

# Leveraging Social Capital: How Transacting with Socially-Affiliated Clients Impacts Expert and Firm Performance

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## **ABSTRACT**

While studies have emphasized the efficiency and cost benefits from transacting within social structures, it remains unclear the extent to which experts and firms can create and appropriate value when transacting with socially-affiliated clients, especially in one-off transactions. I investigate this question using a novel approach that pairs data from the Wasatch Front Regional Multiple Listing Service in Utah with hand-collected data on geographically assigned LDS (Mormon) congregation boundaries. By identifying listings for which real estate agents and home sellers share a common church congregation affiliation, I explore the impact of affiliations on the value listing agents create and appropriate in transactions. I find that agents sell comparable homes for 2% more when listing for affiliates without significantly increasing time on market, and exert more care and effort on transactions. Moreover, agents increase use of dual agency by 17%, suggesting affiliations provide agents increased flexibility and access to value appropriation tactics. Data on exogenous shocks to congregation boundaries suggest results are driven by current social affiliations, and not simply by proximity. Overall my results show firms increase revenues significantly as the percentage of listings with affiliated clients increases. This suggests a more nuanced view of social structures is needed.

**Keywords:** Social capital, human capital, experts, social structure, value creation and appropriation

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Employee experts are critical to firm performance in many service industries, which now comprise 68% of US GDP and 80% of US jobs (USTR, 2014). Such individuals possess specialized skills or knowledge, which requires discretion from firms to generate value. A growing literature has focused on issues surrounding expert productivity, choices, and sorting in various service settings, including legal services (Carnahan et al. 2012; Campbell et al. 2012), science and engineering (Stern 2004; Sauermann & Cohen 2010; Elfenbein et al. 2010), medicine (Huckman & Pisano 2006), financial services (Mullainathan et al. 2012), emissions inspections (Pierce & Snyder 2008), education (Jacob & Levitt 2003), and enterprise sales (Larkin 2014). A key takeaway from this literature is that while experts are key to organizational performance, they often face conflicting incentives that lead to managerial dilemmas (e.g. Coff 1997), firm inefficiencies, and problems of moral hazard.

One important, yet understudied, set of factors that influence expert behaviors and performance stem from the expert's social capital—particularly from affiliations with clients (Granovetter 1985; 2005; Burt 1997; DiMaggio & Louch 1998; Bandiera et al. 2005; Charness & Rabin 2002; Uzzi & Lancaster 2004; Yenkey 2015). Because experts must be given discretion, such affiliations create a potential paradox for firms: While increased trust, influence, and information benefits from affiliations potentially allow experts to create additional value in transactions, obligations and social pressures may limit the value they appropriate, particularly in one-off transactions. Thus, it remains unclear how transacting with socially-affiliated clients impacts the value created and appropriated by experts in transactions, and how this impacts firm performance.

In this paper I argue that in settings where information is incomplete and the risk of opportunism high, experts can leverage social affiliations, defined as common memberships between experts and clients in formal social institutions (e.g., clubs, religious groups, cultural groups, etc) to both create and appropriate additional value in one-off transactions. Such advantages stem from information and solidarity benefits created by the social structure, which lead to greater levels of trust

and added flexibility in the transaction, and ultimately result in significant performance benefits for experts and firms. While existing studies have argued that affiliations can impact value creation in transactions (Uzzi and Lancaster 2004; Lancaster and Uzzi 2012), such as by reducing costs (Coleman 1988; Greif 1993; DiMaggio & Louch 1998), empirical evidence remains relatively scarce. Moreover, while recent studies have found that affiliations can lead to increased appropriation through unethical behaviors (e.g., Yenkey 2015; NASAA 2001), relatively few studies have explored how affiliations impact value appropriation. Indeed, the idea that affiliations can lead to increased appropriation runs counter to many extant theories and literatures, including social network theory (e.g., Coleman 1990; Granovetter 2005), social identity and conflict theory (e.g., Sherif et al. 1961; Tajfel et al. 1971; Billig & Tajfel 1973; Ashforth & Mael 1989), social capital (e.g., Arrow 2000; Adler & Kwon 2002), and social preferences (e.g., Fehr & Fischbacher 2002; Charness & Rabin 2002). These literatures and theories all suggest that affiliations should lead individuals to behave more responsibly and eschew behaviors that could be perceived as opportunistic. Thus, it is unclear the extent to which experts and firms can leverage affiliations to improve performance.

To address this gap, and test my argument, I pair rich transactional real estate data from the Wasatch Front Regional Multiple Listing Service (MLS) with novel data on religious congregation boundaries in Utah County, Utah for 1998-2014. In Utah County nearly 90% of the approximately half-million residents report belonging to the Church of Jesus Christ of Latter-day Saints (ASARB 2010).<sup>1</sup> This church geographically assigns each home to a congregation, which church members are required to attend. By collecting a panel of congregation boundaries, as well as home addresses for real estate listing agents and homes being sold, I identify listings for which agents and home sellers share a common affiliation, through the formal social structure of the church congregation. I then investigate the impact of affiliations on 1) agent effort and performance on transactions, including

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<sup>1</sup> This church is also often referred to as the LDS Church of the Mormon Church.

listing price, final selling price, and time on market, 2) agent flexibility and use of value appropriation tactics, such as dual agency, and 3) firm outcomes, in terms of yearly revenues.

