

Concentration and Market Structure in Local Real Estate Markets

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The competitiveness of the residential real estate brokerage industry has attracted much attention. Anecdotal evidence suggests some local markets are concentrated, yet no systematic market structure study has been conducted. We collected cross-sectional data on real estate brokers in 90 diverse markets across the United States and collected longitudinal data for Louisville, Kentucky. In medium and large markets, no evidence exists that market concentration might create problems for competition. Small markets, on average, have higher Herfindahl-Hirschman Indexes than medium and large markets. The longitudinal data reveal that many small brokers sell a house or two one year and none the next year.

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 because listings from small firms or new entrants receive equal exposure with those of large established firms. On the other hand, the compensation structure for real estate agents has exhibited a certain rigidity even in the face of technological changes that have dramatically altered the role and compensation of middlemen in other types of markets.

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 (FTC) 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 Web site

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¹FTC/DOJ, *Competition in the Real Estate Brokerage Industry*, April 2007.

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 2005 U.S. Government Accountability Office (GAO) study analyzed the potential anti-competitive 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% of the market share.⁴

The number and size distribution of firms are important determinants 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.⁵ 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 two firms with more than 75% of the Lincoln, NE, market.⁶ 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.⁷

²http://www.justice.gov/atr/public/real_estate/index.htm. A primary emphasis is the commission rates charged by real estate brokers.

³GAO, Real Estate Brokerage: Factors That May Affect Price Competition, August 2005.

⁴NAR (2005), pp. 1, 9.

⁵NAR (2005), pp. 8–9; FTC/DOJ (2007), pp. 30–32.

⁶FTC/DOJ (2007), p. 32.

⁷Dietrich and Holmes (1990) found the Tyneside area in Great Britain to be relatively unconcentrated in the late 1980s.

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 article. 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 United States. We collected these data from the NAR official Web site, 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, Herfindahl-Hirschman Indexes (HHIs) 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 HHIs 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 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 article 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 article with a further discussion of competition and market structure in real estate brokerage.

Aspects of Real Estate Brokerage that May Affect Competition

Residential real estate transactions usually involve middlemen. Sellers and buyers typically engage the services of professional real estate agents, many of whom are licensed Realtors[®], that is, members of NAR. An early paper by Yinger (1981) discusses information and search in real estate markets and models the role of brokers in real estate transactions. Zumpano and Hooks (1988) analyze the market structure of real estate brokerage and discuss alternative hypotheses about the pricing of brokerage services.⁸ Some home sellers do not hire a professional real estate agent to help market their houses, but instead

⁸See also Zumpano, Elder and Anderson (2000).

they choose the For Sale by Owner (FSBO) route.⁹ Similarly, some buyers do not directly employ the services of an agent to help in their search for a house. The range of services offered by real estate agents can vary considerably.¹⁰

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.”¹¹ This view is supported by NAR-funded research, which describes the real estate industry as a collection of many local real estate markets.¹²

The cost structure is such that there are some economies of scale and scope in real estate brokerage. That there are not sizeable economies of scale 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) estimated the production function of the residential brokerage industry and found a U-shaped cost curve with significant economies of scale at low output levels, constant unit costs over a substantial range of output, followed by diseconomies at higher output levels. Zumpano and Elder (1994) found economies of scope that allow small firms to compete effectively against larger ones given the shared input of the MLS. Anderson, Lewis and Zumpano (2000a) estimated efficient cost frontiers and calculated economies of scale, finding that a majority of firms were operating at increasing returns to scale; however, the same authors (Anderson, Lewis and Zumpano 2000b) analyzed X-efficiency by firm size and found that small firms are more efficient than larger firms, indicating a tradeoff between scale efficiency and productive efficiency.¹³ As the NAR (2005, Appendix 1) also points out, a survivor analysis of real estate brokerage indicates that small firms compete

⁹FSBO 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 versus when they marketed their homes using a traditional agent and the MLS.

¹⁰See the 2007 FTC/DOJ report for a description of a typical real estate transaction and the range of services offered by different brokers.

¹¹FTC/DOJ (2007), p. 30.

¹²See Sawyer (2005).

¹³Zumpano (2002) summarizes the empirical research on production and costs in real estate brokerage.

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, sales associates and brokers. Sales associate 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.¹⁴ Brokerage licensure usually requires practicing as a sales associate for a specified time, additional classroom hours, an exam and a licensing fee. Brokers must also line up sales associates, 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 sales associate 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.¹⁵ 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 50 states and thousands of cities and towns representing over 800 MLSs. Because prospective buyers can directly access listing 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.¹⁶ 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.

¹⁴Kentucky 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.

¹⁵Brown and Goolsbee (2002) find that Internet comparison shopping has reduced term life insurance prices by as much as 15%.

¹⁶See, for example, Bernheim and Meer (2008).

Real estate professionals have historically stifled price competition through their professional associations and local MLSs. The Supreme Court ruled in 1950 that MLSs could not require participating brokers to charge standard commission rates. After many MLSs switched to suggested fee schedules, the DOJ acted in the 1970s to halt this practice. So, formal policies to maintain uniform rates have disappeared.¹⁷

While the NAR claims that residential real estate markets are competitive, the GAO questions the degree of price competition and points out that commission rates have remained relatively uniform across markets and over time and do not reflect the costs of selling a house.¹⁸ Yinger (1981), Hsieh and Moretti (2003) and White (2006) argue 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 is less than one. So, competition would lead to a commission rate structure that is lower for higher-valued houses, instead of the rigid 6% rate that is observed. Carney (1982) points out that historic listed fees in California contained numerous tapered rate structures. He collected nationwide data on actual commission rates and sale prices in the late 1970s and found a statistically and economically significant negative relationship. Delcoursé and Miller (2002) study brokerage fees charged in a variety of other countries around the world. In many countries, sellers and buyers each pay a portion of the total commission. Advertising and other services are commonly unbundled,¹⁹ and tapered rate structures are also commonly observed.²⁰

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.

¹⁷See the discussion and references in GAO (2005), pp. 12–13.

¹⁸GAO (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.

¹⁹Both the FTC/DOJ (2007) and GAO (2005) reports emphasize the negative impact that minimum service requirements can have on competition in real estate brokerage markets. The DOJ has actively discouraged state legislatures from adopting such measures.

²⁰For example, see <http://www.assignmentscanada.ca/buyingincanada.html> for evidence from Canada and <http://nfn.com.au/selling-property/commission-rates/> for evidence from Australia.

Table 1 ■ Changes in selling agent compensation, Louisville, KY, MLS, 2000–2008.

Year	Less Than 3%	Exactly 3%	More Than 3%	Flat Commission
2000	5.3%	92.8%	1.6%	0.3%
2001	4.7%	93.4%	1.6%	0.3%
2002	5.0%	92.6%	2.0%	0.4%
2003	6.3%	90.9%	2.4%	0.5%
2004	6.6%	89.2%	3.3%	0.9%
2005	7.2%	88.4%	2.8%	1.6%
2006	7.3%	87.8%	3.6%	1.3%
2007	8.3%	85.9%	4.2%	1.7%
2008	8.8%	83.0%	5.4%	2.8%

Notes: Commissions represent offered amount to selling agents by the listing agent; the commission for the listing agent is not observed in the data. Data for 2008 go through November 29, 2008.

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 an MLS to exclude “maverick” rivals who are price-cutters.²¹ 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 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.

