

Competition and Market Structure

in Local Real Estate Markets

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Abstract: The persistence of the standard six percent real estate sales commission across markets and over time calls into question the competitiveness of the residential real estate brokerage industry. While there is anecdotal evidence that some local real estate markets are fairly concentrated, no systematic study of market structures has been conducted. We have collected primary data on the number and market shares of real estate brokers in a variety of small, medium, and large real estate markets across the U.S. for 2007 and 2009. In addition to these cross sectional data, we have also collected longitudinal data on the size distribution of firms for Louisville, KY for a nine-year period. In our cross-sectional analysis of medium and large markets, we find no evidence that market concentration might create problems for competition. We do find that small markets on average have higher HHI's than medium and large markets. The longitudinal analysis reveals that many small brokers are in and out of the market, selling a house or two one year and selling zero houses the next year.

Competition and Market Structure in Local Real Estate Markets

●Introduction

Residential real estate brokerage is characterized by low barriers to entry and a large number of firms. Furthermore, the Multiple Listing Services (MLS) found in practically every local real estate market act to level the playing field since listings from small firms or new entrants receive equal exposure with those of large established firms. Despite these market attributes, an unusually pervasive and seemingly rigid six percent commission rate structure exists in local real estate brokerage markets across the country.

For this and other reasons, the competitiveness of real estate brokerage in the United States has been an ongoing concern of both federal and state governments. The Federal Trade Commission and the U.S. Department of Justice (DOJ) conducted a joint study of competition in the real estate brokerage industry in 2007.¹ The DOJ's Antitrust Division maintains a website for consumers devoted to competition and real estate.² While most states have real estate commissions that regulate and license real estate agents and brokers, efforts at the state level have not always promoted competition. A

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□ Federal Trade Commission and U.S. Department of Justice, *Competition in the Real Estate Brokerage Industry*, April 2007.

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□ http://www.justice.gov/atr/public/real_estate/index.htm. A primary emphasis is the commission rates charged by real estate brokers.

2005 U.S. Government Accountability Office (GAO) study analyzed the potential anticompetitive effects of various state laws that prohibit rebates or set minimum service standards.³

On the other hand, the main industry trade group contends that there is little concentration in the real estate industry and that consumers benefit from competitively determined prices. A 2005 research report by the National Association of Realtors (NAR) concluded that “the residential real estate brokerage industry is fiercely competitive.” They analyzed the national market for real estate brokerage and found that the top 100 real estate firms (in 2004) held only 17 percent of the market share.⁴

While the NAR claims that real estate commissions are competitively determined, the GAO points out that commission rates have remained relatively uniform across markets and over time and do not reflect the costs of selling a house.⁵ Yinger (1981), Hsieh and Moretti (2003), and White (2006) present a compelling argument that such fee rigidity is an indicator of a lack of competition. Competition in markets causes prices to approximate economic costs. The cost of selling a house has both a fixed component and a variable component (which may be nonlinear), and the slope of the variable component

3

³ U.S. Government Accountability Office, *Real Estate Brokerage: Factors That May Affect Price Competition*, August 2005.

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⁴ National Association of Realtors, 2005, pp. 1, 9.

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⁵ GAO (2005), pp. 9-10, especially fn. 12. Weicher (2006) reviews the empirical evidence on brokerage commission rates, and comments on the paucity of research, primarily because of the difficulty in getting data.

is less than one. So competition would lead to a commission rate structure that is lower for higher valued houses, instead of the rigid six-percent rate that is observed.⁶ Delcours and Miller (2002) study brokerage fees charged in other highly industrialized countries. They find a variety of rate structures in other countries that are on average significantly below those prevailing in the U.S., which suggests that the U.S. market for residential real estate brokerage is less than fully competitive.

The number and size distribution of firms is an important determinant of the nature of competition in a market. At the national level, both the NAR and the FTC/DOJ reports point out that the industry is not concentrated.⁷ But as most observers agree, real estate markets are local, so national-level market structure information is not dispositive. To determine whether supplier concentration at the local market level creates the potential for softer competition and price rigidity, data on the number and size shares of firms in local markets are required.

