# ET TU, AGENT?
# COMMISSION-BASED STEERING IN RESIDENTIAL REAL ESTATE

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ABSTRACT

*Real estate agents are required to serve their clients' best interests. However, policymakers have long suspected that buyer agents steer their clients away from properties that offer low buyer agent commissions. They are particularly concerned that steering is a key reason why agent commissions have remained high in the internet era, even as commissions in other industries have plummeted. Analyzing a new dataset, we provide the first systematic, nationwide evidence that buyer agents do in fact steer clients away from properties that offer low buyer agent commissions.*

*Buyer agents play an important role in helping their clients find homes. We hypothesize that buyer agents may skip over low-commission homes in favor of high-commission homes when choosing which listings to forward to their clients. If so, low-commission listings would tend to garner fewer page views on public real estate portals like Zillow and Redfin. To test this theory, we track the number of page views that individual listings receive on Redfin. All else being equal, we find that low-commission listings receive fewer page views. This effect is most pronounced for listings with the lowest commissions, but even listings with commissions that are slightly below the going rate receive significantly fewer page views.*

*We also find evidence that this steering has meaningful economic consequences. Homes with lower buyer agent commissions take longer to sell and are less likely to sell at all. Again, these effects are largest for the listings with the lowest commissions, which take 33% longer to sell nationwide. In a typical geographic market, our best estimate is that these lowest-commission properties face a 75% greater risk of not selling at all. Here too, even commissions that are slightly below the going rate are associated with longer sale times and higher risk of a failed sale.*

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*We explore the implications of our findings with respect to both the $52 trillion U.S. housing market and the ongoing scholarly debates regarding agency costs and Collaborative Industries.*

TABLE OF CONTENTS

I. INTRODUCTION ..... 3
II. BACKGROUND ..... 10
A. The U.S. Residential Real Estate Market ..... 10
B. Fee Schedules and Fee Uniformity ..... 15
C. Commission-Based Steering ..... 20
D. Recent Developments ..... 22
III. OUR DATA ..... 23
A. Redfin ..... 25
B. Commission Rates ..... 27
C. Page Views ..... 32
D. Geographic Area ..... 34
E. Other Search Criteria ..... 35
F. Listing Agents ..... 36
G. Time ..... 37
H. Dummy Variables and Data Cleaning ..... 38
IV. OUR FINDINGS ..... 38
A. Our Statistical Approach ..... 39
B. Low Commissions and Pageviews ..... 41
1. Our Proposed Mechanism: Buyer Agents Curating Listings ..... 42
2. Main Page View Results ..... 44
3. iBuyer Page View Results ..... 52
4. Outside Evidence on the Prevalence of Steering ..... 55
5. Tests of Our Analysis and Potential Alternative Explanations ..... 61
C. Low Commissions and Sales ..... 67
1. Time to Sell ..... 67
2. Probability of Sale ..... 72
3. iBuyer Results ..... 76
4. Tests of Our Analysis and Potential Alternative Explanations ..... 78
V. POLICY IMPLICATIONS ..... 80
A. Responses to Commission-Based Steering ..... 80
1. Stop Requiring Sellers to Offer Buyer Agent Commissions ..... 81
2. Change the Visibility of Buyer Agent Commissions ..... 82
3. Strengthen Agent Loyalty Requirements ..... 84
4. Prohibit Sellers from Offering Compensation to Buyer Agents ..... 87
B. Implications for Other Policy Areas ..... 88
1. Housing Affordability and Housing Market Spillovers ..... 89
2. Agency Costs ..... 90
3. Collaborative Industries and Innovation ..... 91
VI. CONCLUSION ..... 92

## I. INTRODUCTION

For millions of Americans, buying or selling a home is a major life milestone. For many, it marks the realization of the American dream or a significant life change—a growing family, a new job in a new city, or a downsizing in retirement. On a more concrete level, it has a huge financial impact: for most homeowners, their home is by far their largest asset.[4]

The vast majority of homes sold in the United States are listed on a centralized database known as a Multiple Listing Service ("MLS").[5] This lets potential buyers—or, more accurately, their agents—see what homes are available in a particular area. Buyer agents closely monitor the MLS, and when they see new listings that look promising, they forward them to their clients for consideration.[6] Prospective buyers can then investigate the properties and potentially make offers.

An odd quirk of the U.S. real estate market is that buyers do not pay their agents directly. Instead, the National Association of Realtors ("NAR") requires sellers who list their homes on an MLS to offer a preset commission rate to the buyer agent.[7] Thus, home sellers set the pay for the buyer agents who will be negotiating against them. NAR does not require home sellers to offer buyer agents a particular rate (for example, 3%); sellers can offer commissions as low as $1. In practice, however, this almost never happens; in most U.S. markets, over 99% of sellers offer

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[4] *See, e.g.*, Bd. of Governors of the Federal Reserve System, *Changes in U.S. Family Finances from 2016 to 2019: Evidence from the Survey of Consumer Finances*, 106 FED. RESERVE BULL. 5 at 15, 19 (Sept. 2020), *available at* https://www.federalreserve.gov/publications/files/scf20.pdf (reporting that the median value of families' financial assets was $25,700, compared to $225,000 for their primary residence assets); PEW RESEARCH CENTER, WEALTH GAPS RISE TO RECORD HIGHS BETWEEN WHITES, BLACKS, HISPANICS, Ch. 3, July 26, 2011, *available at* https://www.pewresearch.org/social-trends/2011/07/26/chapter-3-net-worth-by-type-of-asset/ (finding that, even in 2009, post-housing crash, median home equity was many times larger than median stock and mutual fund ownership); *see also* American Advisors Group, *Over 70% of Seniors Say Their Home Is Their Most Valuable Asset According to AG Survey*, PRNEWSWIRE.COM, Oct. 19, 2021, https://www.prnewswire.com/news-releases/over-70-of-seniors-say-their-home-is-their-most-valuable-asset-according-to-aag-survey-301402888.html.

[5] *See, e.g.*, NAT'L ASS'N OF REALTORS, PROFILE OF HOME BUYERS AND SELLERS (2022), *available at* https://store.realtor/2022-nar-profile-of-home-buyers-and-sellers-download/; *see also* Nat'l Assoc. of Realtors, Highlights from the Profile of Home Buyers and Sellers, *available at* https://www.nar.realtor/research-and-statistics/research-reports/highlights-from-the-profile-of-home-buyers-and-sellers (placing the number at 86%).

[6] In the industry, an agent that represents a buyer is typically referred to as either the "buyer's agent" or the "selling agent." This terminology can be confusing to those outside the industry, so we use the term "buyer agent" throughout this Article.

[7] More precisely, NAR requires listing agents who post listings on NAR-affiliated MLSs to specify how they will split the commission paid by the seller with the buyer agent. *See* NAT'L ASS'N OF REALTORS, HANDBOOK ON MULTIPLE LISTING POLICY 39 (35th ed. 2023) ("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."); *see also* Moehrl v. Nat'l Ass'n of Realtors, Motion for Class Certification, Case No. 1:19-cv-01610 at 8 (N. Dist. Ill. June 7, 2022), *available at* https://assets.inman.com/wp-content/uploads/2022/06/RedactedMotionForClassCertificationWithoutExhibits_06072022.pdf ("All but around 3% of MLSs are owned or operated solely by local Realtor associations.") [hereinafter *Moehrl* Motion for Class Certification]. Nearly all MLSs that are not affiliated with NAR have the same policy.

buyer agents a commission of 2% or higher.[8] This begs the question: why do sellers offer thousands of dollars to agents who work for their counterparties?

U.S. residential real estate commissions exhibit several other odd features. Total commissions on a U.S. home sale are typically between 5 and 6%.[9] Commissions in many other developed economies are significantly lower.[10] U.S. commission rates vary little with the price of the home. They remain stable when there are many home sales and when there are few. They do not drop when a surge of new agents enters the industry. They have held steady even as the internet makes it easier than ever for homebuyers and sellers to find each other. They have persisted even as the commissions of other intermediaries, such as stockbrokers and travel agents, have plummeted. This is particularly surprising given that the residential real estate brokerage industry is unconcentrated and has low barriers to entry, both of which suggest that pricing should be more competitive. In the words of Professors Hsieh and Moretti, "commission rates present[] an enormous puzzle. . . . Why do [they] appear to be so insensitive to economic forces?"[11]

We believe that the answer to these questions is steering: Buyer agents can see the commission rate they stand to earn on each property listed in the MLS.[12] Because the buyer agent's compensation directly depends on the commission that the seller sets,[13] buyer agents have strong incentives to steer their clients away from low-commission listings and towards high-commission listings. Knowing this, and wanting to attract as many potential buyers as possible, sellers have powerful incentives to offer buyer agents going-rate commissions. This dynamic keeps residential real estate commissions high, at great cost to American families.

Policymakers and regulators have been concerned about steering by residential real estate agents for at least 45 years, but have been constrained by a lack of systematic empirical evidence. In the 1970s, the Federal Trade Commission ("FTC") conducted an extensive, multi-year investigation into the residential real estate brokerage industry. It launched this investigation, in part, because industry sources reported steering, as well as retaliation and

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[8] *See infra* Figure 3 (showing such rates below 1% for, among other cities, Atlanta, Austin, Buffalo, Chicago, Columbus, Dallas, Denver, Houston, Indianapolis, Kansas City, Nashville, Orlando, Philadelphia, Pittsburgh, Portland, the Research Triangle, Saint Louis, San Antonio, Seattle, and Washington, D.C.). Even sellers who offer a commission below 2% still offer non-trivial commissions; across our entire dataset, less than 0.1% of listings offer a buyer agent commission that is less than 1%.

[9] Tracey Velt, *Average Real Estate Commission Rate at Highest Level Since 2013*, REALTRENDS, Apr. 26, 2023, https://www.realtrends.com/articles/average-real-estate-commission-rate-at-highest-level-since-2013/; *see also* Natalya Delcoure & Norm G. Miller, *International Residential Real Estate Brokerage Fees and Implications for the U.S. Brokerage Industry*, 5 INT'L REAL ESTATE REV. 12, 12 (2002); Chang-Tai Hsieh & Enrico Moretti, *Can Free Entry Be Inefficient? Fixed Commissions and Social Waste in the Real Estate Industry*, 111 J. POL. ECON. 1076 (2003); John William Hatfield, Scott Duke Kominers & Richard Lowery, Collusion in Brokered Markets at 2 (draft June 10, 2022).

[10] Delcoure & Miller, *supra* note 9, at 16-17 at table 1.

[11] Hsieh & Moretti, *supra* note 9.

[12] Until recently, the buyer agent commission was only published in the MLS, which meant that agents could see this commission, but buyers could not. See *infra* Part II.

[13] It also depends on the price that the buyer pays for the property; the compensation is purchase price times commission rate.

harassment against agents who offered services at less than "customary" rates.[14] The investigation culminated in an extensive report, published in 1983.[15] However, hampered by a lack of sufficiently strong evidence, the FTC ultimately took little action to address steering.[16] In 2005, in response to a request by the Financial Services Committee of the U.S. House of Representatives, the U.S. Government Accountability Office released its own report on the residential real estate brokerage industry.[17] It too raised concerns about steering, but had no systematic evidence and ultimately made no recommendations to address it.[18] In 2007, the FTC and the Department of Justice ("DOJ") issued a joint report on Competition in the Real Estate Brokerage Industry.[19] This joint report included a section about steering as a potential obstacle to price competition.[20] Later that year, the DOJ released a paper on price competition among real estate agents and "Why It Matters."[21] The DOJ devoted a large portion of the paper to steering and its effects.[22] But once again, regulators found themselves limited by the lack of systematic evidence, stating that "To the best of our knowledge, more recent empirical evidence of steering [than the 1983 FTC Report] does not exist."[23] Regulators' quest for systematic evidence remains ongoing; in 2021, the DOJ issued NAR a Civil Investigative Demand for Documents and Information, requesting "all documents [NAR has] relating to [agents] steering potential buyers toward or away from homes for sale based on the amount of [buyer agent] compensation offered."[24] The DOJ's demand is currently pending on appeal before the United States Court of Appeals for the D.C. Circuit.[25]

At the same time, Realtors and industry groups have consistently argued—including in recent court filings—that buyer agents do *not* engage in commission-based steering.[26] They raise

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[14] *See* FEDERAL TRADE COMMISSION STAFF REPORTS, THE RESIDENTIAL REAL ESTATE BROKERAGE INDUSTRY (1983), *available at* https://www.scribd.com/document/589936946/The-Residential-Real-Estate-Brokerage-Industry-1983-The-Butters-Report [hereinafter FTC REPORT].
[15] *Id.*
[16] The only data the FTC had to "suggest the possibility that steering practices may be widely prevalent" were its own internal surveys. *Id.*
[17] United States Government Accountability Office, Real Estate Brokerage: Factors That May Affect Price Competition, Report to the Committee on Financial Services, House of Representatives, August 2005, GAO-05-947, *available at* https://www.gao.gov/assets/gao-05-947.pdf [hereinafter GAO Report].
[18] *Id.* ("We did not investigate specific instances of brokers' alleged refusal to show homes listed with discounters, nor do we have information to assess how common such a practice might be.").
[19] UNITED STATES DEP'T OF JUSTICE & FEDERAL TRADE COMM'N, COMPETITION IN THE REAL ESTATE BROKERAGE INDUSTRY (2007) [hereinafter JOINT REPORT].
[20] *Id.* at 66-70.
[21] MATTHEW MAGURA, ANTITRUST DIVISION ECONOMIC ANALYSIS GROUP, DEP'T OF JUSTICE, HOW REBATE BANS, DISCRIMINATORY MLS LISTING POLICIES, AND MINIMUM SERVICE REQUIREMENTS CAN REDUCE PRICE COMPETITION FOR REAL ESTATE BROKERAGE SERVICES AND WHY IT MATTERS, EAG 07-8 (May 2007), *available at* https://www.justice.gov/sites/default/files/atr/legacy/2007/09/28/225695.pdf [hereinafter 2007 DOJ PAPER].
[22] *Id.* at 4-19.
[23] *Id.* at 12; *see also id.* ("Nevertheless, anecdotal evidence abounds.").
[24] Dep't of Justice, Civil Investigative Demand for Documents and Information Issued to National Association of Realtors, Civil Investigative Demand No. 30729, July 6, 2021, at 2 ¶ 6 [hereinafter DOJ Investigative Demand], , *available at* https://storage.courtlistener.com/recap/gov.uscourts.dcd.235488/gov.uscourts.dcd.235488.1.3.pdf.
[25] https://www.courtlistener.com/docket/67100941/national-association-of-realtors-v-usa/
[26] *See, e.g.*, Defendants' Memorandum in Opposition to Plaintiffs' Motion for Class Certification and Appointment of Class Counsel, Moehrl v. Nat'l Assoc. of Realtors, No. 1:19-cv-01610, at 45-46 (N. Dist. Ill.) [hereinafter Moehrl Opposition to Class Certification]; Suggestions in Support of the Corporate Defendants' Motion to Dismiss, Sitzer v. Nat'l Assoc. of Realtors, No. 4:19-cv-00332-SRB, August 15, 2019, at 14 (W. Dist. Mo.) [hereinafter Sitzer Motion

three main arguments: First, buyer agents are fiduciaries of their clients, with responsibilities to act in their clients' best interests, not their own.[27] Realtors and industry groups assert that agents, therefore, do not engage in steering because it is directly opposed to their obligations as fiduciaries.[28] Second, they contend that competitive pressures force buyer agents to serve their clients well.[29] Buyers have many agents to choose from, and would stop working with agents who steered them. Moreover, much of agents' business comes from repeat clients and referrals. Thus, steering is not in agents' interest. Third, they argue that public portals such as Redfin and Zillow enable buyers to find homes themselves, without having to rely on their agents to serve as gatekeepers. Accordingly, even if agents wished to steer their clients, they would be unable to do so.[30]

A factual dispute like this calls for data. Unfortunately, as regulators have noted, systematic data on steering has proven hard to come by. This is in part because researchers generally have not had access to commission rates. One notable exception is an article by Professors Barwick, Pathak, and Wong, who were able to access relevant home sale data from the Boston metropolitan area.[31] They find that properties that offer lower commissions take significantly longer to sell, and are less likely to sell at all.[32] However, that article's analysis is limited to a single geographic market; the Boston real estate market may not be representative of the country as a whole.[33] Moreover, its last year of data was 2011.[34] Redfin, Zillow, and similar

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to Dismiss]; Andrea V. Brambila, *More Than 700 Agent Steering Calls Suggest Price-Fixing, Lawyers Charge*, INMAN, July 8, 2022, https://www.inman.com/2022/07/08/more-than-700-agent-steering-calls-suggest-price-fixing-lawyers-charge/ (quoting Mantill Williams, Vice President of Public Relations and Communications Strategy for NAR, as saying "Brokers who were only to show homes that offer high commissions wouldn't be in business very long, as buyers would demand to see other options or go to someone else who will."); Anthony Phillips, *The Case for Realtors: The National Association of Realtors vs Missouri*, THE REAL DAILY, July 6, 2023, https://theamericangenius.com/housing/board-associations/the-case-for-realtors-nar-vs-missouri/; *see also* HousingWire Daily Podcast, Apr. 5, 2023, at 17:42-18:00, *available at* https://www.housingwire.com/podcast/the-real-estate-brokerages-battling-to-be-no-1/ (Tracey Velt, Senior Director of Content and Data at Housing Wire, opining that, in her experience, commission-based steering does not happen).

[27] *See, e.g.*, 2022 National Association of Realtors Code of Ethics at Article 1 ("Best Interest"), Ex. 31; Seung-Hyun Hong, *Real Estate Agents' Influence on Housing Search*, 37 J. APPLIED ECONOMETRICS 563, 563 ("In principle, real estate agents have duties to their clients in most North American housing markets.").

[28] *See, e.g.*, Moehrl Opposition to Class Certification, *supra* note 26, at 46 n. 105; Brambila, *supra* note 26 (quoting Mantill Williams, Vice President of Public Relations and Communications Strategy for NAR, as saying "As highlighted in the NAR code of ethics, it is a broker's ethical duty to provide information about any homes the buyer requests to see in addition to others the broker considers to be a fit for a buyers' priorities."); .

[29] *See, e.g.*, Moehrl Opposition to Class Certification, *supra* note 26, at 46 (arguing that it is not in buyers' agents' self-interest to steer clients because the "industry runs on repeat clients and referrals").

[30] *See, e.g.*, Moehrl Opposition to Class Certification, *supra* note 26, at 45-46 ("[I]ndividual buyer brokers have little . . . ability to steer their buyers away from suitable properties and risk upsetting or alienating their buyer, as the brokers know that their buyers can see available properties on internet aggregators [and through other channels], making efforts to steer ineffectual and dangerous for buyer agents . . . ."); Sitzer Motion to Dismiss, *supra* note 26, at 14 ("If most home buyers are finding their own homes as a result of accessing information publicly available over the internet, buyers' real estate agents are unable, as a practical matter, to steer their customers away from the customers' preferred homes, regardless of their ultimate compensation.").

[31] Panle Jia Barwick, Parag A. Pathak & Maisy Wong, *Conflicts of Interest and Steering in Residential Brokerage*, 9 AM. ECON. J.: APPLIED ECON. 191 (2017).

[32] *Id.* at 191.

[33] *Id.*

[34] *Id.*

sites have become much more popular since then; they attract roughly ten times the number of visitors today as they did back in 2010.[35]

Fortunately, data on buyer agent commissions has recently become more readily available. In November 2020, the DOJ and NAR entered into a proposed settlement. The terms of the proposed settlement allowed public portals to display buyer agent commissions for the first time.[36] We combine this newly available commission data with existing Redfin data to analyze 265,000 listings from more than 30 of the largest geographic markets around the country.[37] We are the first researchers to use website page views to investigate steering. This is a significant innovation: Steering is fundamentally about directing buyer attention, which is difficult to observe directly. Page views measure how much attention particular properties garner, and can thus indicate how much steering is taking place.

We find strong statistical evidence that buyer agents nationwide steer their clients away from low-commission listings. We find that low-commission listings receive less attention from buyers, as evidenced by fewer page views on Redfin than other listings.[38] These effects increase as the buyer agent's commission drops farther below the going rate in a given market.[39] These differences remain even after controlling for a comprehensive set of potentially confounding variables, such as each property's asking price, geographic location, size, age, and listing agent attributes.[40]

We consider other bodies of evidence regarding buyer agent steering and find that they bolster our statistical findings. First, surveys of home buyers indicate that buyer agents play an important role in helping their clients find homes, giving them the capacity to steer their clients.[41] Second, real estate agent training materials, consumer watchdog investigations, and recorded phone calls of agents refusing to show their clients low-commission properties indicate that steering by buyer agents is indeed a widespread phenomenon.[42]

We also find that offering lower commission rates is associated with significant negative consequences for sellers. As with our page view analysis, the size of these effects increases as buyer agent commissions drop farther below the going rate. Compared to homes that offer going-rate commissions, homes that offer commissions below 2% take 33% more time to sell.[43] And that assumes that these homes sell at all—in a typical geographic market, our best estimate

[35] In 2010, Zillow attracted an average of 12.7 million monthly unique users, and Trulia attracted 7.9 million, for a total of 20.6 million. Zillow subsequently acquired Trulia. In 2022, Zillow's real estate websites, including Trulia, attracted an average of 220MM monthly unique users. Zillow Group, Inc., Annual Report (Form 10-K) at 44 (Feb. 9, 2023); Trulia, Inc., Registration Statement (Form S-1) at 11 (Aug. 17, 2012); Zillow, Inc., Registration Statement (Form S-1) at 4 (Apr. 18, 2011) [hereinafter Zillow S-1].
[36] See *supra* Part II.D–III.A.
[37] More precisely, 264,139.
[38] See *infra* Figure 10 and accompanying text.
[39] See *infra* Figure 10 and accompanying text.
[40] See *infra* Part IV.B.
[41] See *infra* Part IV.B.1.
[42] See *infra* Part IV.B.4.
[43] *See supra* Figure 17(c) (showing national data for commission $c_4$ as well as individual market data).

is that such properties are 75% more likely to remain unsold.[44] All the data and code underlying our analysis is freely accessible online.[45]

Our findings are important for several reasons. First, they are directly relevant to the U.S. housing market, which is extremely important economically. It is enormous: the total value of U.S. housing stock is in the tens of trillions of dollars.[46] Millions of U.S. homes are sold each year, generating trillions of dollars for sellers, and tens of billions of dollars for agents.[47] Moreover, for most Americans, their home is by far their largest asset.[48] Housing costs are also the largest item in the typical household's budget, and by a wide margin.[49] Failed sales can be especially difficult for sellers, forcing them to pay mortgages on both their new and old properties, potentially for an extended period of time.

Beyond its sheer size, the housing market has important implications for the labor market. The easier and cheaper it is for someone to move, the easier it is to pursue attractive job opportunities outside of their current locale. A considerable body of scholarship argues that home-ownership-generated labor frictions create sizable drags on the economy.[50] Our findings suggest that steering plays a key role in keeping real estate commissions high. Bringing down

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[44] *See supra* Figure 19(c).
[45] *See* William Fried, Redfin Views Analysis, https://github.com/williamfried/redfin_views_analysis [hereinafter Github Repository]; *see also* Jordan M. Barry, Will Fried & John William Hatfield, Online Appendix to Et Tu, Agent? Commission-Based Steering in Residential Real Estate [hereinafter Appendix].
[46] *See, e.g.*, Orphe Divounguy, *The Value of Residential Real Estate Broke a New Record $52 Trillion*, ZILLOW, Sept. 26, 2023, https://www.zillow.com/research/total-market-value-2023-33031/; Treh Manhertz, *U.S. Housing Market Has Doubled in Value Since the Great Recession, Gaining $6.9 Trillion in 2021*, ZILLOW, Jan. 27, 2022, https://www.zillow.com/research/us-housing-market-total-value-2021-30615/ (reporting total housing value of $43.4 trillion in 2021); *see also Real Estate – United States*, STATISTA, Apr. 2023, https://www.statista.com/outlook/fmo/real-estate/united-states (projecting total residential real estate value of $88.91 trillion by the end of 2023).
[47] *See, e.g.*, Noah Buhayar, *Real Estate Agents Target Record $100 Billion as Home Sales Boom*, BLOOMBERG, July 9, 2021, https://www.bloomberg.com/news/articles/2021-07-09/real-estate-agents-eye-record-100-billion-as-home-sales-boom; *Residential Real Estate Market Size And Trends*, LEANPROP.COM, 2021, https://www.leanprop.com/posts/residential-real-estate-market-size-and-trends (reporting 6 million houses sold for a total of $1.6 trillion and $70 billion in commissions); Real Estate Sales & Brokerage in the US - Market Size 2005–2029, IBIS World, Feb. 1, 2023, https://www.ibisworld.com/industry-statistics/market-size/real-estate-sales-brokerage-united-states/ (reporting $237.5 billion in revenue for the real estate sales and brokerage industry in 2022); *Real Estate – United States*, *supra* note 46 (projecting $2.9 trillion in total U.S. housing sales in 2023).
[48] See sources cited in note 4, *supra*.
[49] *See, e.g.*, United States Bureau of Labor Statistics, *Consumer Expenditures in 2021*, BLS.GOV, https://www.bls.gov/opub/reports/consumer-expenditures/2021/home.htm (reporting housing at 33.8% of average household expenditures in 2021, comprising $22,624 out of total average expenditures of $66,928; transportation, the second largest category, was less than half the size).
[50] *See, e.g.*, KATE BARKER, REVIEW OF HOUSING SUPPLY – DELIVERING STABILITY: SECURING OUR FUTURE HOUSING NEEDS, FINAL REPORT (Mar. 2004), *available at* http://www.andywightman.com/docs/barker_housing_final.pdf; HOMEOWNERSHIP AND THE LABOUR MARKET IN EUROPE (Casper van Ewijk & Michiel van Leuvensteijn, eds., 2009); Thomas de Graaff & Michiel van Leuvensteijn, *A European Cross-Country Comparison of the Impact of Homeownership and Transaction Costs on Job Tenure*, 47 REGIONAL STUD. 1 (Jan. 2011); Richard K. Green & Patric H. Hendershott, *Home-Ownership and Unemployment in the U.S.*, 38 URBAN STUD. 1509 (2001); Allen Head & Huw Lloyd-Ellis, *Housing Liquidity, Mobility, and the Labour Market*, 79 REV. ECON. STUD. 1559 (2012); Andrew Henley, *Residential Mobility, Housing Equity and the Labour Market*, 108 ECON. J. 414 (1998); Tyler Ransom, *Labor Market Frictions and Moving Costs of the Employed and Unemployed*, 57 J. HUMAN RESOURCES S137 (2022).

real estate agent commissions may help reduce moving-related frictions and thus ameliorate some of the larger economic concerns that they raise.

Our results also offer insight into two important economic concepts that are of great practical and legal significance: Agency costs and Collaborative Industries. Agency cost is a ubiquitous concept in law and economics, but it is often difficult to estimate in practice because it is hard to isolate and cleanly observe its effects. For instance, there are many industries in which buyers rely on the expertise of others with greater information, but differing incentives. Prominent examples include finance, technology, and medicine. [51] Regulation is a potential response to these problems, but it can be costly. Quantifying how much steering is happening, and its costs, can help policymakers evaluate the merits of regulation, and of different types of regulation. Our data and setting offer an unusually promising opportunity in this respect.

In some industries, cooperative interactions with rivals are important. Firms in such "Collaborative Industries" are more interdependent than firms in conventional industries, and they can leverage this interdependence to enforce anticompetitive norms.[52] Real estate brokerage is a classic example; agents are paid when they consummate transactions, which requires working with rivals. One way in which anticompetitive norms can manifest is via resistance to entrants. This may be especially likely if entrants are mavericks who do not conform to existing industry norms, such as pricing conventions. Such mavericks often drive price competition directly, by offering lower prices, and indirectly, by forcing incumbents to react. Blocking entrants can thus suppress price competition and reduce market efficiency.

Even more worrisome, blocking entrants can stymie innovation in an industry. Entrants are often the vehicle by which innovative ideas and technologies enter an industry. For example, our data comes from a time period during which instant buyers (more commonly known as "iBuyers") were new, potentially disruptive entrants into the residential real estate brokerage industry. Compared to other listings, we find that homes listed by iBuyers receive fewer Redfin page views and take longer to sell.[53] Other factors besides steering likely contribute to these results.[54] Nonetheless, our analysis may provide insight into how firms in Collaborative Industries can use their collective power to resist disruptive innovation.

Finally, we note that this is a particularly relevant time to be studying steering questions, as there are currently multiple federal lawsuits pending against NAR and real estate brokerages alleging that buyer agents have engaged in illegal steering behavior in numerous U.S. markets.

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[51] *See, e.g.*, Chan, Haughwout, and Tracy (2015) for mortgages; Christoffersen, Evans, and Musto (2013) for mutual funds; Cummins and Doherty (2006) for a discussion on insurance products; Inderst and Ottaviani (2012) for financial advice; Jiang, Stanford, and Xie (2012) for bond ratings; Bradley T. Shapiro, Informational Shocks, Off-Label Prescribing and the Effects of Physician Detailing, https://research.chicagobooth.edu/~/media/7CB817FF82E34EA3AD98273E60B1CF62.pdf (2015). *See generally* Barwick et al., *supra* note 31, at 191 (collecting examples).

[52] Jordan M. Barry, John William Hatfield, Scott Duke Kominers & Richard Lowery, *Not from Concentrate: Collusion in Collaborative Industries*, 108 IOWA L. REV. 1089 (2023).

[53] Analysis of whether iBuyer homes face greater risk of not selling at all is complicated by the fact that iBuyers are more likely to reduce their listings' asking prices than other sellers are. *See infra* footnotes 328330.

[54] See Part III.F, *infra*.

Plaintiffs in these cases seek billions of dollars in damages, and they have already secured almost $150 million through settlements.[55]

This Article proceeds as follows. Part II provides background on the U.S. real estate brokerage industry, particularly its commission structure. Part III presents our data and the variables that we constructed from it. Part IV details our analysis and findings regarding commission-based steering and its effects. Part V considers some of the larger implications of our findings and potential policy responses. Part VI concludes.

## II. BACKGROUND

We begin by providing background on the U.S. residential real estate market. Section A provides context regarding the process by which homes are sold, including the roles of some of the key actors and institutions. Section B presents history and data regarding agents' commissions, with particular attention to their uniformity within geographic markets. Section C explains commission-based steering and how it could potentially contribute to both commission conformity and higher commission levels. Finally, Section D describes recent legal developments that relate to both the source of our data and the implications of our analyses.

### A. The U.S. Residential Real Estate Market

Each year, approximately six million homes are bought and sold in the United States.[56] This process typically follows a standardized set of steps. Most sellers (86%) start by hiring an agent (a "listing agent") to facilitate the transaction.[57] These agents help sellers set the asking price, stage the property to make it more appealing to buyers, and arrange for it to be photographed. Once the home is listed, the agent markets the property, coordinates private showings and open houses, and advises the seller during negotiations with potential buyers. After the seller accepts an offer, the agent guides the seller through the escrow process, during which the sale can fall through for a variety of reasons.[58]

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[55] Brooklee Han, *Anywhere Real Estate Settles Buyer Broker Commission Lawsuits*, YAHOO! FINANCE, Sept. 5, 2023, https://finance.yahoo.com/news/anywhere-real-estate-settles-buyer-175304121.html; Brooklee Han, *RE/MAX Settles Buyer Broker Commission Lawsuits for $55 Million*, HOUSINGWIRE, Sept. 18, 2023, https://www.housingwire.com/articles/re-max-settles-buyer-broker-commission-lawsuits-for-55-million/.

[56] *See, e.g.*, *Residential Real Estate Market Size And Trends*, Leanprop, 2001, https://www.leanprop.com/posts/residential-real-estate-market-size-and-trends (reporting 6 million houses sold for a total of $1.6 trillion and $70 billion in commissions); Real Estate Sales & Brokerage in the US - Market Size 2005–2029, IBIS World, Feb. 1, 2023, https://www.ibisworld.com/industry-statistics/market-size/real-estate-sales-brokerage-united-states/ (reporting $237.5 billion in revenue for the real estate sales and brokerage industry in 2022); *Real Estate – United States*, *supra* note 46 (projecting $2.9 trillion in total U.S. housing sales in 2023).

[57] https://www.nar.realtor/sites/default/files/documents/2023-home-buyers-and-sellers-generational-trends-report-03-28-2023.pdf (page 113). Agents representing sellers are generally referred to as "listing agents" in the industry.

[58] For example, the buyer could run into issues securing financing, the home inspection ordered by the buyer could reveal major flaws with the property, or the appraised value could come in below the contract price, which would mean the lender might not provide the full loan amount.

Similarly, most buyers (86%) also use an agent (a "buyer agent") to help them purchase a home.[59] Buyer agents help clients search for homes that meet their needs, take them on tours of listings, and prepare offers on their behalf. Once a seller accepts their client's offer, the buyer agent guides their client through the various stages of the escrow process, such as the home inspection, home appraisal, and mortgage underwriting process.

Typically, both the listing and the buyer agent are only compensated if a transaction closes. Listing agents generally receive a specified portion of the sale price, such as 6%. This fee is discussed and agreed upon between the seller and the listing agent. In contrast, buyers generally do not pay their agents directly, and often do not discuss their agents' compensation at all. Instead, the listing agent's contract with the seller specifies what the buyer agent's compensation will be.[60] For example, the listing agent's contract with the seller might specify that the listing agent and the buyer agent will each receive 3% of the purchase price.[61] Because the buyer does not pay their agent directly, from the buyer's perspective, hiring an agent appears to be free.[62] In fact, many buyers report that they do not even know how their agents are compensated.

Most agents work for brokerages. Brokerages provide agents with a wide range of services in exchange for a portion of their commissions. These services may include physical workspaces, training opportunities, assistance with legal and compliance issues, liability protection, marketing materials, and back office support.

One of agents' most indispensable tools is their local Multiple Listing Service.[63] The MLS is a listing agent's primary marketing tool; posting a listing on the MLS advertises the property to all buyer agents searching the MLS. It also automatically syndicates the listing to public portals such as Zillow and Redfin, as well as to various brokerages' websites. Meanwhile, buyer agents use the MLS to search for listings to send to their clients. Buyer and listing agents also use the MLS for other purposes, such as analyzing the market to price homes.[64]

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[59] According to NAR, 86% of homebuyers use an agent. (page 62) If one excludes transactions in which the buyer personally knew the seller or where the buyer purchased a home directly from a homebuilder or a homebuilder's agent, 93% of homebuyers use an agent.

[60] Importantly, if a buyer purchases a home without the assistance of a buyer agent, they are not entitled to the commission that was offered to the buyer agent. Instead, that commission goes to the listing agent, to the seller, or a combination of the two, depending on the contract that the seller signs with their agent.

[61] Technically, the listing agent generally pays the buyer agent. So in this example, the contract between the seller and the listing agent would typically specify that the seller would pay 6% of the purchase price to the listing agent at closing, and that the listing agent would then pay 3% of the purchase price to the buyer agent.

[62] This may be one reason why so many buyers hire agents. Of course, if sellers ultimately keep less of the sales price, they may demand higher prices to sell. *See generally* James R. Frew & G. Donald Jud, *Who Pays the Real Estate Broker's Commission?*, 10 RSCH. IN L. & ECON. 177 (1987).

[63] *See, e.g.*, Burnett v. Nat'l Assoc. of Realtors, Case No. 4:19-cv-00332-SRB, Order Denying Defendants' Request for Summary Judgment, Dec. 16, 2022 at 19 [hereinafter Burnett Summary Judgment Ruling] ("MLS membership is considered essential to brokers.").

[64] Public portals like Zillow and Redfin also show recently sold homes. However, MLSs typically have more advanced functionality and more data. Agents can also use the MLS to gather information about listings that is not available to the public, such as private remarks about the property that are only visible to agents.

The vast majority of MLSs across the country are affiliated with the National Association of Realtors.[65] NAR-affiliated MLSs are required to comply with NAR's rules. Importantly, these rules require sellers to offer "blanket unilateral offers of compensation" to buyer agents. In other words, sellers must specify upfront what they will pay the buyer agent upon the sale of the property. Also, until recently, NAR rules prohibited MLSs from publicly sharing buyer agent commissions.

To post or view listings on an MLS, an agent must generally be a member of that MLS. Many NAR-affiliated MLSs limit membership to NAR members. Because the MLS is such a critical tool for conducting business, many agents are effectively forced to join NAR. This has helped NAR become the largest trade organization in the United States, with 1.58 million members (known as "Realtors") as of 2022.[66]

Realtors must abide by NAR's Code of Ethics.[67] The first sentence of Article 1 of this code states that "Realtors pledge themselves to protect and promote the interests of their clients. This obligation to the client is primary…"[68] Realtors or not, agents are also licensed by the states in which they practice and generally have a fiduciary duty to act in the best interests of their clients.[69]

NAR and its affiliates have heavily influenced the laws and regulations governing real estate agents. In 2022, NAR was the highest-spending lobbying group in the United States.[70] State rules often copy provisions of NAR's Code of Ethics verbatim, and sometimes copy the entire document.[71] Most state regulatory commissions require that a majority of commissioners be licensed real estate agents.[72] State laws sometimes empower agents more explicitly. For example, the Governor of Kentucky appoints the Kentucky Real Estate Commission's five commissioners.[73] Four must be active brokers before and during their appointment, and the governor must choose these from a list of candidates provided by the Kentucky Association of Realtors, a NAR affiliate.[74] Even a sitting commissioner cannot be reappointed unless the

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[65] Moehrl motion for class certification: "All but around 3% of MLSs are owned or operated solely by local Realtor associations" https://assets.inman.com/wp-content/uploads/2022/06/RedactedMotionForClassCertificationWithoutExhibits_06072022.pdf
[66] https://www.nar.realtor/membership/historic-report
[67] https://cdn.nar.realtor/sites/default/files/documents/2023-coe-standards-of-practice-2022-12-28.pdf?_gl=1*jsn6yh*_gcl_au*MjA1OTQzMTI3OC4xNjkwOTIyMTE2 Realtors must also pay annual dues to NAR (These dues were $150 in 2023.) https://www.nar.realtor/membership/dues-information
[68] *Id.*
[69] FTC REPORT, *supra* note 14, at 101 ("All 50 states and the District of Columbia require real estate brokers and salespersons to be licensed.").
https://www.quickenloans.com/learn/fiduciary-duty#:~:text=Real%20estate%20brokers%20have%20a,dual%20representation%20in%20a%20transaction
[70] https://www.opensecrets.org/federal-lobbying/top-spenders?cycle=2022
[71] FTC REPORT, *supra* note 14, at 98.
[72] *Id.*; *id.* at 106 ("Licensees outnumber non-licensees on the state commissions or boards in every state except Rhode Island . . . .").
[73] *See* United States v. Kentucky Real Estate Commission; Proposed Amendment Final Judgment and Competitive Impact Statement, 70 Fed. Reg. 150 45424, 45425, Aug. 5, 2005, *available at* https://www.govinfo.gov/content/pkg/FR-2005-08-05/pdf/05-15489.pdf [hereinafter Kentucky DOJ Action].
[74] *Id.*; *see also* Kentucky Realtors Association, *About Us*, https://kyrealtors.com/about-us/.