There is evidence that commissions have shown increased variation in the United States over the past decade. Table 1 contains data from the Louisville, KY, MLS from 2000 until 2008 on the percentage of residential housing transactions where the selling agent’s commission was listed as being less than,

²¹Zumpano and Hooks (1988, pp. 9–10) point out that in 1980 the NAR adopted policies to prohibit publishing the total commission on MLS listings. Because only information on the selling broker’s share is publicly available on the MLS, pricing coordination on the listing agent’s compensation is made more difficult.

equal to or greater than 3% for percentage-based commissions, or a flat dollar-value commission.²² As can be seen, the prevalence of a 3% commission for the selling agent has declined markedly over the 2000–2008 period, from 93% to 83% of all transactions. Even more deviation from the evenly split 6% norm apparently occurs on the listing agent side. A *Consumer Reports* (2008) survey found that 46% of respondents who sold a home using real estate agents attempted to negotiate a lower commission, and roughly 71% of that group succeeded.²³

Cross-Sectional Analysis of Market Concentration

Now, we turn our attention to market concentration. A nationally consistent source of data on local real estate markets is available from the NAR, which maintains a Web site that assembles homes listed on regional MLSs. This Web site, www.realtor.com, allows users to search/browse through listings practically anywhere in the country by city or ZIP code.²⁴ 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.²⁵

²²The offered commissions to selling agents in the MLS data occasionally had mistakes; we used a number of decision rules to clean up these mistakes. For example, we converted a commission of 0.03% to 3%, because we believe that the listing agent did not mean to offer a commission of three one-hundredths of a percent to the selling agent. The full set of decision rules is available from the authors.

²³“Buying, Selling, Remodeling,” *Consumer Reports*, September 2008, pp. 16–21. There were 9,141 responses to *Consumer Reports’* annual survey about selling or trying to sell homes using real estate agents from 2004 to 2007.

²⁴Realtor.com provides information on approximately 95% of all homes listed on MLSs around the country (GAO 2005, p. 18).

²⁵We 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 listing 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.

Realtor.com contains all the houses in a given geographic market where the listing real estate agent uses the MLS.²⁶ We ultimately collected data on 90 diverse markets based on market size. Data were initially collected from Realtor.com between October 17 and December 21, 2007. We used the 2005 Rand McNally Atlas and the American Community Survey: American Fact Finder to select the cities.²⁷ We used a stratified sample approach, selecting 17 cities at random from the nation's 50 largest, 30 cities from among those having populations between 40,000 and 362,850 and 43 cities from among those having populations less than 40,000.²⁸ To ensure geographically separate markets, small towns within 20 miles of a city with over 200,000 residents were excluded.

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 Web sites were scraped by hand. This process was very labor intensive, which perhaps explains the limited evidence previously collected on local market structures. Table 2 presents a list of the observed markets in the data set. For ease of exposition, the table has been subdivided into three categories based on the number of listings observed. This brought us up to 18 large markets (greater than 5,000 listings), 30 medium markets (between 1,000 and 4,999 listings) and 42 small markets (less than 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 35% 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 0.1% of all firms had over 1,000 listings. The largest firm, which

²⁶By 2005, Web-based brokers had emerged who often made available information about listings to potential customers via Web sites. The NAR gave individual agents the right to opt out of having their listings displayed by particular Web sites. In response to imminent legal action by the DOJ in September 2005, the NAR changed the policy to a blanket opt-out allowing realtors to prohibit their listings from appearing on any Web site other than Realtor.com.

²⁷See <http://factfinder.census.gov/home/saff/main.html?lang=en>.

²⁸Our middle group of cities was 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. Cities 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.

Table 2 ■ Eighteen large real estate markets, 2007. (Greater than 5,000 listings in 2007).

Metropolitan Area	Population 2000	HHI 2007	Listings 2007	Firms 2007	Listings per Firm 2007	Four-Firm Concentration Ratio 2007
Atlanta, GA	4,247,981	251	27,732	1,065	26.0	26.3
Phoenix, AZ	3,251,876	258	12,822	691	18.6	24.9
Denver, CO	2,179,240	166	11,637	1205	9.7	19.7
Charlotte, NC	1,330,448	297	10,511	880	11.9	28.4
Jacksonville, FL	1,122,750	486	10,260	575	17.8	33.7
Indianapolis, IN	1,525,104	305	10,140	719	14.1	28.3
Philadelphia, PA	5,687,147	291	9,865	481	20.5	24.5
Baltimore, MD	2,552,994	592	8,951	577	15.5	36.8
San Antonio, TX	1,711,703	235	8,951	611	14.7	22.5
St. Louis, MO	2,698,687	484	8,525	632	13.5	28.6
Cincinnati, OH	2,009,632	763	8,201	195	42.1	47.7
Los Angeles, CA	12,365,627	229	8,110	1756	4.6	23.8
Dallas, TX	5,161,544	252	7,870	837	9.4	24.3
Columbus, OH	1,612,694	515	7,483	362	20.7	36.5
St. Petersburg, FL	2,395,997	221	7,241	650	11.1	24.0
San Diego, CA	2,813,833	328	6,864	1199	5.7	30.1
Portland, OR	1,927,881	347	6,792	466	14.6	27.5
Birmingham, AL	1,052,238	785	5,758	214	26.9	40.8

Note: Metropolitan area includes additional cities surrounding the central city.

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 metropolitan statistical area (MSA) with a wide variety of types of listings.

After analyzing the 2007 data, we decided to rescrrape 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.²⁹ Because scraping and cleaning data from the large markets involved such a significant time cost, and because large markets were uniformly unconcentrated, we did not revisit them.

²⁹Note that these data only permit a picture of brokerage markets from the perspective of listings. The number of transactions is probably a better measure of market size, especially if the primary interest is the size distribution of firms in the market. Because listings and not transactions are available from realtor.com, we use data from the Louisville, KY, MLS in the next section to analyze the size distribution of brokerage firms by market transactions.

Table 2 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. Table A1. presents additional information for each market 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 DOJ or the FTC if a merger between two brokers had been proposed, that is, these markets all fall into the competitive category because $HHI < 1,000$.³⁰ The average HHI across the 18 large markets in 2007 was 378.

Table 3 contains information for 30 medium-sized markets, that is, 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 and four-firm concentration ratio are included. The average HHI in these medium-sized markets in 2007 was 837, falling to 797 in 2009. In 2007, seven of the 30 markets had HHIs 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 concentrated according to the DOJ/FTC Horizontal Merger Guidelines.³¹ Interestingly, the HHI in Des Moines declined from 3,320 to 1,538 between 2007 and 2009. Our scraping approach, in this particular market, corroborates the concentration findings of the 2007 FTC/DOJ report.

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.³² 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

³⁰Market shares can also be calculated based on dollar volume of sales. We find, unsurprisingly, HHIs based on listings are highly correlated with HHIs based on dollar volume of sales.

³¹The DOJ 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.

³²Table A1 contains the number of listings and market shares of the four largest brokerages in each market.

Table 3 ■ Thirty medium real estate markets. (Between 1,000 and 4,999 listings in 2007).

Metropolitan Area	Population 2000	HHI		Listings		Firms		Listings per Firm		Four-Firm CR	
		2007	2009	2007	2009	2007	2009	2007	2009	2007	2009
Dayton, OH	848,853	619	757	4941	4467	190	184	26.0	24.3	42.3	46.3
Albuquerque, NM	729,649	720	721	4536	3511	425	380	10.7	9.2	40.8	41.3
Grand Rapids, MI	740,482	532	506	4529	3087	220	207	20.6	14.9	38.2	39.0
Bakersfield, CA	661,645	414	448	4488	1631	388	292	11.6	5.6	34.2	35.9
Charleston, SC	549,033	823	964	4360	3026	304	248	14.3	12.2	37.7	43.3
Oklahoma City, OK	1,095,421	173	221	4298	3878	333	345	12.9	11.2	18.2	22.9
Nashville, TN	1,311,789	323	322	4159	4243	313	328	13.3	12.9	28.8	28.1
Ocala, FL	258,216	578	627	4020	3078	278	220	14.5	14.0	45.0	45.3
Salt Lake City, UT	968,858	279	161	3682	3913	455	513	8.1	7.6	26.2	18.7
Fresno, CA	799,407	621	695	3166	1297	377	259	8.4	5.0	42.9	43.2
Boise, ID	464,480	403	537	3108	2541	202	200	15.4	12.7	34.2	40.3
Des Moines, IA	481,394	3320	1538	2968	1900	15	43	197.9	44.2	91.7	70.2
Wichita, KS	571,116	555	770	2639	2345	118	121	22.4	19.4	38.9	47.5
Lexington, KY	408,326	672	546	2593	2462	173	174	15.0	14.1	39.4	38.4
Spokane, WA	417,937	766	649	2372	4312	114	144	20.8	29.9	42.8	40.6
Arlington, TX	1,710,318	408	343	2258	1415	394	329	5.7	4.3	32.8	30.6
Salem, OR	347,214	1156	949	2170	2359	142	140	15.3	16.9	59.1	52.4
Santa Fe, NM	129,292	734	1023	2078	2129	156	146	13.3	14.6	44.9	57.6
Lansing, MI	455,516	1157	1665	2047	1461	93	87	22.0	16.8	60.6	63.6

Table 3 ■ Continued.

