

Social Networks and the Success of Market Intermediaries:

Evidence from the US Residential Real Estate Industry

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RUNNING HEAD: Market Intermediaries and Social Networks

Abstract

Market intermediaries are usually thought of as bringing together buyers and sellers. However, intermediaries may also connect these principals with other professionals who can provide assistance with and support for the transaction. We address the question of which set of ties—to buyers and sellers or to other professionals—are more important to the success of market intermediaries, using data from the US residential real estate industry. From a national survey of 525 realtors, we find that ties to other professionals are more important than ties to buyers and sellers as predictors of the market intermediary's income, counter to the general wisdom about real estate in particular and market intermediaries more generally. We suggest that the professional networks around market intermediaries may behave like 'quasi-firms' helping buyers and sellers navigate complex market transactions.

Keywords: intermediation, economic sociology, social networks, quasi-firms, real estate, markets.

INTRODUCTION

In their analysis of the possible impacts of information and communication technologies (ICTs) on the real estate industry, Sawyer, Crowston, Wigand & Allbritton (2003) pointed to the value of a “social capital” perspective on markets, wherein transactions are seen not as atomic interactions but rather as embedded in and drawing on a network of social ties. This perspective raises a core question in economic sociology regarding the roles of social ties in supporting the functioning of market actors (Arvidsson & Colleoni, 2012; Carruthers & Uzzi, 2000; Swedberg, 2004). Here we address this question by examining the function of market intermediaries, i.e., third parties who do not buy or sell, but rather help to bring together and facilitate buyers and sellers.

When the role of ties has been considered, it has usually been in markets with repeat transactions. For example, Sasson (2008) examined the role of banks as intermediaries between small and medium Norwegian enterprises. We, however, focus on the work needed to execute a single complex transaction: the buying and selling of a house. Here we seek to determine how different types of relational ties affect the success of these market intermediaries, an important question that has not been previously examined in-depth in the literature.

As in Sawyer et al. (2003), the source of empirical data for this study is the United States (US) residential real estate industry¹, where the majority of market transactions are carried out with the assistance of intermediaries – real estate agents. Sawyer et al. (2003) were drawn to the real estate industry because of predictions—based primarily on transaction cost economics—that the increased use of ICTs for information about goods would lead to the disintermediation of markets generally (e.g., R. Benjamin & Wigand, 1995) and in real estate in particular (Baen &

¹ The commercial real estate industry in the US operates with different regulations regarding the agent-buyer-seller relationship and has different regulations regarding information access. For more details, see Lamb (1997).

Guttery, 1997). Such disintermediation seems to have occurred to some extent in many markets. For example, many travel arrangements are now made directly with providers (airlines or hotels) rather than via travel agents (Lewis, Semeijn, & Talalayevsky, 1998; Lewis & Talalayevsky, 1997).

In contrast, despite extensive uses of ICT in real estate, the majority of residential real estate transactions are still carried out with the assistance of a real estate agent, an intermediary, and their number has remained remarkably high (Muhanna & Wolf, 2002). There are currently about 1 million real estate agents in the United States (National Association of Realtors, 2013b), a decrease from the 1.35 million in 2006 but about equal to 2003 numbers. Adelaar (2000) similarly found that market intermediaries persisted in the art and antiques market, which he attributed to the social and cultural roles of intermediaries in this market. Aoyama and Ratick (2007) studied the impacts of ICT on the logistics industry and found the “elimination of the intermediary has not been as widely observed as expected” (p. 159). Even in the travel market, the Internet has led as much to the emergence of new intermediaries (e.g., Orbitz, Kayak or Priceline) as to outright disintermediation.

This empirical evidence suggests that predictions of disintermediation may be driven as much by ideology as by careful analysis. Kollock and Brazier (2006) noted that intermediaries such as real estate agents are disliked in many markets even as they are relied on (something we have experienced in presentation of this paper). They further argued that “... efforts to create unmediated markets ignored the many key functions provided by intermediaries and social networks that support the market” (p. 299). To understand the development of these markets, it is necessary to understand the functions that intermediaries play in specific and more generally importance of social ties in their enactment.

Setting: The US Residential Real Estate Industry

Though the laws and customs for real estate transactions vary greatly between countries and somewhat between states and localities in the US, the US residential real estate industry is a fitting setting for a study of intermediaries for four reasons.

First, real estate is almost entirely market-based, with houses being sold in discrete one-off transactions, mostly between individual consumers. The involvement of companies is limited primarily to sales of new homes. The high cost of houses means that the carrying cost would be very high for a market-maker (i.e., an intermediary who takes a side in a transaction, such as a used car dealer). Furthermore, while market is often compared to hierarchy, for real estate, it (i.e., individuals building their own houses) is rarely an option (DiMaggio & Louch, 1998).

Consequently, real estate agents in the US are pure market intermediaries: they help bring together buyers and sellers, advising both on the transaction but without taking part in it directly. There are typically two agents involved in a transaction: sellers' agents (also called listing agents) assist sellers in marketing their properties: helping to determine an asking price, guiding the seller to make the property attractive to buyers, advertising it and screening potential buyers. When offers to buy the property are received, the seller's agent advises on the negotiations and details of the transaction. The second agent (typically known as the buyer's agent) helps a buyer select a suitable property among those offered for sale and advises the buyer on the purchase. Thus, a typical house sale/purchase has the buyer and seller negotiating with the intermediation of the buyer's agent and the seller's agent. The buyer and seller may meet only at the final closing.

Second, real estate transactions are complex and require both substantial and specific knowledge about the particulars of that market and about the listing/purchase/closing process.