Kentucky Association of Realtors resubmits their name.[75] Several other states have similar arrangements.[76]

The basic structure of the residential real estate brokerage industry dates back almost a century.[77] However, two relatively recent innovations merit special attention. First, publicly accessible real estate listing websites such as Zillow, Redfin, and Trulia emerged in the early 2000s.[78] Public real estate listing sites have become more popular over time; collectively, they now receive hundreds of millions of page views each month.[79] Before these portals, buyers were largely dependent on their agents to find suitable homes on the MLS.[80] Buyers and sellers also had much less information about how much comparable homes were selling for in the market. Now, buyers have significantly greater direct access to information about available homes and prices.[81]

Redfin, upon its launch, also tried to shake up the real estate industry in another way. In addition to operating a website, Redfin launched as a brokerage that offered discounted commissions. Buyer agents generally received 3% commissions; Redfin promised to return two-thirds of that to its buyer clients. In a 60 Minutes interview, its CEO described real estate as "by far the most screwed up industry in America" and predicted that Redfin would transform the real estate industry in the way that Amazon, eBay, and Yahoo had transformed other industries.[82]

A number of observers viewed Redfin as a potential disruptor of established industry practices. Many agents worried that Redfin would hurt their bottom lines, or even put them out of business. Some discouraged their clients from transacting with Redfin clients;[83] some would

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[75] Kentucky DOJ Action, *supra* note 73, at 45425.
[76] FTC REPORT, *supra* note 14, at 98.
[77] *Id.* at 87 ("By the end of the 1920's, most of today's brokerage structures had been developed and were in fairly wide use.").
[78] *See, e.g.*, Zillow S-1, supra note 35, at 5 ("Zillow, Inc. was incorporated in Washington in December 2004."); Redfin Corp., Registration Statement (Form S-1) at 9 (June 30, 2017) ("We were incorporated as Appliance Computing Inc. in Washington in October 2002. We reincorporated in February 2005 in Delaware and changed our name to Redfin Corporation in May 2006."); Trulia, Inc., Registration Statement (Form S-1) at 6 (Aug. 17, 2012) ("Trulia, Inc. was incorporated in Delaware in June 2005."); *see also* THE HOMESTORE SAGA, THE TUMULTUOUS STORY OF AN ONLINE REAL ESTATE COMPANY, INMAN NEWS SPECIAL REPORT, https://assets.inman.com/wp-content/uploads/2019/10/2002-12_SIR_homestore.pdf?_gl=1*ofd010*_ga*OTA5MDA0NDQyLjE2OTE2Mjc4MDU.*_ga_75GWWRKKPQ*MTY5NjY5NTk0Mi45LjAuMTY5NjY5NTk0Mi4wLjAuMA.
[79] *See, e.g.*, *Redfin.com July 2023 Traffic Stats*, SEMRUSH.COM, https://www.semrush.com/website/redfin.com/overview/ (last visited Sept. 1, 2023) (reporting that Redfin's website had 63.3 million views in July 2023, with 96.4% coming from the United States); *see also* sources cited in footnote 35, *supra*.
[80] Of course, homes were advertised in other ways, such as yard signs and newspapers, but most home buyers reported that their agent found them the home that they ultimately bought.
[81] According to NAR's 2023 generation trends report, 51% of buyers reported finding the home they purchased on the internet.
[82] Daniel Schorn, *Chipping Away at Realtors' Six Percent*, 60 MINUTES, May 11, 2007, *available at* https://www.cbsnews.com/news/chipping-away-at-realtors-six-percent-11-05-2007/.
[83] *See, e.g.*, James R. Hagerty, *Real-Estate War Traps Consumers in the Middle: Full-Service Brokers' Tactics to Rebuff Discount Rivals Sometimes Hurt the Customer*, WALL ST. J., June 17, 2006, at B1 (describing how, when he learned a couple was using Redfin, an "initially friendly and helpful" seller's broker "refused to show the condo to the couple again and said he would advise his client not to consider any offer they made"; the couple "gave up"); *The*

not show homes to Redfin buyers;[84] some outright refused to present offers to their sellers that came from Redfin buyers.[85] Redfin attempted to deter such tactics by creating a "Hall of Shame"—a website calling out traditional Realtors who were hostile to Redfin clients, against their own clients' interests.[86] The Hall of Shame did not have the desired effect, however, as "agents immediately appl[ied] to appear there."[87]

Redfin is now approximately twenty years old, and it has become a more accepted feature of the real estate landscape. It maintains a popular website and has achieved considerable business success.[88] However, its model looks more like a traditional brokerage now than when it launched, and its market share is less than 1%.[89] Few observers now predict that it will do to Realtors what other websites did to travel agents.[90]

The second innovation is the debut of "instant buyers," more commonly known as iBuyers. iBuyers seek to operate like stock brokers or car dealers, except as dealers of real estate instead of stocks or cars. iBuyers make immediate cash offers to home sellers, which allows sellers to avoid the uncertainty and delay of the traditional selling process. iBuyers then resell any properties they purchase to conventional buyers, sometimes after making repairs and upgrades. iBuyers earn revenue in two main ways. First, they charge sellers a service fee. Second, they make offers that are typically below market value and then resell their inventory for higher prices.[91]

The three largest iBuyers to date are Opendoor, Offerpad and Zillow. Opendoor, founded in 2014, was the first iBuyer. Offerpad was founded in 2015 and Zillow expanded into iBuying

*Changing Real Estate Market: Hearing Before the Subcomm. on Hous. & Cmty. Opportunity of the H. Comm. on Fin. Servs.*, 109th Cong. 97–98 (2006) (statement of Glenn Kelman, President & CEO, Redfin Corp.) [hereinafter Kelman Statement], https://www.govinfo.gov/content/pkg/CHRG-109hhrg31541/pdf/CHRG-109hhrg31541.pdf [https://perma.cc/7L6E-5MY6].

[84] *See, e.g.*, Damon Darlin, *The Last Stand of the 6-Percenters?*, N.Y. TIMES, Sept. 3, 2006, *available at* https://www.nytimes.com/2006/09/03/business/yourmoney/03real.html;

[85] Kelman Statement, *supra* note 83, at 97–98. According to Redfin's CEO, "[s]ixty-three percent of [its] customers report meddling from other agents," including intimidation, "mak[ing] up grade-school legal mumbo-jumbo to scare [Redfin] clients," and even threats of violence. *Id.* at 97.

[86] *Id.* at 98; Glenn Kelman, *The Hall of Shame*, REDFIN NEWS, (Oct. 5, 2020), https://www.redfin.com/news/the_hall_of_shame [https://perma.cc/86GC-9B3F].

[87] Kelman Statement, *supra* note 249, at 98.

[88] *Market Capitalization of Redfin*, COMPANIESMARKETCAP.COM, https://companiesmarketcap.com/redfin/marketcap/ (last visited Sept. 28, 2023) (reporting a $790 million market capitalization as of September 2023, down from a high of almost $10 billion in 2021).

[89] Tony Mariotti, *Redfin Company Stats: Revenue & Competitors (2023)*, RUBYHOME.COM, Mar. 18, 2023, https://www.rubyhome.com/blog/redfin-stats/ ("Redfin captured a 0.80% market share of U.S. real estate transactions in 2022 . . . .").

[90] *See, e.g.*, Timothy B. Lee, *Redfin Set Out to Change Real Estate. Then Real Estate Changed Redfin.*, VOX, Aug. 10, 2015, https://www.vox.com/2015/8/10/9110233/redfin-glenn-kelman-profile; Timothy B. Lee, *Redfin Set Out to Disrupt Real Estate—It Was Harder Than It Looked*, ARS TECHNICA, July 28, 2017, https://arstechnica.com/tech-policy/2017/07/redfin-set-out-to-disrupt-real-estate-it-was-harder-than-it-looked/; *see also* [Regulatory Arbitrage Paper].

[91] United States v. Opendoor Labs Inc., Complaint, Docket no. 192-3191, at 10-11, *available at* https://www.ftc.gov/system/files/ftc_gov/pdf/Complaint%20%28redacted%29.pdf.

in 2018. When iBuyers debuted, many observers predicted that iBuyers would take significant market share away from traditional agents.[92]

However, as of 2023, iBuyers have not made great inroads. In 2022, Opendoor and Offerpad's combined market share was less than 1%, while the percentage of sellers that use traditional agents has remained virtually unchanged since iBuyers first appeared in 2014.[93] Furthermore, iBuyers have yet to show that their business models are sustainable. Opendoor lost a total of $2.27 billion between 2020 and 2022,[94] while Offerpad lost $165 million over that same timeframe.[95] Zillow shuttered its iBuyer program entirely in 2021 due to massive losses.[96]

B. Fee Schedules and Fee Uniformity

In some ways, the U.S. real estate market is a triumph. The vast majority of homes are listed on and sold through local MLSs.[97] This enables sellers and buyers—through their agents—to come together and find each other, to mutual benefit: Home sellers can reach the broadest pool of buyers, and buyers can see the widest selection of homes.

The foundation of the current system is cooperation among agents. Listing agents generally post their listings on the MLS, rather than hoarding them; buyer agents generally examine the MLS for listings, rather than limiting their search to a few favored counterparties. Building that system took conscious efforts by industry groups.

Unfortunately, there can be a fine line between collaboration and collusion. As part of their efforts to get agents to use MLSs, industry groups also propagated mandatory fee schedules for MLS users.[98] These fee schedules specified the commissions to charge sellers, and how they

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[92] *See, e.g.*, B.L. Sheldon, *How Are iBuyers Changing Real Estate*, REAL ESTATE TREND SHARK, https://realestatetrendshark.com/how-are-ibuyers-changing-real-estate/ ("iBuyers are not a fad. They aren't going away . . . . And they are already growing and obtaining enormous amounts of venture capital funding."); DELOITTE, USELL, IBUY (2019), *available at* https://www2.deloitte.com/us/en/pages/financial-services/articles/ibuyer-real-estate.html; *How to Stay Relevant in a Tech-Infused* World, REALTOR MAGAZINE, Aug. 22, 2019, https://www.nar.realtor/magazine/real-estate-news/technology/how-to-stay-relevant-in-a-tech-infused-world (quoting Brad Inman, founder of real estate publication Inman News, as predicting that iBuyers might soon command 50% of the national real estate market).

[93] 88% of sellers used listing agents in 2014 compared to 86% in 2023. (see https://www.nar.realtor/sites/default/files/reports/2014/2014-home-buyer-and-seller-generational-trends-report-full.pdf at page 94). According to this website, a total of 43,996 homes were sold to Opendoor and Offerpad in 2022. During the same year, there were a total of 5,030,000 existing home sales. This means that Opendoor and Offerpad achieve a combined market share of 43,996 / 5,030,000 = 0.87% in 2022. https://cdn.nar.realtor/sites/default/files/documents/ehs-07-2023-breakouts-of-single-family-condo-and-co-op-2023-08-22.pdf?_gl=1*hptwlp*_gcl_au*MjA1OTQzMTI3OC4xNjkwOTIyMTE2

[94] https://investor.opendoor.com/static-files/ce529554-3b42-44df-81f2-11c6157ce3fd (page 46)

[95] https://d18rn0p25nwr6d.cloudfront.net/CIK-0001825024/83b2c198-6131-4b45-8bd7-8b7d09ea8bff.pdf (page 49) https://d18rn0p25nwr6d.cloudfront.net/CIK-0001825024/305eb4ec-8ecc-43d7-b8ae-f3123eb8d9d2.pdf (page 48)

[96] In 2021 alone, Zillow reported that it lost $881 million on iBuying. https://www.wsj.com/articles/zillows-shuttered-home-flipping-business-lost-881-million-in-2021-11644529656

[97] *See* sources cited in note 5, *supra*.

[98] FTC REPORT, *supra* note 14, at 195-97.

should be divided between listing agents and buyer agents.[99] These schedules were intended to, and did, raise commissions nationwide.[100]

After a successful antitrust suit from the Department of Justice, industry groups switched to "recommended" or "suggested" schedules.[101] These schedules still proved effective.[102] Numerous additional antitrust actions by state and federal authorities prompted NAR to change course and prohibit such fee schedules in 1971.[103]

But even without official fee schedules, U.S. real estate markets have long been characterized by tremendous commission uniformity. Writing in 1983, over a decade after NAR banned fee schedules, the FTC reported that "Commission rates today commonly are found to be essentially at the levels they were when they last were fixed."[104] The FTC attributes this effect to "very strong cooperative pressures that keep rates uniform within local markets once they are set."[105]

Indeed, the cooperative pressures that the FTC referred to in its 1983 report seem just as potent almost 50 years later. Figures 1 and 2 show the proportion of listings offering the single-most-common buyer agent commission rate and the two most common commission rates, respectively, in all of the geographic markets for which we have this data.[106] Figure 1 shows that, in 28 of 34 markets, a majority of listings offer the most common rate. Figure 2 shows that the two most common rates typically capture over 85% of all listings.

[99] *Id.*; *id.* at 133-36.
[100] *Id.* at 195-97.
[101] *Id.* at 197; *see also* United States v. Nat'l Ass'n of Real Estate Bds, 399 U.S. 485 (1950).
[102] FTC REPORT, *supra* note 14, at 197.
[103] *Id.*; *see also* People v. California Real Estate Ass'n, 1962 Trade Cas. (CCH) ¶ 70,446 (Los Angeles Sup. Ct. 1962); United States v. Atlanta Real Estate Bd., 1972 Trade Cas. (CCH) ¶ 73,825 (N.D. Ga. 1971); United States v. Cleveland Real Estate Bd., 1972 Trade Cas. (CCH) ¶ 74,020 (N.D. Ohio 1972); United States v. Long Island Bd. Of Realtors, 1972 Trade Cas. (CCH) ¶ 74,068 (E.D.N.Y. 1972); United States v. Memphis Bd. Of Realtors, 1972 Trade Cas. (CCH) ¶ 74,056 (W.D. Tenn. 1972); United States v. Greater Pittsburgh Bd. Of Realtors, 1973 Trade Cas. (CCH) ¶ 74,454 (W.D. Pa. 1973); United States v. Los Angeles Realty Bd., 1973 Trade Cas. (CCH) ¶ 74,366 (C.D. Cal. 1973); United States v. Multiple Listing Service, 1973 Trade Cas. (CCH) ¶ 74,515 (Or. 1973); United States v. Real Estate Bd. Of Metropolitan St. Louis, 1973-2 Trade Cas. (CCH) ¶ 74,744 (E.D. Mo. 1973); United States v. Metro MLS, 1974-2 Trade Cas. (CCH) ¶ 75,137 (E.D. Va. 1974); United States v. Real Estate Bd. Of New York, 1974-2 Trade Cas. (CCH) ¶ 75,350 (S.D.N.Y. 1974); United States v. Real Estate Bd. Of Rochester, New York, 1975 Trade Cas. (CCH) ¶ 60,192 (W.D.N.Y. 1975).
[104] FTC REPORT, *supra* note 14, at 136.
[105] *Id.*
[106] This data was scraped from Redfin between June 2021 and February 2022. It excludes new construction homes, as the focus of our analysis is on existing home sales. See *infra* Part III.

FIGURE 1: PERCENTAGE OF SELLERS OFFERING THE MOST COMMON BUYER AGENT COMMISSION RATE BY GEOGRAPHIC MARKET

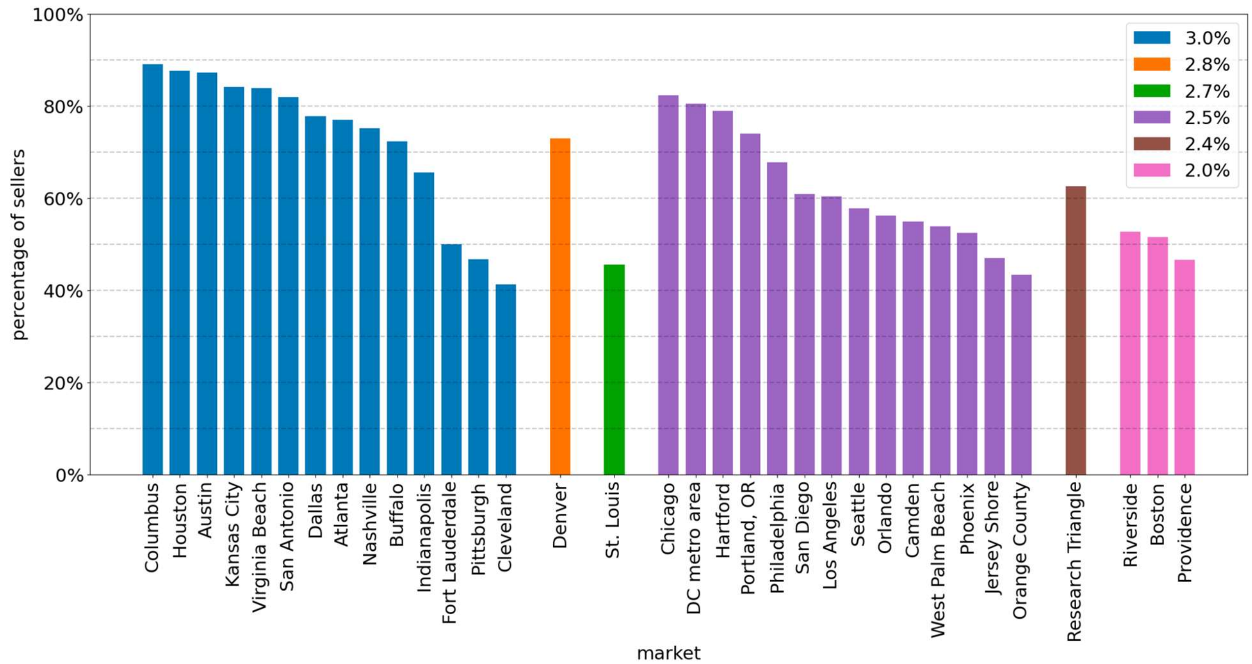
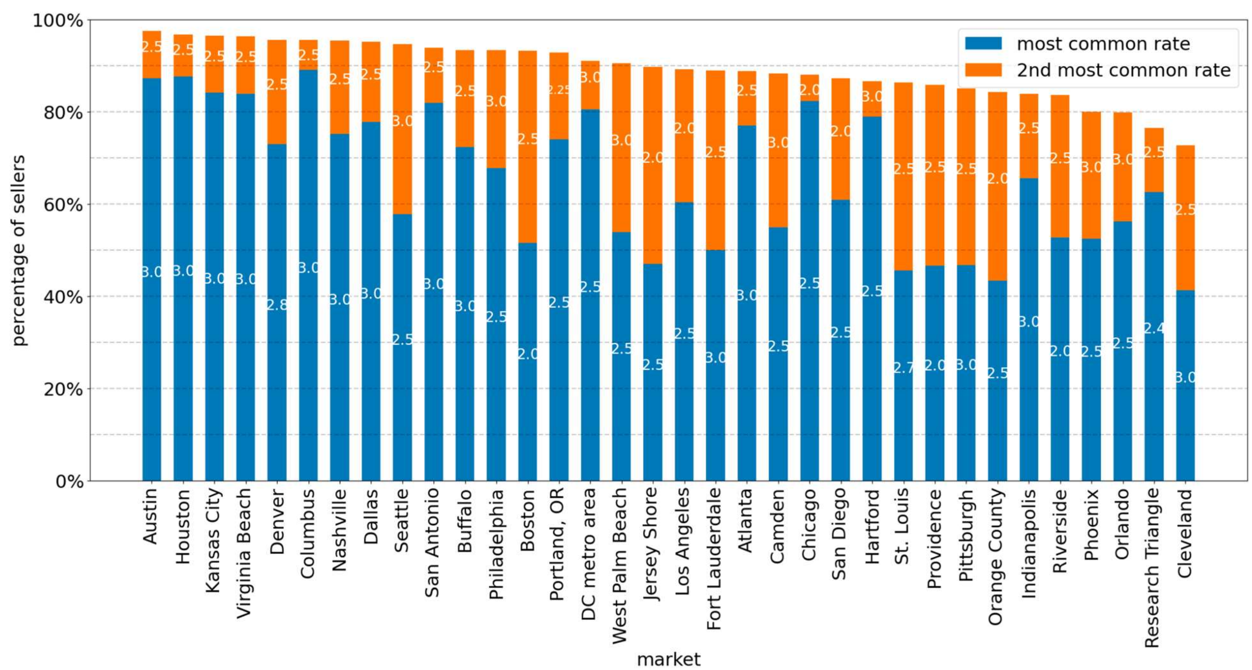


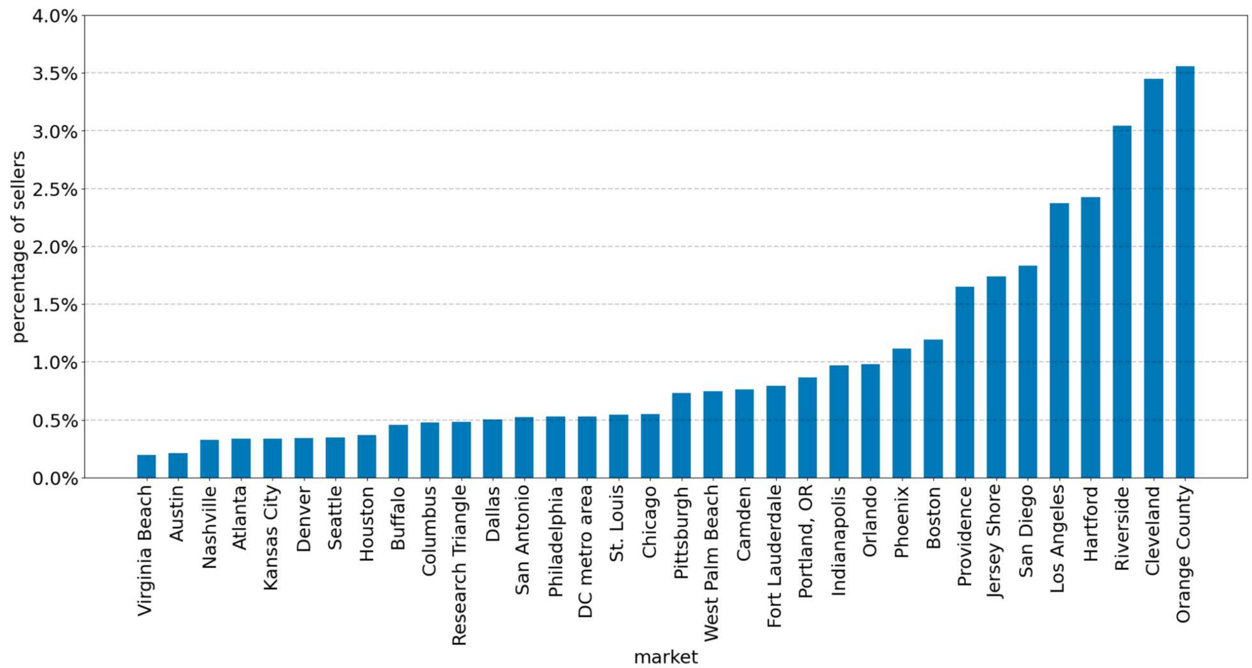

FIGURE 2: PERCENTAGE OF SELLERS OFFERING THE TWO MOST COMMON BUYER AGENT COMMISSION RATES BY GEOGRAPHIC MARKET




The blue and orange bars represent the percentage of sellers that offer the most common and second most common commission rates, respectively. The combined height of the blue and orange bars signifies the percentage of sellers that offer one of the two most common commission rates.

These figures demonstrate that commission rates of 2%, 2.5% and 3% are by far the most common nationwide. None of the commission rates shown in Figure 2 is above 3% or below 2%. Indeed, Figure 3 shows that buyer agent commissions below 2% are rare, accounting for less than 1% of commissions in most markets.

FIGURE 3: PERCENTAGE OF SELLERS OFFERING A BUYER AGENT COMMISSION BELOW 2%




While the graphs above focus on buyer agent commissions, total commission rates have also held steady for the last two decades.[107] Moreover, they remain significantly higher than commission rates in many other developed countries. For example, Professors Delcoure and Miller report that total commissions are typically between 1-2% in the United Kingdom.[108] They also report that total commissions average 3% or less in many countries, including Belgium, Ireland, Japan, and the Netherlands.[109]

One reason for commission stability may be that, while NAR and its affiliates have abandoned official price schedules, many individual real estate brokerages have not. In a 2014 Inman survey, 56% of agents reported that their brokerages require a minimum total commission level to list homes for sellers.[110] Similarly, some brokerages specify a minimum commission rate that must be offered to *buyer* agents when the brokerage represents the *seller*. Although

[107] Velt, *supra* note 9. They appear to have declined slightly in the 1990s. *Id.*
[108] Delcoure & Miller, *supra* note 9, at 16–17.
[109] *Id.*
[110] INMAN SELECT, SPECIAL REPORT: WHY THE REAL ESTATE INDUSTRY DOES NOT COMPETE ON COMMISSION RATES 43 (2014), *available at* https://webassets.inman.com/wp-content/uploads/2014/11/InmanRealEstate-SpecialReport-v5.pdf.

most brokerages do not publicize their commission policies, we managed to find multiple policy and procedure manuals online that specify a minimum buyer agent commission on listings.[111]

Of course, observing that firms maintain minimum commission rates raises new questions: How can firms maintain these minimums in the face of market forces pushing them down? And why would firms establish minimum commissions for counterparty agents? With regard to the former question, NAR and its affiliates appreciate the value of the cooperation-based MLS system and strive to preserve it. During his time as CEO of NAR, Dale Stinton expressed concerns over "threats to the system," including "commission-thirsty outsiders."[112] NAR has also supported policies that critics believe have insulated incumbents and reduced new entrants' ability to shift the status quo.

For example, in the early 2000s, tech-savvy brokerages built the first websites that allowed buyers to search for listings themselves.[113] This meant that buyers would no longer have to rely on their agents to find suitable homes.[114] This was perceived as a potential threat to traditional brokerages and prevailing commission levels. NAR then amended the rules of its affiliated MLSs to permit brokerages to withhold client listings from these competitors.[115] The DOJ sued in 2005, alleging that the new rules violated the Sherman Act.[116] In 2008, NAR settled with the DOJ and repealed its policy.[117]

Finally, one might wonder whether buyers negotiate with their agents to receive a portion of the agent's compensation as a rebate. For instance, a listing might offer the buyer agent a 3% commission, but the buyer agent's contract with their client might specify that a third of that commission be rebated to the buyer. Thus, the buyer agent would effectively only receive a 2% commission. If so, buyer agent commissions could be less uniform than they appear. However, such rebates appear to be uncommon. Fewer than 6% of agents surveyed reported that they offer cash rebates.[118] A number of states even ban such rebates entirely.[119]

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[111] We found 11 manuals that specified minimum buyer agent commissions and 18 that did not. We also found 4 that were unclear. See here.

[112] https://storage.courtlistener.com/recap/gov.uscourts.mowd.145710/gov.uscourts.mowd.145710.1019.0_1.pdf (Burnett ruling on motion for summary judgment – page 7)

[113] https://www.justice.gov/atr/case-document/file/505871/download

[114] *Id*.

[115] *Id*.

[116] *Id.* According to the DOJ's complaint, this policy

> restricts the manner in which brokers with efficient, Internet-based business models may provide listings to their customers, and imposes additional restrictions on [these] brokers… that do not apply to their traditional competitors. [NAR] thus denies brokers using new technologies and business models the same benefits of MLS membership available to their competitor brokers, and it suppresses technological innovation, discourages competition on price and quality and raises barriers to entry.

*Id*.

[117] https://www.justice.gov/archive/opa/pr/2008/May/08-at-467.html

[118] INMAN SELECT, *supra* note 110, at 38.

[119] *See* 2007 DOJ Paper, *supra* note 21, at 16 (listing such states). Regulators and courts often take a dim view of such rebate bans. *See id. passim*; Kentucky DOJ Action, *supra* note 73 (successfully challenging such a provision); JOINT REPORT, *supra* note 19, at 68 n.329; REX - Real Estate Exchange v. Brown, Case No. 3:20-cv-02075-HZ, Opinion at 17, 19 (D. Or. Dec. 9, 2021) ("Plaintiff makes many compelling arguments that Oregon's anti-rebate law hurts consumers and artificially increases home prices…Plaintiff makes compelling arguments that excessive fixed broker commissions harm consumers and the housing market itself."). So do scholars. *See, e.g.*, Lu Han & Seung-Hyun

This still leaves the question of why firms would establish minimum commissions for counterparty agents.

## C. Commission-Based Steering

The scholarly literature provides good reason to think that cooperative pressures among real estate agents are stronger than in many other industries. Real estate agents operate in what is known as a "Collaborative Industry"; working with their rivals is important to their own success.[120] Buyers' and sellers' agents work together to consummate transactions:

> [A real estate] agent's ability to connect potential buyers and sellers is vital to her business. Thus, being able to work with other agents, and thereby gain access to those agents' clients, is important. . . .
>
> [A] seller's agent wants other brokers to tell potential buyers about the property, and vice versa. A real estate agent who is shunned by her peers will suffer financially.[121]

This makes agents interdependent, which increases their ability to enforce industry norms, such as prevailing commission rates.

For example, buyer agents could enforce prevailing norms regarding buyer agent commissions by steering their clients away from low-commission properties. According to the 1983 FTC Report, the real estate brokerage industry attributes uniform pricing patterns to steering concerns:

> "Industry spokespersons [have] explain[ed] this uniformity in terms of the unilateral incentives of [agents]. [Buyer agents] may not show those properties which pay them less than the going rate as aggressively as those that pay the prevailing split. Further, while a larger than normal split to the [buyer agent] might induce even more selling action, listing brokers are reluctant to give [buyer agents] more than the going rate because they generally do not need to do so in order to sell the property . . . ."[122]

Steering behavior has significant potential to prop up commission rates against competitive and technological pressures. Recall that, under the current system, sellers set buyer agent commission rates. So long as sellers worry about buyer agent steering impeding their ability to find buyers, they will be motivated to pay buyer agents the going commission rate.

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Hong, *Testing Cost Inefficiency Under Free Entry in the Real Estate Brokerage Industry*, 29 J. BUS. & ECON. STATISTICS 564, 575-77 (2011); Hatfield et al., *supra* note 9, at 5-6.

[120] Barry et al., *supra* note 52; Hatfield et al., *supra* note 9; *see also* JOINT REPORT, *supra* note 19, at 67-68 (discussing "The Importance of Cooperation in Real Estate Brokerage").

[121] Barry et al., *supra* note 52.

[122] FTC REPORT, *supra* note 14, at 137.

Steering by buyer agents also has the potential to boost listing agent commission rates. Geographic markets have well-established prevailing commission splits between buyer and listing agents; for example, many split commissions 50% each. Holding the prevailing split constant, higher buyer agent commissions directly translate into higher listing agent commissions. Although these splits are no longer enforced by mandated fee schedules, they still appear to be quite sticky. In the words of the FTC:

> The largest brokerage firm in Minneapolis, for example, reported that it tried to reduce the split it offered to [buyer agents] from 45 percent to 40 percent of the full commission. The result of the experiment was that the firm's inventory of unsold listings began to grow. The firm subsequently decided to return to the old 55/45 split.[123]

Moreover, the DOJ has argued:

> [V]irtually all [buyer] agents also act as listing agents for other transactions. As a result, [buyer] agents are not only motivated by the [buyer agent commission]. Ultimately, they are motivated by both [the buyer agent commission] and the commission they can earn in the capacity of listing agent [in the future]. . . .
>
> Consider the case of two identical listings with equal [buyer agent commission], but one of the listings carries a [higher] total commission rate . . . . For these two particular listings, a [buyer] agent is indifferent between which home [her client buys]. However, if she equally markets both listings to her buyers (i.e., does not steer), she validates the fact that a home seller [can pay a smaller total commission] to get equal marketing intensity. In doing so, she will have a difficult time, tomorrow, in her role as a listing agent, trying to justify to a home seller why it is worth paying [the higher total commission]. In short, because [buyer] agents are concerned about their future commissions as listing agents, they may still have a unilateral incentive to steer buyers away from a price-cutting listing agent's listing even when [buyer agent commissions] are equal.[124]

Many agents share the DOJ's concern. In a 2014 survey, 86% of agents reported that they do not compete for listings based on price.[125] Within that group, 25% of agents reported that they do not accept lower listing commissions because, if they do, "other brokers might not promote my listings to their buyers."[126] Similarly, 50% of agents agreed that "some brokers do not compete for listings by offering commission discounts because they fear retaliation by

[123] FTC REPORT, *supra* note 14, at 137.
[124] 2007 DOJ PAPER, *supra* note 21, at 9-10.
[125] INMAN SELECT, *supra* note 110, at 3.
[126] *Id.* The fact that this was one of the multiple-choice answers available to this question seems telling in and of itself. Another question asked if commission negotiations had increased because "Brokerages no longer stand together in refusing to cooperate with competitors that provide services at reduced commissions," implying it was common knowledge that brokers had previously been a unified front against commission-cutters. *Id.* at 25.

cooperating brokers (refusal to show house to buyers)."[127] Only 20% of respondents strongly disagreed with that statement.[128]

In addition, buyer agent commissions may provide a natural anchor point for listing agents when negotiating their own commissions with their clients. Sellers may compare their own agents' commissions to the commissions that buyer agents are receiving. If so, higher buyer agent commission rates may make sellers more willing to pay higher seller commission rates.[129]

Historically, buyers were unlikely to realize that they were being steered. Home buyers did not have direct access to the MLS, and so would not easily be able to tell if buyer agents were not showing them low-commission listings. NAR-affiliated MLSs were also prohibited from sharing buyer agent commission information with home buyers and others who were not MLS members. Buyer agents, in contrast, could even filter MLS listings based on the commission rates they offered buyer agents.

D. Recent Developments

In 2018, the DOJ opened an investigation that culminated in a proposed settlement with NAR in November 2020 (the "Proposed Settlement").[130] Pursuant to that settlement, NAR agreed to repeal four policies that the DOJ deemed anticompetitive.[131] One of those rules prohibited NAR-affiliated MLSs from disclosing buyer agent commissions to prospective buyers. Another allowed buyer agents to filter MLS based on the level of buyer agent commissions offered.[132]

In July 2021, the DOJ backed out of the Proposed Settlement because it "determined that the settlement will not adequately protect [its] rights to investigate other conduct by NAR that could impact competition in the real estate market and may harm home sellers and home buyers."[133] To the best of our knowledge, this was the first time that the DOJ's Antitrust

[127] *Id.* at 22. This counts agents who responded that they "strongly agree" or "agree somewhat."
[128] *Id.*
[129] The opposite may also be true; sellers may be more willing to negotiate their agents' commission rates when they are paying higher total commission rates.
[130] https://www.justice.gov/opa/pr/justice-department-files-antitrust-case-and-simultaneous-settlement-requiring-national
[131] https://www.justice.gov/opa/pr/justice-department-files-antitrust-case-and-simultaneous-settlement-requiring-national
[132] https://www.justice.gov/opa/pr/justice-department-files-antitrust-case-and-simultaneous-settlement-requiring-national To the best of our knowledge, MLSs have not released systematic data on how many searches filtered results based on the commission offered to buyer agents. However, one large MLS stated that, out of 250,000 active searches saved in their system, fewer than two percent included buyer agent commission as a criterion. Andrea V. Brambila, *California Regional MLS Allows Display of Buyer Agent Commissions*, INMAN, Feb. 12, 2021, https://www.inman.com/2021/02/12/california-regional-mls-allows-display-of-buyer-agent-commissions/. On the one hand, this is a small percentage of total searches. On the other hand, it still constitutes thousands of agent searches explicitly based on commission rates. Moreover, there are many ways agents can engage in steering without using commissions as an explicit search criterion. See footnote 240, *infra*, and accompanying text. The DOJ litigation had also received significant attention in the real estate industry, and attentive users may have already stopped searching by commission. Ultimately, it is hard to draw strong conclusions from this one MLS statement.
[133] https://www.justice.gov/opa/pr/justice-department-withdraws-settlement-national-association-realtors

Division has withdrawn from a proposed settlement that a defendant had not violated.[134] The DOJ's subsequent Civil Investigative Demand for Documents and Information indicates that the DOJ is concerned about commission-based steering.[135]

In addition, there are currently two ongoing federal class action lawsuits against NAR and the four largest national real estate broker franchisors.[136] These lawsuits allege that the defendants "conspir[ed] to require home sellers to pay [buyer agents' commissions], and to pay at an inflated amount."[137] One lawsuit, Burnett v. NAR, covers home sales facilitated by four NAR-affiliated MLSs in Missouri.[138] The other lawsuit, Moehrl v. NAR, covers home sales facilitated by 20 NAR-affiliated MLSs across 14 states and Washington D.C.[139] The *Burnett* case is scheduled to go to trial on October 16th, 2023, while the *Moehrl* case is currently on track for a trial in 2024.[140] As of September 2023, claims against two defendants had settled for a combined $138.5 million.[141] Both cases remain pending and plaintiffs seek billions of dollars in damages.