Limited evidence on market structure in local real estate markets does exist. The FTC/DOJ report offered four examples of concentrated local markets: two firms with more than 50% of the northeastern Ohio market, one firm with more than 50% of the Des Moines, IA market, two firms with more than 50% of the State College, PA market, and

6

[□] Carney (1982) offers a search cost explanation for why commission rates should be lower on higher priced homes.

7

[□] NAR (2005), pp. 8-9; FTC/DOJ (2007), pp. 30-32.

two firms with more than 75% of the Lincoln, NE market.⁸ Forgey, Mullendore, and Rutherford (1997) studied a medium-sized Texas city and found four-firm concentration ratios of 57% for listing firms and 46% for selling firms. Colwell and Marshall (1986) looked at market structure in Champaign, IL and found lower levels of concentration.⁹

Concern over competition in residential real estate brokerage combined with a paucity of data on market concentration in local real estate markets provides the motivation for this paper. We have collected information on the number and market shares of real estate brokers in a variety of small, medium, and large cities throughout the U.S. We collected these data from the National Association of Realtors official website, www.realtor.com, in fall 2007 and then again in fall 2009. We find that in a minority of the small cities and in only a few of the medium-sized cities, HHI's fall into the range that would invite scrutiny by the FTC and DOJ under the 1997 Horizontal Merger Guidelines. In addition, individual firm market shares tend to be somewhat volatile and HHI's change nontrivially between 2007 and 2009 in a number of different markets.

To further explore the stability of market shares over time, we have also collected data for Louisville, KY from 2000 to 2008. These data enable us to track firms over time from the smallest to the largest during a steady upswing and then through an abrupt downswing in the residential real estate market. Different measures of market structure

8

□ FTC/DOJ (2007), p. 32.

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□ Dietrich and Holmes (1990) found the Tyneside area in Great Britain to be relatively unconcentrated in the late 1980's.

yield very similar results whether looking at the selling side or the buying side of market transactions. HHI declines very slowly over time, and the identities of the top ten firms are very stable over time. In this market firms do not seem to specialize in one side or the other of market transactions.

The next section of this paper analyzes aspects of the market for residential real estate brokerage that affect the nature of competition. Following that we discuss and analyze the cross-sectional data that we have collected on small, medium, and large local real estate markets. Then we discuss and analyze the time series data we have collected for Louisville, KY for 2000-2008. We conclude the paper with a further discussion of competition and collusion in real estate brokerage.

● **Aspects of Real Estate Brokerage That May Affect Competition**

Residential real estate transactions usually involve middlemen.¹⁰ Sellers and buyers typically engage the services of professional real estate agents, many of whom are licensed Realtors®, i.e. members of NAR. Some home sellers do not hire a professional real estate agent to help market their houses, but instead choose the “For Sale by Owner” (FSBO) route.¹¹ Similarly, some buyers do not directly employ the services of an agent

10

□ Yinger (1981) discusses information and search in real estate markets and models the role of brokers in real estate transactions.

11

□ FSBO sales constituted 14% of home sales in 2004 (NAR (2005), p. 5). See Hendel, Nevo, and Ortalo-Magne (2009) for a comparison of outcomes when owners marketed their homes themselves vs. when they marketed their homes using a traditional agent and the MLS.

to help in their search for a house. The range of services offered by real estate agents can vary considerably.¹²

The geographic scope of the market is local. There is general agreement on this matter. The 2007 FTC/DOJ report asserts that “competition among brokers is primarily local because real estate is fixed in a geographic location, and buyers and sellers want some in-person interaction with a broker who has experience and expertise relevant to that particular location.”¹³ This view is supported by NAR-funded research, which describes the real estate industry as a collection of many local real estate markets.¹⁴

The cost structure is such that there are at most only modest economies of scale in real estate brokerage. That is not surprising, given the nature of the production process. The primary input is labor and human capital on the part of the seller’s agent and brokerage firm and the buyer’s agent and brokerage firm. Empirical estimation of cost functions for residential real estate brokerage confirms this basic intuition. Zumpano, Elder, and Crellin (1993), Zumpano and Eder (1994), and Anderson, Lewis, and Zumpano (2000), find at best modest economies of scale.¹⁵ As the NAR (2005,

12

□ See the 2007 FTC/DOJ report for a description of a typical real estate transaction and the range of services offered by different brokers.