Since real estate transactions are infrequent for most buyers and sellers, very few develop this level and specificity of knowledge, allowing a role for intermediaries. For example, Aoyama and Ratick (2007, p. 173) argued "... the continued presence of [intermediaries] is due, in part, to their specialized knowledge, much of which is geographic." Likewise, Pisanias and Willcocks (1999) found that ship brokerage relied on intermediaries for far more than simple information sharing. In real estate, agents can provide value to buyers and sellers by providing information about houses, the market and the sales process (Podolny, 2001). Based on knowledge of the market, agents can advise a seller or buyer on the transaction, e.g., the price to ask or to offer or which properties are newly listed and which have been on the market for a while. Agents are also experts in the complexities of the real estate sales process. For example, real estate transactions must meet numerous legal requirements, such as required disclosures of a house's condition.

Third, real estate transactions are characterized by high levels of uncertainty—for both buyers and sellers—about demand for and quality of goods. Real estate is an imperfect market as buyers and sellers have incomplete information about the assets (Halpern, 1996). Some of the uncertainty arises for the high variability among properties (Crockett, 1982). Each property is one of a kind, certainly in location, but often in other ways as well. Further, Palm (1976) noted that listings alone do not contain sufficient information for a purchase decision; instead, the needed information may be widely distributed across different information sources. Agents may be able to provide information particularly needed by buyers moving to a new area, e.g., neighborhood characteristics or information about schools. Furthermore, for most people buying or selling a house is an emotional transaction (Halpern, 1996), further complicating the assessment of value. As a result, it can be difficult to determine an objective value for a house, again suggesting the need for assistance and guidance from an intermediary.

Finally, real estate transactions are risky. Buying or selling a house is the most expensive transaction most people make in their lives. Most people plan to own a house for some years, and will literally have to live with their choice. As well, specific pairs of buyers and sellers are very unlikely to repeat a transaction, meaning that neither need have much concern for maintaining a good reputation (DiMaggio & Louch, 1998), further increasing risk.

In our study of market intermediaries, we focus on the roles of real estate agents and factors related to their relative success, not on buyers or sellers. Success for a real estate agent is closely tied to sales, as the selling and buyer's agents split equally a commission from the seller, generally based on a percentage of the final sales price. The commission is paid only when the transaction completes (or "closes" as it is termed in real estate). As a result, a successful agent is one who closes many transactions. If a property does not sell or a transaction fails to close, the agents will not get paid for any work they may have done. This motivates agents to make transactions happen and bring the 'deal' to a 'close'.

Given our focus on the agents instead of buyers or sellers, we do not attempt to identify factors leading to a buyer's or seller's choice to use an agent vs. offering a house without an agent ("for sale by owner" or FSBO) or via alternative services. In saying this, we note that agent-brokered sales continue to account for the majority of US residential real estate sales. The National Association of Realtors (NAR) (2012) reported that "... 89% of buyers purchased their home through a real estate agent or broker ... a share that has steadily increased from 69% in 2001" (p. 6). Indeed, FSBO transactions are often between a non-arms length buyer and seller: DiMaggio and Louch (1998) reported that nearly half of all home sales that did not use an agent "are transactions between relatives, friends, or acquaintances" (p. 623).

Similarly, we do not consider or attempt to answer the question of whether the value buyers or sellers receive from agents is worth the commissions they pay (i.e., we focus on the benefit of the social ties to the intermediary rather than to the principals). Nor do we examine questions regarding the efficiency of the services offered, e.g., whether commissions are set too high, leading to too many agents competing for transactions or whether service bundling leads to the provision of unwanted services (Crockett, 1982). These are interesting questions, discussed at length in other settings (e.g., Nadel, 2006), but tangential to the focus of this paper on the role of social ties in market intermediation. However, insights into the role of these relationships have implications for the value of services provided to buyers and sellers and for why so many choose to use an agent even with the rise in alternatives, a point we return to in the discussion.

THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

The broad interest motivating this work is the question of how markets rely on social relations (Granovetter, 1985), what Fourcade (2007) calls the structuralist approach to economic sociology. More specifically, we seek to understand how intermediaries draw on their social ties in order to successfully contribute to a market. Burt (2000) argued “... competitive advantage comes from information access and control; networks that span structural holes provide broad and ready access to, and entrepreneurial control over, information” (p. 347). As a result, he concluded “... social capital is more a function of brokerage across structural holes than closure within a network” (Burt, 2000, p. 345). That is, market intermediaries are valuable to the extent they bridge gaps among different networks rather than within networks (Grabowski, 1999).

Prior research has identified several functions intermediaries can serve in a market (Wimmer, Townsend, & Chezum, 2000). Some intermediaries buy and sell on their own account and so “make” the market (Yavaş, 1992), e.g., stock market specialists or used-car dealers. In

this respect, retailers and wholesalers can also be considered intermediaries. However, in many markets, such as real estate, buyers and sellers transact directly and intermediaries only provide assistance with the transaction. In this paper, we restrict our analysis to such pure market intermediaries.

Hammer (2000) theorized that pure market intermediaries may add value in one or more of three ways by helping buyers and sellers manage uncertainty about transactions:

1. Intermediaries may be matchmakers, providing information about supply or demand to help buyers and sellers make a better match than they could on their own (Wimmer et al., 2000). Matchmaking is useful when search is costly (i.e., sellers face uncertainty about buyers or vice versa) (Yavaş, 1994). On the other hand, when non-intermediated search is likely to be successful, buyers and sellers do not need matchmakers.
2. Intermediaries can provide expertise to certify or to disseminate information about the quality of a good and so help buyers and sellers value the good. Sarkar, Butler and Steinfield (1995) noted that intermediaries can also help buyers to identify their needs. Such expertise is valuable when goods are heterogeneous and there is uncertainty about a good's quality or fit to a buyer's needs, and where buyers themselves may not know what features they truly value nor be able to explicitly describe their ideal product. However, if the good in question is a commodity with clear qualities and value, expert help is unnecessary.
3. Intermediaries can help negotiate the consummation of a transaction, e.g., drawing on their experience from many prior transactions. Such expertise is valuable when the transaction is complex, while simple transactions may need little or no support.