I find that agents and brokerages improve performance by creating and appropriating more value when listing for social affiliates. First, my results show agents list and sell comparable homes for 2% (~\$4012) more when listing for affiliates, and do so without increasing days on market or decreasing probability of sale. Second, I find evidence suggesting agents exert more effort marketing homes for affiliates. Finally, I find evidence suggesting listing for affiliates provides agents additional flexibility and access to value appropriation tactics. Agents are 17% more likely to act as dual agents when listing for affiliates, where they represent both seller and buyer, and sell homes cheaper and quicker as dual agents with affiliates. Moreover, agents appear to use social affiliations to “break slumps” and relieve financial need. Taken together, I find that these results significantly impact agent and brokerage performance: A 10% increase in the percentage of yearly sales to affiliates increases brokerage revenues by approximately 2%. Moreover, I find that all effects increase in magnitude with affiliation strength. Multiple robustness checks, including analyses that explore the impact of unexpected changes to congregation boundaries, add support to these findings and suggest the results are driven by current social affiliations, and not simply by geographic proximity.

This study has important theoretical implications. First, it contributes to the literatures on social capital and networks by presenting a more nuanced view of embeddedness. A constant criticism of studies in these literatures is that they overlook human agency (Salancik 1995; Coleman 1988; Kilduff & Brass 2010). The results of this paper add to a growing literature investigating a more agentic and nuanced view of social capital, including its potential downsides (e.g., Rogan 2013; Yenkey 2015). Second, this study contributes to calls to investigate micro-macro links in strategy (Felin & Foss 2005; Mollick 2012; Barney & Felin 2013), and suggests that an important firm resource is embedded in the

affiliations of employees. Deploying this resource significantly impacts transactions, and can potentially lead to persistent differential performance outcomes between experts and firms.

This paper also makes important empirical contributions. It draws on a unique setting where affiliations are geographically assigned, exogenous to the economic transaction, based on where agents and home sellers live. This helps overcome the empirical concern stemming from an individual's tendency to affiliate with similar others (Mouw 2006), and provides a more exogenous measure of social capital. Finally, this setting allows me to parse out the impact of affiliations on value creation (i.e. growing the pie) compared to value appropriation (i.e. splitting the pie), and to estimate the resultant effect on firm outcomes.

Finally, this paper highlights important implications for management. The results suggest that transacting with social affiliates can significantly increase expert effort, performance, and value appropriation, separate from financial incentives. Moreover, these outcomes do not require repeat economic transactions or the shadow of the future (e.g., Gulati et al. 2000; Elfenbein & Zenger 2013; Beckman et al. 2004). Thus, a potential alternative to attracting high-performing experts is for managers to hire well-connected experts, and to craft policies supportive of transacting with affiliates.

## **GENERAL THEORY**

### **The Organizational Challenge of Experts**

A substantial literature has focused on the difficulty of motivating employees to act in the interests of the firm. However, such challenges become more acute when employees function as experts. Experts possess unique skills or knowledge and consequently must be given discretion over use of firm resources—such as their time, pricing, and firm products—to generate value for the firm. They often function in settings where monitoring is costly and difficult, and are less responsive to governance through fiat due to the nature of their employment contract with the firm, as well as their ability to leave. Because of the inherent difficulty in monitoring, and to avoid the misuse of discretion,

experts often are given high-powered incentives to decrease problems from moral hazard. However, experts also are more sensitive to market incentives outside the firm, as they can easily leave and take their valuable skills and knowledge to a new firm. Examples of experts include doctors, orthodontists, academics, financial advisers, consultants, and real estate professionals.

### **Social Structures and Social Motivations**

A significant potential motivator of expert behavior stems from social affiliations between experts and clients. I define social affiliations as connections arising from common membership in formal social institutions that are external to the firm and the economic transaction. Such institutions define the social structure, and may include religious groups, schools, alumni organizations, the military, clubs, corporations, charitable organizations, labor unions, cultural groups, and professional associations. While social affiliations create potential benefits, they also impose obligations and social pressures that may impact expert choices and behaviors in important ways. Granovetter was among the first to articulate the importance of understanding the impact of such affiliations on economic outcomes, arguing that individual's "attempts at purposive action are...embedded in concrete, ongoing systems of social relations" (Granovetter 1985, p.487). Psychologists, similarly, have long argued that social identities, bred of social affiliations, significantly impact individual behaviors (Sherif et al. 1961; Tajfel et al. 1971; Falk & Zehnder 2007). Subsequent research has found social structures to significantly influence individuals in both positive and negative ways (Ben-Porath 1980; Coleman 1988; Granovetter 1985; Greif 1993; Bandiera et al. 2005; Granovetter 2005; Yenkey 2015; Lancaster and Uzzi 2012), and for consumers to prefer transacting with affiliates when information is incomplete and risk of opportunism high (DiMaggio & Louch 1998).

