

Listing Specialization and Residential Real Estate Licensee Income

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Abstract

Earlier research has found that specialization by real estate agents creates economies of scope for real estate firms. So far, however, no research has addressed this issue at the agent level. The question this research seeks to answer is whether specialization in one side of the real estate transaction increases agent income. The most important finding is that specialization has an asymmetric impact on earnings. Specializing in listings positively enhances agent income. In contrast, specialization on the selling side has an adverse affect on agent income. The implications of these findings for the consumer and real estate industry are also examined.

Despite the large amount of research that has been devoted to analyzing the determinants of residential real estate agent income, little attention has been directed at how this income is generated.¹ Numerous papers (e.g., Follain, Lutes, and Meier, 1987; Glower and Hendershott (1988); and Crellin, Frew, and Jud, 1988) have found that education, experience, firm size, and hours worked have a positive impact on agent income. Abelson, Kacmar, and Jackofsky (1990), Sirmans and Swicegood (1997), and Sirmans and Swicegood (2000) also found a positive relationship between non-pecuniary factors such as job satisfaction and agent performance.

These studies assume, if only implicitly, that salespeople are indifferent as to the way this income is produced, whether from their own listings or from the sale of other agents' listings. This, in fact, may not be the case. Certain agent activities may well have greater income producing potential than other types of actions. If this conjecture is true, then specialization in those types of activities would provide the greatest potential for income production. For example, effort spent in generating property listings may prove more productive than the same amount of effort spent trying to market these properties to buyers. Agents are not all created equal; those salespeople who have the talent or skill set that makes them more effective at listing and selling property may also earn more than agents specializing in sales of property to buyers or vice versa. Alternatively, a balanced output of listings and sales may prove more revenue enhancing given current

industry commission sharing arrangements. It is also possible that agents and firms, while both seeking to maximize their gains, do so in a different manner. The purpose of this research is to examine whether or not specializing in one side of the real estate transaction or producing a more balanced production portfolio of both listings and sales has a differential impact on agent income.

This research employed a traditional OLS methodology to determine the impact of specialization on agent income. Models are specified where agent income is regressed on the predictors suggested by human capital and earnings models while entering controls for specializing in one side of the transaction and a balanced mix of listings and sales, respectively. The data for this study is taken from a large nationwide survey of brokers conducted by the National Association of Realtors® in 2001.

The next section of this paper closely examines the relevant literature on broker compensation. The data, model, and empirical methodology are described next, followed by discussion of the results. Finally, there is a summary of the principal findings as well as some concluding comments and observations.

Literature Review

Human Capital Theory and Agent Income

Mincer (1970, 1974) and Mincer and Polachek (1974), among others, are credited with the initial development of the basic human capital model in which education and experience are shown to be positively related to individual income. Mincer as well as Rosen (1976) suggests adding a quadratic term for experience to control for non-constant marginal returns. The issue of gender is also explored in some works. For example, Becker (1985) and Lazear and Rosen (1990) alternatively suggest that removal from the labor force depresses job skills and leads some employers, with less than perfect information concerning job commitment, to pay females less.

It is from these works that the first studies in real estate agent incomes are based. Follain, Lutes, and Meier (1987) followed in order by Sirmans and Swicegood (1997), Glower and Hendershott (1988), Crellin, Frew, and Jud (1988), Jud and Winkler (1998), and finally Sirmans and Swicegood (2000) examine the factors that determine agent income. All of these works employ some variant of the human capital models discussed above to specify their estimations. Fortunately, many of the factors (number of hours worked, experience, firm size, and education) were robust across all models. All of these factors positively enhanced broker income. Unfortunately, some factors were not consistently significant across these different works. Specifically, conflicting results developed over gender, race, franchise affiliation, and age of salesperson to name a few. These

inconsistencies appear to be largely the result of differing sampling techniques. In some cases, owner and managerial input and the size of the market also had positive impacts on earnings. Benjamin, Jud, and Sirmans (2000) provide a comprehensive review of these works and summarize them in a succinct tabular form.

Industry Cost Studies

By the very nature of human capital studies they reveal little about the specific contribution of other factors of production to agent income. Two studies by Zumpano, Elder, and Crellin (1993) and Zumpano and Elder (1994) examine the nature of the underlying production function for residential real estate brokerage firms. In the earlier study, which treated the output of real estate firms as a homogeneous product—the number of revenue transactions—found modest economies of scale for the industry across a wide range of output. The results of this study also suggested that the composition of output is an important source of these scale economies. Consequently, they concluded that it might be more meaningful to examine the output of real estate firms in a multi-product context.

