on the January 2022 DOJ and FTC RFI on Merger Enforcement: Issues Related to Digital Markets,” with Lesley Chiou, Nathaniel Hipsman, and Sachin Sancheti, public submission to antitrust agencies, March, 2022. ([Available at SSRN](#))

“People Lie When Answering Polls. Here’s How to Fix It”, with Scott Wallsten, *Technology Policy Institute Blog*, January, 2021. ([Available at TPI](#))

“Travelers Coming from Italy May Have Driven First US Covid-19 Wave More Than Those From China, Study Suggests”, with Daniel Simon, *The Conversation*, January, 2021. ([Available at the Conversation](#))

“Improved Economic Analysis Should Be Lasting Part of Pai’s FCC Legacy”, with Babette Boliek and Jerry Ellig, *The Hill*, December, 2020. ([Available at The Hill](#))

MEDIA COVERAGE

Specific Papers/Books/Public Commentary:

“Travelers Coming from Italy May Have Driven First US Covid-19 Wave More Than Those From China, Study Suggests,” the *Conversation*, January, 2021.

- Reprint in Associated Press, Yahoo News

“How Much is Privacy Worth Around the World and Across Platforms?”

- “Facebook Would have to pay \$3.50 Per Month to U.S. Users for Sharing Contact Info: Study” by Nandita Bose, *Reuters*, February 25, 2020. Reprint in *NY Times*. ([Online version](#))

“A Paradigm for Assessing the Scope and Performance of Predictive Analytics”

- “A Paradigm for Assessing the Scope and Performance of Predictive Analytics – Economic and Policy Implications of AI,” by Wallis G. Romzek, Technology Policy Institute, April 17, 2018. ([Online version](#)).

“Does Original Content Help Streaming Services Attract More Subscribers?”

- “Will Netflix Win the Streaming Wars?”, Louis Foglia, BEME News, August, 2019. ([Video](#)).
- “Streaming Video: Original Content is the Hook,” by David Marino-Nachison, *Barron’s Next*, April 25, 2018. ([Online version](#)).

APPENDIX A

Predictive Analytics for Business Strategy

- “Kelley Professor’s New Book ‘Actively’ Advocates the Role of Economics within Today’s Analytics Boom,” by George Vlahakis, Kelley School official blog, March 27, 2018. ([Online version](#)).

“The Impact of Mergers on Quality Provision: Evidence from the Airline Industry”

- “Flight Delay? Lost Luggage? Don’t Blame Airline Mergers, Research Shows,” by George Vlahakis, reprinted in *Science Daily*, May 23, 2017. ([Online version](#)).

“The Empirical Economics of Online Attention”

- “We Spend a Fixed Amount of Time Online Each Week (But People with Higher Incomes Spend Less),” by Julia Hann, *Forbes*, September 14, 2016. ([Online version](#)).
- “Let Them Eat Internet,” by Tyler Cohen, *Marginal Revolution*, July 19, 2016. ([Online version](#)).
- “Consumers Have a Troubling Internet Habit That’s Threatening Digital Media,” by Myles Udland, *Business Insider*, July 19, 2016. ([Online version](#)).
- “Richer People Spend Less Time on the Internet,” by Allee Manning, *Vocativ*, July 19, 2016. ([Online version](#)).

“The Impact of the Partnership Long-term Care Insurance Program on Private Coverage”

- “The Boomer Challenge: It’s a Numbers Game,” by Paul Barr, *Hospitals and Health Networks*, April 8, 2014. ([Online version](#)).

“Do Incumbents Improve Service Quality in Response to Entry: Evidence from Airlines’ On-Time Performance”

- “Study Finds That Competition May Lead to More Airline Delays,” by Hugo Martin, *LA Times*, December 22, 2013. ([Online version](#)).

“Racial Bias in Expert Quality Assessment: A Study of Newspaper Movie Reviews”

- “Psychology Uncovers Racism at the Movies,” by Dr. Raj Persaud and Adrian Furnham, *Psychology Today*, September 5, 2015. ([Online version](#))
- “Men in Black the movie – but men in white would be a better film?,” by Dr. Raj Persaud and Adrian Furnham, *Huffington Post*, May 22, 2012. ([Online version](#)).

APPENDIX A

“The Welfare Impact of Reducing Choice in Medicare Part D: A Comparison of Two Regulation Strategies”

- “Medicare As We’ve Known It Isn’t an Option,” by Betsy McCaughey, *Wall Street Journal*, April 27, 2011. ([Online content](#)).

“Internet Adoption Patterns and Usage are Different: Implications for the Digital Divide”

- “People below ‘digital divide’ would use the Internet more, if they had it,” by Bill Steele, *Cornell Chronicle*, April 18, 2008. ([Online version](#)).
- Invited guest for “Digital Divide,” *Nevada Public Radio*. ([Online content](#)).

Expert Opinion:

“ISP/Website ‘Mutuality of Interests’ – or Retrans Blackouts – Among Net Neutrality Reversal Possibilities,” *Communications Daily*, Vol. 34, No. 17, January, 2014.

PROFESSIONAL SERVICE

Miami University Economics Advisory Board, 2023-present.

BEPP Faculty Research Awards Committee, 2022-2023.

NBER Small Digitization Grants Review Committee, 2022.

Research Conference on Communications, Information and Internet Policy (TPRC) Program Committee, 2017-2021.

International Industrial Organization Conference (IIOC) Local Organizer, 2018.

Midwest Health Economics Conference Local Organizing Committee, 2016.

European Conference on Information Systems (ECIS) Associate Editor of the track “Decision Analytics, Big Data, and Visualization,” 2016.

International Conference on Information Systems (ICIS) Associate Editor of the track “Decision Analytics, Big Data, and Visualization,” 2014.

International Industrial Organization Conference (IIOC) Program Committee, 2012-2014.

APPENDIX A

Ad hoc referee for:

Agricultural and Resource Economics Review, American Economic Journal: Applied Economics, American Economic Review, Applied Economics, Applied Financial Economics, B.E. Journal of Economic Analysis & Policy, Communications of the Association for Information Systems, Economic Inquiry, Economics of Education Review, Economics of Innovation and New Technology, Economics Letters, European Journal of Law and Economics, Geneva Papers on Risk and Insurance, Growth and Change: A Journal of Urban and Regional Policy, Health Economics, Health Services Research, Information Economics and Policy, International Economic Review, International Journal of Industrial Organization, Israel Science Foundation, Journal of Air Transport Management, Journal of Banking and Finance, Journal of Competition Law and Economics, Journal of Economics and Business, Journal of Economics and Management Strategy, Journal of the European Economic Association, Journal of Gerontology, Journal of Health Economics, Journal of Industrial Economics, Journal of Policy Analysis and Management, Journal of Political Economics, Journal of Public Economics, Journal of Risk and Insurance, Journal of Rural Studies, Journal of Urban Technology, Leverhulme Trust, Management Science, Marketing Science, National Science Foundation, Organizational Science, Oxford Bulletin of Economics and Statistics, Quantitative Marketing and Economics, Quarterly Journal of Economics, Quarterly Review of Economics and Finance, RAND Corporation, RAND Journal of Economics, Research Policy, Review of Economics and Statistics, Review of Industrial Organization, Review of Network Economics, Risk Management and Insurance Review, Social Behavior and Personality, Southern Economic Journal, Strategic Management Journal, Telecommunications Policy, Telematics and Informatics, Transportation Research Part E, U.S.-Israel Binational Science Foundation, World Development

External tenure/promotion/reappointment reviewer for:

Boston University, City University of Hong Kong, Drexel University, Emory University, Fairfield University, Georgetown University, Imperial College London, Loyola University Maryland, Purdue University, Stanford University, University of Colorado, University of Georgia, University of Massachusetts, University of Oklahoma, University of Oregon

External program reviewer for:

Ball State University Economics

DISCUSSANT ACTIVITIES

International Industrial Organization Conference, May, 2022

- “Conflicts of Interest, Ethical Standards, and Competition in Legal Services,” by Jan Bouckaert and Johan Stennek

APPENDIX A

NBER Economics of Digitization Summer Institute Meeting, July, 2021

- “Browsers Don’t Lie? Gender Differences in the Effects of Covid-19 Lockdowns on Digital Activity and Time Use,” by Amalia R. Miller, Kamalini Ramdas, and Alp Sungu
- “Does Telemedicine Transcend Disparities or Create a Digital Divide? Evidence from the Covid-19 Pandemic,” by Jeffrey McCullough, Kartik K. Ganju, and Chandy Ellimoottil

NBER Economics of Digitization Summer Institute Meeting, July, 2018

- “Steering Incentives and Bundling Practices in the Telecommunications Industry,” by Brian McManus, Aviv Nevo, Zachary Nolan, and Jonathan W. Williams

International Industrial Organization Conference, April, 2017

- “Price-Linked Subsidies and Health Insurance Markups,” by Sonia Jaffe and Mark Shepard

NBER Economics of Digitization Meeting, March, 2017

- “Using Massive Online Choice Experiments to Measure Changes in Well-being,” by Erik Brynjolfsson, Felix Eggers, and Avinash Gannamaneni

International Industrial Organization Conference, April, 2016

- “Using Matching to Study Merger: An Application to the U.S. Airline Industry,” by Zexuan Liu, Pallab Ghosh, and Qihong Liu
- “Market Structure with the Entry of Peer-to-Peer Platforms: The Case of Hotels and Airbnb,” by Chiara Farronato and Andrey Fradkin

Searle Center Conference on Innovation Economics, June, 2015

- “How Do Open Standards Influence Inventive Activity? Evidence from the IETF,” by Wen Wen, Chris Forman, and Sirkka Jarvenpaa

Searle Center Conference on Internet Search and Innovation, June, 2015

- “Match Quality, Search, and the Internet Market for Used Books,” by Sara Fisher Ellison
- “E-Book Pricing and Vertical Restraints,” by Babur De los Santos and Matthijs Wildenbeest

International Industrial Organization Conference, April, 2015

- “Do Private Medicare Firms Face Lower Costs?,” by Keaton Miller
- “The Market for Electric Vehicles: Indirect Network Effects and Policy Impacts,” by Yiyi Zhou

Searle Center Research Roundtable on Patents and Technology Standards: The Data Sets, April, 2015

APPENDIX A

American Economic Association Annual Meetings, Pricing and Resource Allocation in Telecommunications, January, 2015

- “Employing Auctions to Allocate Scarce Resources,” by John Mayo and David Sappington

American Economic Association Annual Meetings, Digital Media Economics, January, 2015

- “Super Returns? The Effects of Ads on Product Demand,” by Seth Stephens-Davidowitz, Hal Varian, and Michael D. Smith

Searle Center Conference on Internet Search and Innovation, June, 2014

- “Auction vs. Posted-Price: Market Mechanism, Lender Behaviors, and Transaction Outcomes in Online Crowdfunding,” by Zaiyan Wei and Mingfeng Lin

Research Roundtable on the Law and Economics of Digital Markets, July, 2013

- “Digital Music Consumption on the Internet,” by Bertin Martens and Luis Aguiar

Searle Center Conference on Internet Search and Innovation, June, 2013

- “When Does Retargeting Work? Information Specificity in Online Advertising,” by Anja Lambrecht and Catherine Tucker
- “Local News Online: Aggregators, Geo-Targeting and the Market for Local News,” by Lisa George

International Industrial Organization Conference, May, 2013

- “The Impact of Privacy Policy on the Auction Market for Online Display Advertising,” by Garrett Johnson
- “Transactions in Two-Sided Markets,” by Alexei Alexandrov and Daniel Spulber

American Economic Association Annual Meetings, Economics of the Internet, January, 2013

- “Supply-Side Responses to Privacy Protection,” by Avi Goldfarb and Catherine Tucker

Searle Center Book Preview Roundtable, December, 2012

- *Innovation from the Edges: The Economics of Creating the Commercial Internet*, by Shane Greenstein

Searle Center Conference on Internet Search and Innovation, June, 2012

- “News Aggregators and Competition among Newspapers,” by Doh-Shin Jeon and Nikrooz Nasr Esfahani
- “Technology Shocks in Multi-Sided Markets: The Impact of Craigslist on Local Newspapers,” by Robert Seamans and Feng Zhu

APPENDIX A

Midwest Health Economics Conference, May, 2012

- “The Anticipatory Effects of Medicare Part D on Drug Utilization,” by Abby Alpert

International Industrial Organization Conference, March, 2012

- “Intra-Household Effects on Demand for Telephone Service: Empirical Evidence,” by Ching-I Huang
- “Unobserved Risk Type and Sorting: Signaling Game in Online Credit Markets,” by Kei Kawai, Ken Onishi, and Kosuke Uetake

NBER Economics of Digitization Meeting, February, 2012

- “The Effect of Localization in News Aggregators on Local News Consumption,” by Susan Athey and Markus Mobius

Federal Trade Commission Microeconomics Conference, November, 2011

- “Do Firms Game Quality Ratings? Evidence from Mandatory Disclosure of Airline On-Time Performance,” by Silke Forbes, Mara Lederman, and Trevor Tombe

International Industrial Organization Conference, May, 2010

- “Competition in Public School Districts: Student Sorting, School Quality Determination, and School Entry,” by Nirav Mehta
- “A Model of Entry and Network Access Competition in Local Telephony,” by Gustavo Marcos and Eduardo Saavedra

International Industrial Organization Conference, April, 2009

- “Consumer Search and Online Demand for Durable Goods,” by Jun Kim, Bart Bronnenberg, and Paulo Albuquerque
- “Price Controls and Competition in Gasoline Retail Markets,” by Juan Esteban Carranza and J.F. Houde

International Industrial Organization Conference, May, 2008

- “A Simple Model of Pricing for Non-storable Goods in Oligopoly: Some Considerations on Airline Pricing Behaviour,” by Marco Alderighi

International Industrial Organization Conference, April, 2007

- “Markov Perfect Industry Dynamics with Many Firms,” by Gabriel Weintraub

International Industrial Organization Conference, April, 2006

- “Price, Price Dispersion and Number of Sellers at a Low Entry Cost Shopbot,” by Michelle Haynes and Steve Thompson

APPENDIX A

International Industrial Organization Conference, April, 2005

- “Asymmetric Advertising Costs as a Barrier to Entry: Evidence from Theatrical Motion Pictures,” by Charles Moul

BOOK REVIEWS

Tucker, C. and Marthews, A., *You’ll Pay for That: Payment Systems, Privacy, and Political Dissent*, MIT Press, 2023.