## III. OUR DATA

Our primary data comes from the Redfin website, which began publishing buyer agent commissions in February 2021.[142] Redfin did so following the Proposed Settlement between the DOJ and NAR in November 2020.[143] Among other reforms, the Proposed Settlement allowed MLSs to include commission information in the data feeds they share with portals like Redfin.[144]

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[134] Ross Todd, *Litigators of the Week: DOJ Can't Reopen a Previously-Settled Antitrust Case Against the National Association of Realtors*, AM. LAWYER, Jan. 27, 2023, *available at* https://www.cooley.com/-/media/cooley/pdf/amlawwinnercooley.pdf. NAR has argued that the DOJ is obligated to abide by the terms of the proposed settlement and cannot reopen its investigation. https://storage.courtlistener.com/recap/gov.uscourts.dcd.235488/gov.uscourts.dcd.235488.1.0_1.pdf In January 2023, the District Court agreed, and ruled in favor of NAR. https://storage.courtlistener.com/recap/gov.uscourts.dcd.235488/gov.uscourts.dcd.235488.25.0_1.pdf; The DOJ has since appealed the ruling. https://www.courtlistener.com/docket/67100941/national-association-of-realtors-v-usa/

[135] DOJ Investigative Demand, *supra* note 24, at 2 ¶ 6 ("Submit all documents relating to brokers steering potential buyers toward or away from homes for sale based on the amount of cooperative compensation offered by a listing broker.").

[136] The four broker franchisors are Anywhere (formerly known as Realogy), HomeServices of America, RE/MAX, and Keller Williams.

[137] https://storage.courtlistener.com/recap/gov.uscourts.ilnd.362312/gov.uscourts.ilnd.362312.1.0.pdf

[138] https://storage.courtlistener.com/recap/gov.uscourts.mowd.145710/gov.uscourts.mowd.145710.1.0.pdf

[139] https://storage.courtlistener.com/recap/gov.uscourts.ilnd.362312/gov.uscourts.ilnd.362312.1.0.pdf

[140] https://www.inman.com/2023/05/30/judge-narrows-in-on-trial-date-for-bombshell-commission-lawsuit/

[141] See sources cited *supra* note 55.

[142] Alina Ptaszynski, *Redfin Publishes Commissions on Over 700,000 Homes for Sale*, REDFIN NEWS, Feb. 8, 2021, https://www.redfin.com/news/real-estate-commission-transparency/.

[143] Although the DOJ has attempted to withdrawn from the Proposed Settlement, NAR has since unilaterally NAR has enacted three of the four policy changes it agreed to in the Proposed Settlement. Importantly for this Article, it ended its prohibition on releasing buyer agent commission information. https://www.nar.realtor/newsroom/nar-announces-new-guidance-that-reinforces-greater-transparency-for-consumers

[144] *Id.* https://www.justice.gov/d9/press-releases/attachments/2020/11/19/ex_a_proposed_final_judgment_0.pdf Soon thereafter, in November 2021, NAR required its affiliated MLSs to disclose these buyer agent commissions. https://www.nar.realtor/newsroom/nar-announces-new-guidance-that-reinforces-greater-transparency-for-consumers

Our data was assembled by scraping all active listings on Redfin within a set of specified ZIP codes on a weekly basis between June 12, 2021, and February 3, 2022.[145] This provided data on hundreds of thousands of listings spanning 34 of the largest real estate markets in the country.[146]

For each listing, our data includes a wealth of information, including:

(1) *listing information*, such as the asking price, the listing agent, the listing brokerage, and the listing date;

(2) *property information*, such as Redfin's price estimate, the year the property was built, its latitude and longitude, the number of bedrooms, the number of bathrooms, the square footage, and the property type (for example, single family residence, townhouse, condominium, etc.);

(3) *Redfin site information*, such as the date the listing was scraped, the number of days the listing had been on Redfin ("days on site") and the number of page views it had received as of the date the listing was scraped ("page views");

(4) *the buyer agent commission* offered; and

(5) *sale information* (if applicable), including the date the property went under contract, the date the sale closed, and the sale price.

Before proceeding to our results, we first discuss how users interact with Redfin. We then provide more detail on our dataset as well as the variables we constructed from the raw data.[147] We use our data and constructed variables in our statistical analyses of page views, probability of sale, and time to sale.

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*Id.* More precisely, as members of the MLS, Redfin agents had access to the data before the settlement agreement. However, the data was not included in the data feeds that Redfin received from these MLSs. Thus, the data was not easily accessible. In addition, Redfin was bound by MLS rules that prohibited it from publicizing the data. The proposed settlement changed that. *Id.*; [Proposed] Stipulation and Order, United States v. National Association of Realtors, Case No. 1:20-cv-3356, (Dist. D.C., Nov. 19, 2020), *available at* https://www.justice.gov/d9/press-releases/attachments/2020/11/19/proposed_stipulation_and_order_0.pdf.

[145] For 22 metropolitan areas, our data starts on June 12, 2021. For 11, it starts on September 3, 2021. The reason is that this data was collected by Vertical Knowledge, which was hired by REX. REX initially requested data for all the major markets in which it operated. As of June 12, 2021, 22 such markets reported the buyer agent commission in a significant portion of listings (Atlanta; Austin; Boston; Camden; Chicago; Denver metro area; Fort Lauderdale; Houston; New Jersey Shore; Los Angeles; Orange County, CA; Orlando; Philadelphia; Phoenix; Portland, OR; Research Triangle, NC; Riverside County, CA; San Diego; San Antonio; Seattle; Washington D.C. metro area; and West Palm Beach). REX later requested the same data for major metro areas in which it did not operate. It identified the 50 largest metro areas in the country, removed those in which it operated, and checked Redfin to see if the MLS(s) that serve each of these markets had started publishing buyer agent commissions as of August 2021. Twelve metro areas satisfied these criteria (Buffalo; Cleveland; Columbus, OH; Dallas; Hartford; Indianapolis; Kansas City; Nashville; Pittsburgh; Providence; St. Louis; and Virginia Beach). REX started receiving data on these additional metro areas on September 3rd, 2021. REX stopped receiving data about both groups on February 3rd, 2022. We built our own scraper in 2023 to gather additional data about each listing, such as the type of property. We were able to do this additional scraping for 97.3% of the listings that we used in our analysis.

[146] See note 145, *supra*.

[147] Additional detail is available in our online Appendix. *See* Appendix, *supra* note 45.

## A. Redfin

Redfin compiles information about homes for sale nationwide and makes this data available at no cost via web browser and smartphone app. It is one of the most popular real estate websites in the country, attracting tens of millions of page views each month.[148]

Users can look up homes on Redfin in several different ways. If a user is interested in a particular home, they can simply type the home's address into a search engine; the Redfin page for that home will often come up as one of the top search results.[149] Alternatively, the user can navigate to Redfin's landing page or app and input the home's address into the search bar.

If the user does not have a particular home in mind, they can enter a geographical area, such as a ZIP code, municipality, or county, into Redfin's search bar.[150] Users can then filter their results via a number of criteria. The most prominent filters on the website are "Price", "Home type" ("House", "Townhouse", "Condo", etc.), and "Beds / Baths". Users can then scroll through the listings that match their search criteria using either the "Photos" layout or the "Table" layout. The "Photos" layout shows each home's primary photo, asking price, number of beds and baths, square footage, and address. The "Table" view shows fewer pictures but otherwise provides additional information, including the price per square foot. Figures 4 and 5 show the "Photos" and "Table" layout, respectively.

[148] *See, e.g.*, *Redfin.com July 2023 Traffic Stats*, *supra* note 79 (reporting that Redfin's website had 63.3 million views in July 2023, with 96.4% coming from the United States).

[149] For example, if one types "11108 Bexley Ln Austin" into Google, the Redfin page for that home is the second item in the search results, behind the home's Zillow page and ahead of its Realtor.com and compass.com pages. *11108 Bexley Ln Austin*, GOOGLE, https://www.google.com/search?q=11108+bexley+ln+austin&sca_esv=562114412&rlz=1C1CHBF_enUS916US916&ei=dMHyZMW0Iq_ckPIPmcyB-Ak&ved=0ahUKEwjFvpPDkouBAxUvLkQIHRlmAJ8Q4dUDCBA&uact=5&oq=11108+bexley+ln+austin&gs_lp=Egxnd3Mtd2l6LXNlcnAiFjExMTA4IGJleGxleSBsbiBhdXN0aW4yBhAAGBYYHkiBWFDpBFjyVXAIeACQAQCYAWWgAaQNqgEEMTcuM7gBA8gBAPgBAcICCxAAGIkFGKIEGLADwgIIEAAYogQYsAPCAhQQLhiKBRixAxiDARjHARjRAxiRAsICCBAAGIoFGJECwgILEAAYgAQYsQMYgwHCAgsQLhiDARixAxiABMICCBAuGIAEGLEDwgIFEC4YgATCAgUQABiABMICIxAuGIoFGLEDGIMBGMcBGNEDGJECGJcFGNwEGN4EGOAE2AEBwgIOEC4YigUYxwEYrwEYkQLCAgcQABiKBRhDwgIIEAAYgAQYsQPCAg4QABiKBRixAxiDARiRAsICCxAuGIAEGMcBGK8BwgICECbCAggQABiKBRiGA-IDBBgBIEGIBgGQBgO6BgYIARABGBQ&sclient=gws-wiz-serp (last visited Sept. 1, 2023).

[150] Redfin.com (last visited Sept. 1, 2023).

FIGURE 4: SCREENSHOT OF "PHOTOS" LAYOUT ON REDFIN

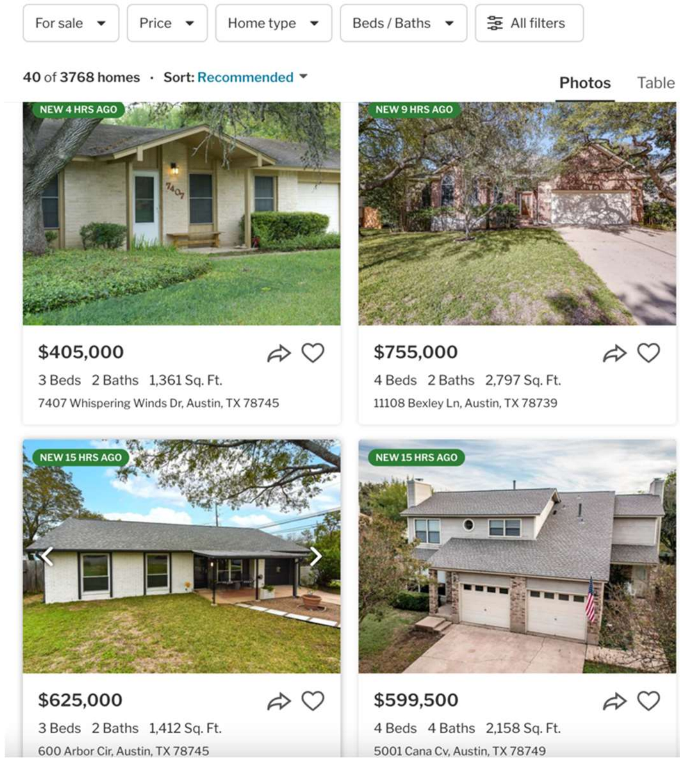
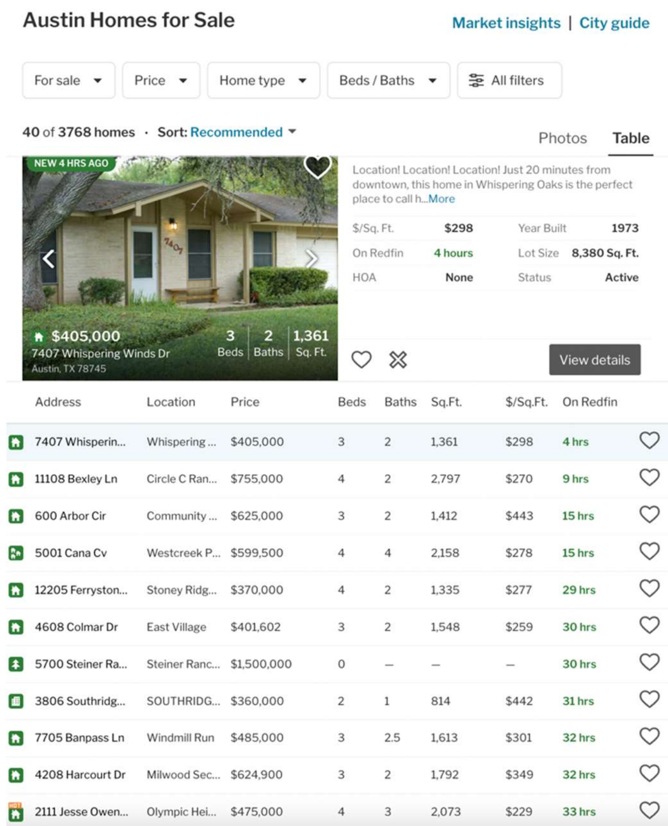


FIGURE 5: SCREENSHOT OF "TABLE" LAYOUT ON REDFIN




Redfin orders the listings on its website using two criteria. Generally, Redfin prioritizes listings based on how long they have been on the site, with the newest listings appearing at the top of the page and the oldest listings at the bottom. Figure 5 illustrates this.[151] However, if a listing is represented by a Redfin agent, Redfin will usually promote the listing to the top of the list for the first week the listing is on the market.[152] Redfin's share of the listing market is small; less than 2% of the listings in our data are Redfin listings.[153]

## B. Commission Rates

Our concern in this Article is steering by real estate agents—nudging clients away from low-commission listings and toward listings offering going-rate commissions. However,

[151] *See* Figure 5. Users can re-sort properties by any listed category, such as square feet or price.
[152] Redfin's default practice appears to be to promote all of its listings in the search area that have been on the market for one week or less to the top of the results list. After that, it lists all remaining listings in the search area based on how long they have been on the market. *See, e.g.*, *Houston, TX Homes for Sale*, REDFIN.COM, redfin.com/city/8903/TX/Houston (last visited Oct. 3, 2023).
[153] More precisely, the figure is 1.63%. *See* Github Repository, *supra* note 45.

because the going-rate commission varies across U.S. real estate markets, what constitutes a low-commission listing also varies across markets.

For example, in Los Angeles, most sellers offer the buyer agent a 2.5% commission. Thus, a seller offering 2.5% would have little to worry about when it comes to steering. In contrast, most sellers in Austin offer buyer agents a 3% commission. This means that a seller offering only 2.5% might encounter steering.

To address this, rather than treating buyer agent commissions as raw percentages, we group commission rates in each market into categories. We use between two and four commission categories per market, depending on the distribution of commissions offered in that market. Our goal in constructing these categories is to arrange commissions based on how far below the going rate they fall (if at all). The intuition is that, as one progresses through the four categories, commissions drop further and further below the going rate.

The highest commission category ("$c_1$") consists of commissions that are at the going rate or higher. To ensure consistency, we determined the going rate in each market via a mathematical rule.[154] In many cases this was overkill, as a simple visual inspection of the relative frequencies of different commission rates in a market made it clear what the going rate was. For example, Figure 6 below shows the distribution of buyer agent commission rates in Austin; the going rate is clearly 3%. We confirmed that, in such instances, our mathematical rule-based going rate matched the going rate from our visual inspection. Every market has commissions that fall into category $c_1$.

The lowest category ("$c_4$") consists of commissions that are below 2%. Most of these commissions still offer buyer agents a substantial amount of compensation. Within category $c_4$, the median commission rate was 1.5%, and 92% of sellers offered at least a 1% commission.[155] That said, $c_4$ commissions are quite low, relatively speaking; 99% of listings offer higher commission rates, both nationwide and within almost every market in our sample.[156] Every market has commissions that fall into category $c_4$.

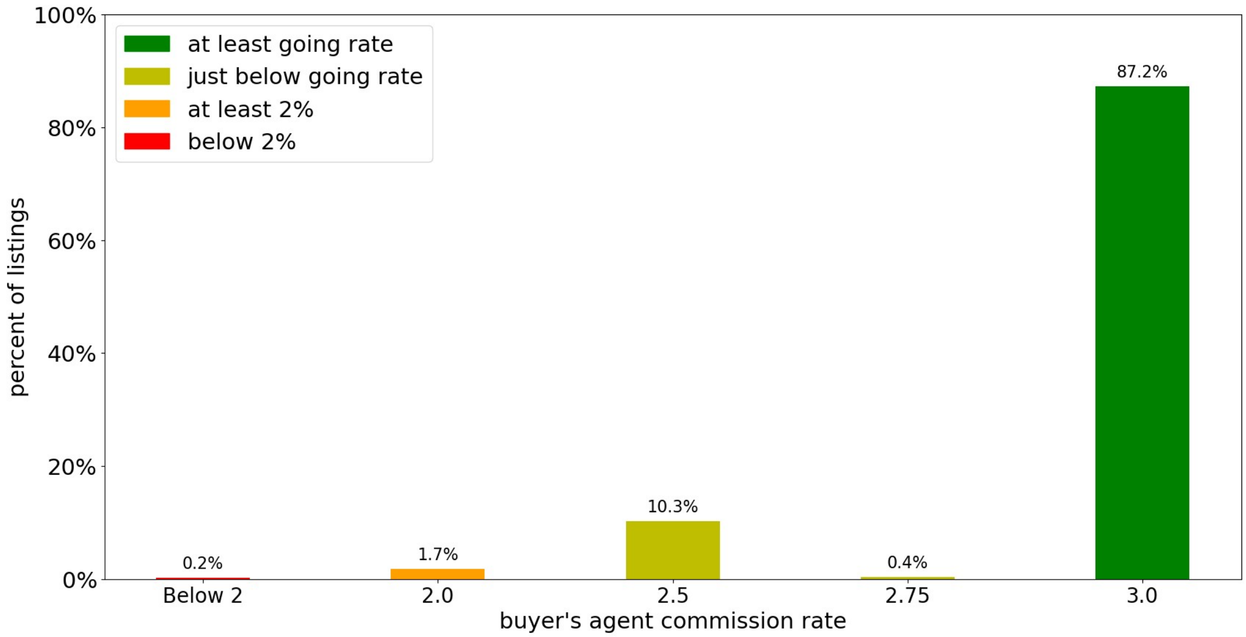
The middle two categories fall in between these poles. The intuition is that category two ($c_2$) consists of commissions that are slightly below the going-rate commission, while category three ($c_3$) consists of commissions that are further below the going-rate commission, but that are still above the lowest commissions ($c_4$). More formally, $c_3$ includes commissions that are (1)

[154] We defined the going rate as the lowest rate for which 1.5 times that rate's frequency is greater than or equal to the frequency of the most common rate in that market. For example, looking at Austin, the most common rate is 3%, with 87.2% frequency. The next most common rate is 2.5%, with 10.3% frequency. 1.5 * 10.3% = 15.45%. This is less than 87.2% (the frequency of the most common rate). Thus, 3% is the going rate.
To take a second example, consider Fort Lauderdale. The most common commission rate is 3%, offered by 50% of listings. However, the next most common commission rate is 2.5%, offered by 38.9% of listings. 1.5 * 38.9% = 58.35%. This is greater than 50% (the frequency of the most common rate). Thus, all commissions of 2.5% or higher are considered going rate. Github Repository, *supra* note 45.
[155] *Id.*
[156] *Id.*

smaller than the going-rate commission; (2) at least 2%; and (3) less than 2.5%.[157] Similarly, $c_2$ captures commissions that are larger than those in $c_3$ but smaller than those in $c_1$.[158]

Examples help illustrate these definitions. Figure 6 shows commission frequencies and categories for Austin. The going rate is 3%; commissions at or above this level comprise category $c_1$. Commissions that are less than 3%, but at least 2.5%, are in category $c_2$. Commissions that are less than 2.5%, but at least 2%, are in category $c_3$. Finally, the 0.2% of commissions that are less than 2% comprise category $c_4$.

FIGURE 6: DISTRIBUTION OF BUYER AGENT COMMISSION RATES IN AUSTIN




The color of each bar indicates the commission category.

Not all markets have commissions in category $c_2$ and $c_3$. For example, Figure 7 shows commission frequencies and categories for Boston, where the going-rate commission is 2%.

[157] There were two markets in which we defined $c_3$ slightly differently. In both Portland, OR and the Research Triangle, NC, there were two commission rates between $c_1$ and $c_4$. The rate immediately below the going-rate commission had a significant percentage of listings (more than 10% of the total); the rate below that had substantially fewer, but still a significant percentage of listings (more than 3% of the total); and $c_4$ listings were less than one percent of listings. This created a downward step pattern. For these markets, we defined these two intermediate rates as $c_2$ and $c_3$, respectively. So, in Portland, OR, $c_1$ consists of commissions of 2.5% and higher (75.5% of listings), $c_2$ starts at 2.25% (18.8% of listings), $c_3$ starts at 2.0% (3.5% of listings), and $c_4$ is below 2% (0.9% of listings). In the Research Triangle, $c_1$ consists of commissions of 2.4% and higher (80.8% of listings), $c_2$ starts at 2.2% (13.2% of listings), $c_3$ starts at 2.0% (3.7% of listings), and $c_4$ is below 2% (0.5% of listings).

[158] More formally, $c_2$ generally includes commissions that are (1) at least 2.5% and (2) smaller than the going rate. Note that there are no going-rate commissions that are higher than 3%, so, like $c_3$, $c_2$ spans a range of at most 0.5%. *See also* footnote 157, *supra*. The full distribution of commission rates for each market is available online. *See* Github Repository, *supra* note 45, at "buyside_commission_plots.ipynb".

Thus, any commissions of 2% or higher are in category $c_1$, while any commissions below 2% are in category $c_4$. There are no $c_2$ or $c_3$ commissions in Boston.

Similarly, Figure 8 shows commission rate frequencies in Los Angeles, where the going-rate commission is 2.5%. In Los Angeles, commissions of 2.5% and up are in category $c_1$, while commissions below 2% are in category $c_4$. Commissions in between are in category $c_3$, as they are at least 2% but are smaller than the going-rate commission of 2.5%. There are no $c_2$ commissions in Los Angeles.

FIGURE 7: DISTRIBUTION OF BUYER AGENT COMMISSION RATES IN BOSTON

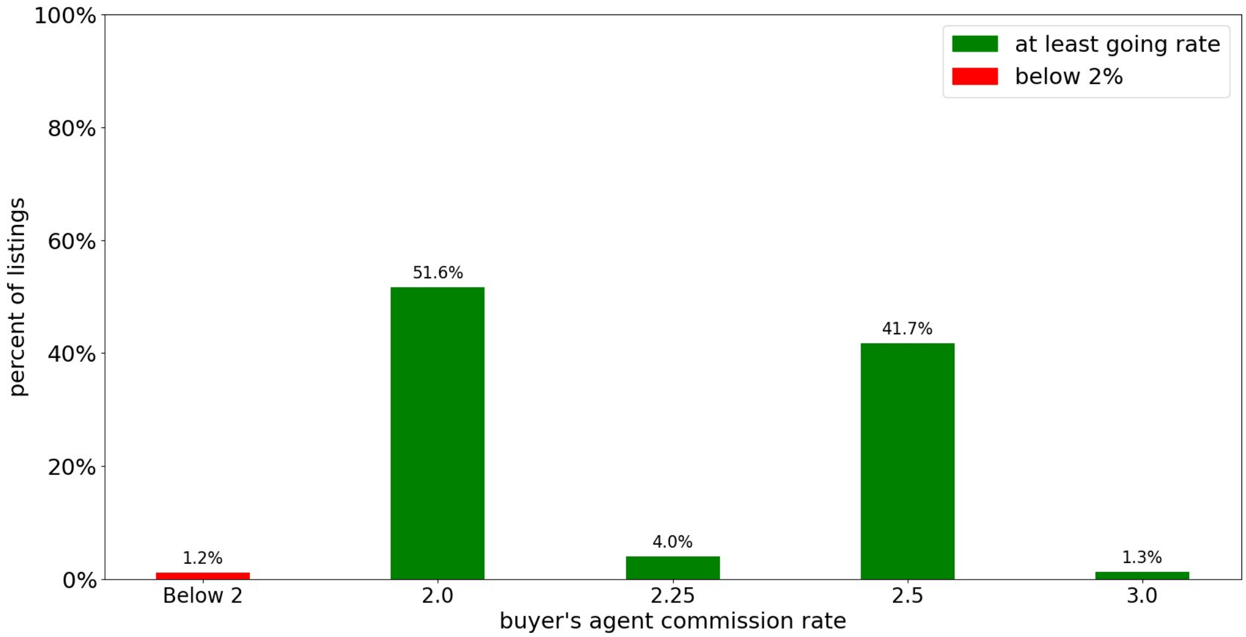
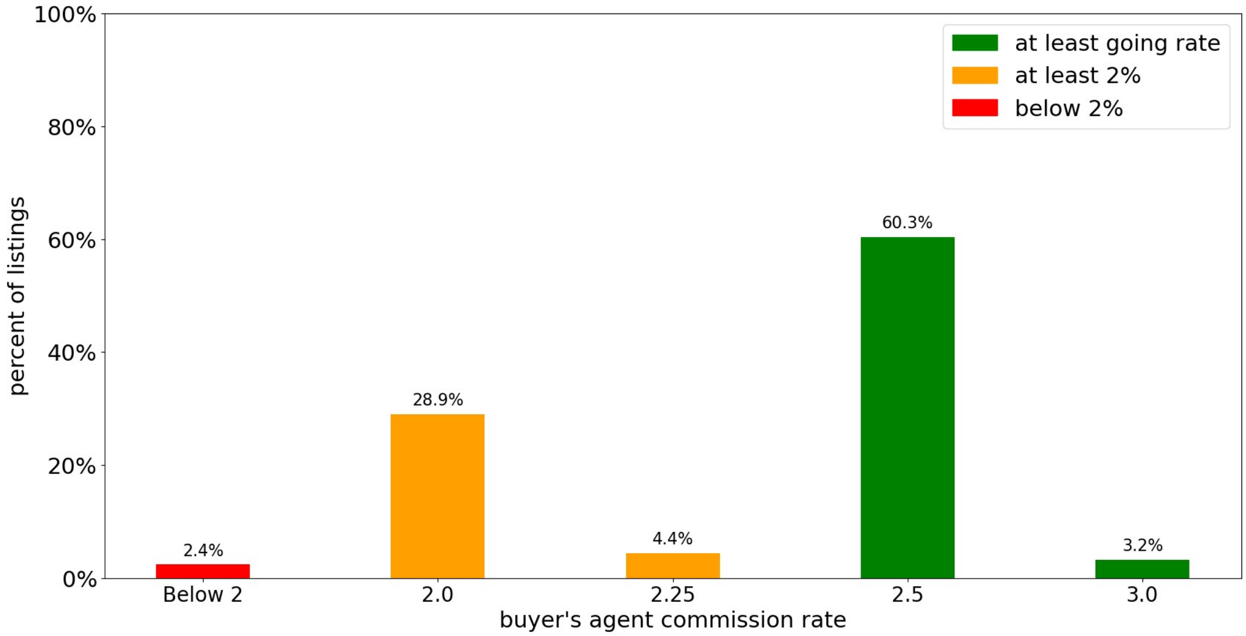


FIGURE 8: DISTRIBUTION OF BUYER AGENT COMMISSION RATES IN LOS ANGELES




Most of the markets in our dataset look like Austin or Los Angeles; 14 markets have commissions in category $c_2$ and 29 markets have category $c_3$ commissions.[159] Just five markets look like Boston, with only category $c_1$ and $c_4$ commissions.[160]

Grouping the categories this way has the advantage of being intuitive and interpretable across markets. It is also conservative: Different neighborhoods within a given metropolitan area may have different going-rate commissions.[161] For example, most neighborhoods in Los Angeles might have a going-rate commission of 2.5%, but some neighborhoods might have a going-rate commission of 2%.[162] If so, listings that offer 2% commissions in neighborhoods where 2% is the going rate are in fact going-rate commissions. We would not expect buyer agents to steer clients away from such listings in the same way that they might steer clients away from listings offering 2% commissions in neighborhoods where 2.5% is the going rate. However, our groupings treat both commissions the same. Essentially, the way we categorize commission rates may treat some going-rate commissions as if they were below-going-rate

[159] The $c_2$ markets are Atlanta; Austin; Buffalo; Columbus; Dallas; Denver; Houston; Indianapolis; Kansas City; Nashville; Portland, OR; Research Triangle, NC; San Antonio; and Virginia Beach. The $c_3$ markets are Atlanta; Austin; Buffalo; Camden; Chicago; Cleveland; Columbus; Dallas; Denver; Fort Lauderdale; Hartford, Houston; Indianapolis; Kansas City; Los Angeles; Nashville; Orlando; Philadelphia; Phoenix; Pittsburgh; Portland, OR; Research Triangle, NC; St. Louis; San Antonio; San Diego; Seattle; Virginia Beach; Washington DC metropolitan area; and West Palm Beach.
[160] These five markets are Boston; New Jersey Shore; Orange County, CA; Providence; and Riverside County, CA.
[161] Barwick et al.'s results suggest that this is the case in Boston, for example. *See* Barwick et al., *supra* note 31.
[162] See Figure 8, *supra*.

commissions. By mixing the two, we underestimate how much buyer agents steer clients away from low-commission listings.

Similarly, while $c_4$ commissions are a small percentage of total commissions in every market in our dataset, they are much more common in markets with going-rate commissions of 2%.[163] Moreover, in these markets, sub-2% commissions may not be much lower than the going rate of 2%.[164] Therefore, we might expect that $c_4$ listings in these markets would experience less steering than they would in other markets. But because $c_4$ commissions are more common in these markets, they will disproportionately lower our estimates of steering with respect to $c_4$ commissions in markets across the country.

Importantly, however, while our groupings may reduce the observed effects of steering, they should not eliminate the effects altogether. If steering is present, we generally should still see its effects in our analysis, though the magnitude of the effect may appear smaller than it actually is. At the same time, our commission groupings should not cause steering to appear present when it is not.

### C. Page Views

Our page view totals come from Redfin itself. In addition to displaying photos of and information about each listing, Redfin also displayed the number of times that each listing had been viewed on Redfin.[165]

Once a listing is posted on Redfin, its page views increase over time as more people visit the site. To make sure we are comparing apples to apples, we need to compare the page views that each listing received after being on the site for the same number of days.[166] This way, each

[163] In all five of these markets, more than 1% of total listings offer less than a 2% commission. In two of these markets (Orange County and Riverside), more than 3% of total listings offer less than a 2% commission.
[164] *See* footnote 8, *supra*.
[165] We note that Redfin ceased reporting page views in July 2022 due to "technical issues." They stated that this change was temporary and that they would restore the feature when these technical problems are resolved. *Property Activity*, REDFIN HELP CENTER, https://support.redfin.com/hc/en-us/articles/360017797051-Property-Activity (last visited Sept 1, 2023). A comment on Reddit claims that this was due to Redfin's concerns about their numbers. *See* MotherofGodIThought, *Did Redfin Just Remove "Activity" Tab?*, r/RealEstate, REDDIT.COM, (comment by poster CunningCuban), *available at* https://www.google.com/url?q=https://www.reddit.com/r/RealEstate/comments/vt5w2n/did_redfin_just_remove_activity_tab/&sa=D&source=docs&ust=1694478780542646&usg=AOvVaw0xYgds_Wi1h-aJ2HW6b3Hk. We do not know if this comment is accurate. Random errors in Redfin's page view numbers would be expected to increase the residual error terms in our regression—in other words, they would likely reduce the ability of our regression models to predict page views, given our inputs. However, unless these errors were tied to buyer agent commissions in some way, they would not distort our point estimates of the effect of buyer agent commissions on page views. *See, e.g.*, MICHAEL H. KUTNER, CHRISTOPHER J. NACHTSHEIM, JOHN NETER & WILLIAM LI, APPLIED LINEAR STATISTICAL MODELS 165 (5th ed. 2005). For example, if Redfin's reported page view numbers were 20% too high (or too low) for every listing, that would not affect our results; our regression models consider how many page views listings receive relative to other listings, not the absolute number of page views. Alternatively, if Redfin over- or under-counted some listings' page views (such as by double-counting some views or not counting others), that would only affect our estimates of steering if the amount of over- or under-counting was linked to buyer agent commission rates. We see no reason why that would be the case.
[166] In counting the number of days, the first day is the day the listing is posted.

listing has the same amount of time to accumulate page views. Thus, we must choose a number of days on site at which to measure all listings' page views. Additionally, listings tend to receive significantly fewer page views once they go under contract. Therefore, we also need to limit the analysis to listings that remained on the market for the entire period of interest.[167]

We measure page views for each listing once it has been on Redfin for eight days.[168] We use this time frame for three reasons. First, our weekly scraper collected the most data for listings with this time on site.[169] Having more data gives our statistical analysis more power. Second, some days of the week are more active for real estate than others; examining page views after eight days ensures that each listing has been up for one full week, including both weekdays and a weekend. We can therefore expect page view data after eight days on site to be less noisy and more stable than page views after only two or three days. Finally, most listings are still on the market as of eight days.[170]

To put all markets on the same scale, we scaled the data so that the average number of page views for a listing that offered a going-rate commission was 100. Tables 1 and 2 illustrate this process with respect to the Austin data.[171]

TABLE 1: AVERAGE PAGE VIEWS FOR EACH COMMISSION CATEGORY IN AUSTIN

| **Commission Category** | **Average Page Views as of 8 Days** | **Number of Listings** |
|---|---|---|
| At least going rate ($c_1$) | 724 | 8,757 |
| Just below going rate ($c_2$) | 667 | 1,191 |
| At least 2% ($c_3$) | 670 | 186 |
| Below 2% ($c_4$) | 532 | 23 |

[167] Consider the listings in the dataset that were scraped both as of two days on site and as of nine days on site. Those that remained on the market as of nine days on site averaged 313 page views between day two and day nine. Those that went under contract within two days on site averaged 57 page views between day two and day nine.
[168] More precisely, we used 8 or 9 days. To ensure that all listings were analyzed on the same scale, the page views of listings that were on Redfin's site for 9 days were adjusted downwards to account for their longer time on site. For example, suppose that the average listing in a given market received 80 page views as of 8 days and 90 views as of 9 days. We would then scale down the number of page views for listings that were measured as of 9 days by a factor of 80/90, to keep both groups of listings on an equal footing.
[169] *See* Appendix, *supra* note 45.
[170] After 8 days on the market, 71% of listings in our dataset have not yet gone into contract. Github Repository, *supra* note 45. This reduces the potential impact of survivorship bias on our results.
[171] We present additional examples in the Appendix, including Los Angeles and Boston. *See* Appendix, *supra* note 45.

TABLE 2: AVERAGE SCALED PAGE VIEWS FOR EACH COMMISSION CATEGORY IN AUSTIN[172]

| **Commission Category** | **Average Page Views as of 8 Days** | **Number of Listings** |
|---|---|---|
| At least going rate ($c_1$) | 100 | 8,757 |
| Just below going rate ($c_2$) | 92.2 | 1,191 |
| At least 2% ($c_3$) | 92.5 | 186 |
| Below 2% ($c_4$) | 73.4 | 23 |

Tables 1 and 2 show that Austin listings that offer commissions that are below the going rate receive significantly fewer page views. This is true even for listings that offer commissions that are only slightly below the going rate ($c_2$). The number of page views drops off more dramatically for the listings that offer the lowest commissions ($c_4$).

We observe these trends in most markets in our dataset.[173] Of course, to be confident that the relationship is causal, one must control for confounding variables.[174]

D. Geographic Area

Recall that geographic location is the first criterion that Redfin users employ to limit their search results. Beyond controlling for each market, we also control for the desirability of each listing's geographic neighborhood within that market. This gives us added confidence that any effects we observe of buyer agent commission rates on page views are actually driven by commission rates, and not by the home's location within the market.[175]

We control for each listing's geographic desirability by calculating the average number of Redfin page views of the listings that are geographically nearest to each listing. Because we want to capture the desirability of each listing's immediate vicinity as well as the appeal of the broader neighborhood, we include controls that capture page views for listings within different degrees of nearness.[176]

[172] The numbers in Tables 1 and 2 differ slightly due to rounding.
[173] *See* Appendix, *supra* note 45, Table A.1.
[174] See Part III, *infra*. It is hard to be absolutely certain that one has accounted for all possible variables that are linked to both the explanatory and the response variables. However, we use our data to investigate several alternate explanations for our results, and the data does not seem to support them. .
[175] For example, suppose that homes in a particular neighborhood within the market offer lower buyer agent commissions and are less desirable homes for unrelated reasons. Listings in that neighborhood might garner fewer page views because they are less desirable places to live, and not because of steering by buyer agents. If we did not control for location, our analysis might misattribute the lower page views to the lower buyer agent commissions. Controlling for location addresses this concern and gives us added confidence that any effects we see from low buyer agent commissions are actually caused by those low commissions.
[176] Instead of arbitrarily choosing different values for the number of nearest listings to use, we applied forward stepwise linear regression to answer this question. This procedure indicated that we should consider the nearest 5, 10, 30, 100, and 200 listings. The details for interested readers are in the Appendix. *See* Appendix, *supra* note 45.

E. Other Search Criteria

Beyond location, the chief criteria by which users narrow down their search results are "Price", "Home type", and number of "Beds / Baths". We control for all of these home features. This is important, because some of these features could plausibly be linked to both page views and buyer agent commission rates.[177] If we did not control for them, our regression could misattribute effects to buyer agent commission rates that are actually caused by other factors.[178] Controlling for these other factors addresses these concerns and gives us added confidence that the effects we observe in connection with low buyer agent commission rates are actually caused by those low commission rates.