In the follow-up study, Zumpano and Elder (1994) identify two distinct outputs of real estate brokerage firms—listing and sales.² While this characterization may seem arbitrary, the idea that listing and selling are, in fact, different services is supported by the research of Sirmans, Turnbull, and Benjamin (1991) that argues that the multiple listing service (MLS) helps separate agent functions within the firm. The MLS not only helps separate listing and selling activities, it also facilitates specialization; properties listed by one agent are often sold by other agents.

Using a multi-product translog cost function, Zumpano and Elder (1994) found that as firms grow in size, the resulting increase in the workforce allows real estate agents to specialize in listing or sales, providing more effective utilization of “sharable inputs,” such as equipment, clerical staff, and most importantly the MLS that, in turn, allows firms to generate more sales than might otherwise have been possible in the absence of agent specialization. It is these “sharable inputs” that give rise to scope economies; joint production allows shared inputs to be conserved without increasing the utilization of other inputs.

In effect, participation in the MLS may facilitate attainment of economies of scale in output by broadening and expanding the “scope” of the firm’s operations.³ While this may be true at the firm level, it is pure speculation as to whether specialization benefits the agent. One must assume that agents would choose not to concentrate on only one side of the transaction if it were not in their financial interest to do so. It is also difficult to generalize from these studies about the income implications of agent activity because these studies were limited strictly to the cost side.

Agent Compensation Choice

There is also a growing body of literature (Munneke and Yavas, 2001; Allen, Faircloth, Forgey, and Rutherford, 2003; Johnson, Zumpano, and Anderson, 2003; and Zumpano, Anderson, Johnson, and Page, 2003) examining broker intermediation and the effect that different types of compensation arrangements have on real estate agent productivity. In the last study mentioned above, the authors use a national data set provided by the National Association of Realtors® to construct a compensation choice model. They conclude that other factors, such as risk, human capital investment, and job satisfaction, besides the obvious attraction of higher income, influence the compensation choices of agents. These findings suggest that compensation arrangements may not always be perfect markers of agent productivity. While there does indeed seem to be a link between compensation choices and agent income, none of these studies looked to see whether such payment choices include a decision to specialize.

Model and Methodology

The Model

Two models were developed to determine whether agent specialization has a positive impact on agent income. Both regress the natural logarithm of annual agent income on a number of predictors suggested by and found to be statistically significant in the previously discussed literature review. The two models are specified below as:

$$\begin{aligned} \text{LnIncome} = f(\text{YearsCurrentFirm}, \text{Experience}, \text{ExperienceSqr}, \\ \text{HoursWorked}, \text{PartTime}, \text{IncomeDifference}, \text{Male}, \\ \text{LargeExpense}, \text{SalesStaffOffice}, \text{Office}, \text{Age}, \\ \text{AgeSqr}, \text{Married}, \text{HouseholdSize}, \text{Education}, \\ \text{RevenueTransactions}, \text{Offices}, \text{Franchise}, \\ \text{SpecializeListings}). \end{aligned} \quad (1)$$

$$\begin{aligned} \text{LnIncome} = f(\text{YearsCurrentFirm}, \text{Experience}, \text{ExperienceSqr}, \\ \text{HoursWorked}, \text{PartTime}, \text{IncomeDifference}, \text{Male}, \\ \text{LargeExpense}, \text{SalesStaffOffice}, \text{Office}, \text{Age}, \\ \text{AgeSqr}, \text{Married}, \text{HouseholdSize}, \text{Education}, \\ \text{RevenueTransactions}, \text{Offices}, \text{Franchise}, \\ \text{BalanceListings}). \end{aligned} \quad (2)$$

The only difference in these two models is the variables indicating specialization of labor. Specializing in listings (*SpecializeListings*) is defined as the ratio of revenue transactions from listings to total revenue transactions, which by definition represents the effects of specializing in listings and is the complement of specializing in sales.⁴ Therefore, by construct, as an agent approaches 100% specialization in listings, *SpecializeListings* approaches one. As an agent approaches 100% specialization in sales, *SpecializeListings* approaches zero representing 100% specialization in sales. Accordingly, a statistically significant coefficient in Equation 1 indicates that specializing in listings enhances income; a negative coefficient suggests that specializing in selling is positively correlated with agent income.