For experts in service settings, social structures and affiliations may create benefits that lead to value creation. Such value creation in transactions can be thought of as either increased revenues or reduced costs. There are three primary mechanisms through which this may occur. First, social

structures facilitate the flow of quality information between affiliates, resulting in information advantages (Coleman 1988; Krackhardt & Hanson 1993; Uzzi 1997; Reagans & McEvily 2003; Granovetter 2005). Such information is more fine-grained and allows experts to better anticipate customer preferences (Uzzi 1997). Additionally, social structures provide experts increased access to private or tacit information. This comes both from increased observation and interaction, which are more frequent in social structures, as well as from increased knowledge sharing by clients under weaker concerns of opportunism.

Second, social structures create solidarity benefits. These benefits arise either from in-group preferences (e.g., Tajfel et al. 1971; Billig & Tajfel 1973; Ashforth & Mael 1989) or from shared expectations, norms, and obligations between affiliates (Coleman 1988; Granovetter 1985; Arrow 2000; Adler & Kwon 2002). Such benefits result in increased levels of confidence and trust from clients, as well as feelings of goodwill and reciprocity. Solidarity benefits are supported by a system of reward and punishment in the social structure, which creates pressure for members to behave responsibly to maintain reputation and avoid social punishments (Granovetter 1985; 2005). These features of the social structure lead to decreased transaction costs (Uzzi & Lancaster 2004; Lancaster & Uzzi 2012), reduced problems from opportunism (Ben-Porath 1980; Greif 1993; Uzzi 1999), and improved transaction outcomes that increase expert performance.

Finally, I argue that transacting with social affiliates leads experts to exert additional effort to improve performance for clients. External pressures from shared expectations, norms, and obligations provide incentives for experts to increase effort when transacting with affiliates, independent of financial incentives, to deliver a high quality service and avoid reputational losses or social punishments. Similarly, internal pressures from social preferences (e.g., Charness & Rabin 2002) as well as in-group preferences drive experts to increase effort. In addition to these pressures, solidarity

benefits increase expert confidence that affiliated clients will deal fairly and fulfill obligations, which leads to improved motivation and additional effort.

Taken together, I expect that improved information, solidarity benefits, and increased effort will lead to value creation in transactions when experts transact with affiliates. Such value creation amounts to higher revenues and/or lower transaction costs for the transacting parties. This leads to my first hypothesis:

*H1: Experts will create more value in transactions with socially-affiliated clients, compared to transactions with non-affiliated clients*

In addition to influencing value creation in transactions, I also expect social affiliations to influence value appropriation by experts and firms. Such considerations have been underexplored in the literature. Yet, this process is critical to understanding the impact of social affiliations on expert and firm performance.

The literature to date has argued that while value may be created by transacting with social affiliates, experts and firms may not appropriate it. Granovetter (1985) argued that the same obligations and social pressures that create trust and allow for value creation in transactions also necessarily tie expert's hands. This results in reduced flexibility as it prohibits experts from acting in ways that could be perceived as opportunistic without damaging social reputation and future levels of trust. Similarly, the literatures on social preferences and parochialism/in-group preferences suggest that experts will be less likely to appropriate value. Social preferences are defined as concern by experts for the welfare and monetary outcomes of other parties in the transaction, which lead experts to take actions that decrease their own monetary gains but increase welfare for other parties. Such preferences may include pure altruism (Andreoni & Miller 2002), inequity aversion (Fehr & Schmidt 1999; Bolton & Ockenfels 2000), or reciprocal fairness (Fehr & Fischbacher 2002), and have been shown to be activated by social relationships (e.g., Bandiera et al. 2005; Bandiera et al. 2009), especially when there



is potential for inequity in monetary outcomes (Charness & Rabin 2002; Fehr & Schmidt 1999; Bolton & Ockenfels 2000). Relatedly, psychologists have argued and found that individuals tend to act in ways that benefit in-group members (Sherif et al. 1961; Tajfel et al. 1971; Billig & Tajfel 1973; Ashforth & Mael 1989; Falk & Zehnder 2007).

While these literatures suggest social structures limit expert opportunistic behaviors and value appropriation in transactions, paradoxically social structures also provide experts increased flexibility and access to value appropriation tactics because of information benefits and the assumed trust and goodwill from clients. Granovetter, for instance, noted that increased trust “presents, by its very existence, enhanced opportunity for malfeasance” (1985, p.491). A related literature in criminology (e.g., NASAA 2001; Fairfax 2001; Baker and Faulkner 2004) as well as more recent work in management (e.g., Yenkey 2015) have found evidence supporting this claim, showing that social similarity and affiliations lead individuals to exercise less vigilance when dealing with affiliates, which leads to increased victimization by socially-connected criminals. While Granovetter and these studies specifically reference unethical or criminal behaviors, the logic applies to appropriation behaviors, as increased information and trust allows experts to engage in tactics otherwise unavailable. Thus, while pressures exist for experts to avoid opportunistic behaviors when transacting with affiliates, increased trust and information may increase the tactics available to them to appropriate value.