In addition, sellers who offer lower buyer agent commissions may price their homes differently from other sellers. For example, they may be more likely to price their homes above market value.[179] All else being equal, Redfin users might be less likely to click on overpriced homes.[180] To address this concern, we control for the percent difference between each home's asking price and Redfin's estimate of that home's fair market value.[181] This metric captures the extent to which a listing is overpriced or underpriced. On average, Redfin's estimates were quite accurate; they were only off by 0.2% of the purchase price on average.[182] Moreover, most homes sold within 3% of Redfin's estimate.[183]

Some of the listings in our dataset do not have Redfin price estimates.[184] In these cases, we imputed a value based on the asking price.[185] We also created a dummy variable that

[177] For example, higher-priced homes might be more likely to offer lower buyer agent commission percentages because the buyer agent would still be well compensated. For example, a million-dollar home with a 2% buyer agent commission would still generate a $20,000 payment to the buyer agent. In addition, higher-priced homes may generate less traffic on Redfin because fewer buyers can afford them. If these scenarios were true, and we did not control for home price, then low buyer agent commissions would be linked to lower page views, even though the high home price was the cause of both phenomena. Controlling for the asking price addresses this concern.
The same logic would apply if single-family homes receive more page views than other property types and also offer higher buyer agent commissions. Controlling for property type likewise addresses this concern.

[178] Similarly, we also control for other home features, including square footage, year built, and the presence of an HOA fee.

[179] The opposite might also be true.

[180] Overpricing could also place homes outside of some buyers' price filters.

[181] To ensure that the Redfin price estimate is an unbiased estimate of the true fair market value of a home, we compared the Redfin price estimates to the sale prices of the listings in the dataset that went under contract within 30 days of listing. We used homes that sold within 30 days of listing for this analysis to reduce concerns that housing prices had changed significantly between the time each home was listed and the time it went under contract. Figure A.1 in the appendix shows the distribution of the percent difference between the Redfin price estimate and the eventual sale price. The distribution is close to normally distributed around zero, which confirms that the Redfin price estimate is nearly unbiased and can thus be relied on to gauge the extent to which a listing is overpriced or underpriced. *See* Appendix, *supra* note 45, Figure A.1.

[182] This is the case for both the mean and the median. *See id.* The results are similar when broken out by commission category, though the average percent error varies slightly across categories. *See id.* Figure A.2.

[183] Of homes that sold within 30 days, 50% sold within 2.86% of the Redfin estimate; 92% sold within 10% of the Redfin estimate. Github Repository, *supra* note 45.

[184] Out of the approximately 265,000 listings in the dataset, 28% lacked a Redfin price estimate.

[185] The distributions of Redfin price estimates and asking prices in our dataset are quite close; the median percent difference between a home's Redfin price estimate and its asking price is 0.0%. We therefore imputed a percent

indicated whether the Redfin price estimate was missing. This dummy variable captures the effect of a missing Redfin price estimate on the number of page views a listing receives.

F. Listing Agents

Variation in listing agents raises several possible issues. In particular, one might be concerned that sellers offering lower buyer agent commissions would tend to have less-effective listing agents.[186] If so, poorer performance by listing agents could explain lower page views and other adverse outcomes, rather than steering by buyer agents.[187] We take multiple measures to address this potential problem.

In our data, we observe listing agents' names and brokerage firms. This enables us to take several actions to address listing agent quality. First, we use dummy variables to identify listing agents who work for each of the large national real estate brokerage firms.[188] This accounts for any difference in outcomes due to the average quality of agents at each of these firms. We also account for listings in which Redfin is the listing agent, as these tend to get better placement in search results and hence more page views.[189]

Second, we use our data to calculate the market share of each listing agent's brokerage. For example, if there are 10,000 Austin listings in the dataset, and a given brokerage listed 100 of them, then that brokerage's market share in Austin would be 1%.[190] To the extent that better brokerages get more listings, this gives us another way to account for the quality of each brokerage's listing agents.

Third, and most importantly, we rerun each of our regression models on the subset of properties whose listing agents have at least one listing in our dataset that offered a low buyer agent commission. If listing agents who list low-buyer-commission homes are of lower quality than other listing agents, then restricting our dataset to these listing agents would address this issue.[191] These robustness tests produce estimates that are not statistically significantly different from our original estimates.[192]

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difference of zero, which meant we assumed that the Redfin price estimate was equal to the asking price. *See* Appendix, *supra* note 45, Figure A.3.

[186] *Cf.* Part IV.B.4.b, *infra* (providing evidence that listing agents are trained to persuade their clients to offer going-rate buyer agent commissions). Moreover, total commissions are often split between the listing agent and the buyer agent in a fixed ratio, such as 50% apiece. *See, e.g.*, FTC Report, *supra* note 14; Barwick et al., *supra* note 31. A lower buyer agent commission may thus indicate a lower listing commission. A listing agent willing to accept a lower commission may be a less-talented agent. If so, poor performance by the listing agent could drive reduced page views, longer time to sell, and reduced probability of sale, rather than steering by buyer agents.

[187] It is also possible that reduced effort by listing agents, rather than lower quality of listing agents, explains some of our results. This would essentially mean that listing agents are acting in a self-interested manner along with or instead of buyer agents, which would be similarly problematic from a policy perspective.

[188] These are Berkshire Hathaway, Century 21, Coldwell Banker, Compass, eXp Realty, Keller Williams, RE/MAX, and Redfin.

[189] See *infra* Part IV.B.5.

[190] 100 / 10,000 = 1%. We control for brokerages rather than for specific listing agents because our data is confined to an eight-month window. Most agents had few listings over that time frame.

[191] We discuss this regression in Part IV.B.5, *infra*.

[192] See Part IV.B.5, *infra*.

There are two other potential issues related to listing agents. First, our data shows that iBuyers tend to offer lower buyer agent commissions.[193] Recall that iBuyers make immediate cash offers, enabling sellers to avoid the conventional home-selling process.[194] Presumably, such offers would be particularly attractive to sellers who think it would be difficult to sell their homes on the open market. Thus, the properties that iBuyers purchase (and subsequently sell) may be less appealing to homebuyers than other listed properties. In addition, existing real estate agents may feel threatened by iBuyers.[195] If so, they might respond by steering clients away from iBuyer properties. This steering—while still quite problematic—would not be due to iBuyers offering low buyer agent commissions.

Because our dataset includes the identity of the listing agent and their brokerage, we are able to control for whether the property is listed by an iBuyer.[196] This addresses concerns that iBuyer listings—which constitute less than 2% of listings in our dataset—may be driving our page view results rather than commission rates.[197]

Similarly, homebuilders tend to offer lower buyer agent commissions than other sellers do. New construction homes may also tend to receive less interest from homebuyers than existing homes. To address this issue, we exclude properties listed by homebuilders from our analysis. We also exclude any properties built in 2020 or later, as these are likely to be new construction homes as well.

## G. Time

Real estate market conditions change over time. For example, buyer agent commission rates or buyer demand may have changed over the course of our dataset. Buyer demand could also have affected the amount of traffic on Redfin. To make sure that any time trends do not distort our analysis, we control for the month that each listing was scraped.[198]

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[193] Github Repository, *supra* note 45; see also DelPrete.

[194] *See* Part II.A, *supra*.

[195] *See, e.g.*, *How to Stay Relevant in a Tech-Infused* World, REALTOR MAGAZINE, Aug. 22, 2019, https://www.nar.realtor/magazine/real-estate-news/technology/how-to-stay-relevant-in-a-tech-infused-world (quoting Brad Inman, founder of real estate publication Inman News, as predicting that iBuyers might soon command 50% of the national real estate market); R.A. Schuetz, *Houston Real Estate Agents Caught on Tape Steering Buyers Away from Homes with Less Commission*, HOUSTON CHRON., Jan. 11, 2021, https://www.houstonchronicle.com/business/article/houston-real-estate-agents-less-commission-records-15857087.php; https://www.dropbox.com/scl/fi/uyudjyn5gqrxjot23852j/houston_chronicle_call_1.mp3?rlkey=ulgbdna3ln9rx1rd0cohhes3z&dl=0 (recorded call between discount broker REX and an agent in which the agent states ""It's your prerogative to do whatever you want to do. But I can't aid in the demise of my profession. So I'm not going to show [your] properties").

[196] The three iBuyers in our dataset are Opendoor, Offerpad, and Zillow.

[197] More precisely, homes sold by iBuyers comprised 1.92% of listings in our dataset. Github Repository, *supra* note 45.

[198] More specifically, the month it was scraped by Vertical Knowledge. *See* footnote 145, *supra*.

## H. Dummy Variables and Data Cleaning

Several of our control variables are continuous, but it is not clear what relationship they should have with our variables of interest (that is, page views, time to sale, and probability of sale). For example, page views might have a complex relationship with sale price, depending on the population of homebuyers in a given market.[199] Rather than assuming how these variables are related, we let the data speak for itself. We split the following variables into ten dummy variables, each corresponding to a different decile: year built, asking price, market share of the listing brokerage, and percent difference between the asking price and the Redfin price estimate. Similarly, we split square footage into five dummy variables and the number of bedrooms and bathrooms into three dummy variables each.[200]

To ensure that our analysis is as clean as possible, we excluded certain listings. As discussed above, we excluded homes that were listed by homebuilders or built in 2020 or later. We also removed listings that were missing the buyer agent commission offered or the days on site.[201] To prevent unrepresentative outliers from skewing our results, we removed the most expensive five percent of listings and the least expensive five percent of listings in each market.[202] Finally, we limited the analysis to single-family homes, condos, townhouses, and multi-family homes.[203] This removed the ≈1% of listings that were plots of undeveloped land, manufactured or mobile homes, or other relatively uncommon property types.

After this cleaning process, approximately 265,000 listings remained in our dataset.[204]

# IV. Our Findings

We now turn to our statistical analysis. We begin by describing our statistical approach. We then present our results for the effects of lower commissions on page views. Finally, we analyze how long it takes for a low-commission home to sell—and the probability of such a home selling at all.

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[199] For example, there might be many buyers looking for small condominiums that are relatively cheap, and many buyers looking for larger houses that are relatively expensive, but few buyers looking for homes priced in the middle (e.g., large condominiums or small houses).

[200] As with the decile dummy variables, these dummy variables correspond to x% intervals in each market. For example, one dummy variable corresponds to the smallest 20% of homes in a geographic market, another corresponds to the next largest 20%, and so on. Github Repository, *supra* note 45.

[201] We also drop additional listings for certain analyses that lack data required for such analyses. For example, we drop listings that do not include page view information from our page view analysis. We provide additional detail on this when discussing those analyses. [See footnotes X, Y, and Z, *infra*.] For some reason, Redfin does not report the days on site for listings in the Nashville metropolitan area. As a result, we could not use data from Nashville in our page view, time to sale, or probability of sale analyses.

[202] This general process of reducing the effect of outliers is common and is known as trimming. *See, e.g.*, H.J. Keselman, Rand R. Wilcox, Abdul R. Othman & Katherine Fradette, *Trimming, Transforming Statistics, and Bootstrapping: Circumventing the Biasing Effects of Heteroscedasticity and Nonnormality*, 38 J. MODERN APPLIED STAT. METHODS 288 (2002).

[203] 98.6% of the listings in the dataset with stated property types fall into these four common categories. We therefore also include the 3.2% of listings where the property type is missing, on the assumption that almost all of these listings fall into one of the four common categories. Rather than impute a property type for each of these listings, we define a fifth property type called "null." Github Repository, *supra* note 45.

[204] More precisely, 264,139. *Id.*

## A. Our Statistical Approach

We use Bayesian hierarchical modeling to conduct our regression analyses. Before turning to our results, we provide some brief intuitive background on what this approach entails.[205]

Conceptually, regression analysis estimates the relationships among variables based on observations of those variables. For example, suppose that one had data on key features of homes in a particular real estate market—square footage, number of bedrooms, number of bathrooms, and so forth—as well as the sale prices of those homes. One could then use regression analysis to estimate the relationships between those features and home sale prices. Essentially, fitting a regression estimates the relationships between each of those variables and home sale prices, based on the homes in the dataset. For instance, the available data might indicate that, all else being equal, each additional square foot adds $200 to a home's value; an extra bedroom adds $10,000; and an extra bathroom adds $20,000.

While this approach is appropriate when a dataset is limited to home sales in a single market, it is not suitable when a dataset consists of home sales in multiple markets across the country. The issue is that this approach generally assumes that each variable affects the sale price of each home in the same way. This may not be true across all markets; the value of an additional bedroom may be different in Manhattan than in Jacksonville. Treating the effects as the same will misrepresent the relationship between each variable and sale price.

One way to address this issue is to analyze each market completely separately. However, this approach has its own drawbacks, as it ignores potential similarities across markets; markets across the country are unlikely to behave completely independently of one another. Ideally, the regression analysis should treat different markets within the country as distinct from each other, and yet still related.

We do so by conceptualizing the U.S. residential real estate market as having three levels. The highest level is the U.S. residential real estate market taken as a whole. The level below that consists of the individual geographic real estate markets within the United States, such as Atlanta, Boston, and Chicago. The lowest level consists of the many individual properties listed for sale in each market. Figure 9, below, illustrates this graphically. Notice that we only collect data on the bottom level of the hierarchy. Our goal is to use that data to make inferences about the two levels above it—the geographic market level and the national level.

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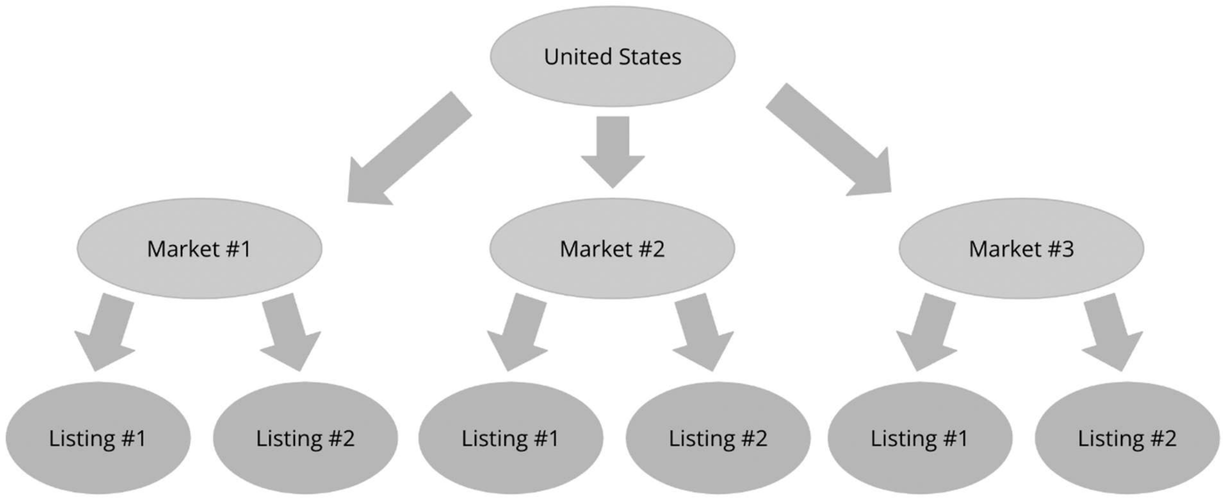
[205] We provide more technical detail in our online appendix. *See* Appendix, *supra* note 45.

FIGURE 9: THE HIERARCHICAL STRUCTURE OF THIS ANALYSIS




Hierarchical modeling enables us to perform inference on both levels simultaneously. The sample of listings that we collect in each market naturally informs us about the state of that market overall. But just as we observe a sample of listings in each market, so too we observe a sample of markets across the country. Therefore, what we observe in each market in turn informs us about what is happening at the national level as well.

In addition, our information about each market also informs our understanding of all the other markets. An analogy may be helpful here. Suppose you knew that home sellers in Atlanta interview an average of three listing agents before selecting one. What does that tell you about how many agents home sellers typically interview in Boston?

The answer depends on how similarly home sellers in Atlanta and Boston behave. On one extreme, Atlanta and Boston might be completely different. In this scenario, knowing about Atlanta's interviewing practices tells you nothing about Boston's; your Atlanta knowledge is of no help to you whatsoever. On the opposite extreme, Atlanta and Boston might be exactly the same. In that case, your Atlanta knowledge is a perfect guide to Boston; everything you know about Atlanta translates directly to the Boston market.

In reality, the truth is likely somewhere in the middle. Real estate markets in different cities have commonalities, but also differences. Knowledge about one market is likely to prove helpful in other markets, but will not translate perfectly.

One can make better predictions about the Boston market if they have information about many other real estate markets. For example, if you are knowledgeable about 30 U.S. real estate markets, and sellers typically interview three agents in each of them, it seems likely that sellers in Boston will also interview three agents. Conversely, if sellers in fifteen markets interview three agents, but sellers in the other fifteen markets interview ten agents, you will be far less certain about Boston interviewing practices.

The power of Bayesian hierarchical modeling is that it automatically detects where along this spectrum the data falls and pools information across markets accordingly. In other words, the more that different geographic markets behave similarly, the more that the observations from each market inform our analysis of other markets. Conversely, the more the data indicates that different markets behave differently, the less the observations from each market inform our analysis of other markets.

A downside of fitting Bayesian hierarchical models is that they require advanced mathematics and can be computationally expensive. Fortunately, new algorithms have been invented over the past decade that are automated and more computationally efficient. We rely on two of these novel algorithms to fit our regression models: the No U-Turn sampler, which was introduced by Hoffman and Gelman in 2014, and automatic differentiation variational inference, which was introduced by Kucukelbir et al. in 2017.[206] It took 52 hours to fit our main regression model on page views in the probabilistic programming package PyMC3.[207]

B. Low Commissions and Pageviews

Before we analyze the effect of buyer agent commission rates on page views, it is worth briefly noting why we analyze page views instead of skipping straight to sale outcomes. For instance, Barwick et al. showed strong evidence of steering in the Boston area just from analyzing these sale outcomes. In other words, by showing that low-commission listings experience worse sale outcomes, Barwick et al. kill two birds with one stone: they quantify the effects of steering and, in doing so, implicitly show that steering takes place.

We first focus on page views for three main reasons: First, analyzing the impact of low buyer agent commissions on page views gives us an additional way to investigate how frequently steering takes place. We find that the results of our sale outcome analyses and our page view analyses closely mirror each other, which gives us additional confidence in our results. Second, steering is fundamentally about directing clients' attention—toward particular homes and away from others. To study steering itself, rather than its effects, one would ideally want some measure of where clients are directing their attention. Redfin page views are an excellent, if imperfect, measure of how much attention a home is garnering, and thus of how much steering is taking place. Third, the sale outcome analysis can show the prevalence and effects of steering, but it does not show any specific mechanisms through which steering occurs. The page view analysis does; namely, buyer agents skipping over low commission properties when deciding which listings to forward to their clients.

Section 1 presents the mechanism through which buyer agent commission rates may affect page views: specifically, buyer agents curating the listings they send to their clients. All else being equal, we believe that buyer agents are more likely to forward their clients high-

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[206] *See* Matthew D. Hoffman & Andrew Gelman, *The No U-Turn Sampler: Adaptively Setting Path Lengths in Hamiltonian Monte Carlo*, 15 J. MACHINE LEARNING RES. 1593 (2014); Alp Kucukelbir, Dustin Tran, Rajesh Ranganath, Andrew Gelman & David M. Blei, *Automatic Differentiation Variational Inference*, 18 J. MACHINE LEARNING RES. 1 (2017).

[207] By comparison, it took around 10 minutes to fit an ordinary least squares regression model that estimates all the coefficients separately for each market in the analysis.

commission listings than low-commission listings. Section 1 also discusses outside evidence that buyer agents send select listings to their clients, and that this is a common way for buyers to find properties. Section 2 presents the results of our regression analysis, which indicates that buyer agents steer clients away from homes with low buyer agent commissions. Section 3 considers additional evidence outside of our regression analysis that could bolster or reduce our confidence in our regression results. Overall, the evidence in Section 3 provides substantial additional support that buyer agent steering is a widespread phenomenon in the United States. Finally, Section 4 considers possible alternative explanations for what we observe and presents our efforts to investigate those possibilities. The results of these analyses support our conclusions.

1. Our Proposed Mechanism: Buyer Agents Curating Listings

Buyer agents regularly monitor the MLS for listings that meet their clients' criteria. They then review those listings, select those that they think may be suitable, and forward them to their clients for review.

Buyer agents can send their clients listings in a variety of ways. They can send a link to the property's MLS listing.[208] They can print out a copy of the MLS listing and deliver it to the client.[209] They may provide a link to the listing on a publicly available website such as Redfin, Zillow, or Realtor.com, or to a website operated by either the listing agent's or the buyer agent's brokerages. They might simply send the address to the client, and leave it to them to look it up on their preferred portal.

Once buyers receive listings from their agents, they look at the listings that interest them. In many instances, the client will view the listing on a public portal such as Redfin, Zillow, or Realtor.com. These sites are designed to be attractive ways for potential buyers to view homes, and they are extremely popular, attracting hundreds of millions of visits each month.[210] Moreover, if one enters a residential address into a search engine, these sites frequently appear at the top of the search results.

We hypothesize that buyer agents are less likely to send their clients listings that offer low buyer agent commissions. This would result in fewer potential buyers becoming aware of low-commission listings, which would translate into fewer views of those listings' Redfin pages. To be clear, we are not suggesting that buyer agents never forward low-commission listings, or that every buyer agent behaves this way. Nor are we suggesting that all buyers look at listings

[208] Although buyers cannot directly access the MLS, many MLSs have public-facing portals that allow clients to view listings that are sent by their agents. (https://www.stellarmls.com/content/uploads/2021/08/OneHome_FAQsFinal.pdf)

[209] Similarly, they could also print the page as a PDF on their computer and e-mail the PDF to their client.

[210] *See, e.g.*, *Redfin.com July 2023 Traffic Stats*, *supra* note 148; *Zillow.com July 2023 Traffic Stats*, SEMRUSH.COM, https://www.semrush.com/website/zillow.com/overview/ (last visited Sept. 2, 2023) (reporting 219.2 million views in July 2023, with 93.8% coming from the United States); *Realtor.com July 2023 Traffic Stats*, SEMRUSH.COM, https://www.semrush.com/website/realtor.com/overview/ (last visited Sept. 2, 2023) (reporting 105.7 million views in July 2023, with 95.1% coming from the United States); *Trulia.com July 2023 Traffic Stats*, SEMRUSH.COM, https://www.semrush.com/website/trulia.com/overview/ (last visited Sept. 2, 2023) (reporting 27.6 million views in July 2023, with 95.9% coming from the United States).

on Redfin. So long as some buyer agents behave this way, and some buyers look at some listings on Redfin, low-commission properties should tend to receive fewer page views on Redfin than comparable properties that offer going-rate commissions.[211]

There is considerable evidence that buyer agents forward listings to their clients, that this is an important mechanism through which buyers learn about suitable homes, and that buyers view potential homes on Redfin and similar sites. NAR conducts extensive annual surveys about how buyers engage with the home-buying process and what they most value in agents. In these surveys, NAR asks recent buyers what the most difficult part of their home-buying process was. Buyers' most common answer—chosen more often than all other answers combined—was "Finding the right property."[212] Similarly, buyers identify "help find[ing] the right home to purchase" as what they want most from their agents.[213] Buyers selected that answer more than three times as often as the next most common choice.[214] Similarly, two-thirds of buyers say it's "importan[t]" that their agent "sends [them] postings as soon as a property is listed / the price changes / under contract."[215] Buyers also commonly stated that it was important for their agents to send "reports on recent listings and sales" and "property info."[216]

Buyers indicated that their agents had a large impact on their buying behavior. When asked about which information sources they used in their home search, buyers' most common answer was their agent.[217] Almost 30% of buyers reported that their agent found the home they ultimately purchased.[218] Thus, agents are an important way in which buyers find homes and, as a result, they possess some gate-keeping power.

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[211] For example, suppose that there are 200 buyer agents in a city and each has 5 clients. Each client looks at 25% of the listings they receive from their agent on Redfin. The Redfin page of a typical listing that offers a going-rate commission will get 250 page views through this mechanism (200 agents * 5 buyers per agent * 25% of listings viewed on Redfin). On the other hand, if each buyer agent has a 10% chance of not forwarding a listing that offers a low commission, a low-commission listing's Redfin page will only get 225 page views through this mechanism (200 agents * 90% chance of forwarding * 5 buyers per agent * 25% of listings viewed on Redfin).

[212] NATIONAL ASSOCIATION OF REALTORS RESEARCH GROUP, HOME BUYERS AND SELLERS GENERATIONAL TREND REPORT at 53 (2023) (56% of buyers) [hereinafter NAR 2023 REPORT]; *see also* NATIONAL ASSOCIATION OF REALTORS RESEARCH GROUP, HOME BUYERS AND SELLERS GENERATIONAL TREND REPORT at 56 (2022) (56% of buyers) [hereinafter NAR 2022 REPORT]; NATIONAL ASSOCIATION OF REALTORS RESEARCH GROUP, HOME BUYERS AND SELLERS GENERATIONAL TREND REPORT at 56 (2021) (53% of buyers) [hereinafter NAR 2021 REPORT].

[213] NAR 2023 REPORT, *supra* note 212, at 66 (49% of buyers); *see also* NAR 2022 REPORT, *supra* note 212, at 69 (52% of buyers); NAR 2021 REPORT, *supra* note 212, at 69 (51% of buyers).

[214] NAR 2023 REPORT, *supra* note 212, at 66 (49% of buyers versus 13% for "Help buyer negotiate the terms of sale"); *see also* NAR 2022 REPORT, *supra* note 212, at 69 (52% of buyers versus 13%); NAR 2021 REPORT, *supra* note 212, at 69 (51% of buyers versus 13%).

[215] NAR 2023 REPORT, *supra* note 212, at 73 (66% of buyers); *see also* NAR 2022 REPORT, *supra* note 212, at 76 (72% of buyers); NAR 2021 REPORT, *supra* note 212, at 76 (69% of buyers).

[216] NAR 2023 REPORT, *supra* note 212, at 73 (71% of buyers identifying "Sends property info and communicates via text message"; 41% for "Can send market reports on recent listings and sales"); *see also* NAR 2022 REPORT, *supra* note 212, at 76 (71% and 52%, respectively); NAR 2021 REPORT, *supra* note 212, at 76 (68% and 50%, respectively).

[217] NAR 2023 REPORT, *supra* note 212, at 50 (86%); *see also* NAR 2022 REPORT, *supra* note 212, at 53 (87%); NAR 2021 REPORT, *supra* note 212, at 53 (87%).

[218] NAR 2023 REPORT, *supra* note 212, at 52 (29% of buyers); *see also* NAR 2022 REPORT, *supra* note 212, at 55 (28%); NAR 2021 REPORT, *supra* note 212, at 55 (28%). This represents a decline from the pre-internet era. *See* FTC REPORT, *supra* note 14, at 132 n.352 (reporting that in the FTC Consumer Survey of recent home buyers who had had a broker involved in their transaction, 54.2% of buyers reported that their agent found the home they ultimately

Nearly all buyers—96% overall, and 99% aged 42 and under—searched for homes on the internet.[219] NAR does not ask buyers about how frequently they looked at listings using specific websites or apps. Nonetheless, its surveys suggest that buyers frequently use public portals such as Redfin. As noted above, most buyers reported that receiving listings from agents was important to them.[220] However, only a minority of buyers thought it important that their agent have their own site to show listings.[221] This suggests that buyers frequently use public websites, such as Redfin, to view listings they receive from their agents.

To further investigate this question, we conducted our own survey of recent home buyers.[222] We received responses from 184 homeowners who purchased a home within the past five years with the help of a real estate agent. Among respondents, 92% affirmed that their agent e-mailed or texted them properties of interest.[223] Within that group, 83% reported receiving lists of active listings at least once a week. Moreover, 90% of respondents who received listings from their agents reported viewing them on public portals such as Zillow, Trulia, Realtor.com and Redfin.[224] Overall, the median buyer viewed 70% of the listings their agents recommended.[225]

Taken together, these results paint a clear picture: Buyers regularly receive listings from their agents; buyers look at most listings that their agents send them; and most buyers view listings on public portals such as Redfin. Thus, if agents are less likely to forward listings that offer low buyer agent commissions, we would expect that such properties would receive fewer page views on Redfin.

2. Main Page View Results

We now turn to our regression analysis. We estimate the effect of offering a low buyer agent commission on Redfin page views. In doing so, we control for numerous potentially confounding variables, including geographic location within the market, asking price, potential over- or underpricing, listing agent attributes, time trends, and properties of the home itself, such as the type of property, its year of construction, its size, and the number of bedrooms and

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purchased); NAR 2023 REPORT, *supra* note 212, at 52 (reporting that 51% of buyers found their home via the internet); NAR 2022 REPORT, *supra* note 212, at 55 (same); NAR 2021 REPORT, *supra* note 212, at 55 (same).

[219] NAR 2023 REPORT, *supra* note 212, at 54; *see also* NAR 2022 REPORT, *supra* note 212, at 57 (95% of buyers overall and 99% of buyers under age 57); NAR 2021 REPORT, *supra* note 212, at 57 (97% of buyers overall and 99% under age 41).

[220] See *supra* notes 215-216 and accompanying text.

[221] NAR 2023 REPORT, *supra* note 212, at 73 (reporting that, when asked if it was important that their agent "Has a mobile site to show properties", 30% of buyers answered yes); *see also* NAR 2022 REPORT, *supra* note 212, at 76 (28% of buyers); NAR 2021 REPORT, *supra* note 212, at 76 (27%).

[222] We conducted our survey via the Clickworker crowdsourcing platform. The survey questionnaire and the aggregated responses are included in the Appendix. *See* Appendix, *supra* note 45.

[223] More precisely, 92% of respondents answered "Yes" to the question: "During the home search process, did your buyer's agent ever email and/or text you a list of active listings that they thought you might be interested in?" *Id.*

[224] Buyers were asked "Did you ever check out any of these agent-recommended listings on public portals such as Zillow, Trulia, Realtor.com or Redfin?" Possible answers were "Yes", "No", and "My agent never sent me any active listings". Among those answering "Yes" or "No", 92% answered "Yes". *Id.*

[225] The mean was 63%, and the mode was 90%. *Id.*

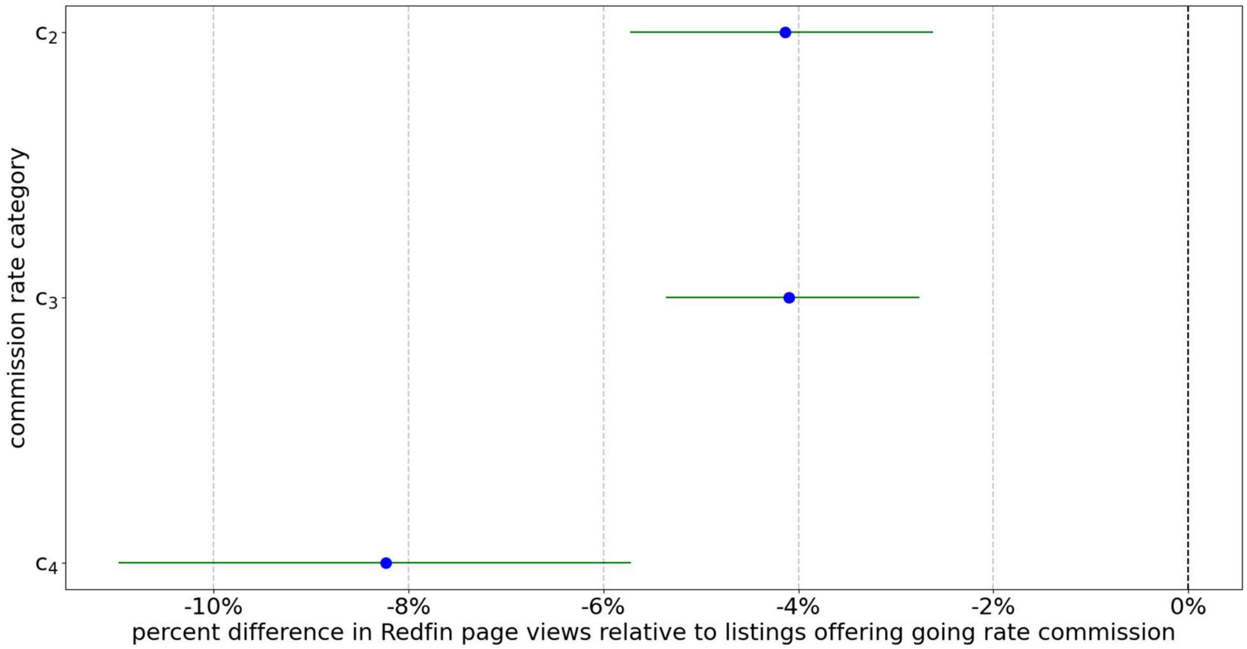
bathrooms it has.[226] We also remove the 5% most expensive and least expensive homes in each market to prevent outliers from distorting our results.[227]

Our goal is to estimate the extent to which offering a buyer agent commission that is below the going rate (a "Low Commission") affects page views nationwide. To do so, we compare the average page views for homes that offer going-rate commissions against the average page views for homes that offer Low Commissions, after controlling for other variables of interest. Recall that, within each market, commissions that are at or above the going rate ("Going-Rate Commissions") are assigned to category $c_1$. Commission categories $c_2$, $c_3$, and $c_4$ represent commissions that are progressively farther below the going rate, with $c_4$ consisting of the lowest commission rates.[228] We find that across almost all markets, Low Commissions are associated with lower page views, and the effects are more pronounced for the lowest commissions ($c_4$).

More specifically, we find that offering a $c_2$ or $c_3$ commission is associated with a decline in page views of slightly more than 4%. The effect is twice as large for the lowest commissions; homes offering a $c_4$ commission receive more than 8% fewer page views.[229] Figure 10 below presents our findings regarding commissions on the national level. It shows that all of our results are statistically significant at the 0.05 level.[230] Table 3 presents the same data in tabular form.[231]

[226] For more information on how we constructed these variables, see Part III, *supra*. For further details, see also Appendix, *supra* note 45.
[227] See footnote 202, *supra*.
[228] This is an oversimplification that captures the intuition. See *supra* Part III.B for more details.
[229] Recall that even the lowest commission rates generally offer buyer agents a substantial amount of compensation. See footnote 155 *supra* and accompanying text.
[230] More precisely, they are all significant at the <.001 level.
[231] We include estimates of the difference in means between these categories in the Appendix. The difference in effects between categories $c_2$ and $c_4$ and between categories $c_3$ and $c_4$ are both statistically significant at the 0.05 level. *See* Appendix, *supra* note 45, Table [Z].

FIGURE 10: EFFECT OF COMMISSION CATEGORY ON REDFIN PAGE VIEWS AT THE NATIONAL LEVEL




The blue dot represents the best-guess estimate of the percent difference in page views relative to listings offering a Going-Rate Commission. The error bar denotes the 90% credible interval for that estimate.[232] This error bar is colored green if the credible interval does not cross 0%, which signifies that the negative impact on page views is statistically significant at the 0.05 level.[233]

TABLE 3: EFFECT OF COMMISSION CATEGORY ON REDFIN PAGE VIEWS AT THE NATIONAL LEVEL

| Commission Category | Best-Guess Estimate for % Difference | 90% Credible Interval | Probability That % Difference < 0 |
|---|---|---|---|
| $c_2$ | -4.1% | [-5.7%, -2.6%] | > 99.9% |
| $c_3$ | -4.1% | [-5.4%, -2.8%] | > 99.9% |
| $c_4$ | -8.2% | [-11.0%, -5.7%] | > 99.9% |

The last column reports the estimated probability that the true percent difference is negative—in other words, the probability that homes offering a commission in that category receive fewer page views than homes offering Going-Rate Commissions.

When interpreting these results, it is important to remember that people view real estate listings for a variety of reasons: Some are actively looking to buy. Some are considering a future purchase or sale and are educating themselves about the market. Others are curious about

232 Because we are using Bayesian regression methods, the best-guess estimate is represented by the posterior mean, and the error bar is a credible interval. The frequentist statistical analog of a credible interval is a confidence interval. A 95% confidence interval is a range constructed so that, 95% of the time, it will contain the parameter of interest.

233 To be clear, we are testing the statistical significance of a one-tailed test to determine whether the percent difference in page views is negative. To be statistically significant at the 0.05 level, the probability that we would observe such a negative association between page views and commission rates due to random chance alone must be less than 5%.

the current market values of their home and homes in their neighborhood. Many people simply enjoy looking at real estate listings, even in places they do not live in and have no intention of moving to.[234] Accordingly, only a fraction of Redfin traffic is attributable to buyer agents. Thus, steering by buyer agents should only be expected to reduce a listing's total page views by a modest amount—which is what we observe in our results.

From a seller's perspective, some page views are more valuable than others. Sellers care most about getting their listing in front of active buyers, rather than bored hobbyists four states away. Buyer agent steering thus impacts a particularly important group of listing viewers—potential buyers who are represented by agents and who are actively looking at homes in the area—and should be expected to have larger effects than raw page view differences alone would indicate.[235]

Depending on what fraction of Redfin traffic is attributable to buyer agents, one can estimate how frequently agents engage in steering.[236] For example, assume that 80 percent of traffic on Redfin is not attributable to buyer agents and the remaining 20 percent of traffic is. Then, in the extreme scenario in which buyer agents always steer their clients away from low-commission properties, one would expect low-commission properties to receive 20 percent fewer page views. Similarly, if buyer agents steer their clients away from low-commission properties half of the time, we would expect low-commission properties to receive 10 percent fewer page views.[237]

We do not know the true fraction of Redfin traffic attributable to buyer agents. However, we can test a range of values to explore how prevalent steering may be. For example, at the national level, the best-guess estimate is that offering a $c_4$ commission is associated with an 8.2% decrease in page views. If we assume that 25% of Redfin traffic is attributable to buyer agents, then this would suggest that buyer agents engage in steering roughly 33% of the time.[238] Table 4 shows this calculation for each commission category assuming three different fractions of Redfin traffic attributable to buyer agents. It indicates that steering is quite common across all the scenarios considered.