All three of these conditions apply to real estate, which may explain the extensive uses of intermediaries in this market. Though a clear effect of the Internet on real estate has been to

lower the cost of search, reducing the need for matchmaking (function 1) and leading some to predictions of disintermediation, the other two functions are still applicable. We therefore seek to understand what factors enable intermediaries to be more successful in providing these services to more buyers and sellers. In the remainder of this section, we develop two possible answers to this question.

Market intermediaries exploit social networks to connect to buyers or to sellers

A first perspective on economic action examines the place of actors in a network of ties and the “... effect of interpersonal connections on economic outcomes” (Fourcade, 2007, p. 1017). This perspective focuses attention on the contributions of social structures and connections among value-adding players: that is, how market intermediaries’ ties to others affect their behaviours. Many analyses of ties examine the role of intermediaries in bridging the market space between buyers and sellers. We focus instead on the role of ties in helping an intermediary to find (or be found by) a potential client. It is particularly important for a market intermediary to have ties to many potential buyers and sellers, preferably to those who are themselves well connected. DiMaggio and Louch (1998) argued that for risky and non-repeated transactions, individuals are more likely to use social connections to find intermediaries (what they called search embeddedness), so agents need good ties to get such referrals.

Turning to real estate agents specifically, to be successful, they need to be asked to take part in many transactions. Agents certainly see some repeat business but, as noted, most people buy or sell houses infrequently. As a result, as DiMaggio and Louch (1998) argued, selection of an agent is often based on referrals (Johnson, Nourse, & Day, 1988). The NAR (2012) reports “... 40% of buyers found their agent through a referral from a friend or family member” (p. 6). Therefore, as Sawyer et al. (2003) suggested, real estate agents with many ties to people who

may become clients or who can make a referral will be able to attract more potential customers.

Based on this perspective, we propose the following hypothesis:

Hypothesis 1: Real estate agents with better ties to potential buyers and sellers (direct or indirect) will be more successful.

Market intermediaries exploit professional networks to facilitate transactions

A second, embedded, perspective considers how transactions themselves, not just intermediaries, might be situated in a complex network of other transactions. When transactions are complex, there can be many side transactions that need to be completed for the main transaction to be successful (Sawyer et al., 2003). For example, in the case of real estate, a purchase of a house typically requires also finding a mortgage, completing a house inspection, obtaining property insurance, hiring a lawyer and perhaps repair people, and so on. Crockett (1982) observed that the activities agents perform are themselves a bundle of services. Furthermore, issues that arise during the sales process, such as hidden damage or problems obtaining financing, can endanger the sale. Such problems are not uncommon: François and Ortalo-Magné (2004) found that nearly 20% of sales in a sample from England did not complete. There are many differences in institutional structures between the US and UK real estate, so this exact figure likely does not carry over, but it is still clear that real estate transactions are complex and uncertain. As noted, agents only get paid for a completed sale, so a successful agent is one who can help the principals to overcome problems that might prevent a closing.

Both the listing and selling agent help their clients by providing access to resources to address foreseen or redress unforeseen issues that arise (Halpern, 1996). The need to complete these side transactions, either routine or exceptional, suggests the importance of ties to other professionals who can help manage these issues. Sawyer et al. (2003) suggested that real estate

agents add value by bringing together buyers, sellers and other potentially value-adding real estate professionals.

Prior research on real estate agents provides some insight into the importance of the business networks of agents for facilitating transactions. Halpern (1996) focused on the relationships among agents and found that experienced agents considered friendly relations useful for facilitating transactions, though they rarely did deals with social friends. For senior agents, trustworthiness meant sharing relevant details and the “ability to follow through” (Halpern, 1996, p. 1538). Since friendship meant that agents were considering more than one transaction, they looked for equality in outcomes to ensure future transactions. Friends also reached agreement faster and perceived the transaction as smoother. However, prior work does not seem to have examined the role of ties to professionals other than agents.

Connecting with other professionals is particularly useful for buyers new to the area where they are buying, since they are often not connected to other networks, making it difficult to find reliable service providers. While there are many potential sources for information about service providers, as noted above people generally feel more comfortable getting information from individuals they know, such as a referral from an agent (DiMaggio & Louch, 1998). Furthermore, a new customer has little leverage with a service provider, while a call from an agent with whom the provider has a history (and a potential future) is more likely to get a quick and helpful response. As a result, an intermediary’s referrals are only partly substitutable by a Web search.

An agent’s professional ties can also be of value to sellers. For example, since many buyers work with agents, a selling agent can facilitate a sale by marketing houses directly to agents working with buyer clients, rather than to the general public, only a few of whom are

actually in the market. Agents may also suggest resources to improve the marketability of the house or suggest repair personnel to address work demanded by the buyer. In other words, the success of a selling agent also depends in part on the use of the agent's relationships with other professionals (e.g., by drawing on them for information or skills) to complete a transaction.

For the agent, these various side transactions are quite likely to be repeated and reciprocal, though they need not be emotionally close (i.e., not strong in the sense of Marsden & Campbell, 1984). Granovetter (1985) noted that in classical economics, the "fact that actors may have social relations with one another has been treated ... as frictional drag that impedes competitive markets" (p. 484). In contrast, as Kollock and Braziel (2006, p. 15) noted, "networks were also key because of the informal economy of favors that flowed through these social relationships", e.g., getting a mortgage broker to write a mortgage on a holiday weekend in order to be able to make an offer the following day or a roofer to quickly repair a leaking roof before a closing, a level of attention a one-time customer is less likely to command. This perspective leads to our second hypothesis:

Hypothesis 2: Real estate agents with better ties to other real estate professionals will be more successful.