A key element underlying expert value appropriation is expert and client choice. A consistent criticism of work in social capital and social networks is that these studies often overlook human agency (Salancik 1995; Coleman 1988; Kilduff & Brass 2010). Thus, while many studies have emphasized that social structures impose social pressures on individuals, few studies have focused on how individuals respond to such pressures. A robust literature in economics highlights that individuals are self-interested, and respond to incentives (see Prendergast 1999 for a review). Moreover, humans have proven remarkably adept in gaming incentive schemes (e.g., Holmstrom & Milgrom 1991).

Consequently, when given the opportunity to do so, I expect that experts and clients will leverage social structures in ways that allow them to appropriate additional value in transactions.

In settings where information is incomplete and the risk of opportunism high, value can be appropriated by experts as they use information advantages and assumed trust by clients to opportunistically push transactions in their favor. Incomplete information reduces the risk of social punishments, as performance evaluation becomes difficult and costly. Under such conditions, experts can leverage flexibility benefits at the expense of clients, engaging in opportunistic tactics to appropriate value. Strong financial incentives drive experts to engage in such behaviors.

Alternatively, social structures also allow for greater value appropriation through non-opportunistic behaviors. This occurs as both parties leverage trust and information benefits to transact in ways that typically require safeguards, such as detailed contracts or intensive monitoring, due to the risk of opportunism. Social structures allow experts and clients to avoid such costs, and to streamline transactions (Dyer and Chu 2003). This occurs, for instance, as trust and information allow experts to employ tactics for which there are inherent conflicts of interest. Such tactics are typically unavailable because of client concerns of opportunism. However, the benefits of the social structure may allow for such tactics, which result in benefits for both parties. Similarly, social structures may allow experts to collude to appropriate value from other parties in the transaction. This occurs, for instance, when client choices can disproportionately increase the share of value appropriated by experts, which can then be shared with clients. Finally, social structures may allow experts and clients to tradeoff monetary and other benefits. Thus, social structures also allow for increased value appropriation by experts through non-opportunistic tactics.

Taken together, I expect these mechanisms to lead to greater value appropriation by experts when transacting with affiliates, compared to non-affiliates. My second hypothesis follows.

*H2: Experts will appropriate more value in transactions with socially-affiliated clients, compared to transactions with non-affiliated clients*

Finally, I expect that firms will improve performance, in terms of accounting profits, as the percentage of deals with social affiliates increases. This stems both from increased value creation in transactions when employee-experts transact with affiliates, as well as from increased value appropriation. While this result seemingly follows directly from the previous two hypotheses, the fact that experts exert differential levels of effort on transactions clouds the outcome, as experts only have a fixed amount of time and energy in a given day. For instance, increased effort expended on affiliate transactions could result in experts exerting less effort on non-affiliate transactions, resulting in fewer overall transactions, lower performance on non-affiliated transactions, and consequently lower overall performance for the firm. However, because experts have increased flexibility when transacting with affiliates, I expect them to manage transactions to avoid negative monetary tradeoffs for positive social outcomes. My final hypothesis follows:

*H3: Ceteris Paribus, firms will improve performance as the percentage of total transactions between employee-experts and socially-affiliated clients increases*

Figure 1 provides a visual overview of the preceding three hypotheses, including the primary mechanisms theorized to drive the results.

\*\*\*\*\* INSERT FIGURE 1 HERE \*\*\*\*\*

## **EMPIRICAL SETTING**

The setting for this study is the residential real estate industry, an economically significant industry in the United States that employs over 1 million workers and is roughly equal in size to the brand name pharmaceutical industry, the hotel and motels industry, and the single-location full service restaurants industry (IBISWorld 2014). Estimated revenues for real estate in the US were about \$115 billion in 2013, down from \$166 billion in 2005 (IBISWorld 2014). Real estate is a labor-intensive

industry where brokerages (firms) and real estate agents assist clients in finding, purchasing, or selling homes or other properties.

At the core of the real estate industry is the real estate transaction, where listing agents assist sellers in selling a home and buyer agents assist buyers in finding and purchasing a home. Figure A1 (see Appendix) details the transaction for listing agents, which are the focus of this study. Sellers hire listing agents to assist them in the process of selling their home, including devising a selling strategy, listing the home on relevant databases, marketing the home and finding buyers, staging and managing showings, negotiating offers, and filling out necessary paperwork to close the deal. For their services listing agents receive a fixed commission, typically 6% of the home selling price, which is generally split in half with the buyer's agent. Listing agents also split commissions with their sponsoring brokerage. Such broker-agent splits can range from a 50/50 split to as high as a 100/0 split where agents pay a fixed desk fee, but retain the full value of their commissions. When working for a franchised brokerage, agents may also pay a portion of their commission directly to the franchise owner as a franchise fee. Commission splits vary both between and within brokerages.