In Equation 2, *BalanceListings* is a categorical variable controlling for an agent that produces a balanced output of listing and sale transactions. Specifically, *BalanceListings* represents all agents where $0.90 \leq List/Sell \leq 1.10$, where *List/Sell* is the ratio of listing transactions to sale transactions. If specialization increases agent income, *BalanceListings* should sign negative. Alternatively, if a balanced portfolio of listing and sales is more income productive, this variable should be positive and significant.

As far as the other independent variables are concerned, Abelson, Kacmar, and Jackofsky (1990), among others, have shown that job satisfaction positively influences broker income. Unfortunately, there were no variables in the data set that could serve as an exclusive proxy of job satisfaction. The number of years spent with the same firm, *YearsCurrentFirm*, may pick up some of these intangible effects, since employees who are unhappy at work will change employers. However, *YearsCurrentFirm* also captures job-specific experience. Although it may be difficult to untangle these effects, this variable should sign positive. There are other variables that more directly measure the impact of experience on licensee earnings. Hence, the inclusion of *Experience* (number of years of experience in residential real estate), *ExperienceSqr*⁵ (to control for the possibility of diminishing returns to experience), *HoursWorked* (number of hours worked per week), and *PartTime* (a dummy control for part-time agents).⁶

Other variables found to influence agent income include gender, *Male* (a dummy control for gender), *SalesStaffOffice* (number of agents practicing in the broker's office), and *Offices* (number of branch offices in an agents' firm), which are measures of market penetration, *Age* (age of the broker), *AgeSqr*, *Education* (agent education level), and the use of technology and personal assistants. As a rough proxy for the last two factors, *LargeExpense*, a dummy variable designating agents who spend more than the mean expenditure level for the sample, is added.⁷ Whether or not the agent works for a franchised firm is captured by *Franchise*.⁸

Motivation and effort play obvious roles in income generation. In addition to variables specified in earlier works and along similar lines to the human capital arguments, a variable was added to control for an agent's motivation. There should be a positive relationship between motivation and agent income. To proxy

motivation levels, controls were specified for *IncomeDifference* (income from sources other than residential real estate), marital status (*Married*), and size of household (*HouseholdSize*). It may well be the case that significant income generated from non-brokerage sources will significantly reduce an agent's productivity. Conversely, being married and providing for a large household should serve to induce greater work effort. Another obvious indicator of motivation and productivity is *RevenueTransactions* (the number of revenue transactions produced by an agent). *RevenueTransactions* are calculated by aggregating an agent's count of closed listings, closed sales, and in-house sales, which are counted twice because they represent an agent's sale of his or her own listings.⁹

Exhibit 1 provides variable definitions and their anticipated signs. The interested reader can consult the referenced works of Benjamin, Jud, and Sirmans (2000) and Zumpano, Johnson, Anderson, and Page (2004) for a more detailed discussion on the explanatory variables used in this study.

The Data

The National Association of Realtors® 2001 Membership Survey is the source of data for this work. This particular annual survey of NAR members contains questions on business activity, technology use, office information, agent production, income, and demographic information. There were 7,440 responses returned to NAR. Unfortunately, many of surveys were either incomplete, completed by individuals whose primary business included commercial real estate, or provided erroneous information (e.g., negative income). After making these adjustments for incomplete or inaccurate responses (e.g., negative income) and the elimination of commercial agent surveys, the final data set consisted of 1,841 responses.

Results

Descriptive Statistics

The average respondent is a married 44-year-old female. She has not completed a college degree and works full time in the residential real estate industry. In addition, she has approximately six years of service at her current firm and eleven years of experience overall. She also works full time in a residential real estate office that has approximately 31 other associates. She averages roughly 27 revenue transactions per year with an average workweek of forty-two hours. Exhibit 2 provides the summary statistics for this study on which the above profile is based.