In summary, prior research on market intermediaries gives rise to two hypotheses as to the role of social ties in the success of intermediaries. First, an intermediary might draw on his/her network to connect to potential buyers and sellers in order to be involved in many transactions. Second, an intermediary might draw on his/her network of other professionals and span gaps among buyers, sellers and other value-adding professionals in order to facilitate a complicated multi-part transaction. Of course, it is likely that intermediaries draw on both kinds of networks for both functions, raising the question of which is most important. Accordingly, our

goal is to illuminate the role of market intermediaries by empirically distinguishing the relative importance of these networks.

RESEARCH DESIGN AND DATA COLLECTION

To address the hypotheses we use data drawn from a national cross-sectional survey of real estate agents that the authors developed and administered. The instrument combines established scales with new questions and was developed through an iterative process that began based on what we learned from earlier rounds of interviews and observations (e.g., Crowston, Sawyer, & Wigand, 2001; Sawyer et al., 2003; Sawyer, Crowston, & Wigand, 2014; Sawyer, Wigand, & Crowston, 2005). The final survey included measures for a set of dependent and independent variables, plus several control variables.

Survey development

The initial survey draft was subjected to both a pre-pilot review with selected informants and a two-phase pilot effort. For the pre-pilot, the survey was personally delivered to 30 agents in two metropolitan areas. Real estate agents were presented with a cover letter and the questionnaire and asked to remark on any questions that might be unclear, ambiguous, or interpreted incorrectly. Results from the pre-pilot were used to further shape the survey, e.g., ensuring that we used the correct industry terminology for questions, identifying redundant questions and identifying the set of items that best measured various constructs.

The draft survey was then subjected to a second, national, pilot effort of 350 real estate agents drawn from the list of NAR members. The NAR membership list was an appropriate sampling frame as essentially all professional real estate agents belong to this organization. The results of these measured steps helped refine the ways in which we asked about agents' work and

success measures, to estimate response rates with or without an incentive, to estimate effect sizes to identify the sample size needed and to refine the survey administration approach.

The final survey was paper-based and 11 pages long. It had four sections relevant to this analysis: demographics, the dependent variable, the independent variables and control variables. The survey instrument also included measures to be used for other studies (not reported here). Some of the questions concerned ICT adoption and use, so an Internet-based survey was not considered feasible as it would have introduced a selection bias for these topics. The self-administered survey took about 30 minutes to complete.

Survey administration

The survey and a prepaid return envelope were mailed in 2005 to 9,000 real estate agents across the United States, drawn randomly from the national NAR membership database. Technology was already heavily used in the real estate market by the time of the survey. Real estate agents started making listing available on the Web nearly a decade earlier; realtor.com and realestate.com appeared in 1996. Alternative sites had also started to operate, e.g., trulia.com was in active beta by 2005 and Zillow was founded in 2004, though it did not go live until 2006.

In terms of market conditions, 2005 was just before the previous peak of the real estate market; prices are only now regaining those levels in some markets. Scholars have noted that factors other than the behaviours of real estate agents led to the housing bubble's burst (e.g., Rugh & Massey, 2010). Most importantly for our argument here, the structure of the real estate market has remained relatively unchanged across this period despite continuing changes in technology and market conditions (Sawyer et al., 2014). Overall, the data used here should be representative of current agent activities as well as the market at the time. Moreover, nothing has

changed in the real estate industry regarding the importance of the two kinds of social ties: realtors still rely on ties to find business and still make referrals for clients.

As Dillman (1978) recommended, the survey was preceded by an introductory mailing, supported with a \$1 cash incentive to induce a feeling of obligation to complete it, and followed by two waves of reminders. The effective response rate was 9.2%: 830 completed and useable surveys were returned, a response rate that is typical of large-scale, multi-page, paper-based surveys (Dillman, 1978). From the returned surveys, we removed a number of incomplete responses and responses from those who were not working full-time as residential real estate agents (e.g., as brokers or commercial real estate agents), leaving 738 valid responses for analysis, of which 525 were complete. There were no significant differences for any of the variables studied between the first and second half of the responses received. Assuming that late responders share some characteristics with non-responders, the lack of differences somewhat reduces concern about non-response bias.

Dependent variable: Income

For the dependent variable, agent's success, we relied on responses to two questions: total income from real estate commissions and net income from real estate activities. Income is commonly used as outcome measure for success of real estate agents (Crellin, Jud, & Sirmans, 1988; Jud, Winkler, & Sirmans, 2002; Sirmans & Swicegood, 1997). In our rounds of pre- and pilot testing, we found that other measures of success were difficult to assess because the diversity of compensation arrangements used in the real estate industry. As a result, survey items on other potential success measures had large numbers of missing values. Moreover, our prior fieldwork showed that estate agents were usually quite open about their financial success (e.g., noting on their business cards that they are a million-dollar seller) and pilot testing of the survey

did not reveal hesitation to answer questions about income. However, to mitigate concerns about sensitivity of income data, we asked for income in ranges rather than as an absolute value, resulting in an ordinal scale for each variable, from 1 (\$5000 or less) to 8 (more than \$1 million).

Independent variables

We developed composite measures of social ties for two independent variables. Building from previous scales and our field data collection, we developed 13 survey items to assess an agent's social ties, each item a seven-point Likert scale with seven being high, greater or most. Because our study was conducted using surveys of individual, it was not possible to assess the full network surrounding an agent. As well, we were interested in assessing how agents used their social networks rather than the exact structure of those networks. Therefore, we attempted to measure the level of perceived social network connectivity rather than actual social network structure. We developed items related to efforts to connect to new individuals, to maintain ties to current contacts (and the reciprocal for professional ties), the size of the network and the perceived benefit, as shown in Table 1. These measures were intended to be holistic assessments of efforts to build and maintain a network as well as the current state of the networks rather than assessing a single dimension of the networks (that is, formative variables rather than a measurement of a single network construct).