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[234] *See, e.g.*, Caroline Bologna, *Why Browsing Zillow Feels So Good*, HUFFPOST.COM, Mar. 11, 2021, https://www.huffpost.com/entry/psychology-browsing-zillow_l_6048571ec5b60e0725f3b81f ("[P]eople love scrolling through home listings, even when they aren't looking to buy.").

[235] We return to this question in Part IV.C, *infra*.

[236] To be clear, we refer to the fraction of Redfin traffic that is attributable to buyer agents directly and indirectly, such as when buyer agents send a property address to their clients and the clients then look up that property on Redfin, rather than the fraction of Redfin traffic attributable to buyer agents themselves browsing Redfin.

[237] Page views would drop by the fraction of time that buyer agents steer (50%) times the fraction of traffic attributable to buyer agents (20%). 50% * 20% = 10%.

[238] Comparing the reduction in page views to the fraction of page views attributable to buyer agents yields $\frac{8.2\%}{25\%} = 32.8\%$.

TABLE 4: POTENTIAL STEERING RATES AMONG BUYER AGENTS[239]

| Commission Category | Hypothetical Percentage of Redfin Page Views Attributable to Buyer Agents | | |
|---|---|---|---|
| | **25%** | **20%** | **15%** |
| $c_2$ | $\frac{4.1\%}{25\%} = 16\%$ | $\frac{4.1\%}{20\%} = 21\%$ | $\frac{4.1\%}{15\%} = 27\%$ |
| $c_3$ | $\frac{4.1\%}{25\%} = 16\%$ | $\frac{4.1\%}{20\%} = 21\%$ | $\frac{4.1\%}{15\%} = 27\%$ |
| $c_4$ | $\frac{8.2\%}{25\%} = 33\%$ | $\frac{8.2\%}{20\%} = 41\%$ | $\frac{8.2\%}{15\%} = 55\%$ |

Moreover, the percentages presented in Table 4 likely underestimate steering rates among buyer agents. There are many ways to steer clients away from low-commission properties without affecting Redfin page views. For example, an agent could say that they were unable to schedule a showing to see a particular property; they could highlight and exaggerate the property's flaws during a visit; they could talk up another, higher-commission property.[240] All of these actions and more could affect buyers' choices without altering Redfin page views.

Importantly, the relative impact of steering matches our expectations. Recall that commission category $c_4$—commission rates below 2%—constitute approximately 1% of commission rates across the country. One would expect that these commissions, which are both rare and the lowest offered, would experience the greatest amount of steering. Indeed, this is exactly what the data shows.

It is worth noting that $c_2$ commissions—which are only slightly below the going rate—still appear to trigger a substantial amount of steering. Indeed, $c_2$ commissions appear to trigger as much steering as $c_3$ commissions do. This result can potentially explain why real estate agents' commissions have held remarkably steady over the years while similar industries have seen commissions decline.[241] One might expect that as home values have risen and the internet has made it easier for buyers and sellers to find each other, some sellers might start offering slightly lower commission rates. If agents treated these commissions the same as going-rate commissions, sellers might offer these slightly lower rates with increasing frequency. Over time, the lower rate would become the new going-rate commission, and the process might repeat. But

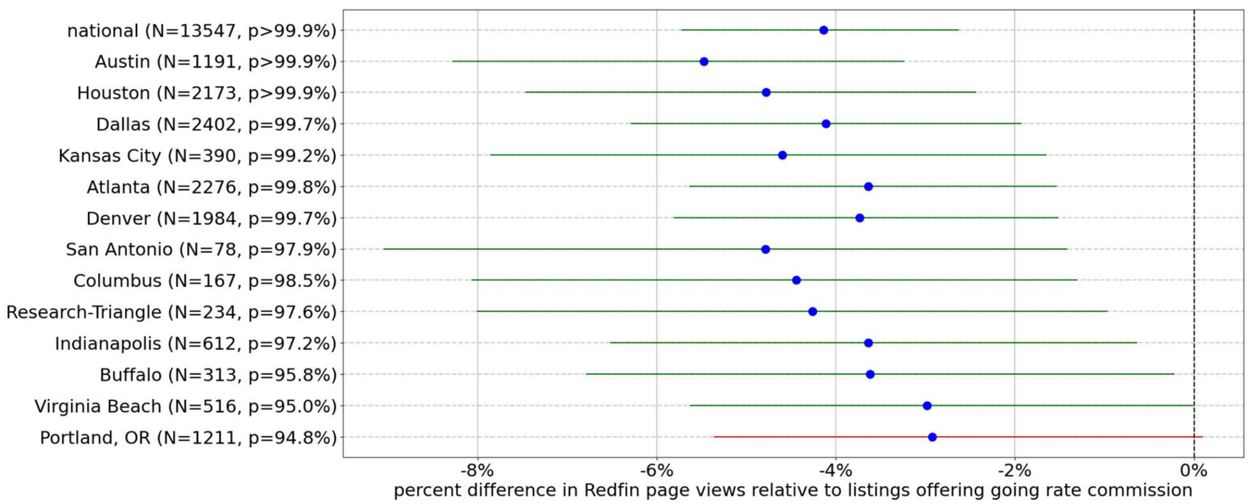
[239] In interpreting Table 4, recall that the best-guess estimates on the national level for the percent decrease in page views caused by offering a commission rate in categories $c_2$, $c_3$, and $c_4$ are 4.1, 4.1, and 8.2 percent, respectively.
[240] *See, e.g.*, Andrea V. Brambila, *Listen: REX Releases Recordings of Agent Steering*, INMAN, Mar. 18, 2021, https://www.inman.com/2021/03/18/listen-rex-releases-recordings-of-agent-steering/; CBC News, *Real Estate Agents Caught Breaking the Law on Hidden Camera (Marketplace)*, YOUTUBE, Oct. 15, 2021, https://www.youtube.com/watch?v=ShBvRe0Jv68&t=804s&ab_channel=CBCNews; https://www.dropbox.com/scl/fi/4vfwzr8kvjcr67cdqx4ka/inman_call_3.mp3?rlkey=gzewccwnmt1euhp44jnrak2bx&dl=0 (agent stating she will tell her client that an available low-commission property has been sold).
[241] Velt, *supra* note 9.

if buyer agents steer clients away from any listings that offer less than the going rate, that could discourage sellers from offering such rates, thereby preventing this gradual price erosion process.

Figure 11 presents our findings for each market in our analysis. Figures 11(a), 11(b) and 11(c) show the results for homes that offer category $c_2$, $c_3$, and $c_4$ commission rates, respectively. Table A.2 in the Appendix presents the same information in tabular form.[242]

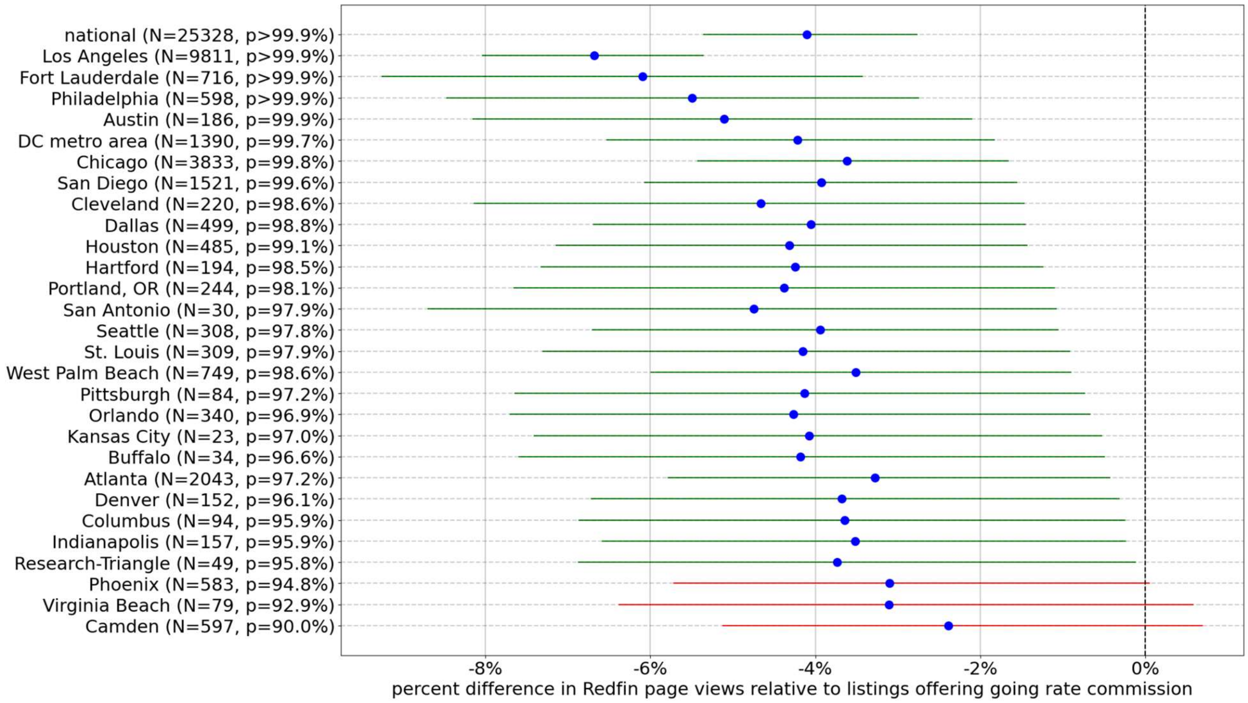
FIGURE 11: EFFECT OF COMMISSION CATEGORY ON REDFIN PAGE VIEWS BY GEOGRAPHIC MARKET

(a) COMMISSION RATE CATEGORY $C_2$

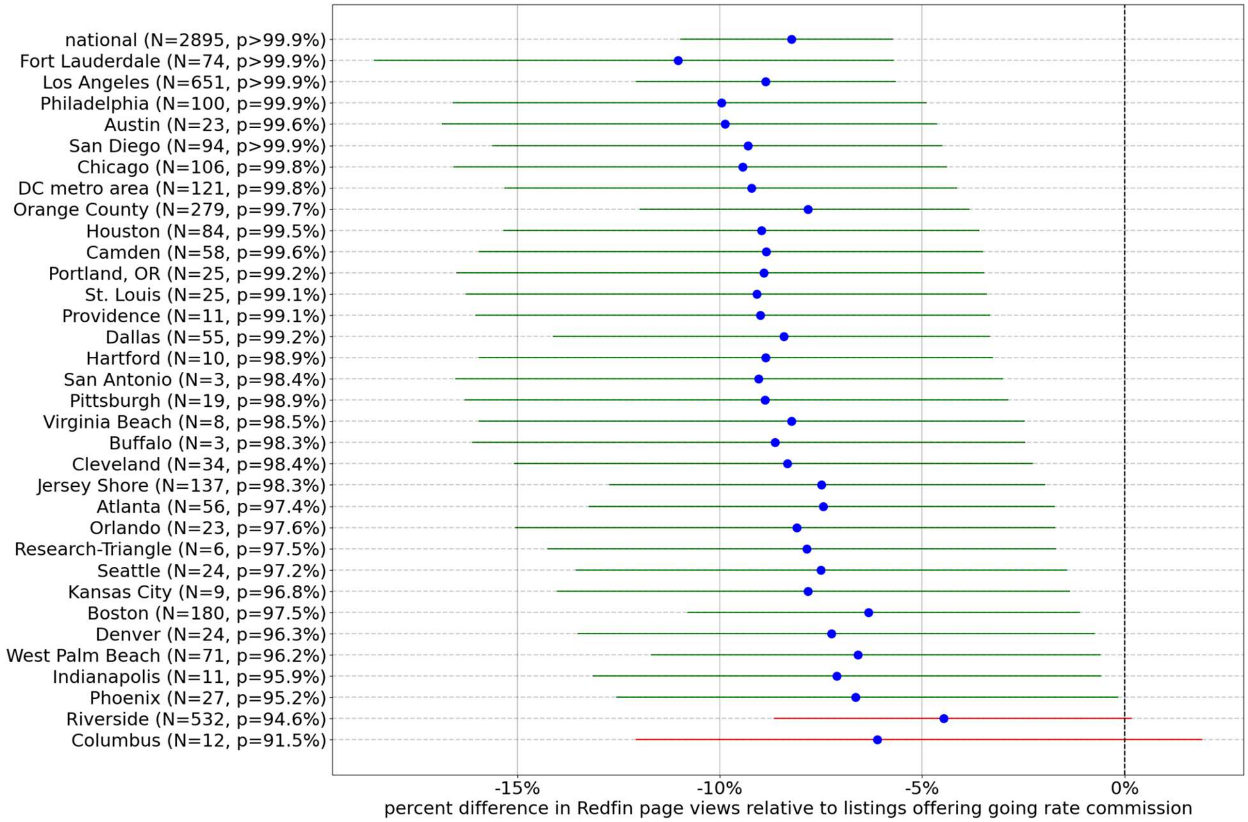



[242] *See* Appendix, *supra* note 45.

(b) COMMISSION RATE CATEGORY $C_3$



(c) COMMISSION RATE CATEGORY $C_4$




The blue dot represents the best-guess estimate for the percent difference in page views relative to listings offering a Going-Rate Commission. The error bar denotes the 90% credible interval for this percent difference. It is colored green if the credible interval does not cross 0%, which signifies that the negative impact on page views is statistically significant at the 0.05 level, and red otherwise. The vertical axis label reports the number of listings in each market that offer a commission in the given commission category. The number of listings on the national level is simply the sum across all markets. The vertical axis label also reports the estimated probability that the true percent difference in Redfin page views is negative. Recall that every market has the $c_4$ commission category while some markets have the $c_2$ and/or $c_3$ categories.

Figures 11(a), (b), and (c) provide more information, but paint the same consistent picture: nationwide, listings that offer Low Commissions receive fewer page views. For every market and every commission category below $c_1$, the best estimate is that lower commissions are associated with fewer page views.[243] Almost all of these estimates are statistically significant at the 0.05 level, and all of them are significant at the 0.10 level.[244] The lowest commissions are once again associated with the biggest effects, but $c_2$ commissions still seem to trigger steering. Moreover, we observe relatively similar relationships between commission rate categories and page views in most markets across the country. As we had no particular *a priori* reason to

[243] *See* Figures 11(a), (b), (c), *supra*.

[244] For $c_2$, the estimates for 12 of 13 markets are significant at the 0.05 level; for $c_3$, 25 of 28; for $c_4$, 31 of 33. *Id.*

expect that steering would be much more prevalent in some parts of the country than in others, the consistency of these estimates increases our confidence in our results.

Stepping back, we care most about the analysis on the national level. It takes into account the data from all the markets and thus offers much more statistical power to detect a statistically significant decrease in page views. Given that many markets have relatively few Low-Commission listings, one might wonder whether we would have enough data in individual markets to generate the requisite statistical power.[245] In this sense, it is striking that so many markets yield results that are significant at the 0.05 level.

Moreover, statistical results should not be viewed in a binary way. In other words, one should not treat a result that is statistically significant at the 0.05 level as strong evidence of a relationship and a result that is not as no evidence at all. There is no statistical justification for applying such hard cutoffs uncritically. A 94% probability of a negative relationship is not statistically significant at the 0.05 level, but it still suggests a negative relationship. In such a scenario, the true relationship is almost sixteen times more likely to be negative than positive.[246]

Finally, it's important to make two points about the timeframe in which this Redfin data was scraped. First, all of the data was scraped in markets in which the buyer agent commission had already started to be published on Redfin. This meant that for the first time, buyers could see the buyer agent commission being offered on each listing and thus had a way of detecting whether their agents were steering them away from Low-Commission properties. Previously, steering was harder to detect. Thus, buyer agents might have engaged in steering even more frequently in the past—and might do so again if buyer agent commissions become less visible.

Second, our data was collected during a time in which the residential real estate market strongly favored sellers, with demand outpacing supply in most markets across the country. Buyers fiercely competed for homes, and they typically had to submit multiple offers before one was accepted. Because buyer agents are paid only after deals close, these market conditions incentivized them to show their buyers many homes, in order to maximize their chances of making a sale. This suggests that steering would be even more common in more neutral markets—and especially in buyer's markets—in which buyer agents can be more selective about the properties they show their clients.

3. iBuyer Page View Results

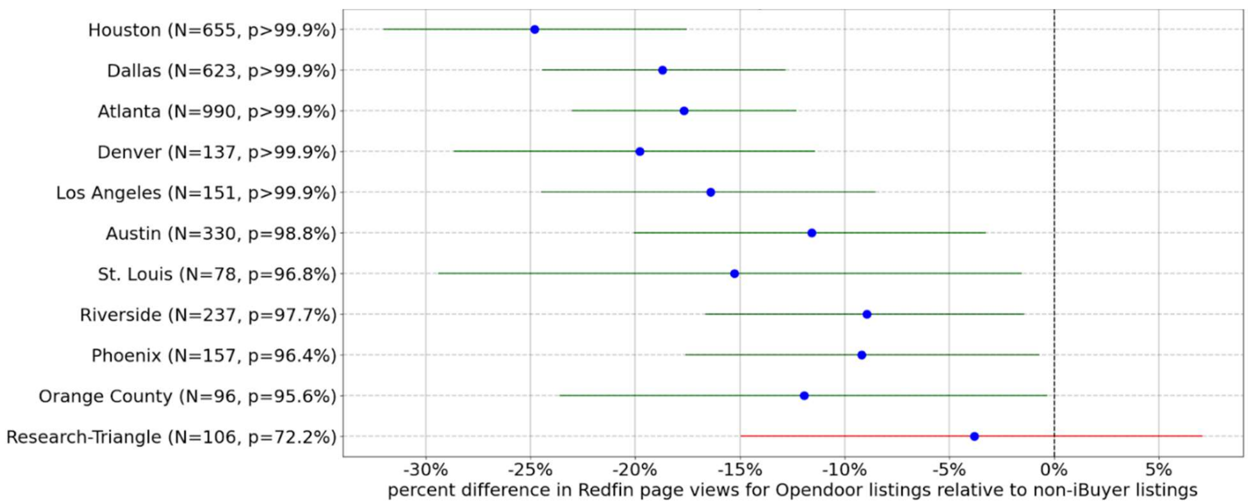
We now consider whether iBuyer listings receive more or fewer page views than other listings after controlling for all other variables in the model (including the commission category).[247] Figures 12(a), 12 (b) and 12(c) below show the percent difference in page views

[245] Statistical power refers to the ability to reject a null hypothesis, given that the null hypothesis is false.
[246] In such a scenario in Bayesian statistics, given that there is a relationship, the probability is 94% that it is negative and 6% that it is positive. 94% / 6% ≈ 15.67.
[247] Recall that iBuyers make home sellers immediate cash offers, with a plan of reselling to conventional buyers. *See* Part II.A, *supra*.

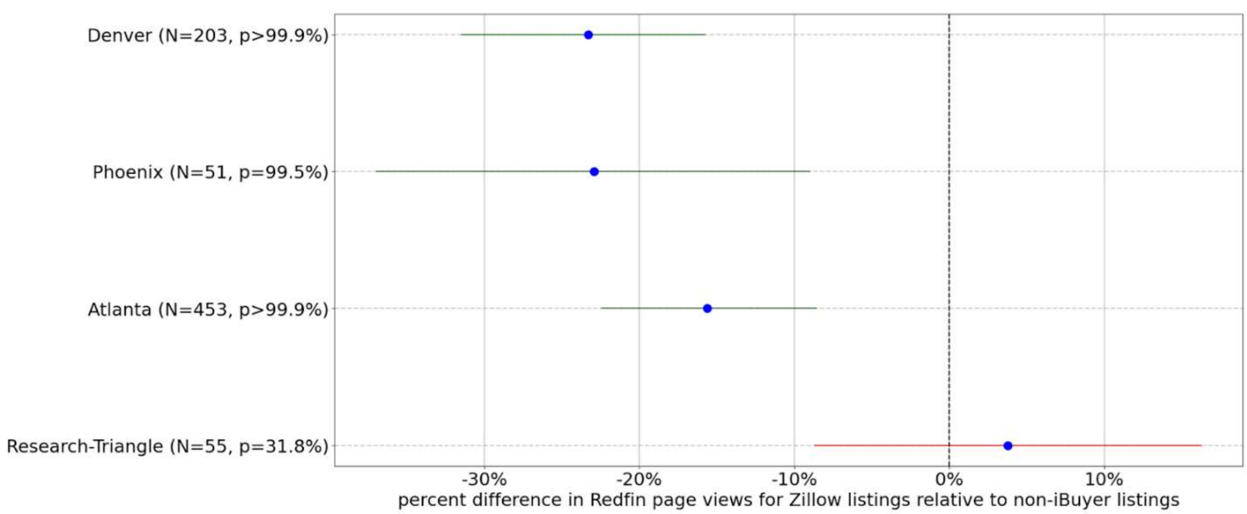
for Opendoor, Zillow and Offerpad, respectively. Table A.3 in the Appendix presents the same information in tabular form.[248]

FIGURE 12: PERCENT DIFFERENCE IN REDFIN PAGE VIEWS FOR IBUYER-OWNED LISTINGS RELATIVE TO NON-IBUYER LISTINGS.

(a) OPENDOOR

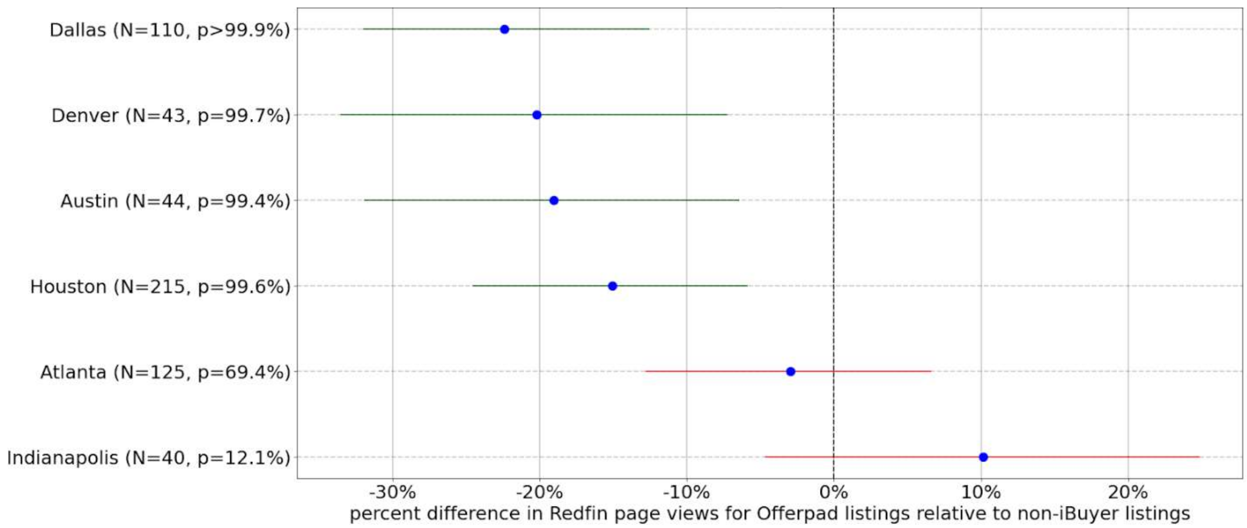



(b) ZILLOW




[248] *See* Appendix, *supra* note 45.

(c) OFFERPAD




The blue dot represents the best-guess estimate for this percent difference. The error bar denotes the 90% credible interval for this percent difference. It is colored green if the credible interval does not cross 0%, which signifies that the longer time to sell is statistically significant at the 0.05 level, and red otherwise. The vertical axis label reports the number of listings in each market that offer a commission in the given commission category. The graphs are limited to markets in which at least 40 properties in the dataset were listed by the given iBuyer. The vertical axis label also reports the estimated probability that the true percent difference in page views is negative.

Figure 12 shows that in most markets in which iBuyers operate, their listings tend to receive significantly fewer page views than traditional listings. On average, this effect is larger than the effect of Low Commissions, but there is also more variability across the estimates.[249]

There are multiple ways to interpret these results. On the one hand, iBuyers are entrants seeking to disrupt the established industry structure. One might therefore expect incumbent buyer agents to be hostile to them. That hostility could motivate buyer agents to steer their clients away from iBuyer listings, thereby reducing page views.

At the same time, there are other possible explanations as well. Homeowners may be more likely to sell to iBuyers if they believe that their homes will be difficult to sell. Such homes might generate fewer page views on Redfin. Alternatively, iBuyers list significant numbers of properties in the areas in which they operate. They might have invested significant amounts of resources to drive prospective buyers in these markets to their own web portals.[250]

[249] The average effect across markets is -14.4% for Opendoor, -14.5% for Zillow, and -11.6% for Offerpad, with a low of -24.8 % (Opendoor Houston) and a high of +10.1% (Offerpad Indianapolis). Github Repository, *supra* note 45.

[250] This could be as simple as engaging in search engine optimization so that people searching from the addresses of the properties iBuyers are listing see the iBuyer portal at the top of their search results.

Thus, lower numbers of Redfin page views may be due to prospective buyers viewing iBuyer homes on non-Redfin portals, rather than buyers not viewing the properties at all.[251]

4. Outside Evidence on the Prevalence of Steering

In evaluating the results of our analysis, it is worth considering what outside evidence, separate from our analysis, suggests about the frequency of buyer agent steering. If that evidence also indicates that steering is common, that would increase our confidence in our conclusions. As noted below, we identify five other sources of information on the prevalence of buyer agent steering: prior scholarship, real estate agent training materials regarding steering, a CBC investigation, the buyer agent commissions offered by Opendoor over time, and calls that REX recorded in which buyer agents announce their intention to steer. These bodies of evidence all suggest that steering is commonplace.

a. Previous Academic Work

A lack of available data has generally stymied researchers' ability to study buyer agent steering. To our knowledge, Barwick et al.'s 2015 article, discussed earlier, is the only prior statistical study that investigates buyer agent steering.[252] Their analysis provides a bird's eye view of buyer agent conduct across the Boston market over a 14-year period.[253] They conclude that buyer agents steer their clients away from low-commission properties.[254] They also find stronger effects "for low commission listings in neighborhoods with a larger fraction of high commission listings, [for] listings by [new] entrants, and [for] listings by offices that used lower commission rate policies in the past," all of which further suggest buyer agent steering.[255] The consonance between our results and theirs bolsters our findings.

b. Real Estate Agent Training Materials

Although NAR and other industry figures have denied that buyer agents steer clients away from low-commission properties, agent training materials tell a different story. Some brokerages teach their agents to warn sellers about buyer agent steering if sellers ask about cutting buyer agent commissions. Even publicly available materials from national brokerages can be quite brazen. For example, consider the following script from Coldwell Banker:

> Another option you have is to pay the [buyer agent] 2.5% instead of 3%. However, I don't recommend it.

[251] Similarly, it is also possible that iBuyers are engaging in extensive marketing campaigns to drive buyers to their listings, increasing page views overall. This effect could be partially or fully offset by buyer agent steering and the other effects discussed in text, or other effects not considered here.
[252] Barwick et al., *supra* note 31, at 197 ("There is surprisingly little information on commissions at the property level. [There are only two papers] that we are aware of . . . They investigate variation in buying commissions across real estate markets but do not examine the consequences of buying commissions on sales outcomes.").
[253] *Id.*
[254] *Id.*
[255] *Id.*

> With all the homes that you are competing with right now, most of those sellers are offering the [buyer agent] only 2.5% and by the way, most of those homes are not selling!
>
> Can you see how paying an extra half of one percent can be an incentive to get more interest in your home and generate more potential showings?
>
> If you were [a buyer agent] and had to show five homes this weekend, which of the five do you think you would focus on? Would you want to show the homes that paid you *only* 2.5% or the homes that would *fairly* pay you 3%? *(The seller says obviously the homes that paid 3%.)*
>
> Of course you would. Don't you think most agents would feel the same way?[256]

Similarly, Keller Williams features steering prominently in several model scripts in their Keller Williams University Scripts Catalog. For instance, consider:

> AGENT: . . . When you reduce the [buyer agent] commission, you reduce the incentive for that agent to bring a buyer to your house. If an agent has ten different houses, nine of which come with a 3 percent commission, one of which comes with 2.5 percent commission, which houses do you think they're going to show?
> SELLER: The ones with the larger commission.
> AGENT: Absolutely. You're putting yourself at a disadvantage competitively when you reduce your commission, wouldn't you agree?
> SELLER: I guess that's true.[257]

Or to take another example from that same script collection:

> AGENT: . . . If you have a buyer's agent who has time to show these people eight houses and they're coming in from out of state, you can be sure they're buying a house that weekend. If she sells a few houses a year, don't you think she's going to look at what she's going to get paid on each of those properties? She has time to show eight and she has ten to choose from. Two of them are offering her 3 percent. The other eight are offering her 3.5 percent. Which ones do you think she's going to show?[258]

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[256] COLDWELL BANKER RESIDENTIAL BROKERAGE, "WORDS THAT WORK," BUSINESS LEADERSHIP DEVELOPMENT SERIES, PART ONE, at 36, *available at* https://blog.homesnap.com/wp-content/uploads/2019/07/CB-Scripts-Words-that-Work-pdf.pdf (last visited Sept. 6, 2023). Note that within the residential real estate industry, the agent representing the home seller is called the listing agent, and the agent representing the home buyer is called the selling agent.

[257] TAMMY KROOP, KELLER WILLIAMS REALTY, INC., KWU SCRIPTS CATALOG: VOLUME 2: WORKING WITH SELLERS 150 (2004), *available at* https://img1.wsimg.com/blobby/go/11a77c6d-eb91-457b-a7c8-7b3d30e0af37/downloads/KWU%20-%20Scripts-sellers%20-%20manual%20v3.2.pdf?ver=1615240738234 (last visited Sept. 6, 2023).

[258] *Id.* at 156; *see also id.* at 146 ("reduc[ing] the commission to agents with the buyers, which, will reduce the number of willing and qualified buyers that will see your home"); *id.* at 148 ("It's about being reputable in the industry so [buyer] agents will show your home. Okay? See here on these other listings where they're asking just 2.5 percent for the [buyer] agent? Notice the homes that are really selling almost always have 3 percent to the [buyer] agent.").

Brokerages are far from alone in this space. Real estate coaches offer similar advice on their websites.[259] For those who prefer video, YouTube has many instructional examples; these videos have garnered hundreds of thousands of views.[260] Some are quite colorful. One high-profile agent describes low buyer agent commissions as "the kiss of death" and dismissively crumples up a low-commission listing, stating "That's what agents do."[261]

In interpreting these data points, it is worth keeping in mind that listing agents have an incentive to suggest that steering is a major problem even if it is not.[262] Still, the fact that so many agents and brokerages assert that steering is real increases our confidence that it is.

c. Opendoor

The experience of iBuyer Opendoor also suggests that steering is commonplace. As an iBuyer, Opendoor seeks to act as an intermediary, purchasing homes and then quickly reselling them for a profit.[263] Opendoor's investor presentations reveal that its single largest expense is commissions paid to buyer agents. [264] Accordingly, it has strong incentives to offer low buyer agent commissions. Indeed, the only apparent reason why Opendoor would offer *any* buyer

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[259] *See, e.g.*, Excelleum Coaching & Consulting, Real Estate Script Book at 27, 40 (2013), available at https://u.realgeeks.media/itsclosingtime/Script-Book.pdf; MIKE FERRY, THE COMMISSION CUTTING REPORT at 6-8, 15 *available at* http://online.fliphtml5.com/vsgt/fjdh/; Debbie De Grote & The Institute for Luxury Home Marketing, *Perfecting Your Commission Objection Handlers*, BLOG.LUXURYHOMEMARKETING.COM, Mar. 24, 2021, http://blog.luxuryhomemarketing.com/perfecting-your-commission-objection-handlers/; Icenhower Coaching and Consulting, *The Listing Consultation: Commission Objection Handling Script for Real Estate Agents*, THEREALESTATETRAINER.COM, https://therealestatetrainer.com/listing-consultation-commission-objection-handling-script/; *see also* Daniel Dobbs, 21 Common Objections & How to Handle Them, https://danieldobbs.org/21-common-objections-how-to-handle-them-for-r-e-agents/; Teke Wiggin & Amber Taufen, *'I don't want to commit': How to handle 27 common objections*, INMAN.COM, Sept. 29, 2019, https://www.inman.com/2019/09/29/i-dont-want-to-commit-how-to-handle-27-common-objections/.

[260] *See, e.g.*, Tom Ferry, *Real Estate Training - The Listing Edge Part 4 of 5*, YOUTUBE (July 18, 2008); Tom Ferry, *10 Ways to Improve Your Listing Presentation*, YOUTUBE (Mar. 24, 2015) (76,000 views as of Sept. 6, 2023); Real Sales Talk, *Sales Training 101-TOUGH Listing Presentation; Pricing & Commission Objections*, YOUTUBE (Sept. 15, 2016) (49,000 views as of Sept. 6, 2023); Neil Schwartz, *The Perfect Real Estate Listing Presentation Part 3*, YOUTUBE (Aug. 15, 2009) (41,000 views as of Sept. 6, 2023); Joe Villaescusa, *Live Listing Presentation by Venny Saucedo*, YOUTUBE (Mar. 11, 2014) https://www.youtube.com/watch?v=R9DdWxKRuCI&ab_channel=JoeVillaescusa (108,000 views as of Sept. 6, 2023).

[261] Rob Hahn, *Update on NBER's REALTOR Commission Study*, NOTORIOUSROB, Sept. 28, 2015, https://notoriousrob.com/2015/09/update-on-nbers-realtor-commission-study/ (discussing an embedded Randy Ora video). In the same video, Ora states that he's been around the water cooler enough to know that some agents will not show the 2.5% listings, everyone will show the 3%, and everyone will go out of their way to show the 3.5%. *Id.*

[262] If buyer and listing agent commissions are linked, keeping the buyer agent commission high keeps the seller's compensation high. More generally, selling agents often represent buyers as well, so they have a general interest in keeping buyer agent commissions high. Moreover, because agents work together so frequently, it is important that they maintain good relations with other agents. Offering high commissions on their listings helps with that. *See, e.g.*, Kroop, *supra* note 257, at 148; Barry et al., *supra* note 52; Hatfield et al., *supra* note 9.

[263] *See, e.g.*, Barbara Marquand & Taylor Getler, *What Is an iBuyer?*, NERDWALLET, July 20, 2023, https://www.nerdwallet.com/article/mortgages/understanding-ibuyers.

[264] Michael DelPrete, *The iBuyer War on Real Estate Commissions*, MIKEDP.COM, Oct. 19, 2020, https://www.mikedp.com/articles/2020/10/18/the-ibuyer-war-on-real-estate-commissions ("Since the beginning, an iBuyer's biggest expense has been agent commissions—specifically the buyer agent fee of around 3 percent when a home is resold.").

agent commission is if it helped Opendoor sell homes—for example, if buyer agents steer their clients away from low-commission properties.

Michael DelPrete, Scholar-in-Residence at the University of Colorado Boulder's Leeds School of Business, has documented how the commission rates that Opendoor offers buyer agents have changed over time. He observed that, after initially offering going-rate buyer agent commissions, Opendoor began experimenting with lower buyer agent commission rates in an attempt to improve its unit economics. Based on the data, DelPrete inferred that "Opendoor appears to be testing how low buyer agent commissions can go before it adversely affects time on market (agents may be less likely to show homes that are offering low buyer agent commissions)."[265]

For example, in Atlanta, where the going-rate commission is 3%, Opendoor experimented with a range of rates. At one point, it offered 1.5% commissions, but ultimately abandoned them in favor of higher commissions, presumably because listings offering 1.5% commissions were not selling in a timely manner.[266]

d. CBC News Investigation

Canada's residential real estate market has many similarities to the U.S. market. In particular, MLSs play an important role; sellers compensate buyer agents; and agents can view the MLS, including the commission rates that sellers offer, but their clients generally cannot.[267]

In 2021, the Canadian Broadcast Network's Marketplace team investigated whether buyer agents would steer their clients away from a low-commission listing. They first posed as buyers and asked three local agents to show them houses that fit particular criteria. The Marketplace journalists were in contact with the owner of a house that fit those criteria and who was only offering a 1% buyer agent commission. This commission would have netted the buyer agent over $14,000, but was well below the 2.5% going-rate commission in that neighborhood.

The first buyer agent told their client that the home was overpriced by $50,000 and said that most agents would not show it because of its low commission, but agreed to take the client to see it. The second claimed she had called the owner of the low-commission home but had been unable to set up a showing; she suggested that the issue may have been scheduling around the current tenants. The homeowner, who had no tenants, stated that she never received any such call. The third agent said the home was overpriced by $200,000 and reported that, in her

[265] *Id.* DelPrete gathered data on listings and commissions from the MLS, not from Opendoor directly. Thus, we cannot say for sure what Opendoor's experiences were and how it made its decisions. That said, the available data seem to tell a coherent story.
[266] *Id.* As of DelPrete's last report, Opendoor offered a buyer agent commission of 2% on roughly half of its Atlanta listings and 2.25% on the other half. Michael DelPrete, *Opendoor's Buyer Agent Commission Advantage*, MIKEDP.COM, Sept. 8, 2022, https://www.mikedp.com/articles/2022/9/8/opendoors-buyer-agent-commission-advantage.
[267] In addition, agents frequently represent both sellers and buyers as clients, there is widespread convergence on commission rates, and commission rates are higher than in many other developed countries. In the United States, MLSs are increasingly making buyer agent commission rates visible in their public data feeds in the wake of NAR's proposed settlement with the DOJ.

conversation with the homeowner, the homeowner had made it clear that they would not budge on price. However, the homeowner told a very different story. She claimed that the agent asked about the commission for the property and, upon hearing that it was only 1%, said she would keep her clients to herself. The Marketplace investigators pushed the third agent to take them to see the low-commission home. The agent did so—but spent half the time talking about a listing in a different neighborhood that they thought the client should see.