The Estimations

The results of the estimations can be found in Exhibits 3 and 4, respectively. It is clear that many of the regressors employed in earlier human capital research

Exhibit 1 | Variable Definitions

Variable	Definition	Sign
<i>YearsCurrentFirm</i>	The number of years the agent has worked with their current firm.	Positive
<i>Experience</i>	The number of years the agent has worked in residential real estate.	Positive
<i>ExperienceSqrd</i>	The square of the number of years the agent has worked in residential real estate.	Negative
<i>HoursWorked</i>	The number of hours worked per week by the agent.	Positive
<i>PartTime</i>	One if the respondent works less than 40 hours per week, 0 otherwise.	Neutral
<i>IncomeDifference</i>	Income available to the agent from additional sources, spouse, investments, etc.	Positive
<i>Male</i>	One if the respondent is male, 0 otherwise.	Positive
<i>LargeExpense</i>	One if the respondent expenses exceeded the mean expenditure on expense items, 0 otherwise.	Positive
<i>SalesStaffOffice</i>	The number of agents practicing in the broker's office.	Positive
<i>Age</i>	The age of the agent.	Indeterminate
<i>AgeSqrd</i>	The age of the agent squared.	Indeterminate
<i>Married</i>	One if the respondent is married, 0 otherwise.	Positive
<i>HouseholdSize</i>	The number of individual in an agent's household.	Positive
<i>Education</i>	The education level of the agent.	Positive
<i>RevenueTransactions</i>	The number of revenue transactions by the agent.	Positive
<i>Offices</i>	The number of branch offices in the agent's firm.	Indeterminate
<i>Franchise</i>	One if the respondent's firm is not a member of a national franchise.	Indeterminate
<i>Income</i>	Annual income of the agent from their residential real estate practice.	Dependent
<i>BalanceListings</i>	One if the respondent's ratio of list side transactions to sale side transactions falls between .900 and 1.10, 0 otherwise.	Indeterminate
<i>SpecializeListings</i>	Ratio of revenue transaction generate from listings to total revenue transactions.	Indeterminate

Exhibit 2 | Descriptive Statistics

Variable	Mean	Median	Std. Dev.
<i>Income</i>	122,414.00	72,500.000	164,433.000
<i>YearsCurrentFirm</i>	5.916	4.000	5.382
<i>Experience</i>	11.207	9.000	8.801
<i>ExperienceSqr</i>	203.010	81.000	290.350
<i>HoursWorked</i>	41.809	45.000	14.763
<i>PartTime</i>	0.396	0.000	0.489
<i>IncomeDifference</i>	87,788.000	57,500.000	124,753.000
<i>Male</i>	0.437	0.000	0.496
<i>LargeExpense</i>	0.597	1.000	0.491
<i>SalesStaffOffice</i>	31.866	20.500	21.260
<i>Age</i>	44.720	47.000	11.095
<i>AgeSqr</i>	2,122.900	2,209.000	980.300
<i>Married</i>	0.751	1.000	0.433
<i>HouseholdSize</i>	2.545	2.000	1.255
<i>Education</i>	14.627	14.000	2.607
<i>RevenueTransactions</i>	26.924	21.000	28.611
<i>Offices</i>	51.430	2.000	343.890
<i>BalanceListings</i>	0.172	0.000	0.378
<i>Franchise</i>	0.556	1.000	0.497
<i>SpecializeListings</i>	0.439	0.462	0.192

Note: N = 1,841.

also proved statistically significant in these estimations. *Experience*, *HoursWorked*, *Education*, and *YearsCurrentFirm* are all positive and significant across both equations. *ExperienceSqr* is negative and significant, as is the case with most of the earlier studies, suggesting that there are diminishing returns to experience. The magnitude of the coefficients of these variables compare favorably with earlier research on agent earnings.¹⁰ Some differences with prior works, however, do emerge. Specifically, the results for *Male* and *Age* are inconsistent with some earlier work.

With respect to gender, Abelson, Kacmar, and Jackofsky (1990) find that female brokers earn considerably more than male brokers, while Crellin, Frew, and Jud (1988), Sirmans and Swicegood (1997, 2000), and Jud and Winkler (1998) all find that females in the real estate industry earn less than males. However, the results presented here showing gender to be statistically insignificant are consistent