Bekes, G. and Kezdi, G., *Patterns, Causality and Prediction: Data Analysis for Business, Economics and Policy*, Cambridge University Press, 2017.

Lesser, W., *American Business Regulation: Understand, Survive, and Thrive*, M.E. Sharpe, 2015.

MEMBERSHIPS

American Economic Association.

Industrial Organization Society.

Academy of Management.

Association for Information Systems.

Team member for Cornell’s Institute for the Social Sciences Theme Project, *Getting Connected: Social Science in the Age of Networks*, 2005-2008.

UNIVERSITY SERVICE

Member of Indiana Business Research Center Executive Director Search Committee, 2021-2022.

Member of Diversity, Equity & Inclusion Task Force, 2020-2021.

Member of Hiring Committee for Business Economics and Public Policy, 2017-2018, 2015-2016 & 2010-2011.

Chair of Hiring Committee for Business Economics and Public Policy, 2014-2015 & 2013-2014.

Kelley Direct Policy Committee, 2014-2016.

Judge for Kelley Honors Case Competition, 2016.

Judge for Deloitte Undergraduate Case Competition, 2017, 2015, 2011.

APPENDIX A

Co-founder and Judge for Economic Consulting Case Competition (EC3), sponsored by the Keystone Group, 2011-2015.

Co-founder and Co-organizer for BEPP “Eat, Meet, & Compete,” 2012-2015.

Undergraduate Policy Committee, 2012-2014 & 2010-2011.

Doctoral Advisor for Business Economics and Public Policy, 2011-2012.

Doctoral Policy Committee, 2011-2012.

Judge for Net Impact Sustainable Business Club 2010 Case Competition, 2010.

At Cornell:

Applied Economics and Management Petitions Committee, 2007-2010.

Policy Analysis and Management External Hiring Committee, 2006-2007 & 2009-2010.

Mann Café Advisory Board, 2007-2010.

Institute for the Social Sciences Small Grant Program Committee, 2008.

Biz Quiz Faculty Advisor, 2008.

Applied Economics and Management Seminar Committee, 2005-2007.

Judge for Globalize '07, Cornell Hotel School, 2007.

Mann Library Vendor Evaluation Sub-committee, 2006.

PHD STUDENTS

Committee Chair:

Hong Lee

Aparna Soni

Yu-Hsin Liu

Yejing Ren

Junlin Du (Co-chair)

Fernanda Lopez de Leon

APPENDIX A

Committee Member:

Ningning Guo
Abhishek Ganguly
Catalin Stefanescu
Susan Kayser
Eric Schmidbauer
Shyam Venkatesan
Carlos Castelan
Joo Yeon Sun
Annemie Maertens (Substitute member)
Thanasin Tanompongphandh
Jiahong Zhang
Lona Fowdur
Anirban Mukherjee
Marc Bellemare (Substitute member)
Hyunkyung Choe
Daniel Shawhan

External Proposal Reviewer:

Andres Jola Sanchez (chair)
Mohammad Ghuloum
Kyle Bradley

MASTERS STUDENTS

Committee Member:

Malcolm Wade (Johns Hopkins, Systems Engineering)

APPENDIX A

Consulting Experience

(including all matters in last four years)

Testimony (5)

Qualcomm Incorporated v. Apple Incorporated (Case No. 3:17-cv-1375), United States District Court for the Southern District of California, March 7 & 8, 2019

Apple Inc. v. Wi-LAN Inc. (Case No. 14cv2235-DMS w/ 14cv1507-DMS), United States District Court for the Southern District of California, July 25 & 26, 2018

ContentGuard, Inc. v. Apple, Inc. (Case No. 2:13-CV-1112), United States District Court for the Eastern District of Texas Marshall Division, November 13 & 16, 2015

ContentGuard, Inc. v. Google, Inc. (Case No. 2:14-CV-61), United States District Court for the Eastern District of Texas Marshall Division, September 16, 2015

Wi-LAN Inc. v. Apple, Inc. (Case No. 2:12-CV-0600-JRG), United States District Court for the Eastern District of Texas Marshall Division, October 17, 2013

Tutorial-styled Hearing (“Hot Tub”) (1)

Dennis McGrath et al. v. Marriott International, Inc. et al. (Case No. 8:19-cv-00368-PWG), United States District Court of Maryland Southern Division, March 21, 2022

Deposition (14)

Apple iPhone Antitrust Litigation (Case No. 4:11-cv-06714-YGR), United States District Court for the Northern District of California Oakland Division, April 12, 2023

Walter Peters et al. v. Apple, Inc. (Case No. 19STCV21787), Superior Court for the State of California County Los Angeles, September 12, 2022

Hachette Book Group, Inc. et al. v. Internet Archive (Case No. 1:20-cv-04160-JGK-OTW), United States District Court Southern District of New York, June 9, 2022

Dennis McGrath et al. v. Marriott International, Inc. et al. (Case No. 8:19-cv-00368-PWG), United States District Court of Maryland Southern Division, December 23, 2021

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Theta IP, LLC v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (Case No. 6:20-cv-00160-ADA), United States District Court for the Western District of Texas Waco Division, October 28, 2021

Apple iPhone Antitrust Litigation (Case No. 4:11-cv-06714-YGR), United States District Court for the Northern District of California Oakland Division, October 4, 2021

Dennis McGrath et al. v. Marriott International, Inc. et al. (Case No. 8:19-cv-00368-PWG), United States District Court of Maryland Southern Division, August 13, 2021

Wi-LAN Inc. v. Apple Inc. (Case No. 3:14-cv-02235-DMA-BLM), United States District Court for the Southern District of California, June 11, 2019
Qualcomm Inc. v. Apple Inc. (Case No. 3:17-cv-1375), United States District Court for the Southern District of California, November 7, 2018

Apple Inc. v. Qualcomm Inc. (Case No. 17cv0108 GPC NLS), United States District Court for the Southern District of California, October 19, 2018

Apple Inc. v. Wi-LAN Inc. (Case No. 14cv2235-DMS w/ 14cv1507-DMS), United States District Court for the Southern District of California, April 5, 2018

Wi-LAN Inc. v. Kyocera Communications (Case No. 2:13-CV-202-JRG), United States District Court for the Eastern District of Texas Marshall Division, September 4, 2015

ContentGuard Holdings Inc. v. Amazon, Inc., et al. (Case No. 2:13-CV-1112-JRG) and ContentGuard, Inc. v. Google, Inc. (Case No. 2:14-CV-61), United States District Court for the Eastern District of Texas Marshall Division, June 1-3, 2015

Wi-LAN Inc. v. HTC Corporation, HTC America, and Exedeia, Inc. (Case No. 2:11-CV-00068) and Wi-LAN Inc. v. Apple, Inc., et al. (Case No. 2:12-CV-0600-JRG), United States District Court for the Eastern District of Texas Marshall Division, August 22, 2013

Expert Report (15)

Response to Federal Communications Commissions Letter re Claims Filed by Q. Link Wireless LLC for Reimbursement of Connected Devices Under the Emergency Broadband Benefit Program Rules, Before the Federal Communications Commission, March 20, 2023

APPENDIX A

Apple iPhone Antitrust Litigation (Case No. 4:11-cv-06714-YGR), United States District Court for the Northern District of California Oakland Division, March 10, 2023

Walter Peters et al. v. Apple, Inc. (Case No. 19STCV21787), Superior Court for the State of California County Los Angeles, July 26, 2022

Hachette Book Group, Inc. et al. v. Internet Archive (Case No. 1:20-cv-04160-JGK-OTW), United States District Court Southern District of New York, May 25, 2022

Dennis McGrath et al. v. Marriott International, Inc. et al. (Case No. 8:19-cv-00368-PWG), United States District Court of Maryland Southern Division (rebuttal), October 12, 2021

Theta IP, LLC v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (Case No. 6:20-cv-00160-ADA), United States District Court for the Western District of Texas Waco Division, September 18, 2021

Apple iPhone Antitrust Litigation (Case No. 4:11-cv-06714-YGR), United States District Court for the Northern District of California Oakland Division, August 10, 2021

Dennis McGrath et al. v. Marriott International, Inc. et al. (Case No. 8:19-cv-00368-PWG), United States District Court of Maryland Southern Division, July 12, 2021

Wi-LAN Inc. v. Apple Inc. (Case No. 3:14-cv-02235-DMA-BLM), United States District Court for the Southern District of California, April 19, 2019

Qualcomm Inc. v. Apple Inc. (Case No. 3:17-cv-1375), United States District Court for the Southern District of California, September 18, 2018

Apple Inc. v. Qualcomm Inc. (Case No. 17cv0108 GPC NLS), United States District Court for the Southern District of California, June 29, 2018

Apple Inc. v. Wi-LAN Inc. (Case No. 14cv2235-DMS w/ 14cv1507-DMS), United States District Court for the Southern District of California, February 15, 2018

Wi-LAN Inc. v. Kyocera Communications (Case No. 2:13-CV-202-JRG), United States District Court for the Eastern District of Texas Marshall Division, August 10, 2015

APPENDIX A

ContentGuard Holdings Inc. v. Amazon, Inc., et al. (Case No. 2:13-CV-1112-JRG) and ContentGuard, Inc. v. Google, Inc. (Case No. 2:14-CV-61), United States District Court for the Eastern District of Texas Marshall Division, May 8, 2015

Wi-LAN Inc. v. HTC Corporation, HTC America, and Exedea, Inc. (Case No. 2:11-CV-00068) and Wi-LAN Inc. v. Apple, Inc., et al. (Case No. 2:12-CV-0600-JRG), United States District Court for the Eastern District of Texas Marshall Division, July 19, 2013

Additional consulting work:

Provided consulting expertise to various clients on topics including:

- Competition policy and antitrust
- Consumer protection
- Damages calculations
- Intellectual property
- Privacy valuation
- Survey design and analysis
- Telecommunications policy

APPENDIX B

MATERIALS CONSIDERED

Bates Ranges	
BOAS_REX_0000001	– BOAS_REX_0000083
CONGRESSREALTY-00001	– CONGRESSREALTY-00375
HOMECOIN-00001	– HOMECOIN-00032
JPM_00000001	– JPM_00003544
KWRI_REX_v_Zillow-0000564	
NAR0000177	– NAR0000308
NAR0000438	– NAR0000605
NAR0000966	– NAR0000967
NAR0003695	– NAR0003754
NAR0035014	– NAR0035016
NAR0090947	– NAR0090947
NAR0103417	– NAR0103420
NAR0150760	– NAR0150772
PIUS.REX0000001	– PIUS.REX0000003
PIUS.REX0000011	
PIUS.REX0000013	– PIUS.REX0000024
PIUS.REX0000108	– PIUS.REX0000110
PIUS.REX0000112	– PIUS.REX0000113
PIUS.REX0000115	– PIUS.REX0000126
PIUS.REX0000129	– PIUS.REX0000132
PIUS.REX0000181	– PIUS.REX0000183
PIUS.REX0000186	– PIUS.REX0000188
PIUS.REX0000195	– PIUS.REX0000196
PIUS.REX0000201	– PIUS.REX0000221
PIUS.REX0000224	– PIUS.REX0000225
PIUS.REX0000311	– PIUS.REX0000313
PIUS.REX0000327	– PIUS.REX0000337
PIUS.REX0000617	– PIUS.REX0000634
PIUS.REX0000654	
PIUS.REX0000675	– PIUS.REX0000677
PIUS.REX0000748	– PIUS.REX0000749
PIUS.REX0000785	– PIUS.REX0000787
PIUS.REX0000792	– PIUS.REX0000793
PIUS.REX0000796	
PIUS.REX0000803	
PIUS.REX0000868	– PIUS.REX0000870
PIUS.REX0000912	– PIUS.REX0000914
PIUS.REX0000952	– PIUS.REX0000953
PIUS.REX0000959	– PIUS.REX0000961

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Bates Ranges		
PIUS.REX0000963	–	PIUS.REX0000966
PIUS.REX0000977		
PIUS.REX0000990	–	PIUS.REX0000991
PIUS.REX0001043	–	PIUS.REX0001045
REALTOR.COM_00001	–	REALTOR.COM_00066
REX_0000001	–	REX_0000007
REX_0000009	–	REX_0000188
REX_0000192	–	REX_0000239
REX_0000357	–	REX_0000369
REX_0000371		
REX_0000377	–	REX_0000520
REX_0000530	–	REX_0001212
REX_0001294	–	REX_0001297
REX_0001655		
REX_0001657	–	REX_0001666
REX_0002658	–	REX_0002659
REX_0009373	–	REX_0009374
REX_0010045	–	REX_0010051
REX_0010383	–	REX_0010391
REX_0012379	–	REX_0012385
REX_0012757	–	REX_0012772
REX_0015538	–	REX_0015539
REX_0019967	–	REX_0019996
REX_0041548	–	REX_0041550
REX_0041859	–	REX_0041862
REX_0042985	–	REX_0042991
REX_0047545	–	REX_0047546
REX_0049935	–	REX_0049937
REX_0060764	–	REX_0060797
REX_0064047	–	REX_0064050
REX_0069368	–	REX_0069370
REX_0069387	–	REX_0069388
REX_0069409	–	REX_0069410
REX_0071348	–	REX_0071349
REX_0071630	–	REX_0071632
REX_0075260	–	REX_0075261
REX_0075285	–	REX_0075287
REX_0077170	–	REX_0077176
REX_0079683	–	REX_0079702