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□ FTC/DOJ (2007), p. 30.

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□ See Sawyer (2005).

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□ Zumpano (2002) summarizes the empirical research on production and costs in real estate brokerage.

Appendix 1) also points out, a survivor analysis of real estate brokerage indicates that small firms compete effectively with larger firms, as evidenced by stability of market shares of different-sized firms over time.

Entry into the real estate industry is relatively costless and agents and brokers enter and exit on a regular basis. States require real estate professionals to be licensed in order to operate. There are two types of licenses, agents and brokers. Agent licensure always precedes broker licensure and has lower requirements. These requirements vary from state to state, but usually involve classroom hours, an exam, and a licensing fee.¹⁶ Brokerage licensure usually requires practicing as an agent for a specified time, additional classroom hours, an exam, and a licensing fee. Brokers must also line up agents, set up an office and staff it, and advertise. The FTC/DOJ Report (2007, p. 33) did express the concern that brokerage entry appears to be more difficult than agent entry.

The advent of the internet has drastically changed the role of the middleman in a number of markets, for example travel agents and life insurance agents.¹⁷ And the internet is playing an ever-increasing role in real estate transactions. The NAR's web site Realtor.com lists homes for sale in all fifty states and thousands of cities and towns representing over 800 MLS's. Since prospective buyers can directly access listing

16

□ Kentucky is a typical case. Prospective agents must spend 96 hours in real estate courses, pass the state real estate licensing exam, and pay the state licensing fee of \$55. Private accredited real estate courses tend to range from \$500 to \$750, and the licensing exam fee is \$75. See www.krec.ky.gov.

17

□ Brown and Goolsbee (2002) find that internet comparison shopping has reduced term life insurance prices by as much as fifteen percent.

information themselves through Realtor.com and web sites maintained by various individual brokers and agents, much of the search that used to be done with the assistance of an agent or broker no longer requires their labor input.

The internet has also increased the viability of business models that differ from the traditional full-service brokerage. Various aspects of the real estate transaction can now be separated and performed in different ways, not necessarily involving real estate brokers and agents playing their traditional roles.¹⁸ The GAO (2005, pp. 19-20) described several alternative approaches that are now available to consumers: (1) full-service discount brokerages; (2) limited-service discount brokerages; (3) information and referral companies; and (4) alternative listing web sites. But despite playing an ever-increasing role in real estate markets, the internet has not yet had any significant impact on commissions.

Real estate professionals have historically stifled price competition through their professional associations and local multiple listing services. The Supreme Court ruled in 1950 that MLS's could not require participating brokers to charge standard commission rates. After many MLS's switched to suggested fee schedules, the DOJ acted in the 1970's to halt this practice. So, formal policies to maintain uniform rates have disappeared.¹⁹

18

□ See, for example, Bernheim and Meer (2008).

19

□ See the discussion and references in GAO (2005), pp. 12-13.

The NAR (2005, pp. 6-8) claims that collusion to set commission rates at the agent level is impossible, because brokers and not agents set commission rates. Brokers negotiate the split of commissions with their agents, with more successful agents being able to claim a larger proportion. Brokers compete vigorously to retain good agents, so agents are able to extract surplus from brokers competing for their services. If collusion is the reason for the persistent uniformity in commission rates, it must occur at the broker level.