Metropolitan Area	Population		HHI		Listings		Firms		Listings per Firm		Four-Firm CR	
	2000	2009	2007	2009	2007	2009	2007	2009	2007	2009	2007	2009
Buffalo, NY	1,170,111	1784	1744	1784	1923	1715	79	110	24.3	15.6	64.6	69.1
Springfield, MO	368,374	1560	1560	1592	1867	1843	125	109	14.9	16.9	66.3	67.4
Little Rock, AR	610,518	507	507	583	1710	1673	112	110	15.3	15.2	36.1	39.3
Providence, RI	1,582,997	398	398	397	1685	795	201	170	8.4	4.7	33.7	35.1
Norfolk, VA	1,576,370	867	867	739	1573	1710	72	96	21.9	17.8	53.0	45.6
Pueblo, CO	141,472	953	953	639	1517	1147	119	116	12.8	9.9	54.5	43.5
Lubbock, TX	249,700	808	808	646	1379	1161	81	81	17.0	14.3	49.0	40.4
Augusta, GA	499,684	1652	1652	1388	1301	1570	39	89	33.4	17.6	69.5	58.8
Sioux Falls, SD	187,093	763	763	909	1289	1088	52	61	24.8	17.8	48.2	53.5
New Haven, CT	824,008	419	419	401	1261	480	169	103	7.5	4.7	32.3	32.8
Peoria, IL	366,899	1168	1168	1388	1098	1045	46	37	23.9	28.2	61.3	69.0

Note: Metropolitan areas are defined to include additional cities surrounding the central city.

(p. 32), which offered Des Moines as an example of a highly concentrated market.

Table 4 contains information for 42 small markets, that is, markets having fewer than 1,000 listings, for 2007. If concentration is a problem in residential real estate brokerage, it is in smaller markets where we would expect to observe it.³³ 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 42 small markets had HHIs 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 Carlsbad, NM, with an HHI of 2,244. Both are very small markets, with 221 and 125 total listings in 2007, respectively. Lincoln, NE—another market singled out by the FTC/DOJ report—had an HHI of 1,156 in 2007 and 895 in 2009.

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 La Pine, 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 had 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 of Market Concentration

Results from the cross-sectional analysis raise the following question: How stable are firm market shares over time? One new contribution we are able to make is to look at the size distribution of firms in a single market over an extended period of time. We have collected extensive data on market transactions and the dollar volume of sales, for both the listing broker and the buying-side broker, for Louisville, KY, from January of 2000 through November of 2008.

³³If the long-run average cost curve has a unique minimum, then HHI will vary somewhat mechanically with market size. Given the empirical evidence of economies of scale in real estate brokerage, it is not surprising that we find greater concentration in smaller markets than larger markets.

Table 4 ■ Forty-two small real estate markets. (Less than 1,000 listings in 2007).

Metropolitan Area	Population		HHI		Listings		Firms		Listings per Firm		Listings per Firm		Four-Firm CR	
	2000	2009	2007	2009	2007	2009	2007	2009	2007	2009	2007	2009	2007	2009
Avondale, AZ	76,939	256	190	973	456	208	151	4.7	3.0	24.0	19.1			
Springfield, IL	201,473	1439	1947	942	794	44	39	21.4	20.4	64.6	74.4			
Hampton, VA	146,437	662	584	933	935	67	82	13.9	11.4	42.7	39.8			
Blue Springs, MO	48,080	808	1468	843	887	102	60	8.3	14.8	51.1	58.4			
St. Joseph, MO	122,336	1800	2248	784	719	32	28	24.5	25.7	75.5	82.3			
McAllen, TX	569,463	486	517	759	617	92	98	8.3	6.3	35.8	36.3			
Auburn, AL	115,092	725	1003	730	754	40	46	18.3	16.4	42.8	57.2			
Manchester, NH	380,841	360	347	686	561	129	114	5.3	4.9	30.5	30.1			
Sumter, SC	104,464	783	805	684	676	42	36	16.3	18.8	23.7	46.1			
Yakima, WA	71,845	801	912	669	787	34	38	19.7	20.7	49.2	51.1			
Eau Claire, WI	148,337	717	806	664	689	54	47	12.3	14.7	41.3	44.0			
Joplin, MO	157,322	1450	1820	635	654	30	28	21.2	23.4	66.6	77.7			
Inverness, FL	6,789	857	1015	609	658	70	51	8.7	12.9	52.9	59.0			
Mankato, MN	85,712	1026	1203	594	614	41	33	14.5	18.6	58.3	59.1			
Yuba City, CA	139,149	997	944	551	333	76	78	7.3	4.3	55.7	50.2			
Bellevue, NE	109,569	1196	858	539	276	43	36	12.5	7.7	57.8	51.8			
Owensboro, KY	109,875	1161	1400	489	481	17	16	28.8	30.1	60.3	65.9			
Scranton, PA	560,625	1129	940	467	408	40	41	11.7	10.0	59.1	51.9			
Lincoln, NE	266,787	1156	895	422	442	38	44	11.1	10.1	55.3	52.3			
Goldsboro, NC	113,329	780	1074	412	428	43	37	9.6	11.6	46.1	57.5			
Findlay, OH	71,295	1724	1815	402	490	27	29	14.9	16.9	70.4	77.4			
San Angelo, TX	105,781	1028	774	400	519	39	44	10.3	11.8	55.0	47.6			
Marion, IN	73,403	1204	1023	383	302	28	25	13.7	12.1	61.1	57.0			

Table 4 ■ Continued.

Metropolitan Area	Population		HHI		Listings		Firms		Listings per Firm		Four-Firm CR	
	2000	2009	2007	2009	2007	2009	2007	2009	2007	2009	2007	2009
Bangor, MN	144,919	1562	378	322	24	24	15.8	13.4	68.3	67.1		
Salina, KS	59,760	2106	330	349	14	14	23.6	24.9	89.1	86.8		
Brookfield, WI	38,649	1067	318	383	57	71	5.6	5.4	54.9	60.7		
Longview, WA	92,942	2091	313	427	32	35	9.8	12.2	76.7	69.1		
Grandview, MO	24,881	1298	307	165	66	44	4.7	3.8	46.3	50.3		
Corvallis, OR	78,153	920	289	394	36	39	8.0	10.1	52.1	58.9		
Roswell, NM	61,382	2030	279	388	17	23	16.4	16.9	80.7	70.9		
Pine Bluff, AR	107,341	1282	248	185	26	27	9.5	6.9	65.7	63.3		
La Pine, OR	5,799	558	222	213	41	36	5.4	5.9	36.9	56.3		
Blytheville, AR	18,272	2114	221	211	14	12	15.8	17.6	74.8	78.2		
Del Rio, TX	44,856	1049	211	210	18	17	11.7	12.4	53.6	63.2		
Lewiston, ID	57,961	1314	209	243	18	16	11.6	15.2	62.7	70.8		
Eureka, CA	126,518	854	193	213	37	33	5.2	6.5	50.3	54.0		
Portsmouth, NH	20,784	607	186	232	46	44	4.0	5.3	40.3	53.4		
Minot, ND	67,932	1605	177	217	12	9	14.8	24.1	71.2	75.6		
Butte, MT	34,606	1120	165	235	22	25	7.5	9.4	60.3	66.0		
Delano, CA	38,824	474	149	50	45	25	3.3	2.0	31.8	49.0		
Carlsbad, NM	25,625	2244	125	151	10	6	12.5	25.2	89.7	98.7		
Montpelier, VT	8,035	1286	103	123	23	16	4.5	7.7	62.7	70.7		

Note: Metropolitan areas are defined to include additional cities surrounding the central city.