Next, Marketplace investigators called 25 agents, posing as homeowners considering listing their home. When the investigators broached the topic of what commission to offer buyer agents, 88% of listing agents warned that buyer agents would steer clients away from their home if the commission was low.

Finally, Marketplace investigators posed as a seller and listed a home on the MLS via a discount broker, offering a 1% buyer agent commission. After a week on the market, they received three calls from agents interested in scheduling a showing. However, "[a] close comparable down the street [that offered a higher commission] had twenty unique showings in less than a week and sold over asking just a day before [Marketplace's] listing went up."[268]

e. REX Recordings

REX was a brokerage with a somewhat different business model than most other brokerages.[269] Much of REX's strategy was built around reaching potential home buyers who were not represented by agents. A salaried REX employee would then guide such buyers through the transaction at no cost to the buyer. REX generally did not post its listings on local MLSs, which meant that its listings did not have to specify a preset buyer agent commission. Over time, many buyer agents called REX to inquire about particular listings and schedule showings. Many of these buyer agents were unfamiliar with REX's business model and inquired about REX's commission structure. REX recorded most of these calls.

REX alleges that it has over 700 recorded phone calls in which buyer agents refused to show REX properties due to dissatisfaction with how REX handles buyer agent commissions.[270] This included agents who cited brokerage rules forbidding them from showing any property that paid them less than a specified minimum commission.[271]

One might question how often buyer agents would openly refuse to show REX listings for commission-based reasons while on a phone call *with REX* that began: "Thank you for calling REX. This call may be recorded."[272] Most of these call recordings have not yet been

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[268] CBC News, *Real Estate Agents Caught Breaking the Law on Hidden Camera (Marketplace)*, YOUTUBE, Oct. 15, 2021, https://www.youtube.com/watch?v=ShBvRe0Jv68&t=804s&ab_channel=CBCNews.
[269] We refer to REX as in REX - Real Estate Exchange, a startup founded in 2014. To be clear, we are not referring to Rex, founded by Peter Rex in 2016.
[270] This includes approximately 100 calls in which buyer agents simply hung up after learning about REX's commission structure. Brambila, *supra* note 26. REX generally did not have its sellers commit to paying buyer agent commissions. Instead, buyers and their agents were to negotiate buyer agent compensation between themselves.
[271] *Id.* For example, a Keller-Williams agent said they would bring in clients for a 2.5% commission, but that their brokerage would not let them go below that. *Id.*
[272] *Id.*

publicly released, but a few have been given to journalists and are publicly available.[273] These released calls support REX's account. For example, in one call the conversation includes:

> AGENT: "I'm not interested in showing it, I'm sorry.
> REX: "Okay, just because of the compensation part?"
> AGENT: "Yeah. . . . Yeah, I'm not going to even show it to them, to be honest with you. . . . "There are a lot of properties out here . . . I'll just move on to the next one.[274]

In another:

> AGENT: "So what do you pay for commission? What do I get if I sell the house?
> REX: [Representative explains.]
> AGENT: Are you kidding me? Forget it. Bye. <hangs up>[275]

In a third:

> AGENT: "Ok, so do you cooperate with other agents and pay compensation?"
> REX: [Representative explains]
> AGENT: "I'll tell them that the property is sold. Thank you."
> REX: You're going to tell them that the— <Buyer Agent hangs up>[276]

The other recordings that have been released feature similar exchanges.[277] In one, the agent goes a step further, threatening retaliation: "Don't worry about it. I won't bother to show

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[273] *See* Andrea V. Brambila, *Listen: REX Releases Recordings of Agent Steering*, INMAN, Mar. 18, 2021, https://www.inman.com/2021/03/18/listen-rex-releases-recordings-of-agent-steering/; Alexandra S. Levine, *Could AOC Be the Next Star on the Tech Scene?*, POLITICO, Nov. 23, 2020, https://www.politico.com/newsletters/morning-tech/2020/11/23/could-aoc-be-the-next-star-on-the-tech-scene-791837; R.A. Schuetz, *Houston Real Estate Agents Caught on Tape Steering Buyers Away from Homes with Less Commission*, HOUSTON CHRON., Jan. 11, 2021, https://www.houstonchronicle.com/business/article/houston-real-estate-agents-less-commission-records-15857087.php.

[274] *See* Schuetz, *supra* note 273; *see also* https://www.dropbox.com/scl/fi/uyudjyn5gqrxjot23852j/houston_chronicle_call_1.mp3?rlkey=ulgbdna3ln9rx1rd0cohhes3z&dl=0 (recording).

[275] *See* Brambila, *supra* note 273; *see also* https://www.dropbox.com/scl/fo/iftz1cmb7f3r431igti0b/h?rlkey=bz31k22pa9f4ky9fabeew34vf&dl=0 (recording).

[276] *See* Brambila, *supra* note 273; *see also* https://www.dropbox.com/scl/fi/4vfwzr8kvjcr67cdqx4ka/inman_call_3.mp3?rlkey=gzewccwnmt1euhp44jnrak2bx&dl=0 (recording).

[277] One call includes:

> AGENT: "If I was to bring you a client to purchase this property, do you guys pay me a 3% commission, or how does that work?
> REX: [Representative explains.]
> AGENT: . . . "Yeah that's not going to work. Okay, I thank you, we can just stop right there because I know that . . . that's just not how I operate. I really do appreciate your time, though, have a good day sir. . . . Thank you, bye bye. <Hangs up>

Another includes:

> REX: "This [property] is vacant, so you can show it at any time. Did you know when you would like to see it?"
> AGENT: "I want to know how the commission works"

it. Who's your local agent, though? Because I will make sure to tell people not to work with them."[278]

REX claims that it received calls like these in almost all of the markets in which it operated.[279]

Moreover, these recordings may only capture a small slice of potential steering behavior. They would not capture any steering by agents who learned how REX handled commissions without calling REX; by agents who steered clients without stating their intent to do so on the phone; or by agents steered clients in more subtle ways, such as by denigrating REX's properties.[280]

5. Tests of Our Analysis and Potential Alternative Explanations

For several of our control variables, there is a natural expectation for how they should affect page views. We examine these variables' estimated coefficients to verify that they align with our intuition. If so, this would increase our confidence in our analysis. Conversely, if these estimated coefficients go against expectations, we would be less confident in our results.

First, all else being equal, one would expect that attractively priced listings—those with asking prices below their market values—would tend to receive more page views, while overpriced listings would tend to receive fewer.[281] Sure enough, this is precisely what we observe in nearly all markets in the analysis.[282] Figure 13 below shows that this trend holds for Los Angeles, which is a typical market in this regard.[283]

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REX: [Representative explains.]
AGENT: "Okay, well, I'm not doing that. Thank you." <Hangs up>
*See* Schuetz, *supra* note 273; https://www.dropbox.com/scl/fi/j2vva6xn6qbyutnuvq4hs/houston_chronicle_call_2.mp3?rlkey=j4d0f19mhkhe7nc1kxnso86pr&dl=0 (recording); https://www.dropbox.com/scl/fi/51ge258rt291776e3ssao/houston_chronicle_call_3.mp3?rlkey=9iei61rottyaeatl3qemcelx6&dl=0 (recording).

[278] Brambila, *supra* note 273; *see also* https://www.dropbox.com/scl/fi/c7tr7jxstee3a5i9thtvl/inman_call_1.mp3?rlkey=9rafbasgppz5xfbeqzqbbzfz5&dl=0 (recording).

[279] REX alleges that they have recorded calls from the Atlanta; Austin; Bay Area; Boston; Chicago; DC metro area; Denver; Houston; Jacksonville; Los Angeles; Las Vegas; Miami; New York metro area; Portland, OR; Orlando; Philadelphia; Phoenix; Research Triangle; Sacramento; San Antonio; San Diego; and Tampa markets.

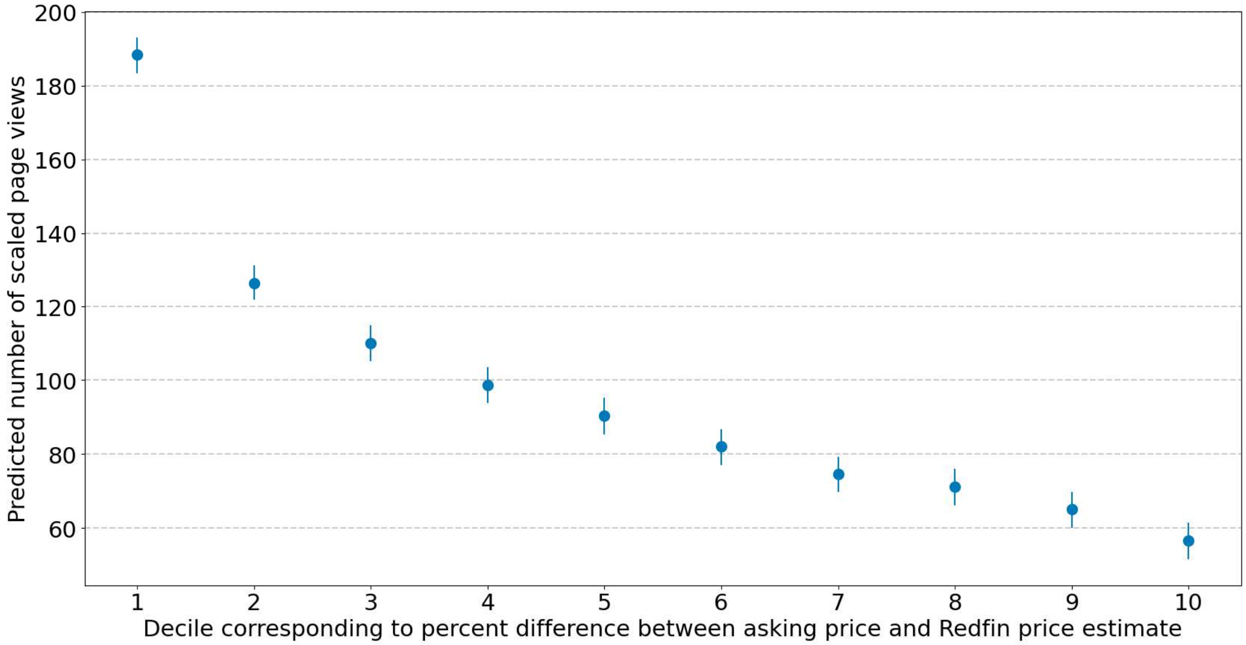
[280] Moehrl v. Nat'l Ass'n of Realtors, Case No. 1:19-cv-01610 (N.D. Ill.), Declaration of Will Fried, June 7, 2022, Doc. 324-4, at 3.

[281] This seems likely both because buyers will want to find the best home for the least money and because higher-priced homes may be above the price cutoffs that some buyers use in their Redfin searches, and thus will appear in fewer search results. We use the Redfin price estimate as a measure of value because the Redfin price estimate is contemporaneous with the property being listed and closely tracks sale prices on average. See *supra* footnote 181.

[282] Github Repository, *supra* note 45.

[283] *See* Appendix, *supra* note 45.

FIGURE 13: RELATIONSHIP BETWEEN THE EXTENT TO WHICH A PROPERTY IS OVERPRICED AND THE PREDICTED NUMBER OF SCALED PAGE VIEWS IN LOS ANGELES

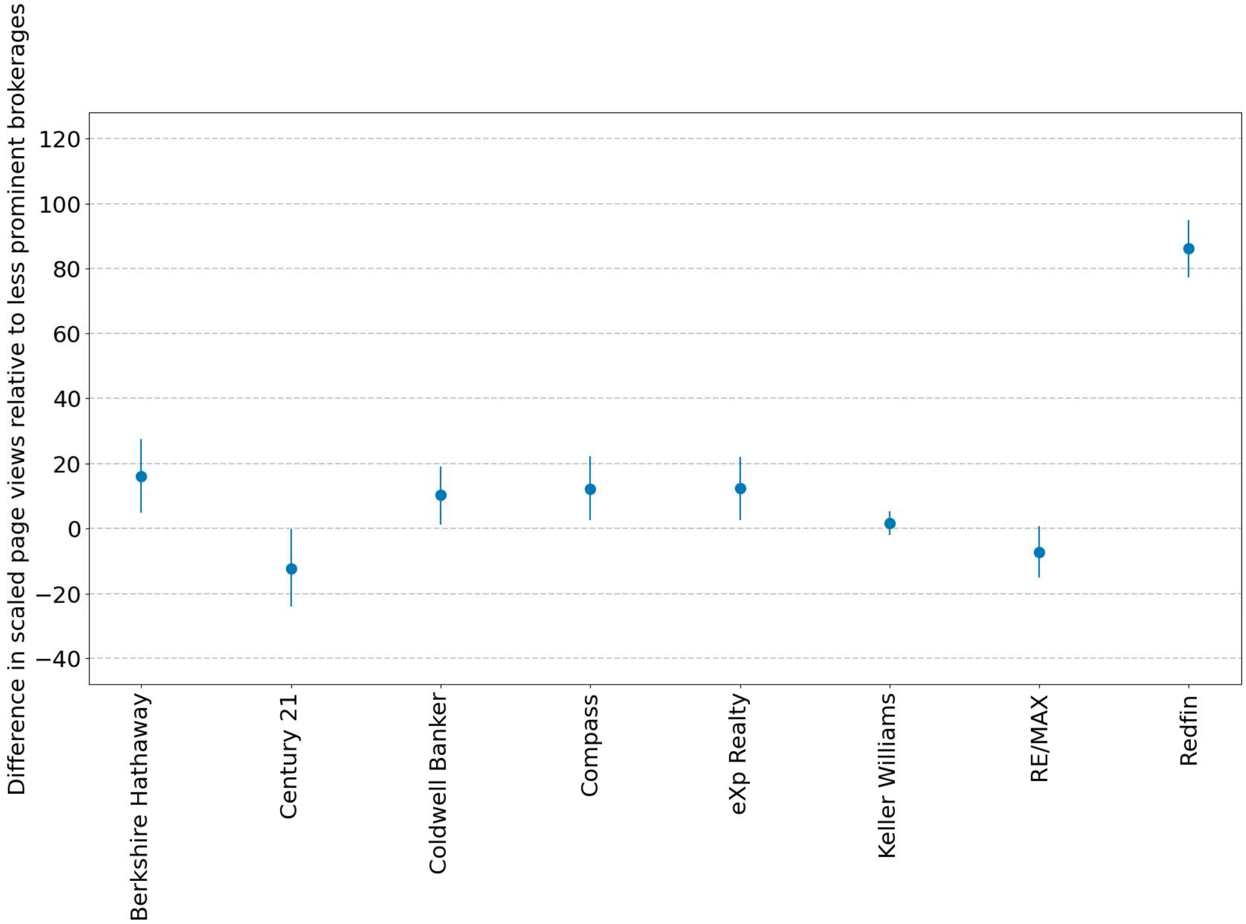



The horizontal axis displays the decile corresponding to the percent difference between the asking price and the Redfin price estimate (e.g., the first decile consists of the 10% most underpriced listings; the tenth decile consists of the ten percent most-overpriced listings, etc.). The vertical axis displays the predicted number of scaled page views associated with each decile. The dot represents the best-guess estimate, while the error bars denote the 95% credible interval.

Second, recall that when a Redfin agent is the listing agent, Redfin promotes that listing to the top of its search results during that listing's first week on the market.[284] Accordingly, all else being equal, one would expect that homes listed by Redfin would tend to receive more page views than those listed by other brokerages. This is indeed the case; we see this effect in almost every market in our sample.[285] Figure 14 shows the results for Austin.

[284] See *supra* footnote 152 and accompanying text.
[285] To be more specific, in all 14 of the markets in our dataset with at least 100 Redfin listings, the Redfin coefficient point estimate is higher than the coefficient for any other brokerage. *See* Github Repository, *supra* note 45.

FIGURE 14: AVERAGE DIFFERENCE IN SCALED PAGE VIEWS BETWEEN LISTINGS REPRESENTED BY LARGE NATIONAL BROKERAGES AND OTHER LISTINGS, IN AUSTIN




The dot represents the best-guess estimate, while the error bars denote the 95% credible interval. The graph shows that listings represented by Redfin tend to receive significantly more page views than listings represented by any other major brokerage.

Third, we consider the page views received by the listings that are geographically nearest to each property. One would expect to see a positive relationship between a home's page views and the page views of nearby homes. Indeed, we observe this relationship in every geographic market in our analysis.[286]

The fact that all three of our checks produce the expected results lends additional credence to our analysis.

[286] Our analysis considers the page views of the nearest 5, 10, 30, 100 and 200 listings. See *supra* Part III.D. These measures exhibit significant multicollinearity. We thus evaluate the sum of these five coefficients as a measure of the combined effect of the page views of geographically close homes. This sum was positive in every geographic market. *See* Github Repository, *supra* note 45.

It is also important to consider whether there are alternative explanations that might explain our results—that lower commissions predict fewer page views—other than buyer agent steering. For this to be the case, there must be a factor that we do not account for and that is associated with both lower page views and lower buyer agent commissions.

For example, suppose that single-family homes receive the most page views, and that they are the least likely to offer Low Commissions. In that case, all else being equal, Low-Commission listings would tend to garner fewer page views because they are less likely to be single-family homes. Fortunately, this is not a concern for our analysis, because we include a control variable for whether homes are single-family homes, townhouses, condominiums, and so forth. That control variable is designed to capture any effects attributable to the listing being a single-family home. Our analysis would only find a relationship between Low Commissions and page views if they were linked for some other reason—such as if buyer agents steer their clients away from Low-Commission listings.

One possible concern is that sellers who offer Low Commissions may tend to hire worse agents than sellers who offer Going-Rate Commissions.[287] If this is the case, then poor listing agent quality could explain why Low-Commission listings garner fewer page views, rather than steering by buyer agents.

We address this concern in a few ways. First, within our regression models, we control for which national real estate brokerage firm the listing agent is affiliated with (if any).[288] These firms are large operations with training programs and brand names. Thus, being affiliated with some of these firms may indicate above-average agent quality. Second, we control for the market share of the listing agent's brokerage. Brokerages that sell more homes will, by definition, have a higher market share. Selling more homes likely correlates with being more effective at helping sellers sell their homes. Thus, the agent's affiliation with a high- or low-market share brokerage provides information about the agent's quality level. Together, these controls help ameliorate our concerns about not being able to measure listing agent quality directly.

Third, we repeat our analysis on a subset of our data. Specifically, we limit our dataset to listings for which the listing agent has at least one Low-Commission listing in our dataset.[289] If Low Commissions are associated with low-quality listing agents, then limiting the analysis to the listings represented by these agents would control for listing agent quality.

[287] There are multiple possible reasons why this might be the case. If commissions are split between the agents for the buyer and the seller in a fixed proportion (for example, 50-50), then a lower buyer agent commission implies a lower listing agent commission. Lower-quality agents might be willing to take on listings for lower compensation than higher-quality agents. Alternatively, if listing agents are trained to persuade sellers to offer large buyer agent commissions, those who fail to persuade their buyers to do so may be less effective overall.

[288] These firms are Berkshire Hathaway, Century 21, Coldwell Banker, Compass, eXp Realty, Keller Williams, RE/MAX, and Redfin. We have a separate dummy variable for each. See *supra* Part III.F.

[289] In this analysis, we no longer control for the market share of the listing agent's brokerage or whether the listing agent works for one of the major national brokerages; it is otherwise identical to our previous analysis.

Of the approximately 140,000 unique listing agents in the dataset, 17% of them, or around 24,000, have at least one Low-Commission listing.[290] These agents do not seem much different from the other agents in our dataset; the median agent in the subset has the same number of listings as the median agent in the full dataset; the mean is slightly higher.[291] Figure 15 below presents our findings for this subset of listings on the national level. Table 5 presents the same information in tabular form.

FIGURE 15: EFFECT OF COMMISSION CATEGORY ON REDFIN PAGE VIEWS ON THE NATIONAL LEVEL, ONLY LISTINGS WITH LISTING AGENTS WHO OFFERED LOW BUYER AGENT COMMISSIONS

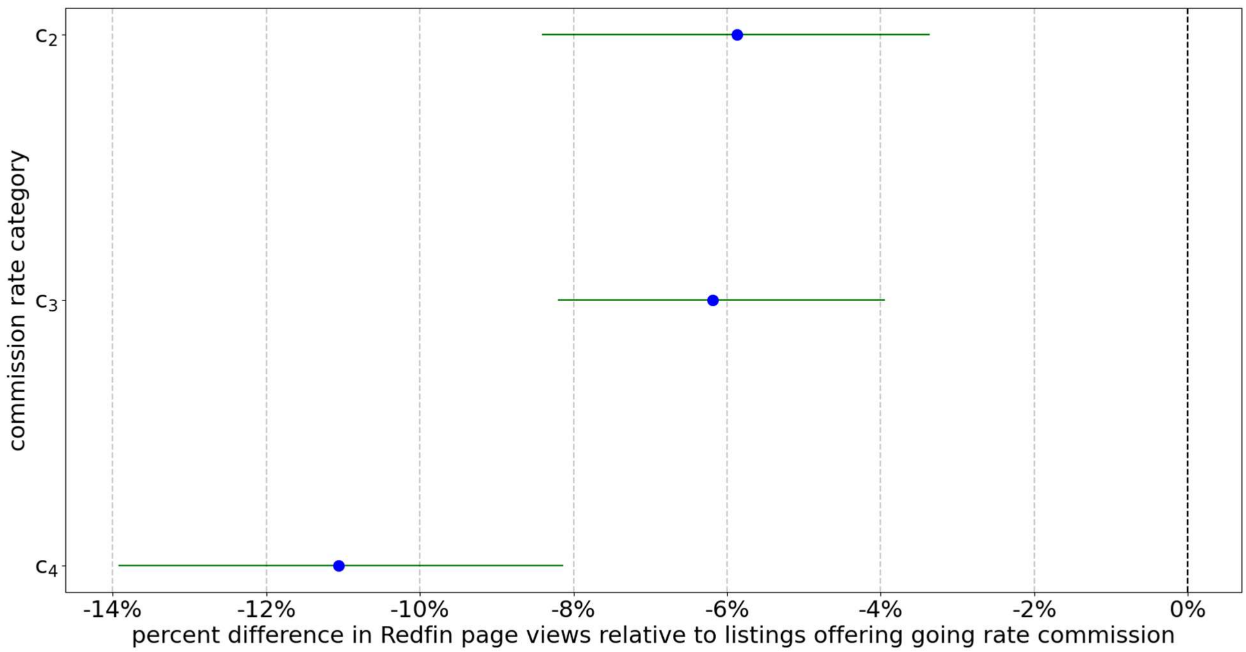



TABLE 5: EFFECT OF COMMISSION CATEGORY ON REDFIN PAGE VIEWS ON THE NATIONAL LEVEL.

| Commission Category | Best-Guess Estimate for Percent Difference | 90% Credible Interval | Probability Percent Difference < 0 |
|---|---|---|---|
| $c_2$ | -5.9% | [-8.4%, -3.4%] | > 99.9% |
| $c_3$ | -6.2% | [-8.2%, -4.0%] | > 99.9% |
| $c_4$ | -11.0% | [-13.9%, -8.1%] | > 99.9% |

The last column reports the estimated probability that the true percent difference is negative.

[290] The exact number of unique agents in our dataset is 140,783. Github Repository, *supra* note 45.

[291] The median number of listings in both populations is 1.0; the subset has a mean of 2.51, compared to 1.88 for the full dataset. Because of the higher mean, the 17% of agents in the subset represented 23% of the listings in the dataset, or roughly 61,000 listings. *Id.*

This analysis shows that, even among listing agents who are willing to offer Low Commissions, listings that offer Going-Rate Commissions receive significantly more page views than listings that offer Low Commissions. The effect is most pronounced for the lowest-commission properties ($c_4$), but it still applies to $c_2$ commissions, which are only slightly below the going rate. These results mirror those derived from the entire dataset. They thus provide strong evidence that differences in listing agent quality are not responsible for the page view disparities we observe.

To further investigate any effects of listing agent quality, we also consider property photographs. Redfin users can view each listing's primary photo before clicking on the listing. Almost all home buyers use the internet in their search, and 85% report that "Photos" are a "Very Useful" feature of real estate websites.[292] If low-quality agents connect their sellers with low-quality photographers who take low-quality photographs, that could potentially result in fewer page views for Low-Commission listings.

To investigate this, we inspected the primary photo for a random sample of homes in each commission category.[293] We found no obvious relationship between photo quality and commission rate.[294] This further suggests that the decrease in page views for Low-Commission listings is not attributable to lower-quality listing agents.

A second potential alternative explanation is that seller pricing behavior explains our page view results. We expected that, all else being equal, underpriced homes would receive more page views. This could happen both because buyers are presumably looking for better deals and because Redfin and MLS searches allow users to filter results based on price.[295] And indeed, the data bears out this prediction.[296]

It is possible that sellers who offer Low Commissions also overprice their homes more than other sellers do. If this is the case, overpricing could reduce these homes' page views, and this effect could potentially be misattributed to Low Commissions.

The data contradicts that narrative. First, our regression includes controls for the degree of over- and underpricing for each listing, which directly addresses this concern.[297] Second, we

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[292] NAR 2023 REPORT, *supra* note 212, at 56.
[293] Because we ran this comparison in December 2022, many months after most of these listings were on the market, there was a chance that the primary photos had changed over this interim. To ensure that the photos were the same, we checked for two conditions: First, the listing brokerage posted on Redfin as of December 2022 needed to match the listing brokerage scraped by Vertical Knowledge at the time the listing was on the market. Second, the listing photos needed to still be available on Redfin so that we could be confident that the primary photo on Redfin as of December 2022 was the original primary photo. We looked up listings until we found 30 in each category that met these two conditions. All 120 of these primary photos can be found here.
[294] It is difficult to test this systematically. The attractiveness of the photograph is difficult to disentangle from the appearance of the property itself.
[295] For example, imagine two identical homes, one of which has an asking price of $395,000 and the other an asking price of $405,000. If a user limited their search range to homes listed at less than $400,000, the former would appear but the latter would not.
[296] See Part III.B.5.a, supra.
[297] *See supra* Part III.E.

calculated the distribution of over- and underpricing for listings in each commission category.[298] The distributions are quite similar. In fact, to the extent that they differ, commission categories $c_3$ and $c_4$ exhibit a greater degree of *underpricing* than the other categories.[299] This runs directly contrary to the posited scenario, in which Low Commissions correlate with overpricing.[300]

## C. Low Commissions and Sales

If buyer agents steer their clients away from Low-Commission properties, one would expect—and worry—that this would result in worse sale outcomes for sellers who offer Low Commissions. Low-Commission listings could take more time to sell, or might not sell at all.[301] In a sense, this is what really matters. Home sellers do not care about page views in and of themselves; page views are only important to the extent that they help sellers find a buyer. Similarly, from a policy perspective, steering would be of little concern to regulators if it only affected website page views. But if buyer agent steering causes Low-Commission listings to sell more slowly, or to not sell at all—or even if sellers merely worry that steering might have these effects—it is a much more serious problem.

We investigate these questions below.

### 1. Time to Sell

To analyze the relationship between commission category and days on market, we conduct largely the same analysis as we did for page views. We again fit a Bayesian hierarchical regression model. We use the same control variables that we used in our analysis of page views.[302] There are two key differences from the page view analysis, however. First, our outcome variable for each home now measures that home's days on market.[303] Second, we limit

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[298] *See* Appendix, *supra* note 45, Figures A.5(a)-(d).

[299] It is helpful to consider homes that sold in comparable time periods, because overpriced homes tend to take longer to sell. Among homes that went under contract within 30 days, the median percent difference between sale price and asking price was 0.0% for both $c_1$ and $c_2$ commissions. For $c_3$ and $c_4$ commissions, the figures were +0.8% and +1.3%, respectively. *Id.*

Homes that took longer to sell paint a similar picture: To the extent that pricing patterns differ, Lower-Commission homes exhibit more underpricing. For the median $c_1$ and $c_2$ home that sold in 30-60 days, the percent difference between sale price and asking price was -4.3% and -4.2%, respectively. For $c_3$ and $c_4$ commissions, the figures were -3.5% and -2.3%, respectively. For homes that sold in 60-90 days, the corresponding figures are -6.6%, -7.9%, -5.8%, and -4.0%. *Id.* at Tables B.5(a)-(d), C.5(a)-(d).

[300] There are several possible reasons why sellers offering low commissions underprice more than other sellers. It could be that they are willing to accept a lower price because they are keeping more of it (because they are paying lower commissions).

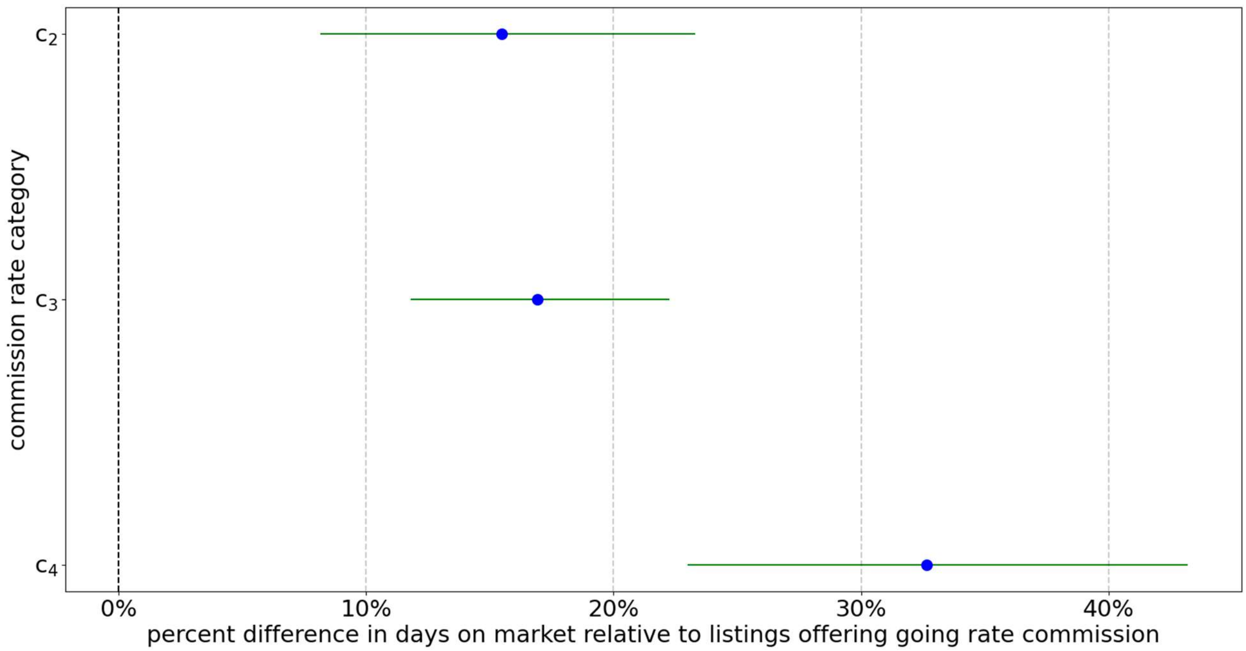
[301] One might also worry that such homes would sell at lower prices.

[302] Recall that these include geographic location within the metropolitan area, asking price, potential over- or underpricing, listing agent attributes, time trends, and properties of the home itself. See footnote 226, *supra*.

[303] We use the logarithm of the number of days on market as our measure. This is a common choice in statistical modeling.

The date a home is listed and the pending date both count toward the days on market number. For example, if a home is listed on January 1 and goes under contract the next day on January 2, the days on market would be two. We do not count days in which a listing is off the market. For instance, suppose a home is listed on January 1, taken off the market on January 5, relisted on January 10, and goes under contract January 15. The days on market would be the dataset to homes that went under contract within 180 days of being listed.[304] Approximately 195,000 homes in our dataset satisfied these criteria.[305] Figure 16 below presents our findings on the national level. Table 6 presents the same information in tabular form.

FIGURE 16: RELATIONSHIP BETWEEN COMMISSION CATEGORY AND DAYS ON MARKET, ON THE NATIONAL LEVEL




The blue dot represents the best-guess estimate for the percent difference in days on market relative to listings offering a Going-Rate Commission. The error bar denotes the 90% credible interval for this percent difference. It is colored green if the credible interval does not cross 0%, which signifies that the longer time to sell is statistically significant at the 0.05 level.

calculated as the number of days from January 1 to January 5 (5) plus the number of days from January 10 to January 15 (6), for a total of 11. The four days the home was off the market (January 6–9) would not count toward the total.

304 As before, we remove the 5% most expensive and least expensive homes in each metropolitan area. See footnote 202, *supra*. For a given listing to be included in this analysis, the following additional criteria must be met: First, the data must include the list date, pending date and sale date. As with our page views analysis, we exclude properties that sold within 8 days of coming on the market. Second, the listing must have been scraped on Redfin either while the property was in the "coming soon" phase or after the property was listed. Third, the property must have sold within 120 days of going under contract. Fourth, we removed the 1.9% of remaining listings for which the days on market was above 180. Finally, we removed the 2.1% of remaining listings which were delisted for more than 30 days in total.

305 *See* Github Repository, *supra* note 45. In Virginia Beach, Redfin reports previous sale dates, but not when a home was listed or when it went under contract. Because these sale histories are incomplete, we exclude Virginia Beach listings from our sale outcome analyses.

TABLE 6: RELATIONSHIP BETWEEN COMMISSION CATEGORY AND THE TIME IT TAKES TO SELL, ON THE NATIONAL LEVEL

| Commission Category | Best-Guess Estimate for Percent Difference | 90% Credible Interval | Probability Percent Difference > 0 |
|---|---|---|---|
| $c_2$ | 15.5% | [8.1%, 23.3%] | > 99.9% |
| $c_3$ | 16.9% | [11.8%, 22.2%] | > 99.9% |
| $c_4$ | 32.7% | [23.0%, 43.2%] | > 99.9% |

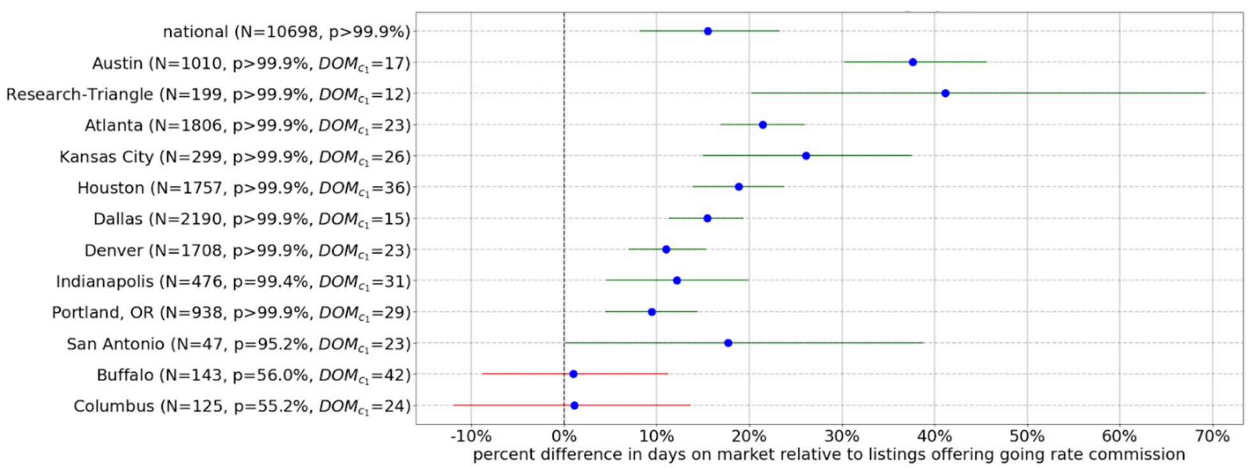
The last column reports the estimated probability that the true percent difference is positive.

Figure 16 shows that listings that offer commissions in categories $c_2$, $c_3$ and $c_4$ respectively take an average of 15.5%, 16.9%, and 32.7% longer to sell than listings that offer Going-Rate Commissions. All of these results are statistically significant at the 0.05 level.[306] Moreover, the lowest-commission listings ($c_4$) take significantly longer to sell than other Low-Commission listings ($c_2$ and $c_3$). But even $c_2$ listings, which are only slightly below the going rate, still take significantly longer to sell than listings offering Going-Rate Commissions.[307] All of these results directly mirror the results of our page view analysis.

Figure 17 presents our findings for each market in the analysis. Figures 17(a), 17(b) and 17(c) respectively show the results for listings that offer a commission rate in categories $c_2$, $c_3$ and $c_4$. Table A.5 in the Appendix presents the same information in tabular form.[308]

FIGURE 17: RELATIONSHIP BETWEEN COMMISSION CATEGORY AND DAYS ON MARKET, BY GEOGRAPHIC MARKET

(a) COMMISSION CATEGORY $C_2$

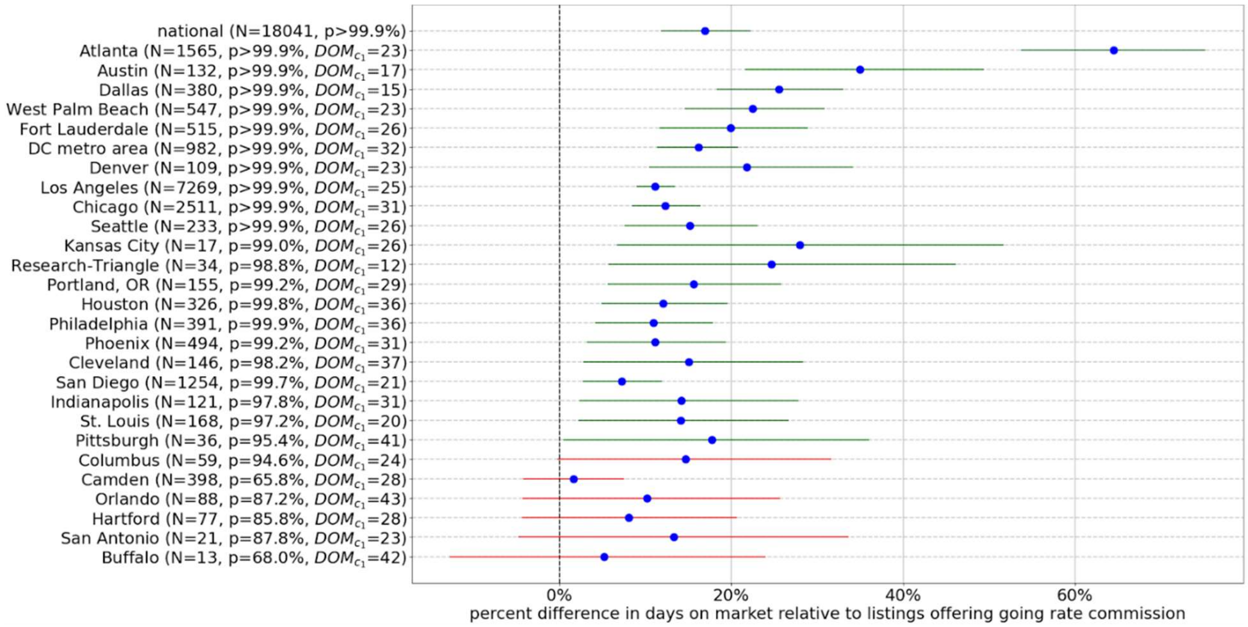



[306] They are all significant at the <.001 level.