White (2006, pp. 5-6) points out two structural features of real estate markets that facilitate collusion. First, the MLS has natural monopoly aspects that enable the collective members of a MLS to exclude “maverick” rivals who are price-cutters. Second, real estate agents operate on both the sell-side and buy-side of the market, and so must continually cooperate with other agents in order to complete transactions. Such a social climate may facilitate the maintenance of high fee levels.

Levitt and Syverson (2008) also analyze collusion on the part of real estate professionals as a possible explanation of why the industry has been successful in preserving its position at the center of real estate transactions, and for the resistance to changes in prices or services rendered. They offer the necessity of cooperation as a reason, something that sets real estate transactions apart from travel agents, stock brokers, etc. They model the collusive equilibrium, and discuss the role of the number of firms in the market. Such collusion is obviously easier to achieve if the market for real estate brokerage is highly concentrated.

●Cross-Section Analysis

A nationally consistent source of data on local real estate markets is available from the NAR, which maintains a website that assembles homes listed on regional MLS's. This website, www.realtor.com, allows users to search/browse through listings practically anywhere in the country by city or ZIP code.²⁰ For a given listing, basic housing characteristics such as number of bedrooms, number of bathrooms, age of the home, ZIP code, square footage, listing price, and type of home (condominium vs. single family dwelling) are usually available along with a number of photographs. Importantly for our purposes, the brokerage firm through which the house is being listed is also reported. As such, it is possible to record all the listings in a city at a given point in time and use this to analyze local market structure.²¹

Realtor.com contains all the houses in a given geographic market where the listing real-estate agent uses the MLS.²² Data on one hundred diverse markets were

20

□ Realtor.com provides information on approximately 95% of all homes listed on MLS's around the country (GAO, 2005, p. 18).

21

□ We focus on the brokerage of existing homes because the selling process for newly built homes is often drastically different. In a new development the relative homogeneity of the homes likely makes the marginal effort to sell a house different than for an existing house and so it is common for one agent or firm to handle the entire development. Also, we noted that it is common for new housing developments to post a single representative listing for the multiple homes available. Furthermore, it is quite common for new home builders to vertically integrate and have a hand in the brokerage and financing of their own homes. A home's construction status is available in the data and those designated as new construction were excluded from the analysis.

22

□ By 2005, web-based brokers had emerged who often made available information about listings to potential customers via websites. The NAR gave individual agents the right to "opt-out" of having their listings displayed by particular websites. In response to imminent legal action by the Department of Justice

initially collected from Realtor.com between October 17th and December 21st, 2007. The 2005 Rand McNally Atlas and the American Community Survey: American Fact Finder were used to select the cities.²³ Since small towns greatly outnumber large cities some stratification was necessary. Specifically, in the case of large cities, 17 were selected at random from the nation's 50 largest. A similar process was used to select 30 midsized cities.²⁴ To ensure geographically separate markets, small towns within 20 miles of a city with over 200,000 residents were excluded. We then randomly selected 43 small markets for closer analysis.

The collection process for an individual market was typically completed within a three-day window, the exceptions being a few very large markets like Atlanta and Los Angeles which took up to five days. Individual market websites were scraped by hand. This process was very labor intensive, which perhaps explains the limited evidence previously collected on local market structures.

After selecting cities based on population size, we observed that the correlation between population and activity in the local real estate market is very imperfect. Since

in September 2005, the NAR changed the policy to a blanket opt-out allowing realtors to prohibit their listings from appearing on any website other than Realtor.com.

23

□ (<http://factfinder.census.gov/home/saff/main.html?lang=en>).

24

□ Midsized cities were defined as having a population too small to be counted as one of the 50 largest (less than 362,850) but greater than 40,000 inhabitants. Our sample includes 30 midsized cities so classified. All were selected randomly except for Lexington, KY, Des Moines, IA, and Lincoln, NE. The former was chosen because of the authors' familiarity with local market conditions, and the latter two were chosen to permit comparison with earlier research.

our interest is the market for residential real estate brokerage, we decided to rank markets according to the number of listings instead of metropolitan population. Tables 1a, 1b, and 1c present a list of the observed markets in the data set. Markets have been divided into three categories (large, medium, and small) based on the number of listings observed, not population. This brought us up to eighteen large markets (5,000+ listings), 30 medium markets (1,000-4,999 listings), and 42 small markets (<1,000 listings).