Exhibit 3 | Result for Broker Income Model: Estimation 1

Variable	Coeff.	Std. Error	T	P
Constant	8.136	0.207	39.27	0.000
<i>YearsCurrentFirm</i>	0.014	0.005	2.96	0.003
<i>Experience</i>	0.033	0.004	9.27	0.000
<i>ExperienceSqrd</i>	-0.000	0.000	-3.16	0.002
<i>HoursWorked</i>	0.025	0.003	10.07	0.000
<i>PartTime</i>	0.075	0.073	1.02	0.308
<i>IncomeDifference</i>	0.000	0.000	0.76	0.450
<i>Male</i>	-0.056	0.043	-1.30	0.194
<i>LargeExpense</i>	0.847	0.047	18.00	0.000
<i>SalesStaffOffice</i>	0.004	0.001	3.50	0.000
<i>Age</i>	-0.009	0.002	-3.68	0.000
<i>AgeSqrd</i>	-0.000	0.000	-4.53	0.000
<i>Married</i>	-0.039	0.057	-0.68	0.495
<i>HouseholdSize</i>	0.036	0.020	1.79	0.074
<i>Education</i>	0.038	0.008	4.74	0.000
<i>RevenueTransactions</i>	0.012	0.001	14.58	0.000
<i>Office</i>	-0.000	0.000	-0.22	0.829
<i>Franchise</i>	-0.023	0.042	-0.55	0.581
<i>SpecializeListings</i>	0.593	0.115	5.16	0.000
R ²	55.9%			
F-Stat	128.16			0.000

Note: The dependent variable is *LnIncome*. N = 1,841.

with the work of Follain, Lutes, and Meier (1987). As for the relationship of agent age and income, Crellin, Frew, and Jud (1988) find no significant impact of age on income, while Sirmans and Swicegood (1997, 2000) found that age, as in the current study, had a negative effect on income.¹¹

These disparate findings appear to be, at least in part, the result of differences in sampling techniques. For example, some of the samples used in these empirical studies included all real estate licensees (commercial agents, residential agents, firm owners, managers, etc.), while others, as with this research, restricted their samples to residential agents.

In addition to the human capital components of the models, agent motivational factors were hypothesized to impact agent income. The three proxies, however,

Exhibit 4 | Result for Broker Income Model: Estimation 2

Variable	Coeff.	Std. Error	T	P
Constant	8.415	0.206	40.88	0.000
<i>YearsCurrentFirm</i>	0.018	0.005	3.93	0.000
<i>Experience</i>	0.037	0.004	10.41	0.000
<i>ExperienceSqrd</i>	-0.000	0.000	-3.53	0.000
<i>HoursWorked</i>	0.024	0.003	9.54	0.000
<i>PartTime</i>	0.079	0.073	1.07	0.285
<i>IncomeDifference</i>	0.000	0.000	1.27	0.205
<i>Male</i>	-0.057	0.043	-1.31	0.190
<i>LargeExpense</i>	0.858	0.047	18.23	0.000
<i>SalesStaffOffice</i>	0.003	0.001	3.33	0.001
<i>Age</i>	-0.009	0.002	-3.82	0.000
<i>AgeSqrd</i>	-0.000	0.000	-4.79	0.000
<i>Married</i>	-0.039	0.057	-0.68	0.494
<i>HouseholdSize</i>	0.034	0.020	1.68	0.094
<i>Education</i>	0.038	0.008	4.67	0.000
<i>RevenueTransactions</i>	0.012	0.001	15.16	0.000
<i>Offices</i>	0.000	0.000	0.19	0.848
<i>Franchise</i>	-0.012	0.043	-0.29	0.772
<i>Balancelistings</i>	-0.152	0.055	-2.75	0.006
R ²	54.9%			
F-Stat	122.06			0.000

Note: The dependent variable is *LnIncome*. N = 1,841.

received mixed results. Specifically, non-brokerage income (*IncomeDifference*) and marital status (*Married*) do not appear to affect broker income, while *HouseholdSize* is positively associated with agent income.

LargeExpense, which is a proxy for technology and other productivity enhancing activities, has a positive and significant impact on salesperson income. The number of salespeople working with agents (*SalesStaffOffice*) positively affects income, while the number of branch offices in an agent's firm (*Offices*) does not appear to have any impact on agent income. These two points taken together suggest that the presence of informational, marketing, and/or transactional synergies as the size of the local office increases are apparently not present at the firm level. Not having a franchise affiliation (*Franchise*), however, is negative, but insignificant. Other human capital researchers that included this variable in their models

reported conflicting results, with findings ranging from negative to positive and from statistically significant to insignificant. As was the case with other variables analyzed here, differences in variable definitions and sampling techniques may explain these findings.