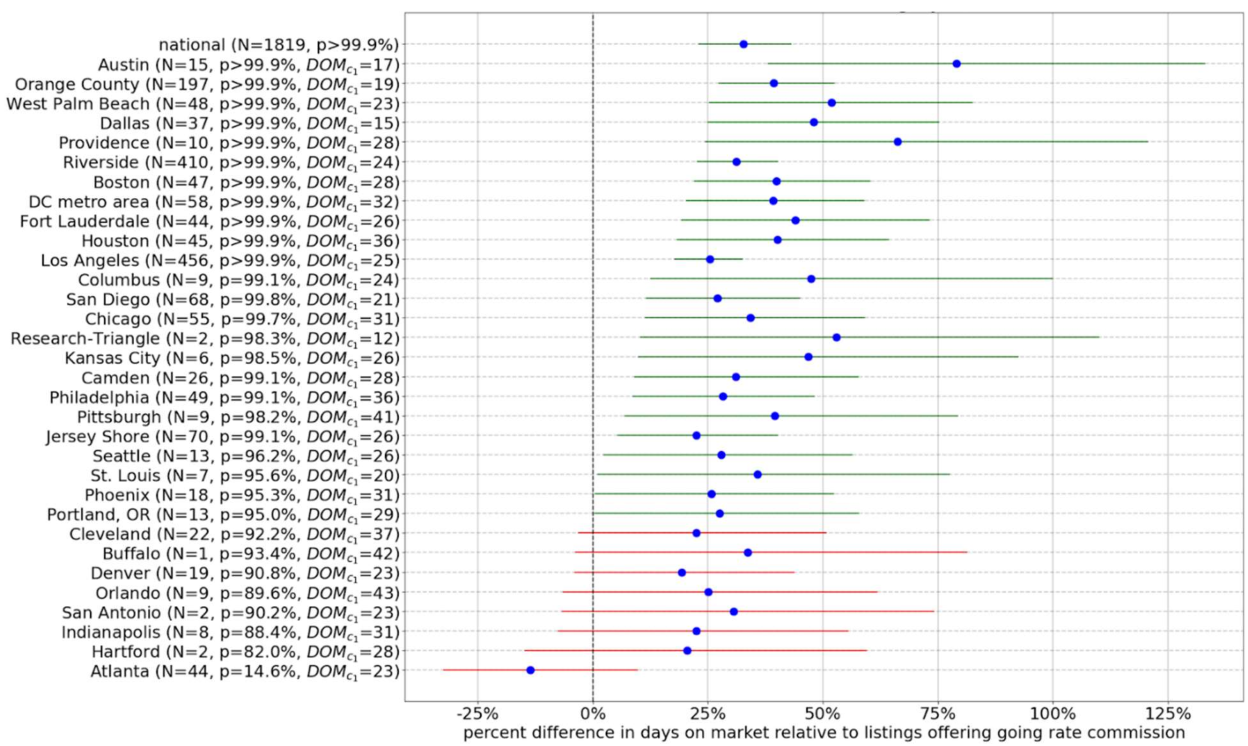
[307] This matches the experience of the largest brokerage in Minneapolis, as reported in the 1983 FTC Report. See footnote 123, *supra*, and accompanying text.

[308] *See* Appendix, *supra* note 45, Table A.5.

(b) COMMISSION CATEGORY $C_3$




(c) COMMISSION CATEGORY $C_4$



The blue dot represents the best-guess estimate for the percent difference in days on market relative to listings offering a Going-Rate Commission. The error bar denotes the 90% credible interval for this percent difference. It is colored green if the credible interval does not cross 0%, which signifies that the longer time to sell is statistically significant at the 0.05 level, and red otherwise. The vertical axis label reports three pieces of information: the number of listings in each market that offer a commission in the given commission category; the probability that the true percent difference in days on market is positive; and $DOM_{c_1}$, which denotes the average days on market for listings that offered a Going-Rate Commission.

Figure 17 shows that in most markets, listings that offer commissions in categories $c_2$, $c_3$ and $c_4$ all take significantly longer to sell than listings that offer Going-Rate Commissions. Within each commission category, this effect generally has similar magnitude across many markets.[309]

Selling delays of the magnitude that we estimate here would impose significant costs on home sellers. For most sellers, their home is by far their largest asset; home sales and purchases are the largest financial transactions that many Americans experience, and they can create tremendous stress.[310] Home sellers report that the selling process is more stressful than planning a wedding or being fired.[311] Over a third of sellers report crying from the stress, with 20% of that group crying five or more times.[312] Moreover, home sellers identified "Not knowing if the home would sell within the desired time frame" as a top reason for their home-sale stress.[313] Selling delays also mean that homeowners must continue to pay expenses such as property taxes, utilities, and maintenance costs. To make matters worse, most home sellers report that they are trying to buy a new home—a similarly fraught process[314]—at the same time they are selling their old home.[315] Many sellers need the proceeds of their old home to make a down payment on their new home, and thus may find themselves in housing limbo until they can sell their old home. Sellers who do purchase a new home before they sell their old home risk having to pay two mortgages simultaneously. This can impose a heavy burden, as housing is by far the largest component of most Americans' budgets.[316] Facing these potential consequences, a rational seller

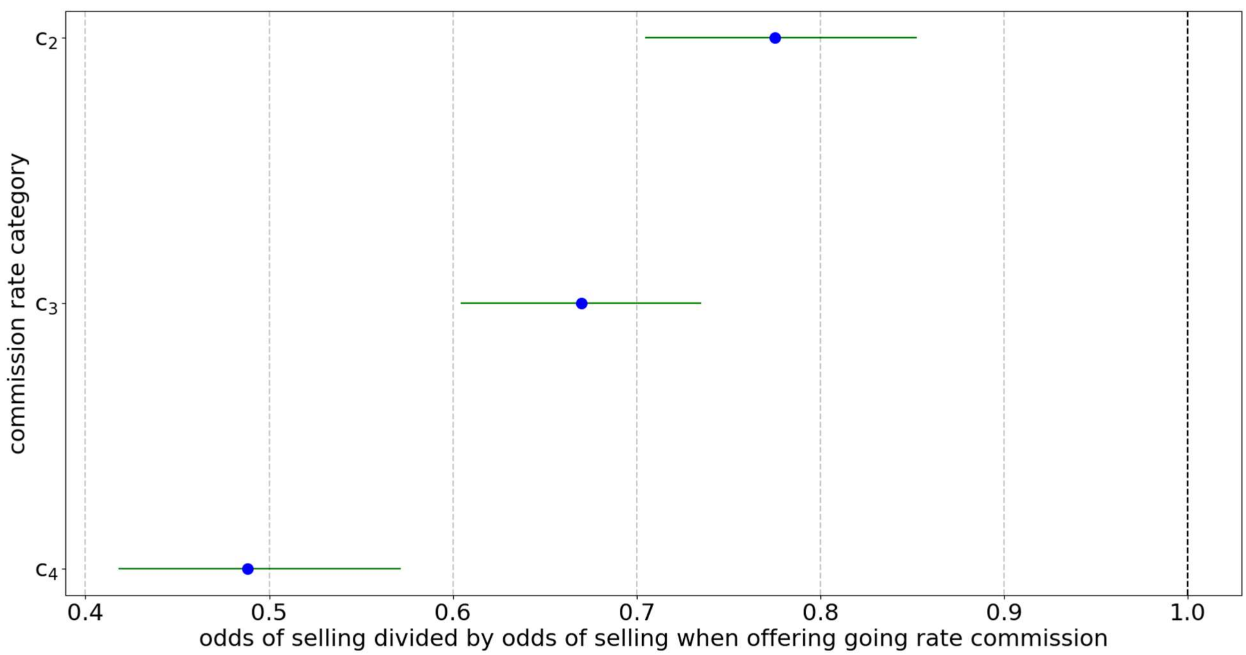
[309] As noted previously, one should not think about statistical significance as a hard cut-off at 95%. See footnote 246 *supra*, and accompanying text.
[310] *See, e.g.*, *Are Home Buyers and Sellers Rational? Do They Exhibit Behavioral Biases*, LSU.EDU, March 04, 2022, https://www.lsu.edu/business/news/2022/3/are-home-buyers-and-sellers-rational-do-they-exhibit-behavioral-biases-2022.php; Jen A. Miller, *When a House Is So Much More*, N.Y. TIMES, Aug. 3, 2018, https://www.nytimes.com/2018/08/03/realestate/when-a-house-is-so-much-more.html; Kelsey Ramirez, *Americans Say Buying a Home Is Most Stressful Event in Modern Life*, HOUSINGWIRE, Aug. 6, 2018, https://www.housingwire.com/articles/46384-americans-say-buying-a-home-is-most-stressful-event-in-modern-life/.
[311] *More Than a Third of Americans Cry While Selling Their Home*, Press Release, ZILLOW.COM, June 24, 2019, https://zillow.mediaroom.com/2019-06-24-More-than-a-Third-of-Americans-Cry-While-Selling-Their-Home [hereinafter Zillow Press Release].
[312] *Id.*
[313] *Id.* (reporting 69% stressed by this, second-highest response behind uncertainty over sales price (70%)); ZILLOW, ZILLOW GROUP CONSUMER HOUSING TRENDS REPORT 2019, https://wp-tid.zillowstatic.com/50/CHTR2019_Sellers_webFINAL-63702e.pdf (reporting this as the most frequent reported stressor (56%)).
[314] Ramirez, *supra* note 310 ("40% [of home buyers] say buying a new home is the most stressful event in modern life" and 33% admitted to crying during the process).
[315] Zillow Press Release, *supra* note 311 (61%).
[316] United States Bureau of Labor Statistics, *supra* note 49.

might well conclude that their best course of action is to bear the added cost of paying a Going-Rate Commission.

2. Probability of Sale

We now analyze the relationship between commission category and the chances that a home sells within 120 days of being listed. Our approach closely tracks our approach in our analysis of days on market. However, because we are now predicting a binary variable—a home either sold within the relevant time period or it did not—we now use a Bayesian hierarchical logistic regression model. Figure 18 below presents our findings on the national level. Table 7 presents the same information in tabular form.

FIGURE 18: RELATIONSHIP BETWEEN COMMISSION CATEGORY AND ODDS OF SELLING, ON THE NATIONAL LEVEL




The odds of selling is defined as the probability of selling divided by the probability of not selling. This means that if a home has a 90% chance of selling, the odds of selling is $\frac{0.9}{0.1} = 9$. If a home has an 80% chance of selling if it offers a Low Commission and a 90% chance of selling if it offers a Going-Rate Commission, the odds ratio of selling would be $\frac{(\frac{0.8}{0.2})}{(\frac{0.9}{0.1})} = \frac{4}{9}$. The blue dot represents the best-guess estimate for the odds ratio, while the error bar denotes the 90% credible interval for this odds ratio. This error bar is colored green if the credible interval does not cross 1.0, which signifies that the negative impact on the chances of selling is statistically significant at the 0.05 level, and red otherwise.

TABLE 7: ODDS RATIO OF SELLING ON THE NATIONAL LEVEL

| Commission Category | Best-Guess Estimate for Odds Ratio | 90% Credible Interval | Probability Odds Ratio < 1 |
|---|---|---|---|
| $c_2$ | 0.78 | [0.70, 0.85] | > 99.9% |
| $c_3$ | 0.67 | [0.60, 0.74] | > 99.9% |
| $c_4$ | 0.49 | [0.42, 0.57] | > 99.9% |

The last column reports the estimated probability that the true odds ratio is less than one.

Figure 18 shows that listings that offer $c_2$, $c_3$ and $c_4$ commissions respectively have odds of selling that are 22%, 33% and 51% lower than listings that offer Going-Rate Commissions. All of these results are statistically significant at the 0.05 level.[317] Moreover, the chances of selling decline as the commission rate offered decreases. There is a 96% chance that the odds ratio for category $c_3$ is lower than the odds ratio for category $c_2$; there is almost a 100% chance that the odds ratio for category $c_4$ is lower than the odds ratio for category $c_3$.[318]

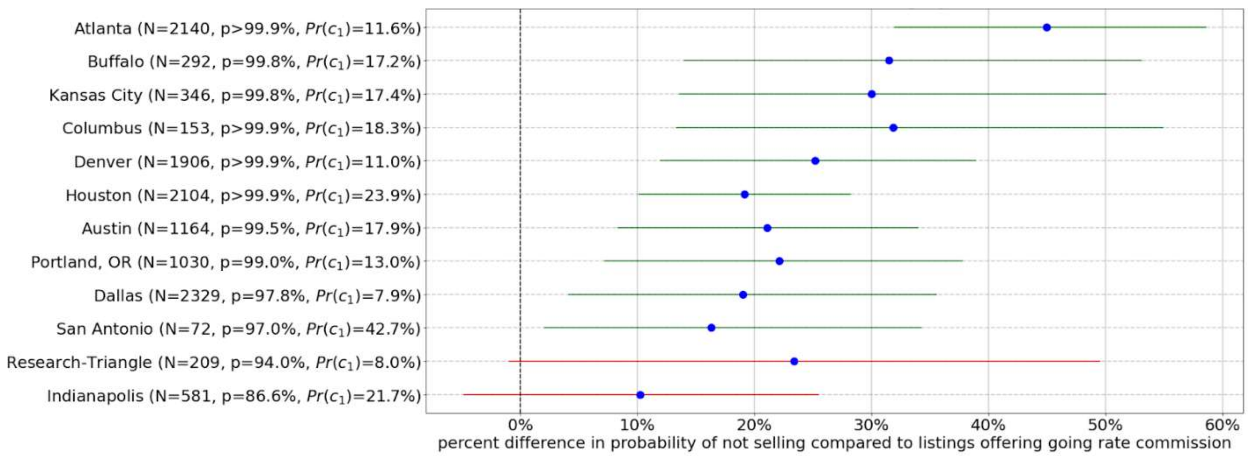
Interpreting odds ratios can be challenging.[319] Fortunately, we can present our findings for each market in a more intuitive way: We can calculate the probability that a typical listing in a given market will not sell, assuming that it offers a Going-Rate Commission. We can also calculate the probability that the same listing will not sell, assuming that it offers a Low Commission.[320] We can then compare these probabilities to see the relationship between Low Commissions and the probability of not selling. For example, in Atlanta, there is an 11.6% probability that a typical listing will not sell, assuming it offers a Going-Rate Commission.[321] If that same listing were to offer a $c_2$ commission, the estimated probability of not selling would be 16.8%.[322] Thus, shifting from a Going-Rate Commission to a slightly lower commission increases the estimated probability of not selling by 45%.[323]

Figure 19 presents our findings for each market in the analysis. Figures 19(a), 19(b) and 19(c) respectively show the results for listings that offer commission rates in categories $c_2$, $c_3$ and $c_4$. Table A.4 in the Appendix presents the same information in tabular form.[324]

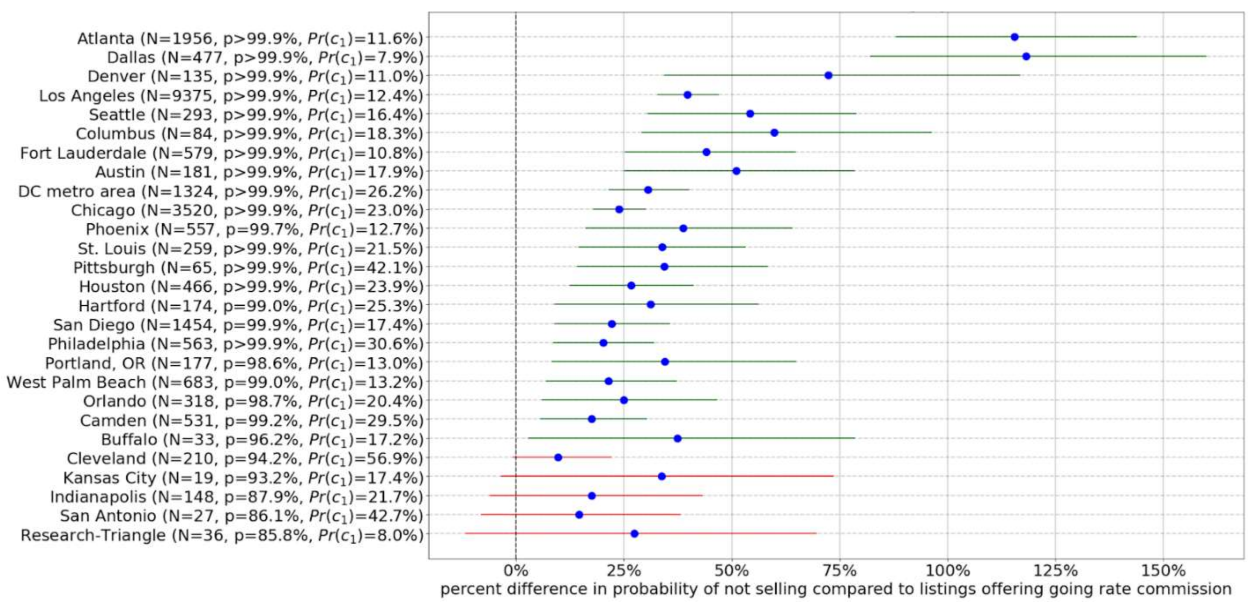
[317] They are significant at the < .001 level.
[318] The estimated probability is < .001.
[319] Unfortunately, there is no obvious, easier way to communicate our findings on the national level.
[320] We define a typical listing in a given market as a single-family home with all the control variables set to their median value in that market. We assume that the listing agent does not work for one of the large national brokerage firms. Note that the probability that a hypothetical typical listing does not sell is not necessarily the same as the probability of not selling measured over the entire population as a whole. For example, a San Antonio listing that was at the median for all attributes and offered a going-rate commission would have a 42.7% chance of not selling within 120 days; overall, 31% of listings in San Antonio did not sell within that time frame. *Cf.* Figure 19, *infra*.
[321] *See* Github Repository, *supra* note 45.
[322] *Id.*
[323] Calculating the percent change compared to the initial probability of 11.6% yields: (16.8% - 11.6%) / 11.6% = 45%.
[324] *See* Appendix, *supra* note 45, Table A.4.

**FIGURE 19:** RELATIONSHIP BETWEEN COMMISSION CATEGORY AND PROBABILITY OF SELLING, BY GEOGRAPHIC MARKET

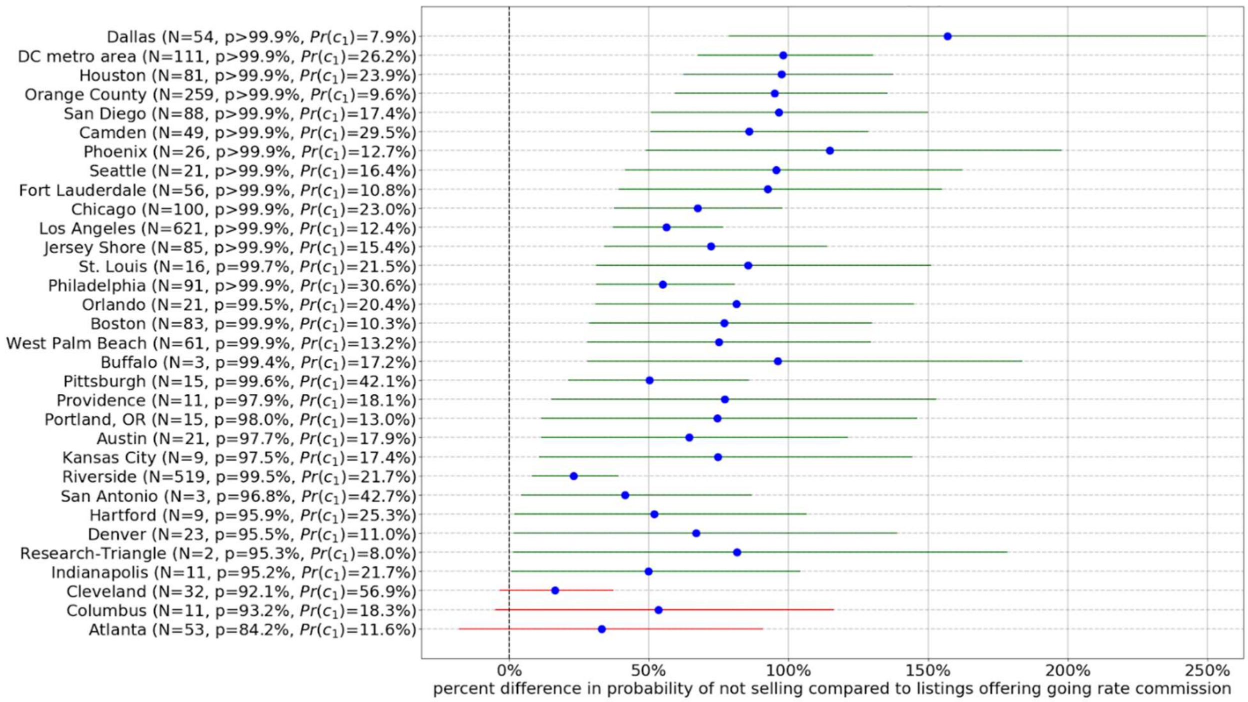
(a) COMMISSION RATE CATEGORY $C_2$




(b) COMMISSION RATE CATEGORY $C_3$



(c) COMMISSION RATE CATEGORY $C_4$




The blue dot represents the best-guess estimate for the percent difference in the probability that a typical listing offering a Low Commission would not sell relative to the probability that the listing would not sell if it were to offer a Going-Rate Commission. The error bar denotes the 90% credible interval for this percent difference. It is colored green if the credible interval does not cross 0%, which signifies that the negative impact on the chances of selling is statistically significant at the 0.05 level, and red otherwise. The vertical axis label reports three pieces of information: the number of listings in each market that offer a commission in the given commission rate category; the probability that the true percent difference in the chances of not selling is positive; and $Pr(c_1)$, which denotes the probability that a typical listing that offers a Going-Rate Commission does not sell in the given market.

Figure 19(a) shows that, in the vast majority of markets, Low-Commission listings are significantly less likely to sell than listings that offer Going-Rate Commissions. This effect is most pronounced with respect to the lowest commissions ($c_4$). In almost every market, the best estimate is that listings offering $c_4$ commissions are at least 50% more likely to not sell than listings offering Going-Rate Commissions.[325] Even $c_2$ commissions, which are close to Going-Rate Commissions, predict a substantially higher chance of not selling.

A failed home sale can be a disaster for a seller. It can leave many financially unable to purchase a new home, placing them in housing limbo for an indefinite period of time. Even those who are able to purchase a new home without selling their prior home face the daunting prospect of paying two mortgages for an extended period of time. Thus, the effects that we find

[325] *See supra* Figure 19(c) (27 of 32 markets).

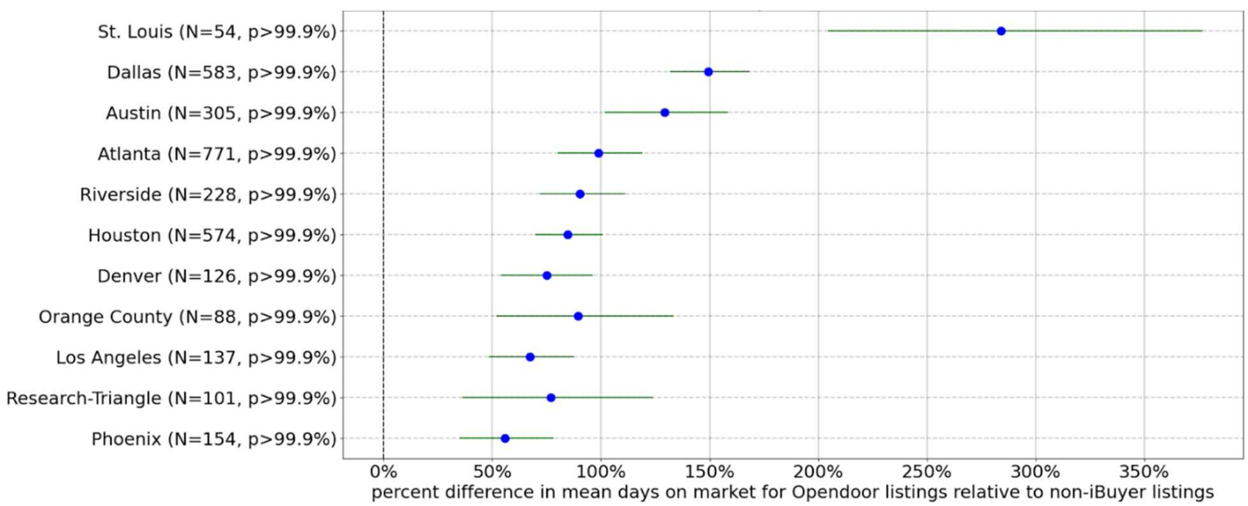
on the probability of a failed sale are highly economically meaningful. Again, facing such potential consequences, a rational seller might well decide to pay a Going-Rate Commission.

3. iBuyer Results

Finally, we compare the time it takes iBuyers to sell their homes to the time it takes traditional listings to sell, again controlling for all other confounding variables. Figures 20(a), 20(b) and 20(c) below show the differences for Opendoor, Zillow and Offerpad, respectively. Table A.6 in the appendix presents the same information in tabular form.[326]

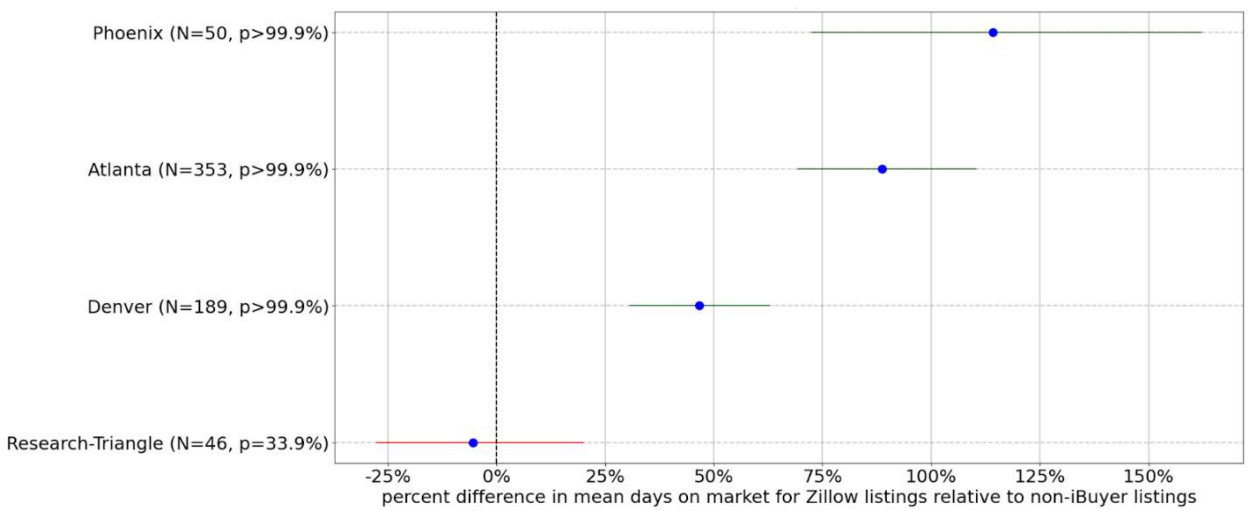
FIGURE 20: COMPARISON OF THE TIME IT TAKES IBUYERS TO SELL HOMES TO THE TIME IT TAKES TRADITIONAL LISTINGS TO SELL

(a) OPENDOOR

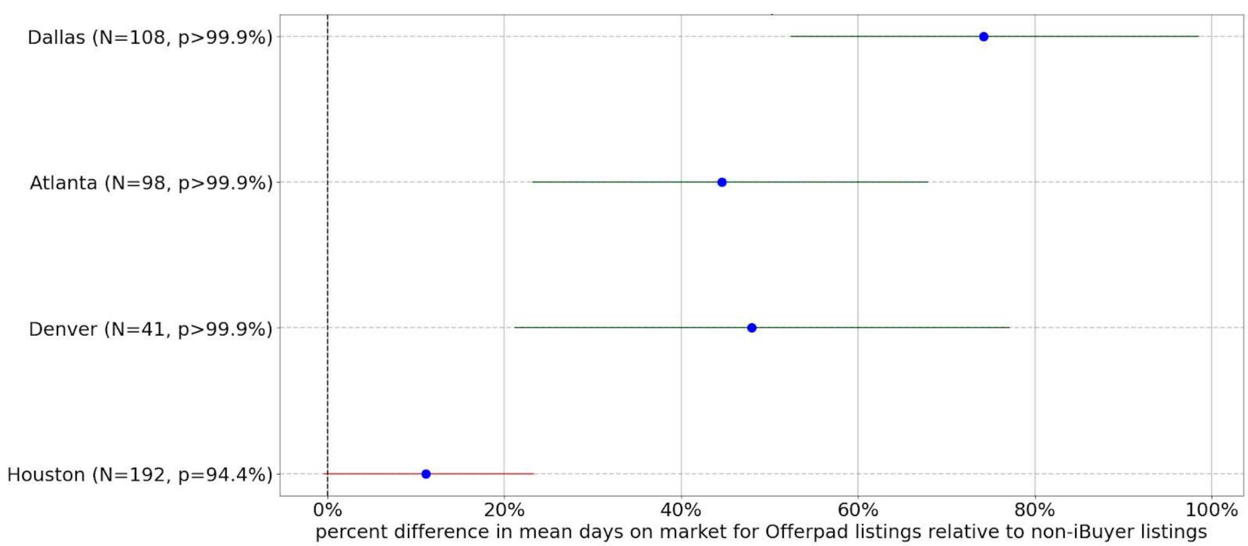



[326] *See* Appendix, *supra* note 45, Table A.6.

(b) ZILLOW




(c) OFFERPAD




The blue dot represents the best-guess estimate for the percent difference in days on market for iBuyer-owned listings relative to traditional listings, while the error bar denotes the 90% credible interval for this percent difference. This error bar is colored green if the credible interval does not cross 0%, which signifies that the longer time to sell is statistically significant at the 0.05 level, and red otherwise. The vertical axis label reports the number of listings in each market that offer a commission in the given commission category. The graphs are limited to markets in which at least 40 listings in the dataset were sold by the given iBuyer. The vertical axis label also reports the estimated probability that the true percent difference in days on market is positive.

Figure 20 shows that, in most major markets in our dataset in which iBuyers operate, it takes iBuyers significantly longer to sell their homes than other sellers. It is important to emphasize that the differences shown in Figure 20 are in addition to the adverse effect associated with offering a Low Commission.[327] In other words, we know from our data that iBuyer listings typically offer Low Commissions; Figure 20 shows the effects of being an iBuyer beyond what one would expect from the effects of the Low Commissions that they offer.

Moreover, there is reason to believe that iBuyers tend to be more motivated to sell than other sellers, as their business model depends on buying and reselling homes quickly. We would thus expect that iBuyers might be more willing to reduce asking prices in order to sell homes than others sellers would be. The data bears this out; the average iBuyer listing was both more likely to have a price reduction and to have multiple price reductions.[328] Overall, the average iBuyer listing had approximately twice as many expected price reductions as the average non-iBuyer listing.[329] The fact that iBuyers still took significantly longer to sell their homes, despite being more willing to cut their prices, suggests that our estimates understate the headwinds that iBuyers face.[330]

Of the three iBuyers, Opendoor seems to fare the worst. Figure 20(a) shows that it takes Opendoor at least 50% longer to sell in every market in which it operates. In many markets, Opendoor listings are sitting on the market for close to, if not more than, twice as long as traditional listings.

4. Tests of Our Analysis and Potential Alternative Explanations

As with our page views analysis, we can gain additional perspective on our results by checking whether our regression coefficients have their expected signs. As before, we find that our measures of over- and underpricing display their expected effects; underpriced homes sell faster and are more likely to sell.[331] This gives us additional confidence in our analysis.

Similarly, we ran a number of alternative regressions under different model specifications to confirm that our results are robust. Each of these analyses produced similar results. For example, we ran the probability of sale analysis using cutoffs of 90 days and 180 days instead of 120 days; the results of all three analyses were nearly identical.[332] We also conducted our probability of sale analysis using a Bayesian hierarchical negative binomial regression model; it

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[327] Recall that iBuyers usually offer commissions below the going rate.

[328] Only 27% of non-iBuyer listings reduced their prices; for Opendoor this was 41%, Zillow 44%, and Offerpad 31%. Among listings that had at least one price reduction, the average non-iBuyer listing had 1.6 reductions; for Opendoor this was 2.1, for Zillow 2.8, and for Offerpad 2.3. These numbers treat all price changes as price reductions for simplicity; fewer than 10% of price changes in our data are price increases. *See* Github Repository, *supra* note 45.

[329] The expected number of price reductions among non-iBuyer listings was 0.44; for Opendoor it was 0.86, for Zillow 1.2, and for Offerpad 0.7. *Id.*

[330] Because iBuyers seem more likely to cut home prices when their homes do not sell quickly, we do not conduct a likelihood of sale analysis on iBuyers relative to other buyers.

[331] Unfortunately, there is little reason to think that the other two variables that we considered under our page view analysis would have strong expected effects here. It is not obvious that Redfin listings would sell faster (or slower) or be more (or less) likely to sell than listings by other brokerages. Similarly, if a home is in a neighborhood that receives many page views, that says relatively little about that home's likelihood of selling quickly or at all. Although Redfin page views are a measure of interest in a property, most people viewing a property on Redfin are probably not serious candidates to buy it imminently; higher page views for a neighborhood may simply signify that it is of greater interest to Redfin hobbyists.

[332] *See* Appendix, *supra* note 45.

produces similar results to the log-linear model discussed previously in text.[333] Across all of these regression models, we find that lower buyer agent commissions predict a longer time on market and a reduced probability of sale. What's more, we continue to see that these effects are largest for the lowest commissions ($c_4$).

As for alternative explanations, just as in our page view analysis, we again consider listing agent quality and under- and overpricing as possibilities.

As before, one might be concerned that Low-Commission listings tend to have low-quality listing agents. If so, low listing agent quality for Low-Commission properties could cause longer sale times and greater chances of failed sales, rather than steering by buyer agents.

Our time to sale and probability of sale regressions include the same controls for agent quality as our page view regressions. More specifically, we have a control variable for each national real estate brokerage that captures whether the listing agent is affiliated with that brokerage. We also have a control variable for the market share of each agent's brokerage in the relevant geographic market. Just as before, these controls reduce our concerns about listing agent quality.

In addition, we again repeat our analysis, but restricting our data to listings for which the listing agent has at least one Low-Commission listing in our dataset.[334] If Low Commissions are associated with lower-quality listing agents, then limiting the analysis to these listings controls for listing agent quality. We again find that the results of this regression are not statistically significantly different from the results of our original analysis; Low Commissions still predict a longer time to sell and a lower probability of sale, and the effects are strongest for the lowest commissions ($c_4$).[335] This alternative analysis provides strong evidence that differences in listing agent quality are not responsible for the observed effects on sale outcomes.

As with page views, we again consider sellers' pricing behavior as another possible alternative explanation. Underpriced homes sell more quickly and are more likely to sell overall.[336] If sellers who offer Low Commissions overprice their homes more than other sellers, the effects of overpricing could potentially be misattributed to Low Commissions.

As with page views, the data contradicts that narrative. Our regression models control for the degree of over- and underpricing for each listing, directly addressing this concern.[337]

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[333] The log-linear model fits the data better. *See* Github Repository, *supra* note 45.
[334] The only difference from the previous analysis is that we no longer control for the market share of the listing agent's brokerage or whether the listing agent works for one of the major national brokerages.
[335] *Id.* We note that in our new regression, the odds ratio for the probability of selling a property with a $c_2$ commission is not statistically significantly different from the same odds ratio for a property with a $c_1$ commission (p-value 0.15). But, as noted in text, the new best estimate for the $c_2$ coefficient is also not statistically significantly different from the best estimate of $c_2$ in our original analysis (p-value 0.08). The estimates for the odds ratios of $c_3$ and $c_4$ commissions are both statistically significantly different from the $c_1$ commission odds ratio and from each other, and are not statistically significantly different from the corresponding estimates in our original regression (p-values 0.17 and 0.36, respectively). *Id.*
[336] *Id*
[337] *See supra* Part III.E.

Second, the distributions of over- and underpricing for listings in each commission category are quite similar.[338] To the extent that they differ, commission categories $c_3$ and $c_4$ again exhibit a greater degree of *underpricing* than the other categories.[339] This directly contradicts the posited scenario in which Low Commissions correlate with overpricing.