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Bates Ranges		
REX_0082875	–	REX_0082876
REX_0084085	–	REX_0084088
REX_0084395	–	REX_0084396
REX_0088375	–	REX_0088379
REX_0088544	–	REX_0088546
REX_0139166	–	REX_0139168
REX_0220692	–	REX_0220695
REX_0220765	–	REX_0220767
REX_0226797	–	REX_0226800
REX_0227299	–	REX_0227305
REX_0227342	–	REX_0227343
REX_0227611	–	REX_0227613
REX_0229475	–	REX_0229479
REX_0231839	–	REX_0231841
REX_0232689	–	REX_0232691
REX_0232773	–	REX_0232774
REX_0233848	–	REX_0233856
REX_0235434	–	REX_0235436
REX_0235445	–	REX_0235447
REX_0237540	–	REX_0237545
REX_0242019	–	REX_0242075
REX_0252111	–	REX_0252168
REX_0255023		
REX_0255865	–	REX_0255872
REX_0264468	–	REX_0264507
REX_0292762	–	REX_0292778
REX_0293971	–	REX_0298310
REX_0316811	–	REX_0316821
REX_0318024	–	REX_0318027
REX_0318036	–	REX_0318038
REX_0324142	–	REX_0324144
REX_0324242	–	REX_0324243
REX_0325252	–	REX_0325259
REX_0327072	–	REX_0327076
REX_0328001	–	REX_0328003
REX_0328105	–	REX_0328108
REX_0328871	–	REX_0328886
REX_0332451	–	REX_0332454
REX_0370893	–	REX_0370898

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MATERIALS CONSIDERED

Bates Ranges		
REX_0370902	–	REX_0370907
REX_0370911	–	REX_0370916
REX_0370944	–	REX_0370949
REX_0370957	–	REX_0370962
REX_0370964	–	REX_0370969
REX_0371268	–	REX_0371273
REX_0398826	–	REX_0398827
REX_0399924	–	REX_0399925
REX_0402868	–	REX_0402869
REX_0403086	–	REX_0403088
REX_0403528	–	REX_0403530
REX_0404032	–	REX_0404034
REX_0404907	–	REX_0404909
REX_0412718	–	REX_0412719
REX_0438310	–	REX_0438315
REX_0447360	–	REX_0447369
REX_0454603	–	REX_0454709
REX_0459171	–	REX_0459176
REX_0460804	–	REX_0460815
REX_0461491	–	REX_0461494
REX_0462795		
REX_0481188	–	REX_0481224
REX_0579704	–	REX_0579708
REX_0579753	–	REX_0579757
REX_0653170		
REX_0772791		
REX_0778186	–	REX_0778192
REX_0780105		
REX_0823340	–	REX_0823341
REX_0823373	–	REX_0823374
REX_0824092		
REX_0824192	–	REX_0824197
REX_0824228	–	REX_0824229
REX_0824272		
REX_0824274	–	REX_0824280
REX_0825803	–	REX_0825805
REX_0825811	–	REX_0825814
REX_0825821		
REX_0825827	–	REX_0825831

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MATERIALS CONSIDERED

Bates Ranges		
REX_0825834	–	REX_0825835
REX_0825838	–	REX_0825860
REX_0826273		
REX_0826294		
REX_0826315		
REX_0826349		
REX_0826357		
REX_0826527	–	REX_0826530
REX_0838504	–	REX_0838522
REX-FM-00001	–	REX-FM-00035
ZG_00000001	–	ZG_00000005
ZG_00000150	–	ZG_00000215
ZG_00000960	–	ZG_00000975
ZG_00001043	–	ZG_00001109
ZG_00001161	–	ZG_00001230
ZG_00008197	–	ZG_00008199
ZG_00008570	–	ZG_00008572
ZG_00011982	–	ZG_00011987
ZG_00018371	–	ZG_00018377
ZG_00232399	–	ZG_00232413
ZG_00268556	–	ZG_00268595
ZG_00352026	–	ZG_00352031
ZG_00615418	–	ZG_00615428
ZG_00693627	–	ZG_00693643
ZG_00693647	–	ZG_00693686
ZG_00695182	–	ZG_00695196
ZG_00695199	–	ZG_00695214
ZG_00695225	–	ZG_00695240
ZG_00695286	–	ZG_00695315
ZG_00695591	–	ZG_00695841

Case Materials:

- Amended Complaint for Injunctive Relief and for Damages, September 30, 2021.
- Cover Letter for Zillow’s Ninth Document Production Volume (ZG-PROD009), November 28, 2022.
- Cover Letter for Zillow’s Third Document Production (ZG-PROD003), September 21, 2022.
- Declaration of Produced REX Salesforce Fields by Production Volume Number and Bates Number, March 23, 2023.
- Defendant National Association of Realtors® Responses and Objections to REX’s Second Set of Interrogatories (Nos. 7-12), October 17, 2022.
- Defendant Zillow’s Objections and Responses to Plaintiff’s Second Set of Interrogatories, October 17, 2022.
- Defendants’ Opposition to Plaintiff’s Motion for Preliminary Injunction, April 30, 2021.

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Case Materials (continued):

Motion for Preliminary Injunction, March 9, 2021.
NAR’s Responses and Objections to REX’s First Set of Interrogatories, July 25, 2022.
NAR’s Supplemental Responses and Objections to REX’s Interrogatory No. 4, October 27, 2022.
Plaintiff’s Motion to Supplement Evidentiary Record in Support of its Motion for Preliminary Injunction, April 15, 2021.
Plaintiff’s Responses and Objections to Defendant National Association of Realtors’ ® Second Set of Interrogatories, December 9, 2022.
Plaintiff’s Responses and Objections to Zillow Defendants’ Second Set of Interrogatories, June 27, 2022.
Plaintiff’s Response to Zillow Defendants’ Third Set of Interrogatories, July 1, 2022.
Plaintiff’s Supplemental Responses and Objections to Zillow Defendants’ Second Set of Interrogatories, December 12, 2022.
Plaintiff-REX Real Estate Exchange, Inc.’s Notice of Deposition of Defendants Pursuant to Fed. R. Civ. P. 30(b)(6), October 24, 2021.
Reply in Support of Motion for Preliminary Injunction, May 10, 2021.
REX – Real Estate Exchange, Inc.’s Responses to National Association of Realtors’ Third Set of Interrogatories, February 17, 2023.
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REX’s Responses and Objections to Defendant Zillow’s First Set of Interrogatories, April 12, 2022.
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The National Association of Realtors’® Opposition to Plaintiff’s Motion for Preliminary Injunction, April 30, 2021.
Zillow Defendants’ Objections and Responses to Plaintiff’s First Set of Interrogatories, August 1, 2022.
Zillow Defendants’ Supplemental Objections and Responses to Plaintiff’s First Set of Interrogatories, September 8, 2022.

Declarations and Expert Reports:

Declaration of Brandy Lawrence, March 8, 2021.
Declaration of Craig Barrett, March 8, 2021, with partially redacted Exhibits.
Declaration of Errol Samuelson, April 30, 2021, with Exhibits.
Declaration of Glenn Hubbard, April 30, 2021, with Exhibits (including Rebuttal Expert Report of Glenn Hubbard, with Appendices, April 30, 2021).
Declaration of Jack Ryan, March 8, 2021.
Declaration of Josephine Maggio, March 8, 2021, with Exhibits.
Declaration of Matt Hendricks, April 28, 2021, with Exhibits.
Declaration of Philip Van Ham, March 9, 2021, with partially redacted Exhibits.
Declaration of Randall Echevarria, March 8, 2021.
Declaration of Raphael Rio Reina, March 9, 2021, with partially redacted Exhibits.
Declaration of Teresa Thomas, April 28, 2021.
Declaration of Todd Rosenbaum, March 7, 2021, with Exhibits.
Declaration of Viktor Kruse, March 7, 2021.
Declaration of W. Robert Majure in Support of Motion for Preliminary Injunction, March 9, 2021 (including Expert Report of W. Robert Majure, Ph.D., with Appendices and Workpapers, March 9, 2021).
Expert Report of Aradhna Krishna, December 12, 2022.
Expert Report of David Loucks, undated, with Workpapers.
Expert Report of David S. Evans, December 12, 2022, with Workpapers.
Rebuttal Declaration of W. Robert Majure in Support of Motion for Preliminary Injunction, May 10, 2021, with Exhibits (including Rebuttal Report of W. Robert Majure, Ph.D., with Appendices, May 10, 2021).

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Depositions:

30(b)(6) Deposition of Errol Samuelson, November 29, 2022, with Exhibits.
 30(b)(6) Deposition of Jonathan Mabe, November 8, 2022, with Exhibits.
 30(b)(6) Deposition of Lynley Sides, January 20, 2023, with Exhibits.
 30(b)(6) Deposition of Rodney Gansho, Vol. I, October 28, 2022, with Exhibits.
 30(b)(6) Deposition of Rodney Gansho, Vol. II, December 8, 2022, with Exhibits.
 30(b)(6) Deposition of Teresa Thomas, November 2, 2022, with Exhibits.
 Deposition of Andrew Terrel, March 24, 2023, with Exhibits.
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APPENDIX C

I. OVERVIEW OF LISTING-LEVEL DATA CLEANING AND MERGING

1. Below, I outline the steps I take to clean and merge the following data sets produced in this matter: REX_0000001, REX_0000002, REX_0000003, REX_0000004, REX_0000005, and REX_0001295. The resulting data set (“Listing-level data”) is a listing-level data set in which each row is a unique listing, identified by a property identifier and a list date, and it constitutes the underlying data to Exhibits 1, 2, 3, 4A-B, 5A-B, 6A-B, 7A-B, and Appendices D.1-D.2, E, F.1-F.3.

A. Data Cleaning

2. To build a more comprehensive listing-level data set, I first clean the raw data sets to achieve listing-level observations (*i.e.*, each row is a unique listing, identified by a property identifier and the list date), and then I combine the cleaned data sets using unique listing identifiers.

3. The data set REX_0000001 is at the listing level, and each unique observation is identified by the variable ‘Opportunity Name’, which is a string usually containing a person’s name, the type of opportunity,¹ and an address for the property – which I consider the property identifier. To clean this data set, I re-format the variables ‘Close Date’ and ‘Live Date’ so that they are recognized as dates by the statistical software Stata.

4. To build a listing-level data set identified by ‘Opportunity Name’ and ‘Listing Date’ using REX_0000002, I first drop three variables, namely ‘Property Street Address’ (which is typically redundant, because the address is captured by the variable ‘Opportunity Name’),

¹ As mentioned below, I focus on observations marked as “Seller Opportunity” in the ‘Opportunity Record Type’ variable.

‘Buyer Agent’ (which I do not use in my analysis), and ‘Brokerage’ (which I do not use in my analysis). Next, I drop 6,032 observations that are duplicative across all remaining variables, in such a way that for each group of duplicative observations I keep only one, which uniquely identifies a specific listing. Finally, similar to the cleaning step I use in REX_0000001, I re-format the variables ‘Listing Date’ and ‘Close Date’ so that they are recognized by the statistical software Stata as dates.

5. To clean REX_0000003, a listing-level data set identified by ‘Opportunity Name’ and ‘Listing Date’, I re-format the variables ‘Close Date’ and ‘Listing Date’ so that they are recognized as dates.²

6. To build a listing-level data set identified by ‘Opportunity Name’ and ‘Listing Date’ using REX_0000004, I begin by removing the variables ‘Buyer Agent’ and ‘Brokerage’ because they are not used in my analysis. Next, I remove 7,629 observations that are duplicative across all remaining variables, in such a way that for each group of duplicative observations I keep only one, which uniquely identifies a specific listing. Finally, I re-format the variables ‘Listing Date’, ‘Close Date’, and ‘Live Date’ so that they are recognized by the statistical software Stata as dates.

7. To build a listing-level data set identified by ‘Opportunity Name’ and ‘Listing

² I also replace the variable ‘REX Commission Type’ to be equal to “2%” for the observation where ‘Opportunity Name’ is equal to “Alex Cadet (Agent) - Buyer Opportunity - 1855 Crown Hill Blvd Orlando, Florida 32828 ,”. I make this adjustment because I observe that there is another observation with a near identical ‘Opportunity Name’ (“AGENT -Alex Cadet - 1855 Crown Hill Blvd Orlando, Florida 32828 ,”) and “2%” in ‘REX Commission Type’ but “0” in ‘Commission Value’. On the other hand, the first observation, “Alex Cadet (Agent) – Buyer Opportunity – 1855 Crown Hill Blvd Orlando, Florida 32828 ,” has a ‘Commission Value’ of \$7,540, which is exactly 2% of its ‘REX Closing Price’, \$377,000 ($\$7,540 / \$377,000 = 0.02$). Other than the variables ‘Opportunity Name’, ‘REX Commission Type’, and ‘Commission Value’, the observations are identical. Therefore, in order not to count the seemingly same observation twice, I remove the observation for which the ‘Opportunity Name’ is “AGENT -Alex Cadet - 1855 Crown Hill Blvd Orlando, Florida 32828 ,”.