As far as specialization is concerned, there are some very interesting results. As shown in Exhibit 3, Equation 1, the control variable for listing specialization (*SpecializeListings*) is positive and statistically significant. In particular, given the construction of the specialization variable, agents that specialize in listings receive a statistically significant increase in their income from real estate activities relative to those agents that concentrate on sales. Interpreting the coefficient in Exhibit 3 for specialization reveals that agents who exclusively specialize in listings increase their annual income from real estate by a whopping 81%, on average.¹² Conversely, by construction, specializing on the selling side reduces income. The other important result is that the sign of the *BalanceListings* variable is negative and significant. As shown in Exhibit 4, a balanced portfolio of listings is also not income enhancing. In fact, agents producing a balanced output of listings and sales suffered a 14% decrease in earnings. Although *RevenueTransactions* (the number of revenue transactions) is, as expected, positive and significant, the listing specialization variable shows that not all revenue transactions are created equal as far as their contribution to income is concerned.

Conclusion

The findings indicate that listing is more revenue productive than other agent sales and marketing strategies. The asymmetric results of this study, however, raise an important question. Why would specialization in listing be income enhancing while specialization in sales is not? Each activity does seem to involve different amounts of work effort. Listing is principally concerned with seeking out properties for sale to buyers. The listing agent's duties include determining an appropriate asking price for the client's property and helping prepare the property for viewing by potential buyers. The listing agent is also expected to advertise the property.

Selling includes identifying prospective buyers, screening out unqualified buyers, showing the property, preparing the paperwork associated with purchase offers and closing documents, and, in some cases, representing the seller in negotiations with buyers. Selling agents also frequently assist buyers in obtaining financing and procuring property insurance. On balance, selling seems more time consuming than listing.

What is it then about specializing in listings that can make agents so much more productive? It is possible that, due to the interaction of the exclusive nature of listing agreements, MLS participation, and the logistical problems of working with multiple buyers at one time, it may be more beneficial for a broker to specialize in listings. Quite simply, a salesperson with ten listings in a given time period has

a greater probability of generating a sale via MLS showings than a broker working with 10 buyers in the same time frame. Therefore, all else being equal, the broker that specializes in listings should have a greater expected income than the broker who does not specialize or who concentrates strictly on selling listed properties to buyers.

Also, once a property is listed in the MLS there is a high probability that the property will sell without any additional effort on the part of the listing agent. In the interim, the listing agent can seek out new properties to list and share in the commission as listed properties are sold by other agents. It would appear that the institutional arrangements surrounding the use of the MLS do encourage this type of marketing strategy.

Why then aren't all agents specializing in listing? Agents are not created equal. Those agents with a comparative advantage in listing can enhance their incomes by concentrating on prospecting for sellers; other agents, lacking such ability, may have to content themselves with other marketing strategies. It may be the more seasoned agents that concentrate on listing, leaving prospecting for buyers to the new, less experienced salespeople. Specializing in listings seems an effective strategy for more experienced agents who have built up reputational capital and have well-established networking and referral systems in place. This provides product for the newer agents who then concentrate on walk-in traffic and showings to generate income. These findings also raise some concerns. If the above conjecture is true, then it is the less experienced salespeople and possibly less skilled real estate licensees who are working with the buyers. Is the quality of the services received by buyers and sellers, therefore, also asymmetric?

Ultimately, there would be a barrier to 100% specialization in listing by all agents. As you approached the limit of complete specialization, there would be very few agents actively trying to sell properties. There is another reason why all agents, even those specializing in listings, forgo selling some properties. A listing agent has a competitive advantage over selling agents, albeit for a very brief period of time. Until a listed property hits the MLS, only the listing agent knows the property is on the market. Consequently, listing agents would be highly motivated to sell their listings in-house in order to keep a larger share of the commission. Because this competitive advantage is short-lived, agents specializing in listings may reduce their efforts to sell their own listing once information on their listings is disseminated to other agents through the MLS. If unsuccessful in selling their listings, they can always wait until some other agent consummates the sale. This suggests that time-on-the-market may be longer than otherwise might be the case if those agents currently specializing in listing also worked to find buyers.