Insert Table 1 about here

We intended items one through seven to address buyer-seller ties and items eight through 13 to assess professional ties. We conceptualized the first as those that relate to potential client contacts: evidence of making or maintaining connections with others in the hopes of these new connections becoming clients. We viewed the second as those that relate to professional contacts: evidence of making or maintaining connections with other professionals who are involved in real

estate. Though the scales were carefully pre-tested and went through two rounds of pilot testing with agents, these reflect the first attempt at measuring the nature of real estate agents' relational ties and there are opportunities for further refinement in future research.

Control variables

In addition to the variables related to the two hypotheses described above, we included as controls both individual and market variables that have been found in earlier research to affect agent success, as summarized by Sirmans & Swicegood (2000) and discussed below.

Individual controls

We framed our population and built our sample to be full-time agents focusing on residential real estate. Two demographic variables were included. Age was controlled for, as this was found to be a factor in success (J. D. Benjamin, Jud, & Sirmans, 2000). We also controlled for gender since past research found that women agents often make less money than men (J. D. Benjamin et al., 2000; Jud et al., 2002; Sirmans & Swicegood, 2000).

We included variables related to an agent's knowledge, as prior research on intermediaries identified the importance of knowledge of the market and of transactions in order to address buyer or seller uncertainties to help buyers and sellers successfully conclude a transaction, e.g., by identifying needs, evaluating options and negotiating the deal. Some of the knowledge agents bring to bear is derived from formal education or accreditation schemes. The increased number of such affiliations in real estate is consistent with the prediction that "the minimum level of training and expertise required of intermediaries is likely to increase over time" (Wimmer et al., 2000, p. 415). However, much of the knowledge about houses, markets and the transaction process is generally obtained on the job, limiting what buyers and sellers can

learn during their infrequent forays into real estate. Given this diversity of knowledge sources, we used four proxy measures of real estate agents' knowledge.

Tenure as agent. Prior research found experience as a real estate agent to be associated with higher sales prices and with more successful transaction (Waller & Jubran, 2012).

Time resided in area. Prior research found that agents are more knowledgeable as a function of the time they have resided in an area (Follain, Lutes, & Meier, 1987).

Education. Prior research has consistently found education to have an effect on income (J. D. Benjamin et al., 2000; Follain et al., 1987; Jud et al.; Sirmans & Swicegood, 2000).

Affiliations. As part of their professional development, agents often pursue affiliations with various professional groups. These credentials are used to signal both a greater level of professional knowledge—showcasing the agent's abilities—and also indicating a level of professional accomplishment (as some credentials reflect their time in practice) (Jud et al., 2002). In this way, affiliations serve as a proxy for increased skill, which can be expected to improve success. As there are a variety of certifications, we simply used the total number of these affiliations as a proxy measure of knowledge.

Market controls

We collected data on two features of the selling area known to contribute to variations in agent-level income. First, we asked for the median price of an existing single-family house in the agent's area, using this as a proxy for other differences in the housing stock in the area (Jud et al., 2002). Since an agent's commission is a percentage of the selling price, their income is likely to be higher if the average selling price is higher (though this effect may be offset by differences in commissions). Second, we used the number of offers received on a house as a measure of market activity. Saber and Messinger (2010) noted buyers were somewhat less likely to use an

agent in a slow market and sellers much less likely to use an agent in a hot (or seller's) market. This preference implies that success of an agent will be inversely related to the general level of activity of the market.

As an aside, the importance of locality for real estate means that including market-level measures in the model makes it a multi-level model (agent within market region). However, because our sample represents many different markets with at most a few agents in each, we lack sufficient data to identify market effects. Therefore, we analyzed success at an individual level. Also given our focus on individual agents and the effects of their social ties, we did not consider real estate agency effects, though the size of an agency has been shown to have a small effect on success (Follain et al., 1987).

Descriptive statistics

The sample is 44% male (323 respondents) and 56% female (404 respondents), with 11 respondents not reporting gender. Ten percent of the sample reported a high school diploma as their highest degree; 35% had some college; 53% held college degrees (with one-fifth of these being associate's degrees); 10% had some graduate school education and eight percent held a master's degree. As expected given the sampling procedure, there are no significant differences among the demographic profile of our sample and the demographics reported for agents by the NAR (National Association of Realtors, 2013a).

Descriptive statistics for the main variables are reported in Table 2. The data show a great variation in age, tenure and time being a resident. The mean age of agents is nearly 53 with a standard deviation of over 11 years. Likewise, there is a large standard deviation for the years of tenure as an agent. The mean time of residence in the area was greater than tenure as an agent, as was the standard deviation. Number of affiliations and average house price showed considerable

skew so these variables were log transformed for analysis. Other variables appeared to be approximately normally distributed. The average total income reported (on the ordinal scale) was 4.2 and average reported net income was 4.0, corresponding to the range \$35-75,000. This average is similar to the data reported by the NAR, further suggesting that our sample is representative (National Association of Realtors, 2013a). Because we used an ordinal measure for income, these variables were not skewed. Table 3 presents the two-tailed correlations among variables. The correlations show a pattern of relations among agent's experiences, tenure and the number of affiliations an agent holds, as might be expected. Multicollinearity was assessed by regressing each observed variable on all other variables in the model to compute the tolerance ($1-R^2$). No item's tolerance was less than the recommended cut off of 0.2.

Insert Tables 2 and 3 here

ANALYSIS

As noted, the scales for social ties were newly developed. To assess how well the items measured the two types of social ties, the 13 items were subjected to exploratory factor analysis, using varimax rotation to allow for correlation among the factors. Given the intent to develop multi-faceted measures of the relationships, we had thought of the factors as formative variables and so were not expecting high correlations among the items. However, as can be seen from the summary of results presented in Table 4, two factors accounted for 63% of variance and the items reflecting buyer/seller and professional ties mostly loaded separately, suggesting that we could treat these factors as reflective variables.