The total number of listings across markets ranged from 103 (Montpelier, VT) to 27,732 (Atlanta, GA), with an average of 3,086 listings per market. There were 20,798 different firms operating with a fairly wide breadth of size, measured by number of listings. Around thirty-five percent of observed real estate brokers had only a single home listing and around half had either one or two listings. Note that in the data, only firms with a positive number of listings are visible, thus firms that were operating but had zero listings on the day of data collection cannot be accounted for. Ninety-nine percent of all firms had fewer than 200 listings and only about a tenth of one percent of all firms had over a thousand listings. The largest firm, which happened to operate in the largest market (Atlanta, GA), held 2,485 listings at the time of data collection. This firm operated several branches differentiated by geographical focus throughout the Atlanta MSA with a wide variety of types of listings.

After analyzing the 2007 data, we decided to re-scrape the medium and small markets. In fall 2009 we collected data from each of the medium and small markets so that we could analyze changes in market structure over time.²⁵ Because scraping and

cleaning data from the large markets involved such a significant time cost, and since large markets were uniformly unconcentrated, we did not revisit them.

Table 1a contains information for 18 large markets in 2007 on MSA population, number of listings, number of firms, average listings per firm, HHI, and four-firm concentration ratio. The table also contains information on the four largest brokerage agencies, their total listings, and their market shares. As can be seen, none of these markets have an HHI that would have invited scrutiny by the USDOJ or the FTC if a merger between two brokers had been proposed, i.e. these markets all fall into the competitive category since $HHI < 1,000$.²⁶ The average HHI across the 18 large markets in 2007 was 378.

Table 1b contains information for 30 medium-sized markets, i.e. markets having between 1,000 and 4,999 listings for 2007. Again, MSA population, number of listings, number of firms, average listings per firm, HHI, four-firm concentration ratio, and identity and market share of the top four brokerage firms are included. The average HHI in these medium-sized markets in 2007 was 837, falling to 797 in 2009. In 2007, seven of the thirty markets had HHI's greater than 1,000: Des Moines, IA, Salem, OR, Lansing, MI, Buffalo, NY, Springfield, MO, Augusta, GA, and Peoria, IL. Only Des Moines, IA had an HHI that exceeded 1,800, which in 2007 would have been classified as highly

²⁶ Note that these data only permit a picture of brokerage markets from the perspective of listings. In the next section we are able to compare the size distribution of brokerage firms by listings to the size distribution based on representation of the buyer side of market transactions.

²⁷ Market shares can also be calculated based on dollar volume of sales. Unsurprisingly, HHI's based on listings are highly correlated with HHI's based on dollar volume of sales.

concentrated according to the USDOJ/FTC Horizontal Merger Guidelines.²⁷

Interestingly, the HHI in Des Moines declined from 3,320 to 1,538 between 2007 and 2009.

Other medium-sized markets experienced significant changes in market structure over the two-year interval in our sample. The HHI increased from 734 to 1,023 in Santa Fe, NM and from 1,157 to 1,665 in Lansing, MI. The HHI decreased from 953 to 639 in Pueblo, CO and from 1,652 to 1,388 in Augusta, GA. Considerable variation in individual brokerage firm market shares and market ranks also occurred over the two-year observation period. The most extreme change occurred in Des Moines, IA, where market leader Iowa Realty saw its market share decline from 53% in 2007 to 29% in 2009. Iowa Realty was apparently the firm singled out by the FTC/DOJ in their 2007 Report (p. 32) which offered Des Moines as an example of a highly concentrated market.