Date’ using REX_0000005, I first remove one observation that is duplicative of another observation across all variables. Next, I observe that three distinct observations are duplicative of three other observations across the variables ‘Opportunity Name’ and ‘List Date’. For one of the three pairs (‘Opportunity Name’ equal to “Kelvin Brock 30953 Young Dove St, Menifee California 9258”), the two observations have the same ‘Listing Price’, but one has a missing ‘REX Closing Price’, which I therefore drop and keep the other. For the other two pairs, the observations are identical except for their ‘Listing Price’ and ‘REX Commission Type’. I remove all four observations from the data set because I am unable to identify the correct listing price for the property. Again, I re-format the variables ‘Listing Date’, ‘Close Date’, ‘Live Date’, and ‘Co-listing Date’ so that they are recognized by the statistical software Stata as dates.

8. Finally, to clean REX_0001295, I drop three observations that are duplicative across all variables, in such a way that for each group of duplicative observations I keep only one, which uniquely identifies a specific listing. Next, I observe that this data set too has two observations with ‘Opportunity Name’ equal to “Kelvin Brock 30953 Young Dove St, Menifee California 9258” and the same ‘Listing Date’. For consistency with the cleaning step taken above, I keep the one with a ‘Close Date’ on 08/10/2019, the same ‘Close Date’ of the observation being kept in REX_0000005. Finally, I again re-format the variables ‘Listing Date’, ‘Close Date’, ‘Live Date’, ‘Escrow Date’, and ‘Cancel Date’ so that they are recognized by the statistical software Stata as dates.

B. Merging of Cleaned Data Sets

9. To create the data set used in Exhibits 1, 2, 3, 4A-B, 5A-B, 6A-B, 7A-B, and Appendices D.1-D.2, E, F.1-F.3, I merge the cleaned versions of the data sets REX_0000001, REX_0000002, REX_0000003, REX_0000004, REX_0000005, and REX_0001295 together on

the common variables ‘Opportunity Name’ and, where applicable, ‘Listing Date’. These two variables uniquely identify observations across all six cleaned data sets. Finally, I remove all observations where the variable ‘Opportunity Record Type’ is not equal to “Seller Opportunities”. This results in 6,938 observations (Seller Opportunities).

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2015													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[1] Atlanta	-	-	-	-	-	-	-	-	-	-	-	-	-
[2] Austin	-	-	-	-	-	-	-	-	-	-	-	-	-
[3] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[4] Bay Area	-	-	-	-	-	-	-	-	-	-	-	-	-
[5] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[6] Boston	-	-	-	-	-	-	-	-	-	-	-	-	-
[7] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[8] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[9] Chicago	-	-	-	-	-	-	-	-	-	-	-	-	-
[10] Colorado Springs	-	-	-	-	-	-	-	-	-	-	-	-	-
[11] Denver	-	-	-	-	-	-	-	-	-	-	-	-	-
[12] DMV (D.C., Maryland, Virginia)	-	-	-	-	-	-	-	-	-	-	-	-	-
[13] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[14] Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[15] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[16] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[17] Jacksonville	-	-	-	-	-	-	-	-	-	-	-	-	-
[18] Las Vegas	-	-	-	-	-	-	-	-	-	-	-	-	-
[19] Los Angeles	-	-	-	1	1	-	2	-	2	4	1	2	13
[20] Miami	-	-	-	-	-	-	-	-	-	-	-	-	-
[21] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[22] New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-
[23] New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-
[24] New York	-	-	-	-	-	-	-	-	-	-	-	-	-
[25] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[26] Orange County	-	-	-	-	-	-	-	-	-	-	-	-	-
[27] Orlando	-	-	-	-	-	-	-	-	-	-	-	-	-
[28] Philadelphia	-	-	-	-	-	-	-	-	-	-	-	-	-
[29] Phoenix	-	-	-	-	-	-	-	-	-	-	-	-	-
[30] Portland	-	-	-	-	-	-	-	-	-	-	-	-	-
[31] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[32] Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[33] Research-Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-
[34] Riverside	-	-	-	-	-	-	-	-	-	-	-	-	-
[35] Sacramento	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2015													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[36] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[37] San Antonio	-	-	-	-	-	-	-	-	-	-	-	-	-
[38] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[39] San Diego	-	-	-	-	-	-	-	-	-	-	-	-	-
[40] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[41] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[42] Tampa	-	-	-	-	-	-	-	-	-	-	-	-	-
[43] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[44] West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[45] 2015 Total	-	-	-	1	1	-	2	-	2	4	1	2	13

2016													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[46] Atlanta	-	-	-	-	-	-	-	-	-	-	-	-	-
[47] Austin	-	-	-	-	-	-	-	-	-	-	-	-	-
[48] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[49] Bay Area	-	-	-	-	-	-	-	-	-	-	-	-	-
[50] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[51] Boston	-	-	-	-	-	-	-	-	-	-	-	-	-
[52] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[53] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[54] Chicago	-	-	-	-	-	-	-	-	-	-	-	-	-
[55] Colorado Springs	-	-	-	-	-	-	-	-	-	-	-	-	-
[56] Denver	-	-	-	-	-	-	-	-	-	-	-	-	-
[57] DMV (D.C., Maryland, Virginia)	-	-	-	-	-	-	-	-	-	-	-	-	-
[58] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[59] Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[60] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[61] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[62] Jacksonville	-	-	-	-	-	-	-	-	-	-	-	-	-
[63] Las Vegas	-	-	-	-	-	-	-	-	-	-	-	-	-
[64] Los Angeles	3	4	6	4	3	4	10	6	10	9	8	3	70
[65] Miami	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2016													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[66] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[67] New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-
[68] New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-
[69] New York	-	-	-	-	-	-	-	-	-	-	-	-	-
[70] Not Specified	-	-	-	-	-	-	1	-	2	3	-	1	7
[71] Orange County	-	-	-	-	-	-	-	2	-	2	-	1	5
[72] Orlando	-	-	-	-	-	-	-	-	-	-	-	-	-
[73] Philadelphia	-	-	-	-	-	-	-	-	-	-	-	-	-
[74] Phoenix	-	-	-	-	-	-	-	-	-	-	-	-	-
[75] Portland	-	-	-	-	-	-	-	-	-	-	-	-	-
[76] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[77] Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[78] Research-Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-
[79] Riverside	-	-	-	-	-	-	-	-	-	-	-	-	-
[80] Sacramento	-	-	-	-	-	-	-	-	-	-	-	-	-
[81] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[82] San Antonio	-	-	-	-	-	-	-	-	-	-	-	-	-
[83] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[84] San Diego	-	-	-	-	-	-	-	-	-	-	3	5	8
[85] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[86] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[87] Tampa	-	-	-	-	-	-	-	-	-	-	-	-	-
[88] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[89] West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[90] 2016 Total	3	4	6	4	3	4	11	8	12	14	11	10	90

2017													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[91] Atlanta	-	-	-	-	-	-	-	-	-	-	-	-	-
[92] Austin	-	-	-	-	-	-	-	-	-	-	-	-	-
[93] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[94] Bay Area	-	-	-	-	-	-	-	-	-	-	-	-	-
[95] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2017													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[96] Boston	-	-	-	-	-	-	-	-	-	-	-	-	-
[97] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[98] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[99] Chicago	-	-	-	-	-	-	-	-	-	-	-	-	-
[100] Colorado Springs	-	-	-	-	-	-	-	-	-	-	-	-	-
[101] Denver	-	-	-	-	-	-	-	-	-	-	-	-	-
[102] DMV (D.C., Maryland, Virginia)	-	-	-	-	-	-	-	-	-	-	-	-	-
[103] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[104] Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[105] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[106] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[107] Jacksonville	-	-	-	-	-	-	-	-	-	-	-	-	-
[108] Las Vegas	-	-	-	-	-	-	-	-	-	-	-	-	-
[109] Los Angeles	7	8	15	8	18	17	15	18	14	17	11	13	161
[110] Miami	-	-	-	-	-	-	-	-	-	-	-	-	-
[111] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[112] New Area Request	-	-	1	-	-	-	-	-	-	-	-	-	1
[113] New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-
[114] New York	-	-	-	-	-	-	1	9	6	8	5	6	35
[115] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[116] Orange County	2	1	-	3	1	2	3	5	2	3	2	3	27
[117] Orlando	-	-	-	-	-	-	-	-	-	-	-	-	-
[118] Philadelphia	-	-	-	-	-	-	-	-	-	-	-	-	-
[119] Phoenix	-	-	-	-	-	-	-	-	-	-	-	-	-
[120] Portland	-	-	-	-	-	-	-	-	-	-	-	-	-
[121] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[122] Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[123] Research-Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-
[124] Riverside	-	-	1	-	-	-	-	2	1	5	-	4	13
[125] Sacramento	-	-	-	-	-	-	-	-	-	-	-	-	-
[126] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[127] San Antonio	-	-	-	-	-	-	-	-	-	-	-	-	-
[128] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[129] San Diego	6	5	5	8	8	6	10	12	4	7	2	9	82

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2017													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[130] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[131] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[132] Tampa	-	-	-	-	-	-	-	-	-	-	-	-	-
[133] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[134] West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[135] 2017 Total	15	14	22	19	27	25	29	46	27	40	20	35	319
2018													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[136] Atlanta	-	-	-	-	-	-	-	-	-	-	-	-	-
[137] Austin	-	10	9	15	5	9	14	19	9	9	11	10	120
[138] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[139] Bay Area	-	2	-	1	8	7	4	7	11	12	17	12	81
[140] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[141] Boston	-	-	-	-	-	-	-	-	-	-	-	-	-
[142] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[143] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[144] Chicago	-	-	-	-	-	-	-	-	-	-	-	-	-
[145] Colorado Springs	-	-	-	-	-	-	-	-	-	-	-	-	-
[146] Denver	-	-	1	6	8	9	18	7	15	12	6	6	88
[147] DMV (D.C., Maryland, Virginia)	-	-	-	-	-	-	-	-	-	-	-	-	-
[148] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[149] Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[150] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[151] Houston	-	-	-	-	-	-	-	-	2	3	5	9	19
[152] Jacksonville	-	-	-	-	-	-	-	-	-	-	-	-	-
[153] Las Vegas	-	-	-	-	-	-	-	-	-	-	-	-	-
[154] Los Angeles	11	17	16	13	16	29	20	28	26	18	17	18	229
[155] Miami	-	-	-	-	-	-	-	-	-	-	-	-	-
[156] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[157] New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-
[158] New Jersey	-	-	-	-	-	-	-	-	5	3	8	8	24
[159] New York	7	11	11	9	16	15	12	17	15	10	8	7	138

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2018													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[160] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[161] Orange County	2	3	5	3	1	3	3	3	6	3	2	3	37
[162] Orlando	-	-	-	-	-	-	-	-	-	-	-	-	-
[163] Philadelphia	-	-	-	-	-	-	-	-	-	-	-	-	-
[164] Phoenix	-	-	-	-	-	-	-	-	-	-	-	-	-
[165] Portland	-	-	-	-	-	-	-	-	-	-	-	-	-
[166] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[167] Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[168] Research-Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-
[169] Riverside	4	2	3	4	4	6	9	4	8	6	5	7	62
[170] Sacramento	-	-	-	-	-	-	-	-	-	-	-	-	-
[171] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[172] San Antonio	-	-	-	-	-	-	1	5	6	6	4	3	25
[173] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[174] San Diego	13	9	5	7	8	9	8	8	7	11	13	10	108
[175] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[176] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[177] Tampa	-	-	-	-	-	-	-	-	-	-	-	-	-
[178] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[179] West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[180] 2018 Total	37	54	50	58	66	87	89	98	110	93	96	93	931

2019													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[181] Atlanta	-	-	-	-	-	-	-	-	-	-	-	-	-
[182] Austin	13	15	15	14	13	14	8	7	11	4	3	2	119
[183] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[184] Bay Area	22	15	14	12	20	20	23	13	9	8	8	3	167
[185] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[186] Boston	-	-	-	-	3	8	3	6	4	4	1	2	31
[187] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[188] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[189] Chicago	-	-	-	-	8	13	9	11	7	8	11	6	73

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2019													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[190] Colorado Springs	-	-	3	1	9	1	10	4	3	5	3	3	42
[191] Denver	16	11	21	17	19	14	13	12	13	14	8	5	163
[192] DMV (D.C., Maryland, Virginia)	-	-	-	-	4	11	12	12	8	8	3	2	60
[193] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[194] Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[195] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[196] Houston	11	8	7	13	16	14	7	11	10	12	1	-	110
[197] Jacksonville	-	-	-	-	-	-	1	-	7	12	6	1	27
[198] Las Vegas	-	-	-	-	-	-	6	8	7	9	3	6	39
[199] Los Angeles	22	19	21	46	37	47	35	33	27	25	16	9	337
[200] Miami	-	-	-	-	-	-	1	-	-	-	-	-	1
[201] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[202] New Area Request	-	-	3	5	6	3	2	10	-	-	-	-	29
[203] New Jersey	8	10	13	16	16	16	24	16	13	13	15	9	169
[204] New York	7	13	14	7	11	9	16	12	11	12	7	4	123
[205] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[206] Orange County	2	3	4	11	8	11	13	8	3	6	2	3	74
[207] Orlando	-	15	11	16	20	10	11	7	6	16	15	7	134
[208] Philadelphia	-	-	2	10	10	9	8	6	13	3	9	1	71
[209] Phoenix	-	-	-	-	5	16	8	7	6	11	2	7	62
[210] Portland	5	6	3	12	10	17	21	12	6	11	5	6	114
[211] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[212] Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[213] Research-Triangle	-	-	-	-	-	-	-	6	4	7	6	3	26
[214] Riverside	6	10	9	12	7	17	11	14	18	9	9	2	124
[215] Sacramento	4	6	7	8	11	20	11	9	7	9	7	4	103
[216] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[217] San Antonio	6	8	6	12	10	2	9	3	10	6	-	-	72
[218] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[219] San Diego	12	8	11	11	7	13	12	9	6	6	5	4	104
[220] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[221] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[222] Tampa	-	-	1	1	1	1	2	1	4	7	6	4	28
[223] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[224] West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[225] 2019 Total	134	147	165	224	251	286	276	237	213	225	151	93	2,402