Insert Table 4 here

To test our two hypotheses, we analyzed the survey data using structural equation modeling (SEM) as implemented in the Stata program. We began with a measurement model

that included latent factors of buyer/seller and professional ties as reflective variables and the income factor and a structural model with income predicted by the tie and control variables (see Figure 1). We allowed observed exogenous variables (controls) to co-vary with the latent exogenous (ties) variables and with themselves (these co-variances are not shown in the figures).

Insert Figure 1 here

This initial model's fit was not satisfactory. Based on a consideration of the modification indices and the survey items, the initial measurement model was modified by dropping one item for each latent relationship factor (item three: "I am always looking to add names to my contact list," and item 13: "I have worked with the same professionals for many years now"). Our justification is that first item seemed to be more about effort, while the second item seemed to be more a measure of experience; and, both were items that the initial exploratory factor analysis suggested were not loaded on the first two factors (see Table 2). With these changes, the model fit improved. Further examination of the modification indices showed the model could be improved to have excellent fit by adding two covariance paths, specifically between the error terms for items 6 & 7 and for items 9 & 10 (both pairs are between items for the same latent variables). Adding these covariance paths did not substantively change the results of the analysis, suggesting that model misspecification is not a significant concern.

Analysis of Model Fit

Table 5 presents the model fit statistics for the final model, showing the modified model has good fit. The χ^2/df (2.47) ratio is below the target of 3.0 (and lower is better). The RMSEA is 0.054, slightly above the target of 0.05 (where lower is better) but below the cutoff of 0.08. The CFI and TLI measures are above or near the target of 0.95. The SRMR measure is 0.036, well below the target of 0.08 and the CD measure is near 1.0, both showing very good fit. Hu and

Bentler (1999, pp. 23–27) suggest three combinational rules for rejecting a model: $TLI < 0.96$ and $SRMR > 0.06$; $CFI < .95$ and $SRMR > 0.06$; $RMSEA > 0.05$ (or 0.08) and $SRMR > 0.06$. The low SRMR of the modified model means none of these rules suggest rejecting the model. Further examination of the modification indices did not indicate any particular point of misfit, further reducing concerns about model misspecification.

Insert Table 5 here

Reliability and Validity of Scales

The reliability of the developed scales assessed using Cronbach’s alpha, AVE and CR are summarized in Table 6. This analysis shows that all measures have acceptable reliability (i.e., alphas all above .85, AVE above 0.5 and CR near or above 0.7). In the SEM results, all standardized item loadings are above 0.5 with the majority above 0.7. As well, all AVEs are greater than the square of the correlations between constructs, indicating discriminant validity. Though the reliability of the buyer/seller tie factor is marginal, we considered it acceptable given that this is the first study using these scales. As noted above, improving the scales and perhaps developing a formative construct are opportunities for future research.

Insert Table 6 here

Common Method Variance

Three tests were performed to check for common method variance, following the advice of Podsakoff, MacKenzie, Lee, and Podsakoff (2003). We first applied Harman’s single-factor test, i.e., “include all items from all of the constructs in the study into a factor analysis to determine whether the majority of the variance can be accounted for by one general factor” (p. 890). A factor analysis of all of the variables used in the analysis resulted in multiple factors being identified. Second, we examined the correlation between the variables in the study and an

unrelated “marker” variable (in this case, items for perceived benefits of Internet use that had been collected in an unrelated part of the survey). The minimum correlation was nearly 0 and the average correlation only about 0.1. Finally, we tested an SEM model with an added common method factor (Podsakoff et al., 2003). The model fit improved only slightly and the resulting model did not explain any more variance in income. Taken together, these three tests suggest common method variance is not a problem in the study.

Missing values

Structural equation modeling requires complete data but only 525 of the 738 responses in our sample had complete answers on the variables in the model (71% of the responses). The most common variable to be missing was number of house offers, missing in about 10% of the responses. Deleting this variable from the model provided 602 responses (82% of the sample) and nearly identical results. Both income questions were missing for only about four percent of the sample; a further three percent of responses were missing one or the other but not both (a total of 48 responses). T-tests did not reveal any significant differences on any variables between those who did and did not report income. We further explored the implications of the missing data using Stata’s MLMV estimation, which imputes missing values. The results from this analysis did not materially differ from an analysis of the subset of responses with complete data. Assuming that respondents who only partially completed the survey share some characteristics with non-responders, the similarity of the results with the partial and fully completed surveys provides additional evidence that the response rate is not biasing our results.

Final SEM results

The final SEM model (see Figure 2) explains about 44% of the variance in the success factor (income). The results of the SEM model showing predictors for income are given in Table

7. Detailed results are included as Appendix I. The absence of high correlations among constructs is further evidence that common methods bias is not an issue in this model.

Insert Figure 2 and Table 7 here

FINDINGS

Here we present the findings from the SEM analysis for both the two hypotheses and for the control variables.

H1 is not supported: Real estate agents with better ties to potential buyers and sellers do not report higher income. Evidence shows agents who report having more ties and spending more effort on ties to potential buyers and sellers actually have a statistically significant and lower income, controlling for other factors. This finding is surprising as it contradicts what is both commonly espoused as a ‘smart agent strategy’ and what was found in several previous studies (e.g., J. D. Benjamin et al., 2000; Follain et al., 1987; Jud et al.; Sirmans & Swicegood, 2000).

H2 is supported: Real estate agents with better ties to other professionals do report higher income. The reported level of ties and attention paid to developing them has a statistically significant, positive, and large relationship with income (with an 0.65 standardized regression weight). This finding is also surprising as it also stands in contrast to prior research and much punditry in real estate (i.e., Nadel, 2006).

Agent Controls. The SEM analysis shows age does not have a significant effect on income. The SEM analysis confirms that, all else being equal, female agents have lower income than males (even as they outnumber males 5 to 4 in the sample), as previously found. We included four measures of experience that prior studies suggested were important predictors of agent-level

income. However, the SEM analysis found an effect for only one of the four: an agent's tenure was statistically significantly and positively associated with more income (an 0.14 standardized regression weight). An agent's time residing in the area, their number of affiliations, and—unlike previous work—level of education had no statistically significant relationship with income.