Table 1c contains information for 42 small markets, i.e. markets having fewer than 1,000 listings, for 2007. If concentration is a problem in residential real estate brokerage, it is in smaller markets that we would expect to observe it. The average HHI in small markets was 1,177 in 2007 and 1,308 in 2009, indicating that smaller markets are considerably more concentrated than larger markets. In 2007, 25 of the 43 small markets had HHI's greater than 1,000, with the HHI exceeding 1,800 in six markets. The highest levels of market concentration occurred in Blytheville, AR, with an HHI of 2,114, and

²⁷ The USDOJ and FTC recently issued revised HHI classifications. Markets with HHI < 1,500 are classified as unconcentrated, markets with HHI between 1,500 and 2,500 are classified as moderately concentrated, and markets with HHI > 2,500 are classified as highly concentrated. See <http://www.justice.gov/atr/public/guidelines/hmg-2010.html#5c>. The old cutoffs were < 1,000 for unconcentrated, between 1,000 and 1,800 for moderately concentrated, and > 1,800 for highly concentrated.

Carlsbad, NM, with an HHI of 2,244. Both are very small markets, with 221 and 125 total listings in 2007, respectively.

Overall market structures fluctuated considerably between 2007 and 2009 in the small market sample. In Carlsbad, NM, for example, the HHI increased from 2,244 to 3,166, while in Roswell, NM the HHI decreased from 2,030 to 1,616. Sizable changes also occurred in individual firm market shares. In Blue Springs, MO, for example, Reece & Nichols increased their market share from 19.8% in 2007 to 34.0% in 2009. In LaPine, OR, RE/MAX Sunset Realty increased their market share from 12.6% to 30.5% over the same period.

There is evidence from these data of concentration in some small markets, but not in medium and large markets. And market shares are fluid, in that there are nontrivial changes from 2007 to 2009, especially in a few instances when the market leader has a sizable share in 2007. These results suggest that further longitudinal analysis of market structure in residential real estate brokerage would be useful.

●Longitudinal Analysis

Results from the cross section analysis raise the following question: How stable are firm market shares over time? One thing we are able to do that previous researchers have not done before is to look at the size distribution of firms in a particular market over an extended period of time. We have collected extensive data on market transactions and the dollar volume of sales, for both the sell-side broker and the buy-side broker, for

Louisville, KY from January of 2000 through November of 2008. These data allow us to track firms from the smallest to the largest over the entire time period. We are thus able to understand changes in the market positions of industry leaders, as well as survival and growth of firms on the competitive fringe.

We obtained these data from the MLS of Louisville, KY, which has a population of roughly 500,000 residents, with an additional 700,000 in the metro area. Information was available for all homes sold through the MLS from January 1, 2000 through November 29, 2008.²⁸ Observations with a missing firm identifier variable, either on the listing or selling side, were not included in the analysis. The primary data set used for analysis begins with 113,014 sold houses. The average house was 1,880 square feet, had three bedrooms, two full baths, a basement, central air-conditioning, and was 30.7 years old. It was on the market for 74 days and sold for \$162,457.²⁹

Table 2 contains information for each year from 2000 through 2008 on the number of transactions, the number of listing firms, the average number of sales per firm, and the HHI. We calculate HHI's for both the selling side and the buying side, based on both the number and the dollar-volume of sales. Table 2 also contains the identity and

28

□ To check for consistency, we compared one hundred randomly selected sold homes from the MLS data with local county property records (<http://jeffersonpva.ky.gov/>). While these records were much less detailed than the MLS data, no inconsistencies were found.

29

□ The median price was \$118,000.

market share of the top ten residential brokerage firms based on the number of transactions in which the firm was the listing broker.³⁰

The residential real estate boom and bust are immediately evident in these data. The number of houses sold increases steadily from 10,315 in 2000 to 15,076 in 2006. The number of real estate brokers with at least one listing increased from 350 to 511 over the same period.³¹ The average number of sales per firm stayed fairly steady, hovering around 30 transactions per year. After the 2006 peak, the number of houses sold in the first eleven months of 2008 declined sharply to 10,960. The number of listing brokers fell to 442, and the average transactions per firm fell to 24.8.