Table 5 ■ Longitudinal analysis of market structure, Louisville, KY.

Year	Houses Sold	Listing Firms	Sales per Firm	HHI (Listing Agent)	HHI (Dollar Value, Listing Agent)	HHI (Sales Agent)	HHI (Dollar Value, Sales Agent)
2000	10,315	350	29.5	735	857	725	877
2001	11,013	337	32.7	732	843	709	827
2002	11,116	368	30.2	678	775	681	770
2003	12,800	393	32.6	634	710	656	761
2004	13,950	432	32.3	595	639	595	696
2005	13,061	478	27.3	451	508	541	597
2006	15,076	511	29.5	410	474	483	559
2007	14,726	485	30.4	373	433	424	477
2008	10,960	442	24.8	347	411	388	464

Note: All calculations based on transactions in Louisville MLS data. The 2008 data go through November 29, 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, 2008.³⁴ Observations with a missing firm identifier variable, either on the listing or the 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, was 30.7 years old and had three bedrooms, two full baths, a basement and central air-conditioning. It was on the market for 74 days and sold for a nominal price of \$162,457. The median selling price was lower, at \$118,000, indicating that the distribution of sales prices is skewed.

Table 5 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 HHIs for both the selling side and the buying side, based on both the number and the dollar volume of sales. Table 6 includes the identity and market share for 2000 and for 2008 of the top

³⁴To check for consistency, we compared 100 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.

Table 6 ■ Market shares of Louisville listing brokers in 2000 and 2008.

Top Ten Listing Firms (By Number of Transactions)	Firm's Transactions	Firm's Market Share
2000		
Semonin Realtors	2,096	20.3
Century 21 Realty Group-Hagan	1,031	10.0
RE/MAX Properties East	1,029	10.0
Coldwell Banker/Mcmahan Co.	688	6.7
RE/MAX Associates	491	4.8
Prudential Parks & Weisberg	375	3.6
RE/MAX Professionals	276	2.7
RE/MAX Alliance	271	2.6
Coldwell Banker Action, Realtors	248	2.4
ERA-Kepple-Keene, Realtors	240	2.3
2008		
Semonin Realtors	1,547	14.1
RE/MAX Properties East	634	5.8
Century 21 Realty Group-Hagan	480	4.5
RE/MAX Associates	477	4.5
Coldwell Banker/Mcmahan Co.	406	3.7
Bennett-Webb Realty	274	2.5
RE/MAX Executive Group, Inc.	273	2.5
RE/MAX 100, Inc.	249	2.3
ERA-Kepple-Keene, Realtors	221	2.0
Real Estate 3000	202	1.8

Note: All calculations based on transactions in Louisville MLS data. The 2008 data go through November 29, 2008

ten residential brokerage firms based on the number of transactions in which the firm was the listing broker.³⁵

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

³⁵While 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 nonmember firms were all coded identically and thus are indistinguishable from one another. We therefore lump these firms together in our analysis. In 2000, nonmember firms accounted for less than 1% of transactions. That number steadily increased until 2006 when the percentage of transactions involving nonmember offices reached 3.4%. If each of those transactions were associated with an atomistic nonmember office, our calculation of the buying-side HHI would be slightly lower.

350 to 511 over the same period.³⁶ 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 11 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 HHIs using market shares of listing brokers (seller side), calculated by both number of transactions and dollar volume of transactions. We have also calculated HHIs using market shares of buyer-side brokers by number of transactions and dollar volume of transactions. The steady decline in concentration when the housing market was thriving and when the market declined is clearly evident regardless of which of the four measures is used.

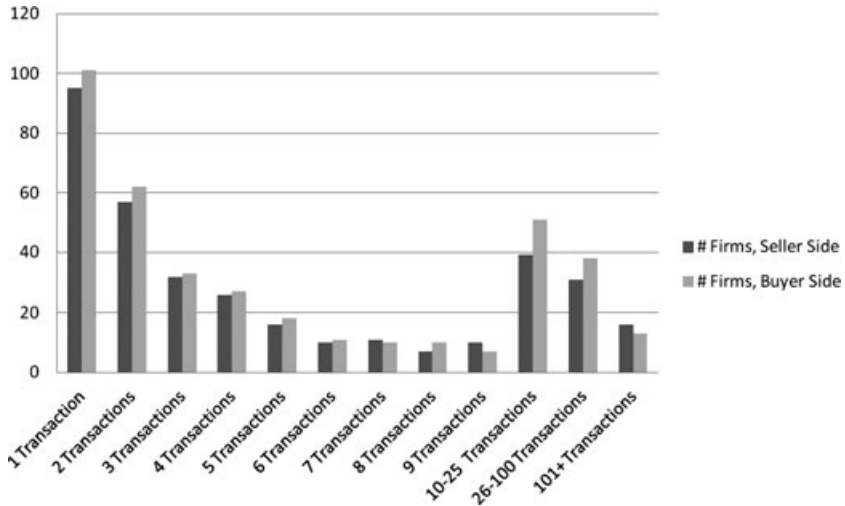
Closer scrutiny of the different measures turns up several interesting findings. HHIs using the number of transactions are smaller than HHIs using the dollar volume of sales. This result implies that higher-priced houses are disproportionately handled by larger real estate brokerage firms. HHIs declined 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 do not 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 submarkets exist and that real estate brokers specialize by geographic region within the greater metropolitan area. To determine whether concentrated submarkets exist, we analyzed sales in distinct areas within the

³⁶The combination of increased broker participation and flat sales is consistent with the findings of Hsieh and Moretti (2003).

Figure 1 ■ Distribution of firms by size based on 10,315 transactions in Louisville, KY in 2000.



city.³⁷ Table 7 contains data on the number of sales, HHI and identities and market shares of the top firm for 2000 and 2006 in 19 different geographic areas within the greater Louisville metropolitan area. This information allows us to analyze whether there are significant geographic submarkets 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 (Nelson County) the HHI in 2000 was 4,721 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, the HHI declined to 1,667 and the largest firm’s market share dropped to 35.4%. Similarly, in Area 31 (Meade County), 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%. Based on this volatility, it is no evidence that these smaller areas constitute distinct geographic markets.

³⁷The 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.

Table 7 ■ Sales, HHI and largest firm by neighborhoods within Louisville, KY, 2000 and 2006.