Market Controls. We included two market control variables to account for the effects of local market conditions on income: the average price of a house in the area and average number of offers received on a house (a proxy for a market's competitiveness). Higher sale prices are moderately associated with income (an 0.26 standardized regression weight) while the number of offers, a proxy for a sellers' market, is negatively associated with income, both as expected.

DISCUSSION

The analysis of the data paints a picture different from the conventional view of a market intermediary's success. First, these results suggest that the individual knowledge of an agent is less tightly linked to variations in success than suggested by both industry lore and findings from earlier studies (Palm, 1976; Zumpano, Elder, & Baryla, 1996). In our results, only transaction knowledge (proxied by tenure as an agent) was linked to success, even while other controls (e.g., gender and market) had effects of the strength and direction expected. We interpret this finding as meaning that an agent's local knowledge (as indicated by years residing in the area) and formal knowledge (as indicated by education or affiliations) were not as important to success as the level of transaction knowledge (as indicated by tenure as a real estate agent).

The negative effect of ties between buyers and sellers on success is more surprising as it contradicts the received wisdom in real estate, that ties to potential customers are crucial to an agent's success. In this view efforts that cultivate a larger number of ties lead to more listings and thereby more closings and higher income. The analysis presented here does not provide

support for this view. Contrary to the expected roles, effort spent on and level of connections to future buyers and sellers are related to lower rather than higher agent income. This unexpected and counter-intuitive finding demands close scrutiny.

There are several possible explanations that would discount the finding. First, our measure of buyer/seller ties is newly developed and may simply not be measuring the relevant networks correctly. The marginal reliability of this scale may suggest such a problem. Second, the negative effect may be due to reverse causality: agents who lack business may put more effort into cultivating ties. The direction of the linkage cannot be established in a cross-sectional survey such as ours, so this possibility deserves more empirical attention.

A third possibility is that the near-peak market conditions at the time of our survey made hunting for clients unnecessary, so spending time on it reduced performance. To test this possibility we divided the sample into three roughly same-sized groups by market conditions (i.e., average number of house offers: 0 or 1; 2; 3 or more) and ran the SEM analysis using the Stata group option, which keeps the measurement model the same but estimates the structural model separately for each group. The coefficient for buyer/seller ties remained negative and significant for the first two groups and negative but not significant for the third (the strongest market), from which we conclude that strong market conditions were not driving this result (and indeed, that not all markets in our sample were equally active).

We posit instead that the results reflect an evolution of the residential real estate market that places a different emphasis on getting leads vs. closing transactions. It could be that too much time spent prospecting for new ties in the hopes they become future customers can be counter-productive, diverting attention away from performance on current transactions, even though it is the latter for which agents are actually paid. Since most agents are also pursuing

connections, spending even more time than is typical does not seem to improve agent success and spending less does not seem to hurt one's success all that much either. The finding that the effect is stronger in markets where sales are harder to make supports this interpretation.

The reduced importance of lead generation may also reflect changes in the nature of the market and how buyers and sellers find agents. The NAR (2012) reported that 90% of home buyers used the Internet in their search and for 41% an Internet search was the first step in the process. It could be that buyers are finding agents through this search process rather than through recommendations, an instance of a new medium disrupting a previously important relational network (Haythornthwaite, 2002). To examine this possibility we ran one further analysis. The survey had asked agents to indicate websites on which their listings could be found. We split our sample into three roughly-equally sized groups: agents with no Web presence, those with listings on one to four sites, and those with five or more. The relationship of buyer/seller ties to income was negative and significant for the first two groups and negative but not significant for the third. An interpretation of this finding is that efforts to connect to buyers and sellers without a Web presence were not productive. If anything, such effect would be stronger today with the increased number of alternative information sources. On the seller side, the shift could reflect sellers seeking out agents able to provide wider range of services. We note that while our focus in this paper has been on how agents get value from their networks, others have observed that an agent's use of professional ties also provides value to customers (e.g., Lawrence and Louch, 1998).

The significance of the finding regarding professional ties is surprising for the size of the effect. Contrary to the image of an agent simply advising a buyer or seller, this finding makes clear how an agent's set of working ties with other professionals helps bring the linked elements

of a real estate transaction to a successful close. This finding suggests that a successful agent serves as a hub of activity and helps to orchestrate the many tasks and secondary transactions that are needed to sell and buy a house. Consistent with this view, our split sample analysis by market condition found that the strength of this relationship was strongest for those in markets with 0 or 1 offers and weaker (though still large and significant) for stronger markets where buyers may be more anxious to conclude a transaction.

Based on this finding, we postulate that the network of professionals around the market intermediary forms a “quasi-firm” that provides a bundle of services coordinated by the agent (e.g., Luke, Begun, & Pointer, 1989). As Smith-Doeer & Powell (2005) noted, “Organizations in craft-based industries have long eschewed formal organizational arrangements, opting instead for more flexible, short-term relationships. [These industries] ... rely, to a considerable extent, on stable and enduring personal networks based on loyalties and friendships cemented over time” (p. 16).

This picture of real estate service provided by a quasi-firm is consistent with our main finding, that more successful agents are those with better ties to other professionals, reflecting the importance of building connections with other professionals to be able to move a home purchase/sale to a close. The importance of a network of professional connections illustrates the social embedding of a real estate agent into the selling and buying of a property and underscores the broader conceptualization of market intermediation. More specifically this finding suggests, as market intermediaries, agents do not simply stand between a buyer and seller, but rather connect the buyer and seller with a network of pre-existing relationships (what White (1981) called market-making), thus adding value for the principals. A practical implication of this

finding is that agents should emphasize the value of these ties, e.g., by assuring customers that referrals are made based on quality and reliability rather than kickbacks.