Some of these considerations are of obvious importance to both consumers and regulators. If current institutional arrangements that favor listing over selling encourage agents to reduce their sales efforts once they appear in the MLS, maybe alternative marketing arrangements should be evaluated. When it is considered that approximately 90% of all homes marketed by brokers are listed with the MLS,

the possible loss of consumer welfare is not insignificant. Alternative marketing models do exist and some new ones have been proposed. For example, regulators could allow sellers the option to list their properties directly in an MLS. Sellers would pay a listing fee and a commission to the agent that sells their property. Such an approach could substantially reduce total selling costs for consumers willing to do the necessary market research and paper work associated with submitting a listing to an MLS. This arrangement could also work to reduce selling time. This strategy could threaten established residential real estate brokerage practices and not garner much industry support. However, brokers cannot insulate themselves from market forces already in play as similar arrangements have been appearing on the Internet for the past few years.

While some of the previous discussion is speculative, it does suggest that additional research on the efficiency of current marketing arrangements might prove beneficial. It is also true that these conclusions are based only on one year's worth of data and does not reflect local market eccentricities. Relative supply and demand conditions within local markets may well dictate different marketing strategies. If there is a large supply of homes on the market, adding more to the market would reduce the probability of a sale. Concentrating on selling rather than listing during such periods could be more productive. The degree to which listing specialization is time period sensitive cannot be determined since cross-section data was used in this study. Only additional research will answer this question.

Endnotes

- ¹ In this paper, the terms "agent" or "agents" are used generically and refer to real estate licensees, both brokers and salespersons, engaged in the practice of residential real estate sales. Non-practicing owners, managers, licensed assistants, property managers, and commercial agents have been excluded from this study.
- ² There are other possible outputs for residential real estate firms, including property management and insurance, land development, and construction. Because of data availability, this study was limited to real estate sales transactions.
- ³ On the issue of economies of density, Zumpano and Elder conclude that, in general, market density has only a marginal affect on unit production cost.
- ⁴ $1 - (\text{Listing Revenue Transactions} / \text{Sales Revenue Transaction} + \text{Listing Revenue Transactions}) = \text{Sales Revenue Transaction} / \text{Sales Revenue Transaction} + \text{Listing Revenue Transactions}$.
- ⁵ The squaring of any variable and its subsequent specification captures non-linear effects. However, the use of squared terms naturally induces collinearity issues. In order to combat this, the squared regressors, age and experience, have been orthogonalized (centered).
- ⁶ A reviewer suggested the possibility that the decision to specialize in listings may be correlated with other right-hand side variables, such as experience. If so, this could impart a simultaneous equation bias into the estimations. A Hausman test was performed to test for endogeneity.

The Hausman test requires two regressions. First, the suspected endogenous variable, *SpecializeListings*, is regressed on all the exogenous variables in the earnings model plus an additional instrumental variable. The instrumental variable must be correlated with *SpecializeListings*, but cannot be correlated with the error term in the earnings equation. The instrumental variable chosen was *SellerAgent*, (as opposed to buyer agents, transaction brokers, or dual agents), which did prove highly correlated with the decision to specialize in listings. In Equation 2, the residuals from Equation 1 are entered into the earnings equation. If the OLS estimates are consistent, the coefficient of the residuals should not be statistically significant. This, in fact, proved to be the case.

- ⁷ Some researchers have found that professional designations affect agent income. This is not controlled for in this study as such information was not clearly decipherable in the data set.
- ⁸ All the firms in the sample that were not members of a national franchise were identified because it made coding the data easier. The NAR survey actually broke the question of franchise affiliation into four categories (member independent franchise company, member independent non-franchised company, member of a subsidiary of a regional or national corporation and other category) with fully 55% of the observation not being affiliated with a national franchise.
- ⁹ The term “Mylisting-mysale” is often used in the trade to represent an agent’s closing on both the listing and sale side of the same transaction.
- ¹⁰ To cite one example, Crellin, Frew, and Jud (1988) found that an additional year of experience adds 2.0% to earnings, while firm-specific experience adds 1.2%. An additional year of schooling added 2.5% to earnings. However, differences in the definitions of variables, sampling techniques, and modeling methodologies sometimes make comparisons misleading. For a good review of the findings of many of the earnings studies cited in this paper, see Sirmans and Swicegood (2000).
- ¹¹ The age variable were not segregated or bracketed into specific cohorts. It is worth pointing out that the descriptive statistics indicate that the median age of the agents in the sample is quite high at 47. The fact that the older the agent becomes, the less income productive they are, as reflected in the negative sign of the *AgeSqrd* coefficient, is not surprising in this case.
- ¹² At the margin the listing specialization variable indicates that for every 1% increase in listing, agent income increases 0.8%.

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