Louisville Neighborhood	Sales 2000		HHI 2000		HHI 2006		Largest Firm 2000		Largest Firm 2006		Firm's Market Share	
	2000	2006	2000	2006	2000	2006	2000	2006	2000	2006	Firm's Sales	Firm's Market Share
Area 0—Central Downtown	87	153	1,362	639	Semonin Realtors	Semonin Realtors	26	29.9	RE/MAX 100, Inc.	21	13.7	
Area 1—Downtown/Old & West Louisville/Shively	794	1,160	605	434	Semonin Realtors	Semonin Realtors	122	15.4	Semonin Realtors	158	13.6	
Area 2—Butchertown/Highlands/Germantown	773	1,052	1,079	583	Semonin Realtors	Semonin Realtors	209	27.0	Semonin Realtors	198	18.8	
Area 3—Brownsboro Rd/Crescent Hill/St Matthews	662	796	1,556	601	Semonin Realtors	Semonin Realtors	235	35.5	Semonin Realtors	139	17.5	
Area 4—Pleasure Ridge/Valley Station	582	824	693	410	Semonin Realtors	Semonin Realtors	103	17.7	Semonin Realtors	103	12.5	
Area 5—Auburdale/Fairdale/Iroquois Park	780	987	905	563	Semonin Realtors	Semonin Realtors	162	20.8	Semonin Realtors	168	17.0	
Area 6—Bueche/Highview/Okolona/Fern Creek	1,162	1,760	635	482	Semonin Realtors	Semonin Realtors	200	17.2	Semonin Realtors	288	16.4	
Area 7—Fern Creek/Hikes Point/Jeffersontown	1,196	1,636	927	544	Semonin Realtors	Semonin Realtors	233	19.5	Semonin Realtors	291	17.8	
Area 8—Douglas Hills/Hurstborne/Middletown/Anchorage	878	1,233	1,091	862	Semonin Realtors	Semonin Realtors	183	20.8	Semonin Realtors	279	22.6	
Area 9—Anchorage/Lyndon/Prospect/Upper River Rd	1,186	1,300	1,157	644	Semonin Realtors	Semonin Realtors	306	25.8	Semonin Realtors	271	20.9	

Table 7 ■ Continued.

Louisville Neighborhood	Sales	HHI	HHI	HHI	Largest Firm	Firm's	Firm's	Firm's	Firm's
	2000	2006	2000	2006	2000	Sales	Market Share	Sales	Market Share
Area 10—Nelson	166	413	4,721	1,667	Coldwell Banker/ Memahan Co.	111	66.9	146	35.4
Area 11—Bullitt	613	985	627	448	Coldwell Banker Action, Rltrs	79	12.9	Century 21 Advantage Plus	102
Area 12—Other KY Counties	37	158	1,732	770	Semonin Realtors	11	29.7	First Time, Inc.	22
Area 19—Spencer	124	304	895	603	Coldwell Banker/ Memahan Co.	25	20.2	Semonin Realtors	51
Area 20—Oldham County North of I-71	352	489	1,001	966	Semonin Realtors	81	23.0	Semonin Realtors	128
Area 21—Oldham County South of I-71	370	415	1,330	849	Semonin Realtors	96	26.0	Semonin Realtors	97
Area 29—Henry	82	155	794	1,364	K M Bruther Real Estate Group	13	15.9	RE/MAX Preferred Realty	47
Area 30—Shelby	339	567	1,337	1,182	Coldwell Banker Larry Rogers	96	28.3	Coldwell Banker Larry Rogers	131
Area 31—Meade	16	117	2,813	1,181	Semonin Realtors	6	37.5	Stonegate Realty, LLC	28

Note: Area names obtained from www.mlsky.net.

So far, we have focused on market shares and changes in those shares for the largest firms in the market. With this data set, 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 in the next. Figure 1 presents a histogram of the number of listing brokers having one sale, two sales, three sales, *etc.* in 2000, along with the number of brokers representing the buyer side having one sale, two sales, *etc.* A 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 8 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, that is, had zero listings in any of the following eight years. Thirty-one firms grew on average over the 2000 to 2008 period, that is, 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.

With our data, we are also able to analyze whether market concentration measures are correlated with market housing outcomes. Figure 2 illustrates listing agent and selling agent HHIs alongside days on market, sales price and the ratio of sold-to-list price for Louisville from 2000 until 2008. While HHIs decline steadily throughout the period, days on market declines slightly and then remains steady, mean sales price increases slightly and sold-to-list price ratio is fairly steady and then declines significantly in 2007 and 2008. From visual inspection, it appears that the link between market concentration and housing market outcomes is quite weak.

We can probe this finding more formally by using our panel of areas within Louisville over time. We regress the above market outcome variables on HHI in each of 25 areas for the years 2000–2008. We include fixed effects for each area and each year, meaning our analysis relates the change in housing market outcomes within an area over time to the change in the HHI in that area over time. Results of these regressions are contained in Table 9. Neither sales price nor sales price/list price are significantly correlated with HHI. The HHI does significantly affect days on market, but surprisingly the correlation is positive, not negative. In any case, the economic effect is small—a 1,000-point increase

Table 8 ■ Continued.

Firm Name	2001	2002	2003	2004	2005	2006	2007	2008
J. A. Scherer, Realtors	1	0	0	0	0	0	0	0
J. D. Cooper, Realty	4	3	3	4	1	3	0	0
J. Michael Jones & Associates	0	0	0	1	0	1	5	6
Jack Griffin Company Realtors	4	2	0	0	0	0	0	0
Jack Gruneisen Company	2	4	1	5	1	0	0	0
Jacobson Realty	13	11	14	9	4	4	0	0
Jay Paxton, Realtor	3	1	7	3	4	2	2	1
Jewell Realtors	0	2	3	3	7	4	4	0
Jim Hall & Associates	1	0	5	5	8	2	0	0
Joe Daugherty Real Estate	2	1	4	0	0	0	0	0
John T. May & Associates	0	2	0	3	2	0	2	4
Johnson Realtors	1	2	0	0	0	0	5	0
Ken Kolb Realty	0	0	0	0	0	0	0	0
Kentucky Realty Corporation	0	0	1	1	0	1	0	0
Kirby Realty Company	0	1	0	0	0	0	0	0
Legend Realty	0	0	0	0	1	0	0	0
Lindenfeld Realty	0	0	1	0	0	0	0	0
Marvin Dever, Inc.	0	0	1	1		0	0	0
McClellan Realty Co	0	1	1	2	3	3	1	0
MIs Real Estate	2	0	1	13	4	5	1	1
Murry H. Smith, Realtors	3	2	1	1	0	0	0	0
New Towne Realty, LLC	0	0	1	0	2	0	5	3
Par Realty	1	0	0	0	0	0	0	0
Pence Company Realtors	0	2	1	2	6	3	1	2
Persimmon Tree Realty	0	0	0	0	2	2	4	0
Preferred Homes, Inc.	4	5	2	0	3	7	0	4
Preferred Properties	0	0	1	0	0	0	0	0
Real Estate 2000/Cochran	1	1	2	2	4	9	9	1
Rebob Realty, Inc.	4	7	13	3	1	2	1	0
River City Investment Company	0	0	0	0	0	0	0	0
Robert D. Shell, Realtor	0	0	1	0	1	0	0	0
Rod Smith Real Estate Broker	1	0	0	0	0	0	0	0
Rogers Realty Commercial Group	0	0	0	0	0	0	0	0
Rosenstein & Tasman	1	4	2	2	5	2	5	0
Rush Walker, Realtor	5	1	1	0	0	0	0	0
Saul Anhouse, Realtor	0	0	0	0	0	0	0	0
Schempp Realty Company	0	0	1	0	2	1	2	1
Shuck Company Realtors	6	11	5	0	0	0	9	7
Simon Realty Company	0	3	0	0	0	0	0	0
Smallwood Realty Co., Inc.	2	4	3	2	2	2	2	0
Southeast Realtors Inc	0	0	17	46	75	53	41	39
Stan Humphrey Construction Co.	3	2	0	3	0	1	2	0

Table 8 ■ Continued.

Firm Name	2001	2002	2003	2004	2005	2006	2007	2008
Star Realty, Inc.	2	0	1	0	0	0	2	1
Steve Porter Realtors	3	3	2	1	2	3	0	0
Stinson Realty Company	0	0	0	0	0	0	0	0
Tashrealtors.com	3	2	7	6	2	1	3	1
Tem-Jem Inc.	1	0	2	5	4	5	0	1
The Schroering Company, Inc.	0	0	0	0	1	0	0	0
Thomason-Sohm Realty	1	0	0	0	0	0	0	1
TNT Realtors	0	0	1	2	1	3	2	1
Turner Realty Management, Inc.	0	0	0	0	0	0	0	0
Twenty First Century RE	0	2	1	1	1	1	0	1
Vernon A. Ludwig, Realtor	0	1	1	2	1	1	1	2
Vista Realtors	1	1	3	10	18	27	36	8
WGN Realtors	0	0	0	0	0	0	0	0
Wheatley Real Estate	0	0	0	0	0	0	0	0
William F. Lippy, Realtor	0	1	0	0	1	0	0	0
Wimsatt Realty	3	0	0	0	1	1	0	0
Yournewhometoday.com	15	2	3	7	2	12	23	35

Note: Firms obtained from Louisville MLS data. Figures for 2008 go through November 29, 2008.