We recognize that there may be possible confounders here that are not present in our page views analysis. The full sale process involves more interactions between buyers and sellers than viewing listings on Redfin does.[340] Sellers who offer Low Commissions may act differently during these interactions than other sellers. For example, they might be less responsive to buyer requests for information, or less willing to accommodate requests to show the home.[341] If so, this difference in behavior could explain why sellers who offer Low Commissions have more trouble selling their homes.

Unfortunately, we cannot observe the sequence of interactions between sellers and prospective buyers directly. However, nothing in what we *can* observe suggests that these sellers act differently from other sellers, other than offering Low Commissions. They do not overprice their homes; if anything, they underprice relative to other sellers.[342] If home sellers offering Low Commissions were less responsive or more difficult to deal with than other sellers, one would expect this behavior to continue throughout the entire sale process, and to delay closings. But once they go under contract, homes offering Low Commissions take the same amount of time to complete the sale process as homes offering Going-Rate Commissions.[343] It is always possible that sellers act differently in arenas that are beyond the reach of our data—but it would be odd if they *only* acted differently in the areas outside of our data.

## V. POLICY IMPLICATIONS

Given the size and importance of the U.S. residential real estate market, our findings have significant policy implications. We begin by considering policy responses to address the specific issue of commission-based steering. We then consider some larger policy implications that flow from our results.

### A. Responses to Commission-Based Steering

Commission-based steering can potentially cause multiple harms. It is worthwhile to briefly clarify these harms before proceeding further, so that we can understand what problems policy responses need to address. First, commission-based steering harms buyers. By preventing buyers from seeing homes that might be of interest, it leads to a less-efficient

[338] *See* Appendix, *supra* note 45, Figures A.5(a)-(d), B.5(a)-(d), C.5(a)-(d). We compare homes that go into contract within 30-day windows (0-30, 30-60, 60-90) because, on average, homes that are on the market for longer tend to be more overpriced. Therefore, these homes are more likely to sell for less than the original asking price.
[339] See *supra* note 299.
[340] These interactions include indirect transactions, intermediated by their respective agents.
[341] The opposite could also be true, in which case our analyses underestimate the predicted effects of offering low buyer agent commissions.
[342] *Id.*
[343] The median days in escrow for $c_1$, $c_2$, $c_3$, and $c_4$ homes are 35, 33, 35, and 34, respectively; the means paint a similar picture (39.9, 37.9, 40.7, and 39.7). *Id.*

matching of people to homes. Second, commission-based steering harms sellers who offer Low Commissions. Our analysis indicates that they may take longer to sell their homes, if they sell them at all.

Third, commission-based steering harms sellers who offer Going-Rate Commissions.[344] The main reason—perhaps the only reason—for a seller to offer a Going-Rate Commission is to avoid steering. Why else should a self-interested seller pay thousands of dollars to their counterparty's agent? There is good reason to think that this third effect is the largest, simply because most sellers offer Going-Rate Commissions. Indeed, regulators concerned about commission-based steering have mostly expressed concern about steering as a mechanism for keeping commissions high. In short, when considering policy responses to commission-based steering, one should consider policies' effects on overall commission levels.

1. Stop Requiring Sellers to Offer Buyer Agent Commissions

Under NAR rules, affiliated MLSs must require sellers to specify a commission for buyer agents in order to list their home on the MLS. One proposed solution is to make offers of compensation optional in the MLS. That is, rather than requiring sellers to offer a commission, MLSs should allow sellers to offer buyer agents no commission at all. This proposal has superficial appeal, but our data suggest that it is unlikely to be effective.

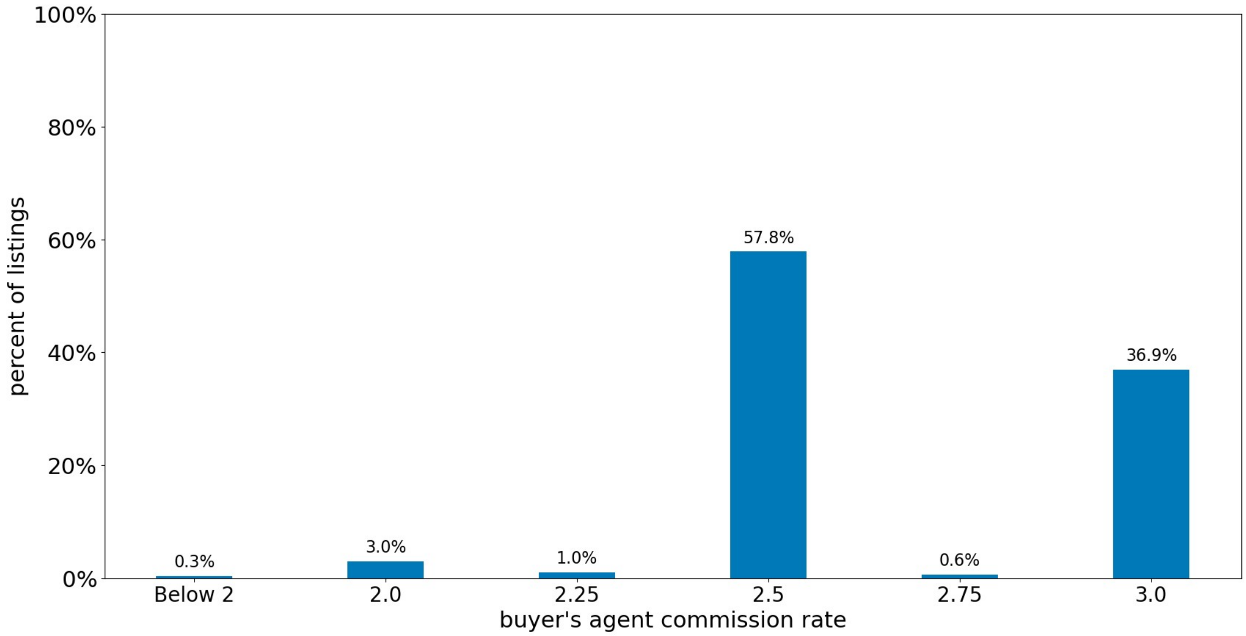
First, it is worth noting that the current MLS rule only requires some amount of commission; promising a commission of $1 would suffice. In this respect, the current rule is not directly constraining sellers' behavior. Only about 1% of sellers in our dataset offer buyer agent commissions below 2%. Fewer than 0.1% of sellers offer buyer agent commissions that are less than 1%.[345] Similarly, filings in the *Sitzer* case indicate that across four Missouri MLSs, no sellers offered buyer agents the minimum commission of $1.[346] It is not obvious why allowing sellers to offer marginally lower minimum commissions would make a difference when sellers virtually never offer minimum commissions today.

Moreover, in October 2019, Northwest MLS, which primarily serves the Seattle metropolitan area, removed its requirement that sellers offer a buyer agent commission when listing a property for sale.[347] This change seems to have had little impact on buyer agent commissions. Figure 21, below, shows the distribution of commission rates in Seattle. It shows the same patterns as many other markets in our dataset: Among the Seattle listings in our dataset, over 95% offer Going-Rate Commissions; only 0.03%--less than one in a thousand—offer commissions below 1%.[348] Moreover, there is no indication from our page view, time to

[344] This assumes that sellers ultimately bear the cost of agent commissions. Economically, it is possible that some or all of the true incidence falls on buyers. If so, much of the analysis below would persist.
[345] *See* footnotes 155-156, *supra*, and accompanying text.
[346] Burnett Summary Judgment Ruling, *supra* note 63, at 19. The four MLSs covered Kansas City, St. Louis, Springfield, and Columbia. *Id.* at 3.
[347] Andrea V. Brambila, *Northwest MLS Breaks the Mold to Allow Public Display of Agent Commissions*, INMAN, July 23, 2019, *available at* https://www.inman.com/2019/07/23/northwest-mls-breaks-the-mold-to-allow-public-display-of-agent-commissions/. Northwest MLS is not affiliated with NAR and thus was free to change its rules.
[348] Other data sources paint a similar picture. *See* Andrea V. Brambila, *4 Commission Charts That Explain Both Sides of the* Moehrl *Conflict*, INMAN, July 8, 2022, *available at* https://www.inman.com/2022/07/08/4-commission-charts-

sell, or probability of sale analyses that the prevalence of steering in Seattle is noticeably different than in other markets.[349]

FIGURE 21: DISTRIBUTION OF BUYER AGENT COMMISSION RATES IN SEATTLE




If the minimum commission requirement is not driving sellers' current behavior, eliminating the requirement is likely to have little effect on sellers' future behavior; the Seattle experience illustrates this well. To significantly change sellers' behavior, policy must influence the underlying factors that are motivating that behavior.

2. Change the Visibility of Buyer Agent Commissions

An odd feature of buyer agent commissions is that they are highly visible and salient to buyer agents, but not to buyers. Buyer agents know how they get paid and have very direct incentives to care about their fees. Moreover, MLS listings generally must specify a buyer agent commission. However, until recently, these commissions were only visible to MLS members. Thus, commissions were essentially invisible to buyers themselves. At the same time, buyers do not pay their agents' commissions directly; the money comes out of the sale proceeds that the

that-explain-both-sides-of-the-moehrl-conflict/ (reporting that 99% of Seattle listings offer buyer agent commissions). As we generally do throughout the article, we use going-rate commissions to include commissions that are at the going rate or higher. In Seattle, the going rate is 2.5%. See *supra* Part III.B.

[349] See *supra* Figures 11, 17, and 19.

seller receives.[350] Many buyers report that they do not know how their agents are paid, or how much.

The net result is that buyer agents can easily identify high- and low-commission listings and have strong incentives to steer. Buyers, for their part, have no preference between high- and low-commission homes and cannot easily tell when they are being steered. This combination both increases the possibility of steering and reduces the competitive pressures on buyer agent commissions.

Making buyer agent commissions more visible to buyers would help reduce the amount of steering. As noted previously, buyer agent commissions are now included in the information that MLSs release publicly. While this is a step in the right direction, more could be done. Buyer commission rates could be required to be disclosed more prominently. A public service campaign could encourage buyers to be on guard for steering and to check commission rates on properties.

Ultimately, however, there are limits to how much this strategy can accomplish under the current market structure. If buyer agents curate the listings that they forward to their clients, they have the opportunity to weed out Low-Commission listings without buyers ever knowing; buyers will not see the commissions on the listings that their agents chose not to send them.

In theory, making buyer agent commissions less visible to buyer agents is another possibility. If buyer agents could not see in advance what commissions they stand to receive from different listings, they would not be able to steer their clients on that basis. Such a market structure could exert significant downward pressure on buyer agent commissions. In practice, however, this is unlikely to be a viable option. Assuring buyer agents that they will be compensated if they bring their clients to MLS properties is a core tenet of the MLS system. That, in turn, means informing buyer agents in advance what their compensation will be.

Reducing other agents' ability to see what compensation the buyer agent received from a particular transaction could be a more promising strategy. Recall that real estate agents operate in a Collaborative Industry, which makes them interdependent.[351] That interdependence means agents can collectively punish those agents who are perceived to be acting against the group's best interests.

Accordingly, even if an agent is personally willing to accept a Low Commission, she might be worried that doing so will harm her reputation among her peers and lead to retaliation. Those concerns could prop up commission rates; NASDAQ market-makers are similar to real estate agents in many ways, and they sustained anti-competitive stock pricing practices through such a mechanism.

Collective punishment becomes harder when an agent's commissions are less visible to other agents; an agent's rivals cannot punish her for behavior that they do not know about. MLS

[350] Of course, sellers might require higher prices to sell their homes because they do not keep the full sale price. If so, buyers are still indirectly paying at least some of their agents' fees.
[351] Barry et al. *supra* note 52; *see also* Hatfield et al., *supra* note 9.

listings currently post the commissions that sellers offer to buyer agents. This makes it easy to see what compensation a buyer agent received from a particular transaction. Removing this information after transactions close could help reduce this effect. However, agents in a particular geographic area might remember Low-Commission listings they saw, and which agents worked on that transaction.

Perhaps a better way to reduce commission visibility is to make it easier for agents to pay buyers a commission rebate. Such rebates are currently visible via Closing Disclosure forms (previously known as HUD-1 forms), which enables other agents to know about them and react. Making these rebates less visible could increase their prevalence.

Even so, there may be significant limits to this strategy. In particular, any agents who publicize their willingness to provide rebates would be informing rivals of what they are doing, and thus expose themselves to retaliation. Accordingly, agents may be unlikely to advertise available rebates to potential clients. This dearth of rebate advertising would likely dampen price competition among agents.

Buyers can still ask their agents for rebates, and industry spokespeople frequently state that agents and their clients are free to negotiate commissions. But because buyers generally do not currently pay their agents directly, many do not discuss fees with their agents at all. A public service campaign encouraging buyers to raise this topic with their agents—perhaps one that emphasized how much money they could potentially save—could be helpful.

3. Strengthen Agent Loyalty Requirements

The NAR Code of Ethics states that agents have an ethical obligation to serve their clients' interests rather than their own.[352] Some states have specific statutes that impose such a requirement as a matter of law.[353] Real estate agents and brokerages are also potentially subject to common law agency rules. These measures are not perfect solutions to agency cost problems, but each presumably has some effect on agents' willingness to put their clients' interests ahead of their own.

Policymakers could strengthen these measures. State statutes could prohibit steering more explicitly. This could help make the prohibitions on these behaviors clearer and more salient to agents.

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[352] NAT'L ASSOC. OF REALTORS, CODE OF ETHICS AND STANDARDS OF PRACTICE OF THE NATIONAL ASSOCIATION OF REALTORS, DUTIES TO CLIENTS AND CUSTOMERS, ARTICLE 1 (Jan. 1, 2023), *available at* https://www.nar.realtor/about-nar/governing-documents/code-of-ethics/2023-code-of-ethics-standards-of-practice#clients [hereinafter NAR CODE OF ETHICS] ("Realtors pledge themselves to protect and promote the interests of their client. This obligation to the client is primary . . . .).

[353] For example, Wisconsin law states:

> A firm providing brokerage services to a client owes the client . . .
> (a) The duty to loyally represent the client's interests by doing all of the following:
> 1. Placing the client's interests ahead of the interests of the firm.

WIS. STAT. § 452.133(2).

One limitation of these loyalty requirements is that, in practice, steering carries few consequences. A buyer who is steered is unlikely to know about it. A buyer who becomes aware could report their agent to the agent's professional disciplinary body, but this will take time and effort and is unlikely to produce any direct benefit to the buyer. Even if a buyer files a complaint, an agent is unlikely to face serious discipline for commission-based steering.[354] When steering violates state law, a buyer could bring a lawsuit or, in some instances, report the agent to a state regulator. However, lawsuits are both expensive and time-consuming, and it may be difficult for the buyer to prove the damages they have suffered from the agent's disloyalty.[355] Moreover, regulators may not be eager to pursue commission-based steering violations. For example, CBC reported the steering behavior they uncovered to the Real Estate Council of Ontario ("RECO").[356] RECO subsequently issued a bulletin to real estate agents in its jurisdiction, reminding them that steering is illegal.[357] However, it does not seem to have taken any direct disciplinary actions against any agents. Instead, it referred CBC to the Canadian Real Estate Association, Canada's real estate agent industry association, for internal discipline.[358] CREA, for its part, denied that steering was within its purview.[359]

One way to strengthen these rules would be to create statutory minimum penalties for violations. This would enable harmed clients to collect some amount of damages easily. In other words, such minimums would mean that buyers would not have to show exactly how much harm they suffered from their agent steering them. Statutory minimum penalties could also make the potential consequences of steering more salient for agents, thereby encouraging them to comply with their ethical and legal duties.

Agencies could also use targeted enforcement activities to increase agents' compliance with their ethical obligations. For example, agencies could work with buyers to investigate whether agents are steering buyers away from Low-Commission properties, much like the CBC did. Agencies could partner with consumer advocacy groups, thereby bringing in their resources to help identify instances of steering. Regulators could then discipline any agents found to be engaging in steering. Regulators should publicize both their investigatory efforts and any punishments they mete out: Making real consequences visible to the agent community could significantly change behavior.

There is especially good reason to think that added enforcement could be effective in this context because real estate agents operate in a Collaborative Industry. Some steering activity is likely driven by agents' desire to stay in the good graces of other agents. Concern over

[354] We have not done an exhaustive search of agent disciplinary proceedings. However, to the best of our knowledge, no Realtor has suffered significant disciplinary consequences from commission-based steering.
[355] For example, suppose a buyer bought a home for $400,000, that an identical home with a lower commission was available for $350,000, and that the buyer agent never showed the buyer the latter home because the commission rate was lower. In this case, the buyer can make a straightforward claim that they are $50,000 worse off because of the agent's actions. However, in practice, homes differ along many dimensions; even identical homes will have (at least slightly) different locations. This can make proving damages more challenging.
[356] CBC News, *supra* note 268.
[357] *Id.*
[358] *Id.*
[359] *Id.*

disciplinary consequences gives agents cover to change their behavior, and can help bring about a shift in norms that would otherwise be difficult or impossible to coordinate across an industry.

The experience of NASDAQ market-makers is encouraging here. The industry enforced its anticompetitive pricing practices via peer pressure and retaliation, and those pricing practices remained stable for many years. These practices were first publicized in an academic article by Christie and Schultz.[360] The *Wall Street Journal* and the *Los Angeles Times* published stories about it, and—within three days—firms abandoned the anticompetitive practice.[361] The DOJ conducted a two-year investigation that led to a significant settlement with numerous market-makers.[362] That settlement included several provisions intended to thwart future anticompetitive conduct.[363] Last but not least, private plaintiffs brought a class action and recovered over $1 billion in damages.[364]

To be sure, intervention is unlikely to produce such dramatic results in this context: Once scholars, journalists, and regulators knew what to look for, the behavior in the NASDAQ case was much easier to observe than commission-based steering.[365] Nonetheless, both industries are Collaborative Industries. Weakening intra-industry discipline in the real estate context could lead to more price cutting. The more that sellers offer commissions below the going rate, the harder it would become to discipline those sellers, and the more accepted those lower commissions would become. Thus, dampening intra-industry discipline could feed a virtuous spiral, as it did in the NASDAQ context.

Another potential strategy would be to make brokerages liable for steering conducted by their agents. This could incentivize brokerages to police steering by their agents. It could also make steering easier for regulators to prove: It is hard to be certain that any one buyer agent's decision to not forward a particular listing was motivated by steering concerns, rather than a sincere belief that the client would not be interested in the specific home. But when larger patterns of behavior indicate that Low-Commission homes are consistently forwarded less frequently, that is strong evidence of commission-based steering. Making entire brokerages permissible units of analysis, rather than forcing regulators to prove steering by a particular agent, might make steering easier for regulators to prove. It would also raise the visibility of enforcement actions, potentially increasing the deterrent effects of enforcement and encouraging regulators to pursue greater levels of enforcement.

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[360] William G. Christie & Paul H. Schultz, *Why Do NASDAQ Market Makers Avoid Odd-Eighth Quotes?*, 49 J. FIN. 1813, 1838–39 (1994).
[361] William G. Christie, Jeffrey H. Harris & Paul H. Schultz, *Why Did NASDAQ Market Makers Stop Avoiding Odd-Eighth Quotes?*, 49 J. FIN. 1841, 1841–43 (1994).
[362] Competitive Impact Statement at 24–26, United States v. Alex. Brown & Sons, Inc., 169 F.R.D. 532 (S.D.N.Y. 1996) (No. 96-5313), https://www.justice.gov/atr/case-document/file/484141/download.
[363] *Id.*
[364] Arthur M. Kaplan, *Antitrust as a Public-Private Partnership: A Case Study of the* NASDAQ *Litigation*, 52 CASE W. L. REV. 111 (2001).
[365] The behavior in question pertained to an easily observable feature of bid / ask spreads on publicly traded stocks. Christie & Schultz, *supra* note 360.

4. Prohibit Sellers from Offering Compensation to Buyer Agents

Another possibility is to target the market structure directly, by prohibiting sellers from offering commissions to buyer agents. This is perhaps the most significant change we suggest to the existing system. Nonetheless, it is already within the realm of political discourse: The Biden Administration encouraged the FTC to consider similar possibilities in a July 2021 executive order.[366]

Of course, buyer agents do not offer their services solely from the goodness of their hearts; they are professionals performing a service and who expect to be compensated. If sellers stopped paying buyer agent commissions, buyer agents would presumably seek compensation from their clients. For example, buyer agents might specify in their contracts with their clients that the buyer agent is entitled to a specified commission, payable by the client, upon the closing of the home.

If buyers paid their agents directly, that would be a more typical and straightforward compensation structure, in which the beneficiary of the agent's services negotiates for and pays for them directly. It is strange to pay for a counterparty's agent's services; we would look askance at a defendant who offered to pay a bonus to a plaintiff's attorneys if the plaintiff agreed to settle a case.[367] Under this new system, buyer agent compensation would no longer vary across properties in the way that it does now, so buyer agents would have no incentive to engage in the kind of steering that we discuss in this Article.[368]

Such a system would likely place downward pressure on real estate agent commissions. Currently, listing agents actively buoy buyer agent commissions by telling sellers that low commissions will leave them vulnerable to steering. That would end if sellers could not offer buyer agent commissions. Buyer agents would be forced to negotiate with their clients and convince them to pay for the value that they provide. Buyers, for their part, would be given a straightforward opportunity to determine how much the agent's services are worth to them, rather than having those costs be opaque and indirect, as they are now.

Prohibiting sellers from offering commissions to buyer agents might also help reduce listing agents' commissions. First, as mentioned previously, high buyer agent commissions, buoyed by sellers' fear of steering, may serve as an anchor point that boosts listing agent

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[366] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/07/09/executive-order-on-promoting-competition-in-the-american-economy/ ("To address persistent and recurrent practices that inhibit competition, the Chair of the FTC, in the Chair's discretion, is also encouraged to consider working with the rest of the Commission to exercise the FTC's statutory rulemaking authority, as appropriate and consistent with applicable law, in areas such as ... unfair tying practices or exclusionary practices in the brokerage or listing of real estate").

[367] The NAR Code of Ethics recognize this, in a way. Article 7 prohibits agents from accepting compensation from more than one party to a transaction, even if legally permitted, without disclosure to and informed consent from all parties. NAT'L ASSOC. OF REALTORS, CODE OF ETHICS AND STANDARDS OF PRACTICE OF THE NATIONAL ASSOCIATION OF REALTORS, DUTIES TO CLIENTS AND CUSTOMERS, ARTICLE 7 (Jan. 1, 2023), *available at* https://www.nar.realtor/about-nar/governing-documents/code-of-ethics/2023-code-of-ethics-standards-of-practice#clients.

[368] Buyer agents would still have incentives to steer their clients toward high-priced properties, but that incentive exists currently and this change would not make it worse. Making buyer agent commissions a fixed amount rather than a percentage would eliminate this incentive.

commissions as well. Second, many sellers currently take it as a given that total agent commissions are 5-6% and do not try to negotiate downward. Prohibiting sellers from offering buyer agent commissions would shake up the status quo significantly and might invite greater negotiation by sellers. If commissions seem less fixed, sellers might also place greater weight on commissions when selecting a listing agent, which could increase price competition among agents.

One wrinkle to this proposal, however, is that many home buyers are cash-constrained and already struggle to afford a down payment. NAR and Schnare et al. have argued that, if buyers must pay their agents, buyers would need to bring even more cash to the table.[369] They further argue that buyers would not be able to secure these funds from their mortgage lender. Thus, the net effect would be to make it harder for people to buy homes.

However, this need not be the case. In today's system, the buyer agent commission can be financed because this commission is baked into the sale price. This structure can persist in a world where buyers set their own agents' compensation. Buyers can simply add the negotiated commission on top of the offer price; the home purchase contract would then require the seller to pay the buyer agent this negotiated commission from the sale proceeds.[370] Thus, the total price of the home would still have the buyer agent commission baked in. The only difference is that this commission would be negotiated between the buyer and her agent instead of being set upfront by the seller. Importantly, this approach has been tested; REX used it to enable buyers to finance the commissions they negotiated with their agents. REX used this approach across the country and, according to its CEO, it did not encounter any issues.[371]

If commission levels remain unchanged, then the new system would operate in essentially the same way as the current system. But if having buyers negotiate commissions with their agents caused real estate agent commissions to decrease—which we think is a likely outcome—then buyers would pay less.[372] Homes would become *more* affordable.

## B. Implications for Other Policy Areas

Our analysis also has implications for other policy areas. First, reducing real estate commissions would improve housing affordability and labor mobility. Second, our findings inform agency cost estimations in other contexts, particularly those in which principals receive advice from informed but conflicted agents. Third, we provide new insights into Collaborative

[369] Home Services of America, the nation's largest residential real estate services company as measured by closed transactions, funded Schnare Ann B. Schnare, Amy Crews Cutts & Vanessa G. Perry, Be Careful What You Ask For: The Economic Impact of Changing the Structure of Real Estate Agent Fees, May 2002, *available at* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4106600.
[370] For further detail, *see* Will Fried, How Home Buyers Can Finance the Commission They Negotiate with Their Own Agents.
[371] Moehrl v. Nat'l Ass'n of Realtors, Declaration of Jack Ryan, Case No. 1:19-cv-01610 (N.D. Ill.), June 7, 2022, Doc. 324-4, at 4 ("In adjusting the home closing price to incorporate the fees the buyer and their agent agree upon, REX has not encountered any issues during the appraisal or financing process.").
[372] Exactly how much more affordable homes become would depend on how the incidence of commissions is divided between buyers and sellers.

Industries, especially the ways in which incumbents in such industries may choke off disruptive innovation.

1. Housing Affordability and Housing Market Spillovers

U.S. housing has become increasingly expensive in the last three decades. In 1990, the price of the average single-family home was approximately three times the median household income.[373] This is close to the line of what many consider to be the limit of affordable housing.[374] By 2022, the average single-family home cost a whopping 5.3 times median household income—despite significant growth in median household income over that time period.[375] In several U.S. housing markets, single-family homes cost over ten times median household income in that area.[376]

To be sure, real estate agent commissions are not the primary driver of increased U.S. home prices. Nonetheless, when attacking a problem as large and multifaceted as U.S. housing costs, a multipronged approach can be helpful. Reducing commissions could lower the cost of buying a house by a few percentage points.[377] With median home prices reportedly exceeding $400,000, each percentage point of price is a significant amount of money.[378]

Similarly, a large scholarly literature argues that labor mobility—workers' ability to move to where the highest-paying jobs are—is an important driver of economic growth.[379] The United States has long been seen as a high-labor-mobility country, though U.S. labor mobility seems to have declined in recent decades. Several studies have found that increasing workers' willingness to move to higher-wage areas would have substantial positive effects on the U.S. economy.[380]

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[373] Alvin Chang, *How Finding a Home in America Became So Absurdly Expensive*, GUARDIAN, May 10, 2023, https://www.theguardian.com/us-news/2023/may/10/us-housing-market-prices-increasing.

[374] *See also* Lily Katz & Taylor Marr, *There Were Half as Many Affordable Homes for Sale in 2022 as There Were in 2021*, REDFIN NEWS, Mar. 3, 2023, https://www.redfin.com/news/share-of-homes-affordable-2022/ (defining a home as affordable "if the estimated monthly mortgage payment is no more than 30% of the local county's median income").

[375] Chang, *supra* note 373; St. Louis Fed'l Reserve, *Real Median Household Income in the United States*, FRED, https://fred.stlouisfed.org/series/MEHOINUSA672N (last visited Oct. 8, 2023) (reporting median U.S. household income of $61,500 in 1990 and $74,580 in 2022, both measured in 2021 dollars); *see also* Katz & Marr, *supra* note 374 (reporting that in 2022, 21% of listings were affordable, compared to 50% in 2013).

[376] Chang, *supra* note 373 (reporting figures of 10.8 for San Francisco, 11.4 for Honolulu, and 12.8 for San Jose). Other notably high-cost areas include Boulder (8.7), Miami-Fort Lauderdale-West Palm Beach (8.3), Naples-Immokalee-Marco Island (9.7), and San Diego-Carlsbad (9.6). *Id.*

[377] For example, if the going rate for commissions dropped from 5.3% to 3%, that could reduce the cost of homes by 2.3%, depending on who bears the true economic cost of commissions. *See* Velt, *supra* note 9.

[378] NAT'L ASS'N OF REALTORS, HOUSING SNAPSHOT: EXISTING HOME SALES AUGUST 2023, *available at* https://www.nar.realtor/infographics/existing-home-sales-housing-snapshot (last visited Oct. 8, 2023) (reporting $407,100 median sales price); *see also* Ronday Kaysen, *What's Up With the Crazy Housing Market?*, N.Y. TIMES, July 8, 2022, updated June 22, 2023, *available at* https://www.nytimes.com/2022/07/08/realestate/housing-market.html (reporting median U.S. home sale price of over $430,000 in May 2022).

[379] *See, e.g.*, Raven Molloy, Christopher L. Smith & Abigail Wozniak, *Internal Migration in the United States*, 25 J. ECON. PERSP. 173 (2011).

[380] *See, e.g.*, Shlomo Angel & Alejandro M. Blei, *The Productivity of American Cities: How Densification, Relocation, and Greater Mobility Sustain the Productive Advantage of Larger U.S. Metropolitan Labor Markets*, 51 CITIES 36

Lowering real estate commissions would reduce the transaction cost of moving and would therefore increase labor mobility. To get a rough sense of the size of this effect, we can approximate the current commission cost of moving for a typical worker. Recall that in 2022, the average single-family home cost 5.3 times median household income.[381] The average commission that year was 5.32%.[382] This suggests that moving would entail a total commission cost equal to 28.2% of the worker's annual income.[383] This is a sizable impediment.

To be sure, there are other social, time, and financial costs to moving. And even if steering were completely eliminated, real estate commissions would not go to zero. Still, bringing commissions down to the levels seen in some other developed economies could reduce the commission costs of moving by the equivalent of more than a month's salary.[384] That could significantly increase labor market mobility, with all of its associated benefits.

2. Agency Costs

Agency cost is one of the world's most ubiquitous and costly economic problems. There are whole fields of law, including both corporate law and securities law, in which reducing agency costs is a primary goal. Scholars have spilled an ocean of ink analyzing agency costs, both in theory and in practice.

Unfortunately, studying agency cost empirically can be quite challenging. In many areas in which agency costs are economically significant, it can be challenging to determine if particular behavior is driven by agents pursuing their own interests or their principals' interests. For example, there is an extensive literature on corporate takeovers, and whether incumbent managers resist takeover attempts that would be good for shareholders because those takeovers would be bad for the managers themselves. Alternatively, it is also possible that managers are resisting takeovers as a negotiating tactic, in order to induce acquirers to raise their bids. If so, managers might believe that they are faithfully serving shareholders' interests.[385] Similarly, investment advisers might steer their clients toward investment classes that pay higher fees, such as private equity funds, for self-interested reasons. Alternatively, they might sincerely believe that such investments offer the best returns, even after accounting for their higher fees.

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(2015); Chang-Tai Hsieh & Enrico Moretti, *Housing Constraints and Spatial Misallocation*, 11 AM. ECON. J.: MACROECONOMICS 1 (2019) (finding that high-productivity cities such as New York and San Francisco's restrictions on new housing prevented workers from moving to these high-paying markets and reduced aggregate U.S. growth by 36% from 1964 to 2009).

[381] Note that this figure is higher in many cities with high productivity. In 2009, the top three most-productive cities were New York, San Jose, and San Francisco. The ratio of home price to median income in those cities in 2022 was 6.6, 12.8, and 10.8, respectively. See Chang, *supra* note 373; Hsieh & Moretti, *supra* note 380, at 17.

[382] Velt, *supra* note 9.

[383] Housing price of 5.3 times annual income multiplied by a 5.32% commission = 28.2% of annual income. In this context, it makes little difference whether buyers or sellers bear the incidence of commissions, as the worker is both selling their existing home and buying a new one.

[384] Suppose total commissions dropped to 3%. That would save the worker commissions equal to 12.3% of their annual salary, or approximately 1.5 months' worth.

[385] Even if the managers are wrong, and shareholders would be better off if, managers were more receptive to takeover attempts, that would not be an instance of managers prioritizing their own interests above the shareholders'. It would simply be managers misjudging the consequences of their actions.

A notable feature of our data is that we can measure steering directly by analyzing listings' Redfin page views. There is also little argument that commission-based steering is in buyers' interests; there is no obvious reason why buyers should prefer homes that pay high commissions over homes that pay lower commissions. Our data thus provides a particularly clean context in which to study agency costs.

Moreover, we note that the problem of steering extends beyond the residential real estate industry. Our analysis provides insight into these situations and helps inform potential regulatory responses. For example, in 2018, the Department of Labor issued a new regulation changing the standards that certain investment advisors must meet when serving clients.[386] The underlying concern was that some advisors were steering clients toward investments that paid the advisors higher commissions, which was good for the advisors but bad for their clients. However, the regulation imposed new record-keeping and other compliance costs. Some commentators worried that these costs would ultimately be borne by investors, would render smaller broker-dealers unviable, and would encourage brokers to drop small investors, depriving them of advice altogether.[387] Knowing how much investment advisors steer their clients can help policymakers determine whether regulation is merited, in what form, and in what circumstances.

3. Collaborative Industries and Innovation

Real estate agency is a classic example of a Collaborative Industry: agents compete for clients, but they must also work together to help clients consummate transactions. Our analysis provides insights regarding the ways in which firms in Collaborative Industries can band together and foster anticompetitive norms.

For example, commission-based steering violates agents' duties to their clients. And yet steering seems prevalent—and even accepted—in the industry.[388] As we have noted earlier, steering reduces the benefits that any seller stands to reap from offering a lower commission. This reduces price competition among real estate agents, buoying commission rates within the industry. Indeed, this may be why steering is accepted within the industry.

Collaborative Industries can also develop norms that make it harder for entrants to break into the industry. In particular, these norms may target maverick firms that do not abide by pre-existing industry norms. The FTC and DOJ have recognized the important role that maverick firms play in fostering price competition. Attacking mavericks can suppress price competition and reduce consumer welfare.

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[386] The regulation was struck down by the Fifth Circuit. The Securities and Exchange Commission then enacted Regulation Best Interest, which addresses much of the same concerns but takes a slightly different approach. See 17 CFR § 240.15l-1.

[387] *See, e.g.*, Meghan Milloy, *DOL's Proposed Fiduciary Rule: Not in the Best Interest of Investors*, AM. ACTION FOR., August 4, 2015, https://www.americanactionforum.org/research/dols-proposed-fiduciary-rule-not-in-the-best-interest-of-investors/; Liz Skinner, *The DOL Fiduciary Rule Will Forever Change Financial Advice, and the Industry Has to Adapt*, INVESTMENTNEWS.COM, June 9, 2016, https://www.investmentnews.com/the-dol-fiduciary-rule-will-forever-change-financial-advice-and-the-industry-has-to-adapt-67507.

[388] See *supra* Parts IV.B.4.b, e.

Similarly, entrants often bring new technologies and new ways of doing business. Accordingly, restricting entrants can significantly reduce innovation within an industry.

We see evidence of both of these issues here. First, consider REX. It had a new brokerage model that threatened to reduce commission rates. It was thus an innovator and a potential price-cutter. Based on the alleged content of its 700 recorded calls with traditional agents, REX was subject to steering as a result.[389] Second, consider iBuyers. They also represented a new model of real estate brokerage, built on new technology, that threatened to take significant market share from incumbent firms. Our analysis indicates that iBuyer homes receive fewer Redfin page views and take longer to sell.[390] These results should be interpreted with caution. They are consistent with steering, but also with iBuyer listings being less attractive to conventional homebuyers. This latter effect seems likely to be significant, and, unfortunately, we cannot disentangle that effect from the effects of steering. Nonetheless, our analysis suggests that iBuyers may face additional obstacles due to anti-iBuyer steering from traditional real estate agents.

In closing, we note two related points about Collaborative Industries dynamics. First, by virtue of their structure, Collaborative Industries are especially susceptible to collusive pricing and other anticompetitive behavior. Second, incumbents in Collaborative Industries are particularly well-equipped to resist entrants who might disrupt anticompetitive behaviors. Because disruptive entry is unlikely to be successful in an industry that is particularly susceptible to collusion, regulatory oversight of Collaborative Industries is especially valuable and important. The phenomena we observe here offer insights for regulators as they consider other Collaborative Industries.[391]

## VI. CONCLUSION

For 45 years, U.S. regulators have sought systematic evidence of commission-based steering in the U.S. residential real estate industry. We present powerful evidence that such steering is indeed a significant problem nationwide. Low-Commission listings receive less attention, take longer to sell, and face much greater risk of not selling at all. These results hold at the national level and within almost every geographic market we analyze. Moreover, we observe this steering behavior during a time period in which the residential real estate market strongly favored sellers, with demand outpacing supply in most markets across the country. This suggests that steering would be even more common in more neutral markets—and especially during buyer's markets—which allow buyer agents to be more selective about the properties that they show their clients.

The threat of steering induces sellers to offer higher commissions than they otherwise would, which keeps commission rates high. This raises costs for U.S. homeowners. Yet the system does not serve real estate agents as well as it might seem. As commission rates have held steady and home prices have risen, agents can earn more per sale—but higher earnings per sale

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[389] *See* Part IV.B.4.e, *supra*.

[390] Analysis of whether iBuyer homes face greater risk of not selling at all is complicated by the fact that iBuyers are more likely to reduce their listings' asking prices than other sellers are. *See infra* footnotes 328330.

[391] *See* Barry et al., *supra* note 52 (discussing various Collaborative Industries); Hatfield et al. JPE paper.

have drawn more people into the industry. Each agent thus facilitates fewer transactions per year and must work harder to find clients. This dissipates the gains that agents would otherwise secure from higher commission rates.

Commission-based steering is thus a promising target for regulatory or legislative intervention. Policymakers can simultaneously help U.S. homeowners and reduce potentially wasteful competition among agents. They can also help increase innovation and productivity in the residential real estate industry, to the benefit of both homeowners and agents in the long run.