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2020													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[226] Atlanta	-	4	7	2	1	-	-	4	4	7	1	3	33
[227] Austin	9	5	7	9	3	7	3	7	4	2	4	4	64
[228] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[229] Bay Area	10	15	8	8	9	9	9	8	8	4	10	2	100
[230] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[231] Boston	3	-	5	7	1	4	1	1	2	2	-	8	34
[232] Boulder	-	-	-	-	-	-	-	-	1	-	-	-	1
[233] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[234] Chicago	4	6	7	5	3	4	4	7	5	6	7	3	61
[235] Colorado Springs	2	3	-	7	1	5	3	2	4	1	2	2	32
[236] Denver	14	10	9	11	11	16	11	10	6	6	2	3	109
[237] DMV (D.C., Maryland, Virginia)	5	3	6	13	7	10	6	7	6	7	4	6	80
[238] Fort Collins	-	-	-	1	-	-	-	-	-	-	-	-	1
[239] Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	2	2
[240] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[241] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[242] Jacksonville	9	4	16	11	10	14	13	8	9	6	7	10	117
[243] Las Vegas	4	3	5	3	6	10	6	7	9	2	4	8	67
[244] Los Angeles	20	22	14	9	11	9	17	20	21	17	7	17	184
[245] Miami	1	-	-	-	-	-	-	-	-	-	-	-	1
[246] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[247] New Area Request	-	-	1	-	-	-	-	-	-	-	-	-	1
[248] New Jersey	14	13	11	14	10	26	20	14	20	13	16	11	182
[249] New York	7	3	8	1	7	7	10	11	12	9	5	12	92
[250] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[251] Orange County	5	6	5	3	2	1	4	4	2	5	4	5	46
[252] Orlando	14	11	16	13	10	14	10	9	7	7	7	10	128
[253] Philadelphia	3	4	3	8	5	4	3	3	2	4	1	4	44
[254] Phoenix	4	3	6	4	1	2	2	4	3	3	5	3	40
[255] Portland	4	7	4	7	6	6	5	4	1	3	5	5	57
[256] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[257] Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[258] Research-Triangle	3	4	5	10	1	2	4	4	1	2	1	4	41
[259] Riverside	16	5	10	2	6	1	6	14	6	5	3	3	77
[260] Sacramento	5	10	6	9	11	11	8	7	12	5	6	1	91
[261] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2020													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[262] San Antonio	2	2	3	2	2	4	-	1	-	2	3	1	22
[263] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[264] San Diego	3	7	9	4	-	4	3	4	1	3	1	4	43
[265] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[266] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[267] Tampa	2	7	1	-	1	7	3	6	2	4	3	1	37
[268] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[269] West Palm Beach	-	-	-	-	-	-	-	-	-	-	1	2	3
[270] 2020 Total	163	157	172	163	125	177	151	166	148	125	109	134	1,790

2021													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[271] Atlanta	4	3	2	2	-	3	6	3	2	3	1	1	30
[272] Austin	8	1	6	3	5	12	4	7	5	5	2	-	58
[273] Bakersfield	-	1	2	1	4	1	3	2	3	2	3	-	22
[274] Bay Area	5	1	5	5	3	2	4	5	-	2	6	1	39
[275] Bend	-	-	2	-	1	1	-	-	-	-	-	-	4
[276] Boston	1	-	5	3	1	6	2	-	-	-	-	-	18
[277] Boulder	-	-	-	2	-	1	-	1	1	-	-	-	5
[278] Charlotte	-	-	-	-	2	-	1	-	-	-	-	-	3
[279] Chicago	4	2	7	10	3	8	4	1	1	-	-	-	40
[280] Colorado Springs	1	2	4	2	-	5	1	-	3	-	1	-	19
[281] Denver	1	5	2	5	6	2	2	6	3	2	1	-	35
[282] DMV (D.C., Maryland, Virginia)	6	3	8	3	3	3	4	6	3	2	1	1	43
[283] Fort Collins	-	-	1	1	1	-	-	1	-	-	-	-	4
[284] Fort Lauderdale	9	3	6	5	5	3	7	1	3	2	4	6	54
[285] Fort Myers	-	-	-	1	4	1	3	3	-	-	1	-	13
[286] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[287] Jacksonville	8	11	6	6	6	6	7	2	-	3	8	6	69
[288] Las Vegas	-	2	3	6	4	8	6	4	2	1	4	-	40
[289] Los Angeles	12	11	16	12	12	14	11	5	4	7	3	6	113
[290] Miami	-	-	1	2	-	1	1	-	1	-	-	-	6
[291] Minneapolis	-	-	-	-	3	1	-	2	-	-	-	-	6
[292] New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2021													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[293] New Jersey	4	2	9	5	12	9	13	6	6	2	2	2	72
[294] New York	1	4	9	10	6	9	6	7	3	1	-	-	56
[295] Not Specified	-	-	-	-	-	-	-	-	-	-	1	-	1
[296] Orange County	2	2	2	1	7	2	2	1	-	-	-	-	19
[297] Orlando	4	5	3	-	5	5	5	2	7	4	5	3	48
[298] Philadelphia	5	6	7	5	9	1	1	4	2	3	4	3	50
[299] Phoenix	3	3	3	8	6	6	6	3	4	1	5	1	49
[300] Portland	2	1	6	6	3	3	6	3	1	4	-	1	36
[301] Provo	-	-	-	2	1	-	-	-	-	-	-	-	3
[302] Reno	-	-	-	1	-	2	7	3	4	1	1	3	22
[303] Research-Triangle	5	1	6	1	3	1	1	1	-	-	-	-	19
[304] Riverside	7	3	9	2	2	3	3	4	-	4	2	2	41
[305] Sacramento	5	3	6	3	5	3	3	5	7	5	-	-	45
[306] Salt Lake City	-	-	-	-	2	2	1	-	-	-	-	-	5
[307] San Antonio	-	-	2	-	1	3	3	2	-	-	-	-	11
[308] San Bernardino	-	1	-	-	2	-	2	-	-	-	-	-	5
[309] San Diego	2	3	1	4	2	1	1	-	-	2	3	-	19
[310] Seattle	3	5	-	5	1	1	1	3	1	2	2	-	24
[311] Stockton	-	-	-	-	-	-	1	1	-	-	-	-	2
[312] Tampa	6	3	3	4	4	1	1	3	-	-	-	-	25
[313] Vancouver	-	-	-	-	-	1	-	-	1	-	1	-	3
[314] West Palm Beach	5	2	2	2	2	4	3	3	3	6	4	4	40
[315] 2021 Total	113	89	144	128	136	135	132	100	70	64	65	40	1,216

2022													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[316] Atlanta	-	3	1	-	-	-	-	-	-	-	-	-	4
[317] Austin	1	5	1	1	-	-	-	-	-	-	-	-	8
[318] Bakersfield	-	1	1	2	-	-	-	-	-	-	-	-	4
[319] Bay Area	1	1	4	2	-	-	-	-	-	-	-	-	8
[320] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[321] Boston	-	-	-	-	-	-	-	-	-	-	-	-	-
[322] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[323] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

2022													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[324] Chicago	-	-	-	-	-	-	-	-	-	-	-	-	-
[325] Colorado Springs	-	1	-	-	-	-	-	-	-	-	-	-	1
[326] Denver	1	1	2	-	-	-	-	-	-	-	-	-	4
[327] DMV (D.C., Maryland, Virginia)	-	-	-	-	-	-	-	-	-	-	-	-	-
[328] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[329] Fort Lauderdale	3	3	1	4	-	-	-	-	-	-	-	-	11
[330] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[331] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[332] Jacksonville	1	7	4	3	-	-	-	-	-	-	-	-	15
[333] Las Vegas	-	4	1	9	-	-	-	-	-	-	-	-	14
[334] Los Angeles	7	3	3	4	-	-	-	-	-	-	-	-	17
[335] Miami	-	-	-	-	-	-	-	-	-	-	-	-	-
[336] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[337] New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-
[338] New Jersey	2	7	2	2	-	-	-	-	-	-	-	-	13
[339] New York	-	-	-	-	-	-	-	-	-	-	-	-	-
[340] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[341] Orange County	1	1	2	-	-	-	-	-	-	-	-	-	4
[342] Orlando	3	3	3	4	-	-	-	-	-	-	-	-	13
[343] Philadelphia	-	2	1	-	-	-	-	-	-	-	-	-	3
[344] Phoenix	-	2	-	-	-	-	-	-	-	-	-	-	2
[345] Portland	1	-	5	-	-	-	-	-	-	-	-	-	6
[346] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[347] Reno	1	1	1	2	1	-	-	-	-	-	-	-	6
[348] Research-Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-
[349] Riverside	1	1	1	-	-	-	-	-	-	-	-	-	3
[350] Sacramento	1	6	3	1	-	-	-	-	-	-	-	-	11
[351] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[352] San Antonio	-	-	-	-	-	-	-	-	-	-	-	-	-
[353] San Bernardino	-	1	-	-	-	-	-	-	-	-	-	-	1
[354] San Diego	1	1	2	-	-	-	-	-	-	-	-	-	4
[355] Seattle	1	1	2	-	-	-	-	-	-	-	-	-	4

APPENDIX D.1

**REX MONTHLY NEW LISTINGS BY MARKET AREA
2015 – 2022**

		2022											
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[356] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[357] Tampa	-	-	-	-	-	-	-	-	-	-	-	-	-
[358] Vancouver	1	-	-	-	-	-	-	-	-	-	-	-	1
[359] West Palm Beach	-	-	1	3	-	-	-	-	-	-	-	-	4
[360] 2022 Total	27	55	41	37	1	-	-	-	-	-	-	-	161
[361] 2015 – 2022 Total	492	520	600	634	610	714	690	655	582	565	453	407	6,922

Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning.

Cleaned, merged data set contains 6,938 observations (Seller Opportunities), consisting of 3,144 (45.3%) “Closed Lost” opportunities, 3,674 (52.9%) “Closed Won” opportunities, 2 (0.0%) “Consultation” opportunities, 46 (0.7%) “In Escrow” opportunities, 2 (0.0%) “Listing Agreement” opportunities, 53 (0.8%) “Live” opportunities, 1 (0.0%) “Nurturing” opportunity, 5 (0.1%) “Qualification” opportunities, and 11 (0.2%) “Setup Listing” opportunities.

16 (0.2%) opportunities that do not have a list date are excluded.

New Listings are identified by the ‘Listing Date’ variable.

[N] = Sum of [B] to [M].

[45] = Sum of [1] to [44].

[90] = Sum of [46] to [89].

[135] = Sum of [91] to [134].

[180] = Sum of [136] to [179].

[225] = Sum of [181] to [224].

[270] = Sum of [226] to [269].

[315] = Sum of [271] to [314].

[360] = Sum of [316] to [359].

[361] = Sum of [45], [90], [135], [180], [225], [270], [315], and [360].