Figure 2 ■ Time series trends in housing market outcomes in Louisville, KY, between 2000 and 2008.



Table 9 ■ The impact of HHI on housing market outcomes.

Dependent Variable	(HHI/10,000) Estimated Coefficient	<i>t</i> -Statistic
<i>Sales Price</i>	-4,445	-0.19
<i>List Price</i>	-8,620	-0.38
<i>Log(Sales Price)</i>	-0.379	-1.19
<i>Log(List Price)</i>	-0.379	-1.35
<i>Sales Price/List Price</i>	0.003	0.08
<i>Days on Market</i>	45.36	1.99

Notes: The HHI is divided by 10,000 in each regression specification, for ease of exposition. Each row represents a separate regression, where the dependent variable was regressed on HHI (constructed from listing brokers) along with fixed effects for the 25 Louisville neighborhoods and for the years 2000–2008, as well as a constant term. Sample size is 221 observations.

in the HHI is associated with 4.5 extra days on the market. In summary, our analysis of Louisville suggests market concentration, or changes in market concentration over time, have very little effect on housing market outcomes like list price or sales price.

Conclusion

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 United States 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 FTC/DOJ 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 HHIs than medium and large markets. But in only six out of 42 small markets did the HHI in 2007 exceed 1,800. Small markets also exhibited considerable volatility in HHIs, 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 five 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 United States has been an ongoing concern at both the federal and state level. The DOJ, FTC and GAO have expressed concern over an apparent lack of price competition in the industry. A lack of competition may arise in an industry for a variety of reasons, but one explanation that our research refutes is a concentrated size distribution of firms in local real estate brokerage markets.

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Appendix

Table A.1 ■ Leading firms in 90 real estate markets, 2007.

Metropolitan Area	Largest Four Firms, 2007	Firm's Listings 2007	Firm's Market Share 2007
1 Albuquerque, NM	Coldwell Banker Legacy	1077	23.7
	Keller Williams Realty	318	7.0
	Vaughan Company Realtors	243	5.4
	Allstar Realty	212	4.7
2 Arlington, TX	Ebby Halliday, Realtors	205	9.1
	Century 21 Judge Fite Co.	194	8.6
	Re/Max Associates of Arlington	193	8.5
	Keller Williams - DFW Metro So	149	6.6
3 Atlanta, GA	Coldwell Banker Residential Brokerage	2485	9.0
	REMAX Greater Atlanta	1975	7.1
	Morris & Raper Realtors	1630	5.9
	Harry Norman Realtors	1213	4.4
4 Auburn, AL	21 Paramount Real Estate, Inc.	109	14.9
	First Realty	106	14.5
	Porter Properties	49	6.7
	Summit Realty Southeast	49	6.7
5 Augusta, GA	Meybohm Realtors	408	31.4
	Blanchard & Calhoun Real Estate	269	20.7
	RE/MAX Augusta, Inc.	119	9.2
	Century 21 Jeff Keller Realty	108	8.3
6 Avondale, AZ	Realty Executives	71	7.3
	Fulton Homes Sales Corporation	60	6.2
	West USA Realty	58	6.0
	Keller Williams Realty Prof. Partners	43	4.4
7 Bakersfield, CA	Watson Touchstone Real Estate	614	13.7
	Coldwell Banker Preferred	463	10.3
	Coldwell Banker America West	286	6.4
	Bakersfield Premier Realty	172	3.8
8 Baltimore, MD	Long & Foster Real Estate, Inc.	1797	20.1
	Coldwell Banker Residential Brokerage	1062	11.9
	RE/MAX Sails Inc.	257	2.9
	Prudential Carruthers Realtors	181	2.0
9 Bangor, MN	ERA Dawson Bradford Co., Realtors, Bang	119	31.4
	Realty of Maine - Bangor	71	18.7
	Town & Country, Realtors	44	11.6
	Assist 2 Sell 1st Choice Realty	25	6.6

Table A.1 ■ Continued.

	Metropolitan Area	Largest Four Firms, 2007	Firm's Listings 2007	Firm's Firm's Market Share 2007
10	Bellevue, NE	CBSHome Real Estate	134	24.8
		NP Dodge	97	18.0
		DEEB Realty	48	8.9
11	Birmingham, AL	Celebrity Homes Inc	33	6.1
		Realtysouth - Admin Office	1442	25.0
		RE/MAX Southern Homes	432	7.5
		LAH Real Estate	274	4.8
12	Blue Springs, MO	RE/MAX Advantage	202	3.5
		Reece & Nichols	167	19.8
		Re/Max Heartland, Realtors	108	12.8
		Realty Executives Metro One	82	9.7
13	Blytheville, AR	Keller Williams Realty - Eastland Partn	74	8.8
		Century 21 McWaters Realty	89	40.1
		Goff Real Estate	28	12.6
		RE/MAX Great River Realty	27	12.2
		Crye-Leike Missco Realty	22	9.9
14	Boise, ID	Group One	285	9.8
		Keller Williams Realty Boise	275	9.5
		Holland Realty	250	8.6
		Coldwell Banker Aspen	181	6.2
15	Brookfield, WI	Shorewest Realtors, Inc.	75	23.5
		First Weber Group	55	17.2
		RE/MAX Realty 100	23	7.2
		Coldwell Banker Residential Brokerage	22	6.9
16	Buffalo, NY	Hunt Real Estate ERA	568	29.5
		RealtyUSA	500	26.0
		MJ Peterson Real Estate	134	7.0
		Cash Realty of NY, Incorporate	41	2.1
17	Butte, MT	Homestead Real Estate	32	19.3
		Markovich Real Estate	27	16.3
		McLeod Realtors	22	13.3
		Harrison Ave Realty Inc	19	11.5
18	Carlsbad, NM	C-21 Assoc Prof	39	31.0
		ERA-Montgomery Real Estat	31	24.6
		Dunagan Associates	29	23.0
		Means Real Estate LLC	14	11.1
19	Charleston, SC	Prudential Carolina Real Estate	1174	27.0
		Daniel Island Real Estate	198	4.6
		Agentowned Preferred Group	140	3.2
		RE/MAX Professional Realty	125	2.9

Table A.1 ■ Continued.

	Metropolitan Area	Largest Four Firms, 2007	Firm's Listings 2007	Firm's Firm's Market Share 2007
20	Charlotte, NC	Allen Tate Company	1341	12.8
		RE/MAX Executive Realty	621	5.9
		Helen Adams Realty	608	5.8
		Wilkinson & Associates	410	3.9
21	Cincinnati, OH	Sibcy Cline, Inc.	1232	15.0
		Coldwell Banker West Shell	974	11.9
		Huff Realty	889	10.8
		Comey Shepherd, Realtors	815	9.9
22	Columbus, OH	HER Real Living	1221	16.3
		Coldwell Banker King Thompson	942	12.6
		RE/MAX Town Center, LLC	357	4.8
		C21 Joe Walker	208	2.8
23	Corvallis, OR	Town & Country Realty	55	19.0
		Re/Max Integrity	35	12.1
		Keller Williams Realty	32	11.0
		Coldwell Banker Valley Brokers	29	10.0
24	Dallas, TX	Ebby Halliday, Realtors	807	10.3
		Coldwell Banker Residential Brokerage	516	6.6
		Virginia Cook, Realtors	317	4.0
		Allie Beth Allman & Assoc.	274	3.5
25	Dayton, OH	Coldwell Banker Heritage Realtors	758	15.4
		Irongate Inc. Realtors	624	12.6
		Real Living Realty Services	442	9.0
		Big Hill GMAC Real Estate	266	5.4
26	Delano, CA	Century 21 Central Valley Real	14	9.5
		Liberty One Real Estate	14	9.5
		San Joaquin Realty	10	6.8
		Stroope, REALTORS-GMAC	9	6.1
27	Del Rio, TX	Cadena Realty	42	19.9
		Del Rio Realty	26	12.3
		REMAX Del Rio	23	10.9
		Century 21 Brenda Hunter	22	10.4
28	Denver, CO	Coldwell Banker Residential Brokerage	887	7.6
		RE/MAX Alliance	752	6.5
		RE/MAX Professionals	346	3.0
		Home Real Estate	310	2.7
29	Des Moines, IA	Iowa Realty	1240	52.8
		Coldwell Banker Mid-America Group	335	14.3
		Prudential First Realty	327	13.9
		RE/MAX Real Estate Group	253	10.8

Table A.1 ■ Continued.