To sell real estate in Utah agents and brokerages must be licensed by the state. Brokers may choose to be self-employed, perhaps working primarily out of their home or even remotely from their automobile. Agents are required to have a sponsoring brokerage. In Utah County, Utah there are approximately 1500 brokerages and 6450 agents that sell at least one home during my data sample. Forty-three percent of listings are listed by franchised brokerages, 49% by independents, and 8% by self-employed brokers.

Brokerages compete primarily on labor. Agents are typically hired as independent contractors and negotiate desk fees and commission splits based on experience and previous performance. There is low cost to hiring or firing agents, although attracting and retaining high quality agents is critical to

firm performance. Overall, financial incentives are aligned between brokerages and listing agents, resulting in few problems of moral hazard from financial incentives.

A primary tool used to list homes in Utah is the Multiple Listing Service (MLS), which is a database of property information operated by the Wasatch Front Regional Multiple Listing Service (WFRMLS). This database includes a wealth of information on current listings and previously sold properties. Much of the information collected in this database, including final sold price, is not shared with government agencies or third party companies (e.g., Zillow). To gain access to the MLS, agents and brokers must pay a subscription fee and be members of the Utah Board of Realtors. This association prohibits members from sharing confidential information about homes, historic sales, and other agents, and has strict rules surrounding MLS access. Agents, for instance, are expressly forbidden from sharing their login with anyone. Consequently, access to the MLS provides brokerages and agents significant information advantages over clients.

### **Formal Social Structure in Utah: LDS Congregation Boundaries**

In this paper I focus on the real estate market in Utah County, Utah to take advantage of a setting where a single formal social institution significantly determines the social structure in which real estate transactions are embedded. This formal social institution is the LDS (Mormon) Church. Of the 516,564 Utah County residents (114,350 families/148,350 housing units) reported in the 2010 US Census (American FactFinder 2010), approximately 89% report being Latter-day Saints (ASARB 2010). Church members attend weekly meetings and activities with a congregation, called a “ward.” A collection of geographically proximate wards are assigned to a larger unit, called a “stake”, where members meet together less frequently, but often attend large conferences or training events. As of March 2014 there were 147 stakes in Utah County and 961 wards. Thus, the average ward has approximately 450 members, 118 families, and 154 housing units. The average stake has over 3000 members in 7 wards, 826 families, and 1081 housing units.

Each house in Utah County is assigned to an LDS ward and stake based on its geographic location. With few exceptions, homes are assigned to a single ward and stake where members are required to attend to remain in good standing with the church.<sup>2</sup> Indeed, to enter LDS temples, which play a significant role in LDS worship (LDS Church 2014), members are required to regularly attend the ward to which they are assigned. In rare instances church responsibilities cause members to attend different wards, such as if they are an interpreter for the deaf and are needed in a neighboring stake, but permission to do so requires consent from church leaders. Discussions with leaders indicated that such approval is rare.

Ward and stake boundaries are comprised of a set of houses in a geographic area. Figure 2 shows the boundaries for a representative stake in Utah County with seven wards. Because of the high density of LDS church members in Utah County, ward boundaries are small and typically do not line up with neighborhood boundaries. The average stake in Orem, Utah, for instance, covers less than 1 square mile, and each stake contains on average seven wards. Consequently, it is quite common for neighborhoods to be shared between 2-3 wards, and perhaps even bridge stakes. Thus, most homeowners in Utah County have many geographically proximate neighbors with similar homes and socio-demographic backgrounds, but that are members of different wards or stakes. This feature of the setting is important to my empirical identification strategy.

\*\*\*\*\* INSERT FIGURE 2 HERE \*\*\*\*\*

Friendships and social interactions in Utah are directly influenced by congregation boundaries. Table 1 contains a list of typical weekly and monthly activities church members engage in at the ward and stake levels. Given the large number of church events, church members often feel there is little

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<sup>2</sup> There are some cases where homes are assigned to multiple wards. These include church wards designed for single individuals only (“singles wards”), wards for newly married couples who are students (“student married wards”), and wards that provide services for a specific ethnic group (e.g., “Spanish wards” or “Tongan wards”).

time remaining for friendships with those outside congregation boundaries.<sup>3</sup> In addition to these events, the LDS Church employs a lay ministry, and each member is given a responsibility in the congregation called a “calling.” Examples of callings include Bishop, secretary to the Bishop, ward financial clerk, youth adviser, nursery teacher, sports director, and Scoutmaster. Callings often require a significant amount of time and facilitate high levels of interaction between individuals. For instance, Scoutmasters and youth advisers take youth on monthly overnight campouts and hold weekly activities. These leaders also frequently visit parents to discuss youth progress in church programs. Bishops or Stake Presidents are responsible for giving callings, which may change at any time, and church members have limited input into the callings they receive.