APPENDIX D.2

**REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022**

2015													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[1] Atlanta	-	-	-	-	-	-	-	-	-	-	-	-	-
[2] Austin	-	-	-	-	-	-	-	-	-	-	-	-	-
[3] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[4] Bay Area	-	-	-	-	-	-	-	-	-	-	-	-	-
[5] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[6] Boston	-	-	-	-	-	-	-	-	-	-	-	-	-
[7] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[8] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[9] Chicago	-	-	-	-	-	-	-	-	-	-	-	-	-
[10] Colorado Springs	-	-	-	-	-	-	-	-	-	-	-	-	-
[11] Denver	-	-	-	-	-	-	-	-	-	-	-	-	-
[12] DMV (D.C., Maryland, Virginia)	-	-	-	-	-	-	-	-	-	-	-	-	-
[13] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[14] Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[15] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[16] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[17] Jacksonville	-	-	-	-	-	-	-	-	-	-	-	-	-
[18] Las Vegas	-	-	-	-	-	-	-	-	-	-	-	-	-
[19] Los Angeles	-	-	-	-	-	-	-	1	3	-	-	-	4
[20] Miami	-	-	-	-	-	-	-	-	-	-	-	-	-
[21] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[22] New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-
[23] New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-
[24] New York	-	-	-	-	-	-	-	-	-	-	-	-	-
[25] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[26] Orange County	-	-	-	-	-	-	-	-	-	-	-	-	-
[27] Orlando	-	-	-	-	-	-	-	-	-	-	-	-	-
[28] Philadelphia	-	-	-	-	-	-	-	-	-	-	-	-	-
[29] Phoenix	-	-	-	-	-	-	-	-	-	-	-	-	-
[30] Portland	-	-	-	-	-	-	-	-	-	-	-	-	-
[31] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[32] Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[33] Research-Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-
[34] Riverside	-	-	-	-	-	-	-	-	-	-	-	-	-
[35] Sacramento	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.2

**REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022**

2015													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[36] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[37] San Antonio	-	-	-	-	-	-	-	-	-	-	-	-	-
[38] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[39] San Diego	-	-	-	-	-	-	-	-	-	-	-	-	-
[40] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[41] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[42] Tampa	-	-	-	-	-	-	-	-	-	-	-	-	-
[43] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[44] West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[45] 2015 Total	-	-	-	-	-	-	-	1	3	-	-	-	4

2016													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[46] Atlanta	-	-	-	-	-	-	-	-	-	-	-	-	-
[47] Austin	-	-	-	-	-	-	-	-	-	-	-	-	-
[48] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[49] Bay Area	-	-	-	-	-	-	-	-	-	-	-	-	-
[50] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[51] Boston	-	-	-	-	-	-	-	-	-	-	-	-	-
[52] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[53] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[54] Chicago	-	-	-	-	-	-	-	-	-	-	-	-	-
[55] Colorado Springs	-	-	-	-	-	-	-	-	-	-	-	-	-
[56] Denver	-	-	-	-	-	-	-	-	-	-	-	-	-
[57] DMV (D.C., Maryland, Virginia)	-	-	-	-	-	-	-	-	-	-	-	-	-
[58] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[59] Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[60] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[61] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[62] Jacksonville	-	-	-	-	-	-	-	-	-	-	-	-	-
[63] Las Vegas	-	-	-	-	-	-	-	-	-	-	-	-	-
[64] Los Angeles	1	-	2	1	1	2	4	1	4	5	3	4	28
[65] Miami	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.2

**REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022**

2016													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[66] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[67] New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-
[68] New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-
[69] New York	-	-	-	-	-	-	-	-	-	-	-	-	-
[70] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[71] Orange County	-	-	-	-	-	-	-	-	-	-	-	1	1
[72] Orlando	-	-	-	-	-	-	-	-	-	-	-	-	-
[73] Philadelphia	-	-	-	-	-	-	-	-	-	-	-	-	-
[74] Phoenix	-	-	-	-	-	-	-	-	-	-	-	-	-
[75] Portland	-	-	-	-	-	-	-	-	-	-	-	-	-
[76] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[77] Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[78] Research-Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-
[79] Riverside	-	-	-	-	-	-	-	-	-	-	-	-	-
[80] Sacramento	-	-	-	-	-	-	-	-	-	-	-	-	-
[81] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[82] San Antonio	-	-	-	-	-	-	-	-	-	-	-	-	-
[83] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[84] San Diego	-	-	-	-	-	-	-	-	-	-	-	-	-
[85] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[86] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[87] Tampa	-	-	-	-	-	-	-	-	-	-	-	-	-
[88] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[89] West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[90] 2016 Total	1	-	2	1	1	2	4	1	4	5	3	5	29

2017													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[91] Atlanta	-	-	-	-	-	-	-	-	-	-	-	-	-
[92] Austin	-	-	-	-	-	-	-	-	-	-	-	-	-
[93] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[94] Bay Area	-	-	-	-	-	-	-	-	-	-	-	-	-
[95] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.2

**REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022**

2017													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[96] Boston	-	-	-	-	-	-	-	-	-	-	-	-	-
[97] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[98] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[99] Chicago	-	-	-	-	-	-	-	-	-	-	-	-	-
[100] Colorado Springs	-	-	-	-	-	-	-	-	-	-	-	-	-
[101] Denver	-	-	-	-	-	-	-	-	-	-	-	-	-
[102] DMV (D.C., Maryland, Virginia)	-	-	-	-	-	-	-	-	-	-	-	-	-
[103] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[104] Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[105] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[106] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[107] Jacksonville	-	-	-	-	-	-	-	-	-	-	-	-	-
[108] Las Vegas	-	-	-	-	-	-	-	-	-	-	-	-	-
[109] Los Angeles	8	2	3	7	5	11	9	7	10	9	8	11	90
[110] Miami	-	-	-	-	-	-	-	-	-	-	-	-	-
[111] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[112] New Area Request	-	-	-	-	-	-	-	-	1	-	-	-	1
[113] New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-
[114] New York	-	-	-	-	-	-	-	-	-	-	-	2	2
[115] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[116] Orange County	1	-	1	-	-	1	-	2	2	1	2	3	13
[117] Orlando	-	-	-	-	-	-	-	-	-	-	-	-	-
[118] Philadelphia	-	-	-	-	-	-	-	-	-	-	-	-	-
[119] Phoenix	-	-	-	-	-	-	-	-	-	-	-	-	-
[120] Portland	-	-	-	-	-	-	-	-	-	-	-	-	-
[121] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[122] Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[123] Research-Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-
[124] Riverside	-	-	-	-	-	1	-	-	-	1	1	-	3
[125] Sacramento	-	-	-	-	-	-	-	-	-	-	-	-	-
[126] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[127] San Antonio	-	-	-	-	-	-	-	-	-	-	-	-	-
[128] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[129] San Diego	1	1	2	7	5	12	4	1	3	6	5	1	48

APPENDIX D.2

REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022

2017													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[130] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[131] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[132] Tampa	-	-	-	-	-	-	-	-	-	-	-	-	-
[133] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[134] West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[135] 2017 Total	10	3	6	14	10	25	13	10	16	17	16	17	157
2018													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[136] Atlanta	-	-	-	-	-	-	-	-	-	-	-	-	-
[137] Austin	-	-	-	1	1	3	2	7	1	7	1	2	25
[138] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[139] Bay Area	-	-	-	-	-	-	-	4	2	1	1	1	9
[140] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[141] Boston	-	-	-	-	-	-	-	-	-	-	-	-	-
[142] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[143] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[144] Chicago	-	-	-	-	-	-	-	-	-	-	-	-	-
[145] Colorado Springs	-	-	-	-	-	-	-	-	-	-	-	-	-
[146] Denver	-	-	-	-	-	1	3	2	4	4	2	1	17
[147] DMV (D.C., Maryland, Virginia)	-	-	-	-	-	-	-	-	-	-	-	-	-
[148] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[149] Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[150] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[151] Houston	-	-	-	-	-	-	-	-	-	-	-	1	1
[152] Jacksonville	-	-	-	-	-	-	-	-	-	-	-	-	-
[153] Las Vegas	-	-	-	-	-	-	-	-	-	-	-	-	-
[154] Los Angeles	9	5	10	8	9	9	9	8	8	9	8	8	100
[155] Miami	-	-	-	-	-	-	-	-	-	-	-	-	-
[156] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[157] New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-
[158] New Jersey	-	-	-	-	-	-	-	-	-	-	-	1	1
[159] New York	2	1	2	-	3	5	3	9	3	3	5	7	43

APPENDIX D.2

**REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022**

2018													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[160] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[161] Orange County	1	2	2	1	2	1	-	2	-	-	-	1	12
[162] Orlando	-	-	-	-	-	-	-	-	-	-	-	-	-
[163] Philadelphia	-	-	-	-	-	-	-	-	-	-	-	-	-
[164] Phoenix	-	-	-	-	-	-	-	-	-	-	-	-	-
[165] Portland	-	-	-	-	-	-	-	-	-	-	-	-	-
[166] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[167] Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[168] Research-Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-
[169] Riverside	1	-	2	1	3	1	3	3	3	5	-	-	22
[170] Sacramento	-	-	-	-	-	-	-	-	-	-	-	-	-
[171] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[172] San Antonio	-	-	-	-	-	-	-	-	-	-	-	-	-
[173] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[174] San Diego	2	4	6	5	4	2	1	5	3	3	6	2	43
[175] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[176] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[177] Tampa	-	-	-	-	-	-	-	-	-	-	-	-	-
[178] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[179] West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[180] 2018 Total	15	12	22	16	22	22	21	40	24	32	23	24	273

2019													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[181] Atlanta	-	-	-	-	-	-	-	-	-	-	-	-	-
[182] Austin	3	4	2	9	11	2	4	6	5	4	3	3	56
[183] Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[184] Bay Area	-	4	7	7	11	5	5	7	7	10	7	5	75
[185] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[186] Boston	-	-	-	-	-	-	-	-	2	4	-	1	7
[187] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[188] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[189] Chicago	-	-	-	-	-	-	-	1	-	-	-	-	1

APPENDIX D.2

REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022

		2019												
	Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[190]	Colorado Springs	-	-	-	-	-	-	4	2	3	-	3	-	12
[191]	Denver	4	2	3	6	8	3	7	6	7	7	6	7	66
[192]	DMV (D.C., Maryland, Virginia)	-	-	-	-	-	-	-	-	3	4	2	4	13
[193]	Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[194]	Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[195]	Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[196]	Houston	-	-	1	1	1	3	2	-	1	1	3	2	15
[197]	Jacksonville	-	-	-	-	-	-	-	-	-	-	2	-	2
[198]	Las Vegas	-	-	-	-	-	-	-	-	-	2	4	2	8
[199]	Los Angeles	6	4	8	11	11	8	10	12	7	17	12	14	120
[200]	Miami	-	-	-	-	-	-	-	-	-	1	-	-	1
[201]	Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[202]	New Area Request	-	-	-	-	-	2	-	-	-	-	-	-	2
[203]	New Jersey	-	-	1	-	7	3	7	9	5	6	6	5	49
[204]	New York	8	1	4	1	2	5	4	5	8	5	3	4	50
[205]	Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[206]	Orange County	-	1	1	2	2	-	2	2	3	5	2	1	21
[207]	Orlando	-	-	-	1	1	5	5	6	4	3	1	5	31
[208]	Philadelphia	-	-	-	-	-	1	4	2	4	1	4	4	20
[209]	Phoenix	-	-	-	-	-	-	3	6	1	8	-	5	23
[210]	Portland	-	-	-	2	2	4	4	7	7	7	4	5	42
[211]	Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[212]	Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[213]	Research-Triangle	-	-	-	-	-	-	-	-	-	1	-	1	2
[214]	Riverside	-	1	3	1	6	5	6	5	5	6	1	5	44
[215]	Sacramento	-	-	-	1	3	6	3	5	3	4	2	5	32
[216]	Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[217]	San Antonio	1	3	2	4	1	-	2	2	1	-	3	6	25
[218]	San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[219]	San Diego	3	1	4	6	5	5	1	7	3	7	4	1	47
[220]	Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[221]	Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[222]	Tampa	-	-	-	-	-	-	-	2	-	-	-	1	3
[223]	Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[224]	West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[225]	2019 Total	25	21	36	52	71	57	73	92	79	103	72	86	767

APPENDIX D.2

**REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022**

		2020												
	Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[226]	Atlanta	-	-	-	-	-	1	2	-	-	-	3	4	10
[227]	Austin	3	5	4	2	2	8	6	10	5	3	6	3	57
[228]	Bakersfield	-	-	-	-	-	-	-	-	-	-	-	-	-
[229]	Bay Area	7	4	7	3	3	6	6	9	10	6	3	5	69
[230]	Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[231]	Boston	2	2	3	1	-	1	5	3	3	2	1	-	23
[232]	Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[233]	Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[234]	Chicago	1	1	2	1	1	4	3	3	3	7	2	3	31
[235]	Colorado Springs	2	-	2	1	2	2	4	-	5	1	5	5	29
[236]	Denver	4	5	13	3	4	6	9	6	4	7	6	4	71
[237]	DMV (D.C., Maryland, Virginia)	1	1	5	1	-	7	6	5	2	9	3	9	49
[238]	Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[239]	Fort Lauderdale	-	-	-	-	-	-	-	-	-	-	-	-	-
[240]	Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[241]	Houston	2	-	-	1	-	-	-	-	-	-	-	-	3
[242]	Jacksonville	3	3	1	2	4	6	9	9	7	13	10	7	74
[243]	Las Vegas	1	3	2	1	1	6	4	3	4	8	2	3	38
[244]	Los Angeles	9	14	13	12	10	12	7	9	10	7	12	22	137
[245]	Miami	-	-	-	-	-	-	-	-	-	-	-	-	-
[246]	Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[247]	New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-
[248]	New Jersey	6	-	6	6	6	6	5	6	5	12	8	13	79
[249]	New York	2	4	6	4	1	7	2	5	2	5	7	4	49
[250]	Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[251]	Orange County	2	2	6	1	1	3	5	1	4	1	2	2	30
[252]	Orlando	3	3	6	4	4	4	7	9	8	10	3	2	63
[253]	Philadelphia	-	1	3	1	2	9	1	3	4	3	1	2	30
[254]	Phoenix	2	1	4	2	-	4	3	5	2	3	1	-	27
[255]	Portland	6	6	10	3	3	4	7	6	1	9	2	4	61
[256]	Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[257]	Reno	-	-	-	-	-	-	-	-	-	-	-	-	-
[258]	Research-Triangle	-	1	3	3	1	1	5	-	2	3	2	3	24
[259]	Riverside	7	1	4	3	5	6	3	5	4	6	8	6	58
[260]	Sacramento	4	4	7	6	2	6	9	6	10	11	3	7	75
[261]	Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.2

**REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022**

2020													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[262] San Antonio	-	3	1	1	2	1	1	-	1	2	1	1	14
[263] San Bernardino	-	-	-	-	-	-	-	-	-	-	-	-	-
[264] San Diego	4	6	4	2	-	3	3	1	5	3	3	4	38
[265] Seattle	-	-	-	-	-	-	-	-	-	-	-	-	-
[266] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[267] Tampa	2	-	1	-	3	3	1	1	2	4	1	2	20
[268] Vancouver	-	-	-	-	-	-	-	-	-	-	-	-	-
[269] West Palm Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
[270] 2020 Total	73	70	113	64	57	116	113	105	103	135	95	115	1,159