This picture also helps make sense of differences between our findings and prior work. In contrast to prior studies, we found that only an agent's years of experience was related to success; we did not find an effect for time in the area, formal education or real estate affiliations. However, while these factors are not directly connected with income, time in area and affiliations are correlated with the level of professional ties. We suggest that these kinds of knowledge and experience may have an effect on an agent's success, but indirectly through the agent's professional network being developed either over time or through acquisition and maintenance of professional affiliations. That is, we posit that the development of a market intermediaries' professional network is a mediating factor between experience and success, a connection less examined in prior work (Huysman & Wulf, 2005). The lack of effect for formal education may reflect the increased specialization of knowledge about the domain and thus the need for more specific knowledge, as noted above (Wimmer et al., 2000).

Future research

The results reported above raise important questions that should be addressed in future research on market intermediaries. For example, research is needed to establish if agents' use of their professional ties really do form a quasi-firm, i.e., with repeated referrals to a small group of known partners. Our own fieldwork suggests this is the case, but we do not have systematic data on this question. Future research could also examine how such quasi-firms develop and evolve. Second, research should look more closely at buyers and sellers and how they find agents to understand the role of networks compared to other means by which market intermediaries connect market participants (e.g., Web search). Such work could also examine the implications

of different strengths of ties. Third, our work has focused on the role of ties in agent success, but the effect of individual variables such as gender (included as a control) show that personal characteristics also play a role that should be examined (e.g., Allbritton, 2007). Similarly, there may be effects on agent ties and success due to the kind of agency to which agents belong. Fourth, simply replicating the survey could confirm or refine the analysis presented here on how the effects of buyer/seller and professional ties are affected by changing technology and market conditions. For example, it may be that current uses of the Web as a medium for real estate services is affecting some professional ties, as we argued it has for buyer/seller ties.

Future research should also examine other kinds of markets to establish where this kind of quasi-firm or professional intermediation is useful or needed. Given the fluid nature of real estate and other markets characterized by both critical inter-dependencies and a myriad of contingencies, success seems to come to those who are able to bring to bear the expertise distributed across well-connected professional networks. The importance of these ties depends though on the nature of the market and the intermediaries, so understanding what factors make intermediaries important is a key topic for future research. Understanding the key factors will provide further insight into the function of intermediaries and vice versa. For example, buying a used car has some of the same properties as real estate (e.g., high price, uncertain quality of goods, a need for side transactions such as financing or repairs) but it could be that used car salesmen are not considered reliable sources of referrals. Christensen (1997) noted that as products and markets evolve, competition centers on different characteristics, specifically functionality, then reliability, then convenience and finally price. Muhanna and Wolf (2002) argued that the market for real estate services is in the reliability stage of development, meaning that emphasis is on reliability of operations—i.e., ensuring that the transaction closes—rather

than lowest price. Such a market differs from the more common (and so more theorized) price-focused market.

One open question is whether new entrants can replace the value provided by market intermediaries and their networks of other professionals. One could imagine a new entrant attempting to provide all of these services. For example, if banks are allowed to provide brokerage services and so replace agents, our analysis suggests that they would also have to make arrangements to provide inspection, repairs and other services, in addition to mortgages. However, vertically integrating to provide these services would likely lack the flexibility of the agents' networks or quasi-firms. Understanding these possibilities seems a fruitful area for future research (see also Aral & Van Alstyne, 2011).

CONCLUSION

For markets where transactions are complex and ensuring that the transaction completes is an important consideration, it appears market intermediaries are useful for the smooth functioning of the market. Evidence from the work reported here is that specific forms of social ties are important for market intermediaries, particularly networks of ties among other industry professionals to provide services necessary to ensure a successful closing (e.g., Ahuja, 2000; Gargiulo, Ertug, & Galunic, 2009). This finer-grained view helps to understand why some markets continue to reward intermediaries even in the presence of new sources of information and connections.

The findings reported here help to explain why there are still so many real estate agents and why people still use them. We know market intermediaries may persist for institutional reasons (Sarkar et al., 1995). Our findings suggest market intermediaries may also persist because they provide value to customers in the form of connections to services that are useful in

markets where the transaction is complex, expensive, risky and infrequent. Motivated by the failed logic behind incorrect predictions of one specific and visible form of market intermediaries (real estate agents) disappearing (Baen & Guttery, 1997), the work reported here finds that, rather than simply connecting buyers to sellers, successful agents connect both a network of other professionals, embedding themselves into and making markets through their ability to draw together collections of other value-adding professionals into a quasi-firm-like arrangement.

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TABLES AND FIGURES

Table 1. Social Ties Measurement Items.

Buyer/seller ties

1. Wherever I go, I meet somebody I know.
2. I seek opportunities to meet people.
3. *I am always looking to add names to my contact list**.
4. I am in frequent contact with people on my contact list.
5. I have lots of friends.
6. I have many opportunities to meet new people.
7. I am constantly meeting new people.

Professional ties

8. Other professionals want to work with me.
9. Other real estate professionals (mortgage officers, lawyers, etc.) seek me out for advice.
10. Most of my real estate colleagues perceive me as a leader on professional topics and issues.
11. I've developed enough professional contacts to excel in my job.
12. I've developed enough professional contacts so that I usually know most of the participants at a closing (lawyers, etc.).
13. *I have worked with the same professionals for many years now**.

* Dropped from final model

Table 2. Descriptive Statistics.

Variable	Mean	Std. Dev.	Min	Max
Total income	4.236	1.288	1	8
Net income	3.954	1.265	1	7
Age	52.844	11.320	21	87
Tenure	14.932	9.742	1	54
Resided	24.921	15.421	1	71
Affiliations	1.2917	1.0612	0	6
Education	4.174	1.441	1	7
House price	\$236,207	\$180,317	\$25,000	\$2,500,000
House offers	2.215	1.526	0	20