	Metropolitan Area	Largest Four Firms, 2007	Firm's Listings 2007	Firm's Firm's Market Share 2007
30	Eau Claire, WI	CB Brenizer	95	14.3
		C21 Metro Realty Inc.	90	13.6
		Kleven Real Estate, Inc.	45	6.8
31	Eureka, CA	Eau Claire Realty Inc.	44	6.6
		Ming Tree Gmac Real Estate	33	17.1
		Coldwell Banker Cutten Realty	32	16.6
32	Findlay, OH	Benchmark Realty Group	17	8.8
		Community Realty	15	7.8
		RE/MAX Realty/Findlay	135	33.8
		Prudential Chaslo Realty	61	15.3
		Rooney and Associates Real Estate	45	11.3
		ERA Noakes-Rooney and Associates	40	10.0
33	Fresno, CA	Guarantee Real Estate	512	16.2
		London Properties, Ltd.	503	15.9
		Century 21 C. Watson Realty	191	6.0
34	Goldsboro, NC	Realty Concepts, Ltd	153	4.8
		Century 21 Dees & Tyndall Realtors	61	14.9
		Prudential the Memillen Group	58	14.2
35	Grand Rapids, MI	Realty World/Carolina Living	38	9.3
		Coldwell Banker Crawford-Norwood Realty	32	7.8
		Five Star Real Est	603	13.5
36	Grandview, MO	Greenridge Realty	533	11.9
		Keller Williams of GR East	336	7.5
		Coldwell Banker Hoppough	232	5.2
37	Hampton, VA	Reece & Nichols	105	34.2
		Coldwell Banker All American Realty	13	4.2
		Realty Executives Metro One	12	3.9
38	Indianapolis, IN	Vintage Realty	12	3.9
		Long & Foster Real Estate	112	12.0
		GSH Real Estate	108	11.6
		Greg Garrett Realty.Com	102	10.9
		William E. Wood & Associates	76	8.2
		F. C. Tucker Company	1193	11.8
		Carpenter, REALTORS	844	8.3
		Century 21 Realty Group	487	4.8
		Keller Williams Indpls Metro	351	3.5

Table A.1 ■ Continued.

	Metropolitan Area	Largest Four Firms, 2007	Firm's Listings 2007	Firm's Firm's Market Share 2007
39	Inverness, FL	Century 21 J W Morton Real Estate	117	19.3
		Keller Williams of Citrus County	72	11.9
		RE/MAX Realty One	67	11.0
		American Realty & Inv. ERA	65	10.7
40	Jacksonville, FL	Watson Realty Corp	1996	19.5
		Prudential Network Realty	591	5.8
		RE/MAX Specialists	470	4.6
		Vanguard Realty Inc GMAC	397	3.9
41	Joplin, MO	Charles Burt Realtors	178	28.0
		Pro 100 Inc. Realtors	124	19.5
		Keller Williams Realty of SW Mo Associates, Ltd	77	12.1
			44	6.9
42	Lansing, MI	Coldwell Banker Hubbell	452	22.2
		RE/MAX R.E. Professionals	403	19.8
		BriarWood Realty	257	12.6
		Tomie Raines	125	6.1
43	La Pine, OR	RE/MAX Sunset Realty	28	12.6
		Coldwell Banker First Resort	20	9.0
		Dennis Haniford's Cascade Rlty	19	8.6
		Gilchrist Real Estate - Lapine	15	6.8
44	Lewiston, ID	Century 21 Beutler & Asso	52	24.9
		Coldwell Banker Tomlinson	34	16.3
		RE/MAX Executives	29	13.9
		Coldwell Banker Town & Country	16	7.7
45	Lexington, KY	Rector-Hayden, Realtors	539	20.8
		Milestone Realty Consultants	176	6.8
		RE/MAX Creative Realty	157	6.1
		Keller Williams Bluegrass Real	149	5.7
46	Lincoln, NE	Bancwise Real Estate Solutions	114	27.1
		Nebraska Home Sales	59	14.0
		RE/MAX Real Estate Group	33	7.8
		Prudential Ambassador	27	6.4
47	Little Rock, AR	Crye-Leike Realtors	218	12.8
		Keller Williams Realty LR Branch	142	8.3
		Adkins, McNeill, Smith & Associates	129	7.5
		The Janet Jones Company	129	7.5
48	Longview, WA	Coldwell Banker Flaskerud	116	37.1
		Windermere Allen & Associates	72	23.0
		John L. Scott - Longview	29	9.3
		Prudential NW Properties	23	7.4

Table A.1 ■ Continued.

	Metropolitan Area	Largest Four Firms, 2007	Firm's Listings 2007	Firm's Firm's Market Share 2007
49	Los Angeles, CA	Coldwell Banker Res. Brokerage	985	12.3
		Prudential Calif. Realty	567	7.1
		Re/Max Marquee Partners	252	3.2
50	Lubbock, TX	Keller Williams Realty Sunset	99	1.2
		Coldwell Banker Rick Canup	217	15.8
		RE/MAX Lubbock	180	13.1
51	Manchester, NH	Keller Williams Realty	159	11.6
		Westmark Realtors	115	8.4
		RE/MAX Omega Group	73	10.6
52	Mankato, MN	Prudential Verani Realty	54	7.9
		Coldwell Banker Residential Brokerage	44	6.4
		The Masiello Group	38	5.5
53	Marion, IN	American Way Realty	111	18.7
		Realty Executives River Valley	96	16.2
		Century 21 Atwood Realty, Inc.	71	12.0
54	McAllen, TX	RE/MAX Dynamic Associates	68	11.5
		Goff Real Estate	75	19.6
		FC Tucker Realty Center	65	17.0
55	Minot, ND	RE/MAX Regency, Realtors	58	15.1
		Century 21 Kilgore, Realtors	36	9.4
		Keller Williams Realty RGV	113	14.9
56	Montpelier, VT	RE/MAX 1ST Choice	65	8.6
		Trendsetters Real Estate & Investments	56	7.4
		Star Properties GMAC Real Estate	38	5.0
57	Nashville, TN	Century 21 Action Realtors	47	26.6
		Signal Realtors, Inc.	30	17.0
		Coldwell Banker 1ST Minot	25	14.1
58	Nashville, TN	Prudential Preferred Properties, Inc.	24	13.6
		Century 21 Jack Associates	25	24.5
		Heney Realtors	20	19.6
59	Nashville, TN	BCK Real Estate	12	11.8
		Berg, Carmolli & Kent Real Estate	7	6.9
		Keller Williams Realty	337	8.1
60	Nashville, TN	Village Real Estate Services	319	7.7
		RE/MAX Elite	303	7.3
		Crye-Leike Inc. REALTORS	238	5.7

Table A.1 ■ Continued.