\*\*\*\*\* INSERT TABLE 1 HERE \*\*\*\*\*

The significance of congregation boundaries on social interactions is most keenly observed when ward or stake boundaries change. Often boundaries are changed unexpectedly by church leaders due to congregation growth or to rebalance units. When boundaries shift it is quite common for members to lament the “loss” of friendships, as changes may put ward or stake members in different church units. While individuals have not changed geographic location, the limited time church members have to maintain relationships outside their congregation significantly affects future interactions. Discussions with church members revealed that members interact on a social level with other members outside their ward and stake infrequently in Utah County. One church member, for instance, stated that he barely knew his neighbors across the street, as the neighbors attend a different stake. Another noted that their neighbor three doors down “might as well be in another universe,” as they are in a different stake.

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<sup>3</sup> The observations about church members in this section are based on informal discussions between the author and church members.

This setting has important benefits that make it suitable for addressing my research questions. First, the church social structure in Utah is the primary driver of social interactions and affiliations between individuals, and congregation boundaries are determined by geographic assignment that may change unexpectedly over time. This feature of the setting allows me to use home addresses for homes and agents to identify social affiliations. While still not completely random, using geographic boundaries helps alleviate empirical concerns that stem from the tendency of individuals to affiliate with similar others (Mouw 2006). Second, strength of affiliation varies between wards and stakes, allowing me to investigate the impact of affiliation strength on transactions. Third, the real estate industry is characterized by agent discretion and incomplete information, which creates tension when agents list for affiliates as they face financial incentives to leverage social affiliations for their own benefit. Finally, agent productivity on transactions is observed over time, and the link between agent choices, productivity, and firm performance is clear.

## **SETTING-SPECIFIC PREDICTIONS FROM THE GENERAL HYPOTHESES**

In this section I lay out setting-specific predictions. These predictions are derived from the general hypotheses presented earlier, and explore the impact of geographically-assigned social affiliations between listing agents and home sellers, through the formal social structure of the LDS Church, on agent performance, effort, flexibility, and the value appropriation tactics they employ. A summary of these predictions and their corresponding hypotheses are found in Figure 3.

### **Listing Agent Effort and Performance**

The first hypothesis argues that experts will create more value in transactions when transacting with affiliates, compared to non-affiliates. This stems from increased expert effort, as well as from information and solidarity benefits. In this setting, I expect listing agents to increase care and effort on transactions through marketing. When listing homes agents leave instructions for buyer agents on the procedure for showing a home. This may include instructions for how to access the home through



a key box or electronic keypad, or instructions for scheduling an appointment. If the home is vacant, agents often place a key box and insert the key box code into the confidential comments associated with the listing. While this allows buyer agents to easily show the home, it does not permit listing agents to actively manage and follow up on showings. Alternatively, agents may require buyer agents to call them to schedule an appointment and receive the key or code. This allows agents more control over showings and provides opportunities for valuable feedback about the showing, such as client reactions to the list price or other characteristics of the home. If the home is not vacant, appointments usually must be made. In these cases listing agents may instruct buyers to call the owner directly to set an appointment or to call the listing agent. When agents request buyers call them directly, they are able to manage showings and ensure that the home is ready to be shown. Thus, I expect listing agents to increase marketing efforts by requesting appointments more often when listing for affiliates.

In addition to exerting more effort, I expect agents will use trust and information benefits to sell homes at higher prices. Sellers have strong incentives to maximize home sale price. Brokerages and agents similarly desire to maximize selling prices to increase commission, although their incentives are much weaker, often leading them to underprice homes to quickly turn inventory (e.g., Levitt & Syverson 2008; Rutherford et al. 2005). When listing for affiliates agents have increased access to private or tacit knowledge about the home, the client, and the neighborhood that allows them to better market and show the home, ultimately resulting in higher selling prices. Higher levels of effort and increased motivation from solidarity factors similarly lead to higher prices, as agents increase care and active management of showings when listing for affiliates. Finally, solidarity factors lead agents to advise sellers to not accept “low-ball” offers, resulting in higher overall selling prices, and may result in sellers being more receptive to agent “coaching.” Consequently, I expect listing agents to list and sell comparable homes at higher prices when listing for affiliates.

In addition to home selling price, however, time on market is also important as it influences costs. There is typically a positive correlation between time on market and the sold price premium paid for a home. If a home is priced high this increases time on market, as there are fewer potential buyers willing to pay the high price. Moreover, in order for sellers to receive a high price listing agents and sellers may need patience to avoid accepting early “low-ball” offers. While listing for affiliates may consequently result in longer times on market, increased effort, solidarity benefits, and information advantages offset this increase. Thus, the overall impact of affiliations on time on market is ambiguous, although I expect that these forces will offset, resulting in no significant difference on average in time on market, despite higher home selling prices.