2021													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[271] Atlanta	-	1	2	3	-	1	2	2	2	1	5	-	19
[272] Austin	2	6	4	1	3	5	3	3	4	3	4	9	47
[273] Bakersfield	-	-	-	2	-	-	1	2	4	1	2	-	12
[274] Bay Area	2	6	4	5	3	1	3	3	3	3	1	-	34
[275] Bend	-	-	-	-	-	2	-	-	-	1	-	-	3
[276] Boston	1	-	2	2	2	2	3	2	4	-	-	-	18
[277] Boulder	-	-	1	-	1	1	-	-	-	1	-	-	4
[278] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-
[279] Chicago	-	3	4	3	2	7	4	-	2	1	1	-	27
[280] Colorado Springs	1	1	2	-	1	5	1	-	2	3	-	2	18
[281] Denver	6	5	4	5	3	5	1	-	6	1	5	5	46
[282] DMV (D.C., Maryland, Virginia)	6	5	4	5	8	5	2	2	1	3	6	1	48
[283] Fort Collins	-	-	-	1	-	1	1	1	1	-	-	-	5
[284] Fort Lauderdale	-	-	3	1	1	4	2	4	4	1	3	4	27
[285] Fort Myers	-	-	-	-	1	1	-	-	5	2	1	-	10
[286] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[287] Jacksonville	4	9	6	7	6	5	5	6	2	4	3	3	60
[288] Las Vegas	3	4	6	2	4	3	2	3	4	3	-	4	38
[289] Los Angeles	10	10	10	14	11	13	7	16	7	9	3	5	115
[290] Miami	-	-	-	-	-	-	1	3	-	1	-	1	6
[291] Minneapolis	-	-	-	-	-	-	1	-	2	-	-	-	3
[292] New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.2

**REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022**

2021													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[293] New Jersey	6	6	12	5	4	5	3	7	6	6	5	4	69
[294] New York	3	-	4	3	2	2	8	7	4	2	7	4	46
[295] Not Specified	-	-	-	-	-	-	-	-	-	-	-	-	-
[296] Orange County	2	1	3	5	2	1	5	2	2	3	-	-	26
[297] Orlando	6	4	4	10	3	4	3	2	6	2	5	-	49
[298] Philadelphia	2	2	4	7	6	4	6	1	3	3	1	1	40
[299] Phoenix	5	4	2	4	4	6	7	3	4	2	3	1	45
[300] Portland	-	6	2	6	2	3	2	3	2	6	1	2	35
[301] Provo	-	-	-	-	-	2	-	1	-	-	-	-	3
[302] Reno	-	-	-	-	-	1	1	1	3	2	1	1	10
[303] Research-Triangle	1	1	2	1	3	3	3	1	1	-	-	-	16
[304] Riverside	6	1	4	3	7	4	1	5	2	2	5	1	41
[305] Sacramento	6	6	5	3	4	6	2	1	4	4	3	2	46
[306] Salt Lake City	-	-	-	-	-	1	1	1	-	-	-	-	3
[307] San Antonio	1	2	1	-	1	1	-	1	1	3	-	-	11
[308] San Bernardino	-	-	-	1	-	-	-	1	-	2	-	-	4
[309] San Diego	-	2	1	2	4	1	3	2	2	1	1	-	19
[310] Seattle	-	-	1	2	1	2	1	1	1	1	-	2	12
[311] Stockton	-	-	-	-	-	-	-	-	-	-	-	-	-
[312] Tampa	1	-	2	6	1	4	2	1	4	3	-	-	24
[313] Vancouver	-	-	-	-	-	-	-	1	-	-	1	1	3
[314] West Palm Beach	-	1	2	1	3	3	1	2	2	2	6	3	26
[315] 2021 Total	74	86	101	110	93	114	88	91	100	82	73	56	1,068
2022													
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[316] Atlanta	1	-	1	3	-	-	-	-	-	-	-	-	5
[317] Austin	1	1	5	4	1	-	-	-	-	-	-	-	12
[318] Bakersfield	2	1	1	2	-	-	-	-	-	-	-	-	6
[319] Bay Area	4	3	2	1	-	-	-	-	-	-	-	-	10
[320] Bend	-	-	-	-	-	-	-	-	-	-	-	-	-
[321] Boston	-	-	-	-	-	-	-	-	-	-	-	-	-
[322] Boulder	-	-	-	-	-	-	-	-	-	-	-	-	-
[323] Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D.2

**REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022**

		2022											
Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[324] Chicago	-	-	-	-	-	-	-	-	-	-	-	-	-
[325] Colorado Springs	-	-	1	1	-	-	-	-	-	-	-	-	2
[326] Denver	-	2	-	1	1	-	-	-	-	-	-	-	4
[327] DMV (D.C., Maryland, Virginia)	1	-	-	-	-	-	-	-	-	-	-	-	1
[328] Fort Collins	-	-	-	-	-	-	-	-	-	-	-	-	-
[329] Fort Lauderdale	-	3	4	3	-	-	-	-	-	-	-	-	10
[330] Fort Myers	-	-	-	-	-	-	-	-	-	-	-	-	-
[331] Houston	-	-	-	-	-	-	-	-	-	-	-	-	-
[332] Jacksonville	3	3	4	3	1	4	-	-	-	-	-	-	18
[333] Las Vegas	3	-	2	2	1	-	-	-	-	-	-	-	8
[334] Los Angeles	9	6	8	3	4	-	-	-	-	-	-	-	30
[335] Miami	-	-	-	-	-	-	-	-	-	-	-	-	-
[336] Minneapolis	-	-	-	-	-	-	-	-	-	-	-	-	-
[337] New Area Request	-	-	-	-	-	-	-	-	-	-	-	-	-
[338] New Jersey	1	3	6	2	3	-	-	-	-	-	-	-	15
[339] New York	2	-	-	2	-	-	-	-	-	-	-	-	4
[340] Not Specified	-	-	1	-	-	-	-	-	-	-	-	-	1
[341] Orange County	-	-	-	2	-	-	-	-	-	-	-	-	2
[342] Orlando	2	5	2	3	3	1	-	-	-	-	-	-	16
[343] Philadelphia	5	4	1	1	-	-	-	-	-	-	-	-	11
[344] Phoenix	-	2	3	1	-	-	-	-	-	-	-	-	6
[345] Portland	-	1	1	2	-	-	-	-	-	-	-	-	4
[346] Provo	-	-	-	-	-	-	-	-	-	-	-	-	-
[347] Reno	3	1	1	-	-	-	-	-	-	-	-	-	5
[348] Research-Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-
[349] Riverside	2	1	2	2	2	-	-	-	-	-	-	-	9
[350] Sacramento	4	1	6	3	2	-	-	-	-	-	-	-	16
[351] Salt Lake City	-	-	-	-	-	-	-	-	-	-	-	-	-
[352] San Antonio	-	-	-	-	-	-	-	-	-	-	-	-	-
[353] San Bernardino	-	-	1	-	-	-	-	-	-	-	-	-	1
[354] San Diego	1	1	4	-	-	-	-	-	-	-	-	-	6
[355] Seattle	-	2	-	2	-	-	-	-	-	-	-	-	4

APPENDIX D.2

**REX MONTHLY CLOSINGS BY MARKET AREA
2015 – 2022**

		2022												
	Market Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
[356]	Stockton	1	-	-	-	-	-	-	-	-	-	-	-	1
[357]	Tampa	-	-	-	-	-	-	-	-	-	-	-	-	-
[358]	Vancouver	-	1	-	-	-	-	-	-	-	-	-	-	1
[359]	West Palm Beach	2	3	2	1	-	1	-	-	-	-	-	-	9
[360]	2022 Total	47	44	58	44	18	6	-	-	-	-	-	-	217
[361]	2015 – 2022 Total	245	236	338	301	272	342	312	340	329	374	282	303	3,674

Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning.

Cleaned, merged data set contains 6,938 observations (Seller Opportunities). Restricted to “Closed Won” Seller Opportunities, which are identified by the ‘Close Date’ variable and by the variable ‘Stage’ equal to “Closed Won”.

[N] = Sum of [B] to [M].

[45] = Sum of [1] to [44].

[90] = Sum of [46] to [89].

[135] = Sum of [91] to [134].

[180] = Sum of [136] to [179].

[225] = Sum of [181] to [224].

[270] = Sum of [226] to [269].

[315] = Sum of [271] to [314].

[360] = Sum of [316] to [359].

[361] = Sum of [45], [90], [135], [180], [225], [270], [315], and [360].

APPENDIX E

REX_0000001 – REX_0000005 AND REX_0001295
MONTHLY COMMISSION VALUE AS A PERCENTAGE OF CLOSING PRICE
AUGUST 2015 – JUNE 2022

	Close Date	Total Monthly Commission Value	Total Monthly Closing Value	Total Monthly Closings	Monthly Commission Value as a Percentage of Closing Price
	[A]	[B]	[C]	[D]	[E]
[1]	08/2015	\$21,500	\$1,075,000	1	2.0%
[2]	09/2015	\$47,480	\$2,374,000	3	2.0%
[3]	10/2015	-	-	-	n/a
[4]	11/2015	-	-	-	n/a
[5]	12/2015	-	-	-	n/a
[6]	01/2016	\$10,700	\$535,000	1	2.0%
[7]	02/2016	-	-	-	n/a
[8]	03/2016	\$29,858	\$1,492,900	2	2.0%
[9]	04/2016	\$9,800	\$490,000	1	2.0%
[10]	05/2016	\$13,052	\$652,600	1	2.0%
[11]	06/2016	\$23,280	\$1,164,000	2	2.0%
[12]	07/2016	\$55,180	\$2,759,000	4	2.0%
[13]	08/2016	\$11,780	\$589,000	1	2.0%
[14]	09/2016	\$50,980	\$2,549,000	4	2.0%
[15]	10/2016	\$77,180	\$3,859,000	5	2.0%
[16]	11/2016	\$63,630	\$3,181,500	3	2.0%
[17]	12/2016	\$58,833	\$2,941,625	5	2.0%
[18]	01/2017	\$124,253	\$6,212,660	10	2.0%
[19]	02/2017	\$40,060	\$2,003,000	3	2.0%
[20]	03/2017	\$78,190	\$3,909,500	6	2.0%
[21]	04/2017	\$158,900	\$7,945,000	14	2.0%
[22]	05/2017	\$138,770	\$6,938,500	10	2.0%
[23]	06/2017	\$360,830	\$18,041,500	25	2.0%
[24]	07/2017	\$258,094	\$12,904,700	13	2.0%
[25]	08/2017	\$129,848	\$6,492,375	10	2.0%
[26]	09/2017	\$172,333	\$8,616,628	16	2.0%
[27]	10/2017	\$229,700	\$11,485,000	17	2.0%
[28]	11/2017	\$180,206	\$9,010,289	16	2.0%

APPENDIX E

REX_0000001 – REX_0000005 AND REX_0001295
MONTHLY COMMISSION VALUE AS A PERCENTAGE OF CLOSING PRICE
AUGUST 2015 – JUNE 2022

	Close Date	Total Monthly Commission Value	Total Monthly Closing Value	Total Monthly Closings	Monthly Commission Value as a Percentage of Closing Price
	[A]	[B]	[C]	[D]	[E]
[29]	12/2017	\$210,947	\$10,547,371	17	2.0%
[30]	01/2018	\$176,399	\$8,819,959	15	2.0%
[31]	02/2018	\$144,777	\$7,238,850	12	2.0%
[32]	03/2018	\$241,123	\$12,056,162	22	2.0%
[33]	04/2018	\$183,194	\$9,159,704	16	2.0%
[34]	05/2018	\$269,188	\$13,459,420	22	2.0%
[35]	06/2018	\$240,761	\$12,038,029	22	2.0%
[36]	07/2018	\$206,753	\$10,337,653	21	2.0%
[37]	08/2018	\$492,052	\$24,602,623	40	2.0%
[38]	09/2018	\$288,496	\$14,424,798	24	2.0%
[39]	10/2018	\$329,706	\$16,485,278	32	2.0%
[40]	11/2018	\$247,406	\$12,370,316	23	2.0%
[41]	12/2018	\$255,397	\$12,769,855	24	2.0%
[42]	01/2019	\$272,315	\$13,351,685	25	2.0%
[43]	02/2019	\$241,951	\$11,767,600	21	2.1%
[44]	03/2019	\$370,046	\$19,410,238	36	1.9%
[45]	04/2019	\$635,329	\$31,447,229	52	2.0%
[46]	05/2019	\$755,746	\$37,202,581	71	2.0%
[47]	06/2019	\$576,507	\$27,827,105	57	2.1%
[48]	07/2019	\$763,578	\$38,090,747	73	2.0%
[49]	08/2019	\$914,474	\$45,864,115	92	2.0%
[50]	09/2019	\$653,660	\$33,112,990	79	2.0%
[51]	10/2019	\$1,061,530	\$55,000,065	103	1.9%
[52]	11/2019	\$639,274	\$33,778,739	72	1.9%
[53]	12/2019	\$759,465	\$38,665,336	86	2.0%
[54]	01/2020	\$674,702	\$35,053,211	73	1.9%
[55]	02/2020	\$648,793	\$32,970,126	70	2.0%
[56]	03/2020	\$965,348	\$51,429,637	113	1.9%

APPENDIX E

REX_0000001 – REX_0000005 AND REX_0001295
MONTHLY COMMISSION VALUE AS A PERCENTAGE OF CLOSING PRICE
AUGUST 2015 – JUNE 2022