The market became increasingly less concentrated over the 2000 to 2008 period, through both boom and bust. We have computed HHI's using market shares of listing brokers (seller side), calculated by both number of transactions and dollar volume of transactions. We have also calculated HHI's using market shares of buyer-side brokers by number of transactions and dollar volume of transactions. The steady decline in

30

□ While a firm wishing to list a client's home on the MLS must be a dues paying member, browsing the listings is an option available to anyone. As such, real estate agents who specialize in representing buyers may not join the MLS, but they can still participate in an MLS transaction as the selling agent. In the MLS data, all non-member firms were all coded identically and thus are indistinguishable from one another. We therefore lump these firms together in our analysis. In 2000, non-member firms accounted for less than 1% of transactions. That number steadily increased until 2006 when the percentage of transactions involving non-member offices reached 3.4%. If each of those transactions were associated with an atomistic non-member office, our calculation of the buy-side HHI would be overstated by nearly 12 points.

31

□ This increase is consistent with the findings of Hsieh and Moretti (2003).

concentration when the housing market was thriving and when the market tanked is clearly evident regardless of which of the four measures is used.

Closer scrutiny of the different measures turns up several interesting findings. HHI's using the number of transactions are smaller than HHI's using the dollar volume of sales. This result implies that higher-priced houses are disproportionately handled by larger real estate brokerage firms. HHI's declined most sharply in the years immediately before and immediately after the peak year of 2006. This result suggests that larger firms lost market share to smaller firms and new entrants during years of rapid market growth, but when the market turned down sharply these smaller firms and new entrants were able to hold on to their business relatively better than the larger firms.

Market shares and rank of the largest real estate firms are fairly stable over the entire period of observation, even though market concentration was declining overall. From 2000 until 2002, the identities of the top ten listing firms don't change. In each of the years 2003, 2004, 2006, and 2007, one new firm cracks the top ten. Two new entrants show up in 2005. Only in 2008, a year of considerable turmoil in residential real estate, is there any significant movement in and out of the top of the market. One other observation is that the largest firms generally do not seem to specialize in representing either sellers or buyers. For example, nine of the top ten top listing firms in 2000 were also among the top ten firms representing buyers in housing transactions.

The overall geographic market is fairly unconcentrated, however, it is possible that distinct sub-markets exist and that real estate brokers specialize by geographic region within the greater metropolitan area. To determine whether concentrated sub-markets

exist we analyzed sales in distinct areas within the city.³² Table 3 contains data on the number of sales, HHI, and identities and market shares of the top four firms for 2000 and 2006 in nineteen different geographic areas within the greater Louisville metropolitan area. This information allows us to analyze whether there are significant geographic sub-markets within the area covered by the MLS, where tacit collusion might evolve if significant pockets of concentration exist.

While several of these smaller geographic areas exhibit greater concentration than the entire urban area, they also exhibit much greater fluidity in market shares over time. For example, in Area 10 the HHI in 2000 was 4,720 and the largest firm had a market share of 66.9%. That area experienced considerable growth in the number of transactions between 2000 and 2006, and the HHI declined to 1,667 and the largest firm's market share dropped to 35.4%. Similarly, in Area 31, the number of transactions increased almost by an order of magnitude from 2000 to 2006, the HHI declined from 2,812 to 1,181, and the largest firm's market share dropped from 37.5% to 9.4%. So there is no evidence that these smaller areas constitute distinct geographic markets.