Finally, I expect agents will be more likely to ultimately sell the home. Sellers and listing agents typically enter into listing agreements, which give agents right to commissions if a home sells during a specific time period. Interviews with agents revealed that the typical listing agreement in Utah lasts for 180 days. Listing agreements protect agent-marketing investments and provide agents a reasonable period to sell the home. Many factors influence probability of home sale, including list price, seller willingness to adjust price, characteristics of the home, agent knowledge and access to buyers, and agent effort. When listing for affiliates agents have greater access to tacit and private information, better access to potential buyers via the social structure, and exert more marketing effort. In addition, decreased concerns of opportunism allow agents to better “coach” sellers on selling strategies and which offers to accept. Thus, I expect this to result in increased probability of home sale when agents list for affiliates, again reducing costs for agents and the brokerage.

### **Tactics to Appropriate Value in Transactions**

The second hypothesis argues experts will appropriate more value when transacting with affiliates. This stems from increased flexibility, which allows agents to use additional tactics to appropriate value. In this setting the most important tactic used to significantly increase value

appropriated is dual agency.<sup>4</sup> Dual agency allows firms and agents to capture both sides of the commission in a transaction, and thus significantly increases revenues. While dual agency may create efficiencies that benefit both clients and the agents through information and matching benefits (e.g., Brastow & Waller 2013),<sup>5</sup> agents are limited in its use because of potential for conflicts of interest. In a typical real estate transaction listing agents have fiduciary responsibility to sellers, which are seeking to maximize sold price, and buyer agents have fiduciary responsibility to buyers, which are seeking to minimize sold price. When agents represent both parties it is impossible for them to act with fiduciary responsibility to both parties. Moreover, dual agency may create incentives for agents to sell homes at too high a price, because they are compensated by sellers based on sale price, or to lower prices to increase potential for dual agency deals with existing buyers. Consequently, clients may refuse to allow dual agency, and most states have passed laws requiring agents to disclose dual agency to each party in writing prior to the deal.

When listing for affiliates I expect that solidarity and information benefits will provide agents increased opportunity to engage in dual agency. Solidarity benefits result in increased trust and lessened concerns of opportunism from home sellers, which may lead to fewer client reservations about dual agency. Moreover, increased trust leads clients to exercise less due diligence in reading contracts, and results in sellers being more receptive to listing agent advice. Information advantages similarly provide increased opportunity to engage in dual agency. When listing for affiliates agents have increased access to private and tacit knowledge about the reservation prices of sellers and buyers, their financial situation, and their overall goals. Similarly, clients have access to more reliable

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<sup>4</sup> Dual agency, also referred to as “limited agency,” arises when a single agent or a single brokerage represent both the buyer and the seller. In this paper I focus on a single agent representing both the buyer and the seller.

<sup>5</sup> Dual agency may create conflicts of interest, but it does not always lead to adverse outcomes for sellers. It may also be used for its informational/matching benefits. For instance, if a listing agent procures a new listing, but already has an existing client-buyer searching for that type of home, dual agency may be used to quickly match sellers and buyers, resulting in benefits for both parties. In such cases agents use existing information about clients to improve matches.

information about agent character and motives. Such knowledge supports dual agency deals. It is important to note that while such factors may lead to an increase in dual agency for agents, dual agency does not necessarily result in negative outcomes for the seller. Indeed, sellers may capture some of the benefits of dual agency through commission refunds.

Finally, I expect that increased flexibility will also allow agents to influence transaction outcomes in their favor. In this setting I investigate the extent to which agents reduce selling prices of affiliate homes to “break slumps” and relieve financial need. Financial need, measured as the number of days since the agent’s last listing went under contract, creates pressure for agents to earn payment from commission. This pressure pushes agents to use tactics that increase odds of a sale, and particularly of a quick sale. Such tactics may include convincing sellers to reduce home list price to attract more buyers, or convincing sellers to accept low offers instead of waiting for higher offers. I expect that agents can increase the use of such strategies because of information and solidarity benefits associated with social structures.

### **Impact on Firm Performance**

My final hypothesis argues that, *ceteris paribus*, firm performance will increase with the percentage of sales for affiliates. In this setting brokerage revenues, calculated as the total dollar amount of real estate sold, is the primary performance metric. However, dual agency deals also significantly increase brokerage revenues. I measure overall brokerage performance as the dollar amount of real estate sold in a given year, with dual agency transactions counting as double the final sale price for the transaction. I calculate yearly brokerage revenues for each brokerage, and expect revenues to increase with the percentage of total transactions listed for affiliates in a given year. Figure 3 provides a summary of the above predictions.

\*\*\*\*\* INSERT FIGURE 3 HERE \*\*\*\*\*

### **DATA**

The data for this study originate from numerous sources. The core dataset is from the Wasatch Front Regional Multiple Listing Services (WFRMLS) in Utah, and contains data on all MLS-listed residential properties in Utah County from 1995-2014. WFRMLS is the sole MLS operating in Utah County, and is the largest MLS in the state. Its database contains more than 1 million real estate transactions since 1995. Most agents who list homes in Utah County rely on this service, and at any given time there are usually around 3,000 active listings in Utah County. Listing in the WFRMLS is only done by broker-subscribers, or by agents or other assistants working for the broker-subscriber. Listings are required to be entered into the MLS within 5 days of listing agreements, and information on sold houses, including sold price, loan terms, sale date, and seller concessions, is required to be updated within 10 days of closing. WFRMLS has many safeguards in place that require agents to enter complete and accurate information, and failure to do due diligence can result in fines and penalties.