	Close Date	Total Monthly Commission Value	Total Monthly Closing Value	Total Monthly Closings	Monthly Commission Value as a Percentage of Closing Price
	[A]	[B]	[C]	[D]	[E]
[57]	04/2020	\$586,938	\$28,743,985	64	2.0%
[58]	05/2020	\$504,320	\$23,291,749	57	2.2%
[59]	06/2020	\$1,136,583	\$54,922,115	116	2.1%
[60]	07/2020	\$1,147,156	\$52,421,302	113	2.2%
[61]	08/2020	\$1,051,834	\$47,680,587	105	2.2%
[62]	09/2020	\$1,100,441	\$51,925,452	103	2.1%
[63]	10/2020	\$1,264,271	\$59,647,409	135	2.1%
[64]	11/2020	\$961,872	\$43,590,878	95	2.2%
[65]	12/2020	\$1,269,088	\$59,647,482	115	2.1%
[66]	01/2021	\$788,407	\$36,328,740	74	2.2%
[67]	02/2021	\$887,578	\$41,298,900	86	2.1%
[68]	03/2021	\$958,686	\$45,102,504	101	2.1%
[69]	04/2021	\$1,210,804	\$56,951,485	110	2.1%
[70]	05/2021	\$1,052,692	\$53,658,568	93	2.0%
[71]	06/2021	\$1,181,300	\$57,697,507	114	2.0%
[72]	07/2021	\$942,478	\$47,075,781	88	2.0%
[73]	08/2021	\$1,051,058	\$50,939,213	91	2.1%
[74]	09/2021	\$938,491	\$45,803,679	100	2.0%
[75]	10/2021	\$952,123	\$45,837,331	82	2.1%
[76]	11/2021	\$661,920	\$33,587,797	73	2.0%
[77]	12/2021	\$576,805	\$29,388,494	56	2.0%
[78]	01/2022	\$573,352	\$27,260,500	47	2.1%
[79]	02/2022	\$474,106	\$24,170,687	44	2.0%
[80]	03/2022	\$647,569	\$31,927,125	58	2.0%
[81]	04/2022	\$459,703	\$23,092,641	44	2.0%
[82]	05/2022	\$213,387	\$9,883,477	18	2.2%
[83]	06/2022	\$37,710	\$1,731,500	6	2.2%
[84]	Average	\$460,169	\$22,531,447	44	2.0%

APPENDIX E**REX_0000001 – REX_0000005 AND REX_0001295
MONTHLY COMMISSION VALUE AS A PERCENTAGE OF CLOSING PRICE
AUGUST 2015 – JUNE 2022**Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning.

Cleaned, merged data set contains 6,938 observations (Seller Opportunities). Closings identified by when ‘Stage’ is equal to “Closed Won” and by the ‘Close Date’.

[B] Calculated as the sum of the variable “Commission Value” across various closings in a given month.

[C] Calculated as the sum of the variable “REX Closing Price” across various closings in a given month.

[D] Calculated as the sum of the number of closings in a given month.

[E] = [B] / [C].

[84] = Average of [1] to [83].

[84][E] = [84][B] / [84][C].

APPENDIX F.1

REX_0000001 – REX_0000005 AND REX_0001295
NUMBER OF NEW LISTINGS AND CLOSINGS BY CO-LISTING STATUS
APRIL 2015 – JUNE 2022

Listing Date / Close Date	New Listings			Closings		
	Co-Listing	No Co-Listing	Total	Co-Listing	No Co-Listing	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]
[1] 04/2015	-	1	1	-	-	-
[2] 05/2015	-	1	1	-	-	-
[3] 06/2015	-	-	-	-	-	-
[4] 07/2015	-	2	2	-	-	-
[5] 08/2015	-	-	-	-	1	1
[6] 09/2015	-	2	2	-	3	3
[7] 10/2015	-	4	4	-	-	-
[8] 11/2015	-	1	1	-	-	-
[9] 12/2015	-	2	2	-	-	-
[10] 01/2016	-	3	3	-	1	1
[11] 02/2016	-	4	4	-	-	-
[12] 03/2016	-	6	6	-	2	2
[13] 04/2016	-	4	4	-	1	1
[14] 05/2016	-	3	3	-	1	1
[15] 06/2016	-	4	4	-	2	2
[16] 07/2016	-	11	11	-	4	4
[17] 08/2016	-	8	8	-	1	1
[18] 09/2016	-	12	12	-	4	4
[19] 10/2016	-	14	14	-	5	5
[20] 11/2016	-	11	11	-	3	3
[21] 12/2016	-	10	10	-	5	5
[22] 01/2017	-	15	15	-	10	10
[23] 02/2017	-	14	14	-	3	3
[24] 03/2017	-	22	22	-	6	6
[25] 04/2017	-	19	19	-	14	14
[26] 05/2017	-	27	27	-	10	10
[27] 06/2017	-	25	25	-	25	25
[28] 07/2017	-	29	29	-	13	13

APPENDIX F.1

REX_0000001 – REX_0000005 AND REX_0001295
NUMBER OF NEW LISTINGS AND CLOSINGS BY CO-LISTING STATUS
APRIL 2015 – JUNE 2022

Listing Date / Close Date	New Listings			Closings			
	Co-Listing	No Co-Listing	Total	Co-Listing	No Co-Listing	Total	
[A]	[B]	[C]	[D]	[E]	[F]	[G]	
[29]	08/2017	-	46	46	-	10	10
[30]	09/2017	-	27	27	-	16	16
[31]	10/2017	-	40	40	-	17	17
[32]	11/2017	-	20	20	-	16	16
[33]	12/2017	-	35	35	-	17	17
[34]	01/2018	-	37	37	-	15	15
[35]	02/2018	1	53	54	-	12	12
[36]	03/2018	-	50	50	-	22	22
[37]	04/2018	-	58	58	-	16	16
[38]	05/2018	-	66	66	-	22	22
[39]	06/2018	-	87	87	-	22	22
[40]	07/2018	-	89	89	-	21	21
[41]	08/2018	-	98	98	-	40	40
[42]	09/2018	-	110	110	-	24	24
[43]	10/2018	-	93	93	-	32	32
[44]	11/2018	-	96	96	-	23	23
[45]	12/2018	-	93	93	-	24	24
[46]	01/2019	-	134	134	-	25	25
[47]	02/2019	-	147	147	-	21	21
[48]	03/2019	3	162	165	-	36	36
[49]	04/2019	-	224	224	-	52	52
[50]	05/2019	-	251	251	-	71	71
[51]	06/2019	-	286	286	-	57	57
[52]	07/2019	7	269	276	-	73	73
[53]	08/2019	5	232	237	-	92	92
[54]	09/2019	10	203	213	-	79	79
[55]	10/2019	12	213	225	-	103	103
[56]	11/2019	5	146	151	-	72	72

APPENDIX F.1

REX_0000001 – REX_0000005 AND REX_0001295
NUMBER OF NEW LISTINGS AND CLOSINGS BY CO-LISTING STATUS
APRIL 2015 – JUNE 2022

Listing Date / Close Date	New Listings			Closings			
	Co-Listing	No Co-Listing	Total	Co-Listing	No Co-Listing	Total	
[A]	[B]	[C]	[D]	[E]	[F]	[G]	
[57]	12/2019	8	85	93	2	84	86
[58]	01/2020	15	148	163	1	72	73
[59]	02/2020	20	137	157	2	68	70
[60]	03/2020	30	142	172	3	110	113
[61]	04/2020	24	139	163	6	58	64
[62]	05/2020	17	108	125	1	56	57
[63]	06/2020	26	151	177	11	105	116
[64]	07/2020	27	124	151	11	102	113
[65]	08/2020	28	138	166	19	86	105
[66]	09/2020	26	122	148	22	81	103
[67]	10/2020	23	102	125	27	108	135
[68]	11/2020	33	76	109	14	81	95
[69]	12/2020	43	91	134	16	99	115
[70]	01/2021	56	57	113	16	58	74
[71]	02/2021	38	51	89	17	69	86
[72]	03/2021	63	81	144	29	72	101
[73]	04/2021	62	66	128	40	70	110
[74]	05/2021	72	64	136	48	45	93
[75]	06/2021	79	56	135	55	59	114
[76]	07/2021	87	45	132	40	48	88
[77]	08/2021	52	48	100	46	45	91
[78]	09/2021	34	36	70	59	41	100
[79]	10/2021	24	40	64	55	27	82
[80]	11/2021	23	42	65	39	34	73
[81]	12/2021	17	23	40	30	26	56
[82]	01/2022	7	20	27	13	34	47
[83]	02/2022	22	33	55	17	27	44
[84]	03/2022	7	34	41	16	42	58

APPENDIX F.1

REX_0000001 – REX_0000005 AND REX_0001295
NUMBER OF NEW LISTINGS AND CLOSINGS BY CO-LISTING STATUS
APRIL 2015 – JUNE 2022

Listing Date / Close Date	New Listings			Closings		
	Co-Listing	No Co-Listing	Total	Co-Listing	No Co-Listing	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]
[85] 04/2022	14	23	37	13	31	44
[86] 05/2022	-	1	1	4	14	18
[87] 06/2022	-	-	-	3	3	6
[88] Total	1,020	5,902	6,922	675	2,999	3,674

Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning.

Cleaned, merged data set contains 6,938 observations (Seller Opportunities). New listings are determined by the ‘Listing Date’ variable. Closings identified by when ‘Stage’ is equal to “Closed Won” and by the ‘Close Date’.

A listing is considered to be co-listed if the variable ‘Co-Listing Offered’ is equal to “Yes - Accepted”, while a listing is considered as never co-listed if the variable ‘Co-Listing Offered’ is missing, equal to “Yes - Declined”, or “No”.

[B]-[D] 16 (0.2%) opportunities that do not have a list date are excluded.

[B] Counts refer to listings that are ultimately co-listed and not necessarily co-listed in the month of listing.

[E] Counts refer to listings that are ultimately co-listed and not necessarily co-listed in the month of closing.

[D] = [B] + [C].

[G] = [E] + [F].

[88] = Sum of [1] to [87].

APPENDIX F.2

**REX_0000001 – REX_0000005 AND REX_0001295
CO-LISTINGS BY CO-LISTING DATE
JUNE 2019 – MAY 2022**

	Co-Listing Date	Number of Co-Listings
	[A]	[B]
[1]	06/2019	1
[2]	07/2019	-
[3]	08/2019	-
[4]	09/2019	-
[5]	10/2019	1
[6]	11/2019	5
[7]	12/2019	4
[8]	01/2020	12
[9]	02/2020	13
[10]	03/2020	18
[11]	04/2020	8
[12]	05/2020	17
[13]	06/2020	27
[14]	07/2020	24
[15]	08/2020	31
[16]	09/2020	31
[17]	10/2020	23
[18]	11/2020	25
[19]	12/2020	17
[20]	01/2021	22
[21]	02/2021	59
[22]	03/2021	71
[23]	04/2021	68
[24]	05/2021	54
[25]	06/2021	90
[26]	07/2021	88
[27]	08/2021	95
[28]	09/2021	56
[29]	10/2021	33

APPENDIX F.2

**REX_0000001 – REX_0000005 AND REX_0001295
CO-LISTINGS BY CO-LISTING DATE
JUNE 2019 – MAY 2022**

	Co-Listing Date	Number of Co-Listings
	[A]	[B]
[30]	11/2021	24
[31]	12/2021	19
[32]	01/2022	14
[33]	02/2022	13
[34]	03/2022	21
[35]	04/2022	21
[36]	05/2022	4
[37]	Total	1,009

Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004;
REX_0000005; REX_0001295 (“Listing-level Data”). *See* Appendix C for
description of data cleaning.

Cleaned, merged data set contains 6,938 observations (Seller Opportunities).

Co-listings are determined by the ‘Co-Listing Date’ variable.

A listing is considered to be co-listed if the variable ‘Co-Listing Offered’ is equal
to “Yes - Accepted”, while a listing is considered as never co-listed if
the variable ‘Co-Listing Offered’ is missing, equal to “Yes - Declined”, or “No”.

12 opportunities where ‘Co-Listing Offered’ is equal to “Yes - Accepted” that do not
have a co-listing date are excluded.

[37] = Sum of [1] to [36].

APPENDIX F.3

**REX_0000001 – REX_0000005 AND REX_0001295
DAYS TO CO-LISTING AND DAYS ON MARKET**

Statistic	Minimum	10th Percentile	25th Percentile	Median	Mean	75th Percentile	90th Percentile	Maximum	Number of Observations
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]
<i>January 2019 – December 2019</i>									
[1] Days to Co-Listing	18.0	73.0	95.0	116.5	155.3	167.0	295.0	572.0	50.0
<i>April 2015 – June 2022</i>									
[2] Days on Market	16.0	53.0	70.0	99.5	117.1	142.0	196.5	1,125.0	3,670.0

Notes & Sources:

From REX_0000001; REX_0000002; REX_0000003; REX_0000004; REX_0000005; REX_0001295 (“Listing-level Data”). See Appendix C for description of data cleaning.

Cleaned, merged data set contains 6,938 observations (Seller Opportunities).

- [1] Calculated as the number of days between the ‘Listing Date’ and the ‘Co-Listing Date’. Limited to opportunities where the variable ‘Co-Listing Offered’ is equal to “Yes - Accepted” and the number of days to co-listing is equal to or greater than zero. Between January 2019 – December 2019 there were 2,402 new listings. Of these, 50 were co-listed.
- [2] Calculated as the number of days between the ‘Listing Date’ and the ‘Close Date’. Four observations are excluded as they do not have a ‘Listing Date’. Limited to closings, which are identified by when ‘Stage’ is equal to “Closed Won”. Of these, 3,670 listings were recorded as “Closed Won”.