Metropolitan Area	Largest Four Firms, 2007	Firm's Listings 2007	Firm's Firm's Market Share 2007
58 New Haven, CT	Coldwell Banker Residential Brokerage	173	13.7
	Prudential Connecticut Realty	88	7.0
	H. Pearce Real Estate Co., Inc.	76	6.0
	Weichert Realtors - Regional Props	70	5.6
59 Norfolk, VA	Nancy Chandler Associates Inc.	235	15.0
	William E. Wood & Associates	222	14.1
	Long & Foster Real Estate	204	13.0
	Judy Boone Realty	172	11.0
60 Ocala, FL	Foxfire Realty	551	13.8
	CB/Ellison Realty	467	11.7
	Keller Wms Cornerstone RE	388	9.7
	RE/MAX Premier Realty	389	9.7
61 Oklahoma City, OK	Churchill-Brown and Associates	215	5.0
	Keller Williams-Green Meadow	216	5.0
	Prudential Alliance Group	179	4.2
	Keller Williams-Northwest	171	4.0
62 Owensboro, KY	Century 21 Partners	87	17.8
	L. Steve Castlen, Realtors	75	15.4
	Coldwell Banker Realty Group	71	14.6
	REMAX Professional Realty Grp	61	12.5
63 Peoria, IL	Re/Max Unlimited	227	20.6
	Jim Maloof/Realtor	197	17.9
	Coldwell Banker Devonshire	145	13.2
	Keller Williams Premier Realty	105	9.6
64 Philadelphia, PA	Prudential Fox & Roach Realtors	1345	13.6
	Coldwell Banker Preferred	434	4.4
	Century 21 Advantage Gold Estate	313	3.2
	RE/MAX Affiliates	320	3.2
65 Phoenix, AZ	Realty Executives	1432	11.2
	West USA Realty	782	6.1
	John Hall & Associates	505	3.9
	Coldwell Banker Residential Brokerage	467	3.7
66 Pine Bluff, AR	First Realty Group, Inc.	59	23.8
	Hometown Realty Services	38	15.3
	Lunsford & Associates	37	14.9
	Wilson-Rodgers & Associates	29	11.7

Table A.1 ■ Continued.

	Metropolitan Area	Largest Four Firms, 2007	Firm's Listings 2007	Firm's Firm's Market Share 2007
67	Portland, OR	RE/MAX Equity Group	1005	14.8
		The Hasson Company Realtors	295	4.4
		Prudential NW Properties	290	4.3
		Realty Trust Group, Inc.	279	4.1
68	Portsmouth, NH	RE/MAX Coast To Coast Properties	28	15.1
		Coldwell Banker Residential Brokerage	19	10.2
		The Masiello Group	18	9.7
		Keller Williams Coastal Realty	10	5.4
69	Providence, RI	Coldwell Banker Residential Brokerage	210	12.5
		RE/MAX Preferred	151	9.0
		Keller Williams Realty	109	6.5
		RE/MAX 1ST Choice	97	5.8
70	Pueblo, CO	REMAX of Pueblo	353	23.3
		Coldwell Banker Partners R.E.	207	13.7
		Keller Williams Performance Realty	172	11.3
		Jones-Healy Realtors	94	6.2
71	Roswell, NM	CENTURY 21 Home Planning	80	30.9
		RE/MAX of Roswell	69	26.6
		Prudential Grieves Group Realtors	43	16.6
		Coldwell Banker T&T	17	6.6
72	Salem, OR	Coldwell Banker Mountain West	581	26.8
		Prudential R.E. Professionals	304	14.0
		Re/Max Equity Group	243	11.2
		Windermere Pacific West Prop	155	7.1
73	Salina, KS	Salinahomes.com, Inc.	96	29.2
		Millwood Realty	82	24.9
		Team 1 Real Estate	59	17.9
		Coldwell Banker, A-P-W	56	17.0
74	Salt Lake City, UT	Coldwell Banker Residential Brokerage	429	11.7
		Prudential Utah Real Estate	250	6.8
		Allpro Realty Group Inc.	184	5.0
		Keller Williams Utah Realtors	100	2.7
75	San Antonio, TX	Keller Williams Realty	876	10.1
		Coldwell Banker D'Ann Harper, Realtors	385	4.5
		Century 21 United - A Epstein	366	4.2
		Legacy Group Keller Williams	317	3.7

Table A.1 ■ Continued.

	Metropolitan Area	Largest Four Firms, 2007	Firm's Listings 2007	Firm's Firm's Market Share 2007
76	San Diego, CA	Prudential California Realty	982	14.3
		Coldwell Banker Res. Brokerage	594	8.7
		Century 21 Award	261	3.8
		RE/MAX Associates	229	3.3
77	San Angelo, TX	Coldwell Banker Patterson Prop	92	23.0
		ERA Newlin & Vincent Realty	52	13.0
		Dierschke & Dierschke	48	12.0
		Allison-Lacy Real Estate	28	7.0
78	Santa Fe, NM	Santa Fe Properties	390	18.8
		Prudential Santa Fe RE	203	9.8
		Sotheby's International Realty, Inc.	173	8.3
79	Scranton, PA	Barker Realty, Inc.	166	8.0
		ERA One Source Realty	109	23.4
		Semian & Gress Real Estate	73	15.7
		Classic Properties	51	11.0
80	Sioux Falls, SD	Coldwell Banker Town & Country Prop	42	9.0
		HJN Team Real Estate	192	14.9
		Hegg Realtors	151	11.7
		RE/MAX Professionals Inc	149	11.6
81	Spokane, WA	the real estate company	129	10.0
		Tomlinson Black	532	22.4
		Keller Williams Spokane	216	9.1
		Coldwell Banker Northwest Group	134	5.7
82	Springfield, IL	Windermere Manito	134	5.7
		RE/MAX Professionals	291	30.9
		Real Estate Group	135	14.3
		Aspen Real Estate Company	119	12.6
83	Springfield, MO	Coldwell Banker Devonshire	64	6.8
		Murney Associates	618	33.2
		Carol Jones Realtors LLC	314	16.9
		Coldwell Banker - Vanguard	176	9.5
84	St. Louis, MO	RE/MAX House Of Brokers	125	6.7
		Coldwell Banker Gundaker	1736	20.4
		RE/MAX Properties West	284	3.3
		RE/MAX Results	228	2.7
		Realty Executives of St. Louis	191	2.2

Table A.1 ■ Continued.

	Metropolitan Area	Largest Four Firms, 2007	Firm's Listings 2007	Firm's Firm's Market Share 2007
85	St. Petersburg, FL	Coldwell Banker Residential Real Estate	601	8.3
		Charles Rutenberg Realty Inc	518	7.2
		Keller Williams Gulf Coast	391	5.4
		RE/MAX Action First	231	3.2
86	St. Joseph, MO	Reece & Nichols Ide Capital	253	32.3
		RE/MAX Professionals of St. Joseph	134	17.1
		Prudential Summers Realtors	107	13.7
		Coldwell Banker General Prop	98	12.5
87	Sumter, SC	Advantage Realty Group, Inc.	92	13.5
		Associates Realty	64	9.4
		Agent Owned Realty	3	0.4
		Alex's Realty	3	0.4
88	Wichita, KS	Prudential Dinning-Beard	354	13.4
		J.P. Weigand & Sons	282	10.7
		Coldwell Banker Stucky & Assoc	213	8.1
		Plaza Real Estate	176	6.7
89	Yakima, WA	Prudential Almon Realty	102	15.3
		Re/max 37 House	93	13.9
		Aspen Real Estate, LLC	70	10.5
		Windermere Real Estate	64	9.6
90	Yuba City, CA	RE/MAX Gold	123	23.4
		Century 21 Select Real Estate, Inc.	81	15.4
		Associated Brokers A R.E. Corp	52	9.9
		ERA - Showcase Real Estat	37	7.0

Notes: Firm market shares aggregated from individual house listings in each real estate market. Brokerage names were standardized when there were slight discrepancies in the name.