So far we have concentrated on market shares and changes in market shares of the largest firms in the market. With this dataset, we can also gain some understanding of the market behavior of smaller firms, including those who show up in market transactions data in one year but are absent because they had no transactions the next. Figure 1 presents a histogram of the number of listing (seller side) firms having one sale, two

³² The Louisville MLS divides the city into 26 areas. Of the 26, several were very inactive and had relatively few recorded transactions. We therefore included only those areas with at least 100 recorded transactions in 2006. Specific definitions of the areas and a map can be found at www.MLSKY.net.

sales, three sales, etc. in 2000, along with the number of brokers representing the buyer side having one sale, two sales, etc. As is evident, the large majority of residential real estate brokerage firms are fairly small. Among the 350 brokers having at least one listing, 95 (27%) had just one listing and 57 (16%) had just two listings for the entire year.

To further understand survival and growth of smaller brokers, we identified all the firms in the sample that only had one listing transaction in 2000. We then tracked the listings of these firms over the 2000 to 2008 period. Table 4 contains information on sales in subsequent years of the 95 real estate brokers who had exactly one sale in 2000. Sixteen of the 95 firms disappeared completely from the market, i.e. had zero listings in any of the following eight years. Thirty-one firms grew on average over the 2000 to 2008 period, i.e. averaged more than one transaction per year. Of these firms, however, only five brokers had at least one transacted listing in each of the succeeding eight years. It is clear from these data that a large number of small brokers are in and out of the market, selling a house or two in one year and then selling zero houses in the next year.

●Conclusions

The persistence of the standard six percent real estate sales commission across markets and over time calls into question the competitiveness of the residential real estate brokerage industry. While there is anecdotal evidence that some local real estate markets are fairly concentrated, no systematic study of market structures has been conducted. We have collected primary data on the number and market shares of real estate brokers in a variety of small, medium, and large real estate markets across the U.S. for 2007 and

2009. In addition to these cross sectional data, we have also collected longitudinal data on the size distribution of firms for Louisville, KY for a nine-year period.

In our cross-sectional analysis of medium and large markets, we find no evidence that market concentration might create problems for competition. Among 18 large markets and 30 medium markets in 2007, only Des Moines, IA had an HHI that exceeded 1,800, the level which would have caused it to be categorized as highly concentrated according to the USDOJ/FTC Horizontal Merger Guidelines. And two years later, the HHI in Des Moines declined from 3,320 to 1,538.

If concentration is a problem in real estate brokerage, we would expect it to be most prevalent in small markets. We do find that small markets on average have higher HHI's than medium and large markets. But in only 6 out of 42 small markets did the HHI in 2007 exceed 1,800. Small markets also exhibited considerable volatility in HHI's, as individual firm market shares often changed significantly between 2007 and 2009.

The volatility in market shares we observed in our 2007 and 2009 snapshots prompted us to follow firms in one particular market for an extended period of time. We tracked real estate brokers from smallest to largest in Louisville, KY from 2000 to 2008. Overall concentration declined steadily over the entire period. The identities and market shares of the top ten firms were very stable in this particular market. At the other end of the spectrum, among the 350 brokers having at least one listing in 2000, 95 had just one listing and 57 had just two listings for the entire year. When we tracked the 95 firms having just one listing for the next eight years, 16 firms disappeared completely while only 5 firms had at least one transacted listing every year. The longitudinal analysis

reveals that many small brokers are in and out of the market, selling a house or two one year and selling zero houses the next year.

The competitiveness of real estate brokerage in the U.S. has been an ongoing concern at both the federal and state level, evidenced by a persistent and pervasive six percent sales commission structure. There are several possible explanations for the lack of competition, but one explanation that our research refutes is a concentrated size distribution of firms in local real estate brokerage markets. A more likely culprit is the monopoly position of the National Association of Realtors in licensing Realtors® at the national level, the control of MLS's by local boards of Realtors® at the local geographic market level, and the business/social culture that has evolved among agents who at times represent sellers and at other times represent buyers, and who must cooperate with other agents in order to complete transactions.

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Table 1a (landscape, 2 pages)

Table 1b (landscape, 3 pages)

Table 1c (landscape, 4 pages)

Table 2 (landscape, 2 pages)

Table 3 (portrait, 1 page)

Table 4 (landscape, 2 pages)