The MLS database includes transaction-level data on all MLS-listed homes in Utah County. Each listing includes data on housing characteristics (e.g., street address, square footage, number of bedrooms, age of house), important dates (e.g., listing date, sold date, under contract date, listing expiration date), relevant brokerage and agent identities (listing agent, buying agent, and brokerage identities), price information (e.g., original listing price, final listing price, final sales price, amount of seller concessions), owner information (e.g., agent-owned, government-owned, bank-owned), show instructions, listing contract terms (e.g., commission offered, type of listing agreement, short sale indicator), and sold terms (e.g., type of loan). Table 2 and 3 detail the primary variables used in my analyses, as well as their summary statistics. The data also include public and confidential comments that describe the condition of the property, as well as showing instructions. Following Levitt and Syverson (2008), I analyze the public comments text to construct 81 dummy variables that control for house quality and differences unobserved in the other MLS variables. Table A1 (appendix) presents these variables, including their summary statistics.

In addition to the MLS data, I also collected real estate-related data from other sources. First, I purchased data from the Utah Division of Real Estate. These data contain agent license information, home addresses, and current brokerage affiliations. Second, I downloaded property information from the County Assessor and Recorders offices. Finally, I added in census geographic data using the Census Bureau's geocoding service.<sup>6</sup> This allowed me to record longitude and latitude for many properties in my dataset, as well as census block and tract identifiers.

### **LDS Church Boundary Data**

LDS congregation boundary data were obtained for every property in Utah County at two points in time. This was done using publically available records for current ward and stake affiliations for each home.<sup>7</sup> I collected data for 2014 ward and stake assignments, and then paired these with 2008 data collected using a similar procedure (Gathright, 2010). These two snapshots allow me to identify church ward and stake assignments for the majority of homes in Utah County for 2007-2014. I then link these data with hand-collected dates from various online sources on stake creations and boundary changes. This procedure allows me to construct a panel of congregation boundaries for 1998-2014, including boundary changes, for many homes in my sample.

Real estate agent ward and stake boundaries were similarly identified using agent home addresses from the licensing database (see Figure A2 in Appendix). Each agent is required to provide a mailing address to be licensed in the state of Utah. When address changes occur, agents must update their address within 14 days to avoid penalties. Most agents chose to provide a home address, although some agents provided office addresses. To minimize problems of agents reporting office addresses, I excluded addresses from my analyses that included names of major roads that are zoned for

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<sup>6</sup> The geocoder can be found at <http://geocoding.geo.census.gov/geocoder>

<sup>7</sup> These data can be accessed individually through the meetinghouse locator on [www.lds.org](http://www.lds.org).

commercial purposes (e.g., State Street, Main Street, Center Street), or that reference a suite number. However, including these addresses does not significantly impact my results.

### **Data Construction and Cleaning Process**

I follow other major studies in cleaning and preparing the data for analysis. First, I restrict my analysis by dropping the top and bottom 1% of observations in terms of original list price.<sup>8</sup> This removes homes that originally listed for more than \$1,149,000 or for less than \$60,000. I also restrict my analysis to homes that were on the market for less than 2 years, and more than 0 days. This dropped approximately 1152 observations from my sample. Restricting my data in these ways removes outliers, such as luxury homes or uncommon short sales that are difficult to sale, and allows me to investigate the impact of social structure on common real estate transactions. Additionally, I drop from my analysis homes that sold for greater than 1.5X the original or final list price of the home as well as homes that sold for less than a quarter of the original or final list price, as these appeared to be errors. This dropped 63 observations from my sample. Including these observations does not significantly impact my results. Finally, following Levitt and Syverson (2008) I also dropped houses that reported the total number of bedrooms, bathrooms, or kitchens as zero. This dropped a total of 5577 observations from my sample. This cleaning procedure left me with a total of 82,739 home listings and 40,838 sold listings with social affiliation information.

To construct the variable “predicted sold price to original list price”, which is used as either a control or dependent variable depending on the specification, I estimated sold price for each home in the sample by regressing the log of sold price on home observables, quality controls, transaction controls (short sale dummy and percentage of sold concessions), time controls (sold year and month dummies, as well as their interactions), and geographic controls. The  $R^2$  value on this regression was 0.87. I then predicted the selling price for each home using the estimates from this regression, and

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<sup>8</sup> Results are similar when dropping the top and bottom 1% of sold price.

divided this predicted selling price by the original list price of the home. Final values were winsorized to 2.58 standard deviations above and below the mean (top and bottom one half of one percent). This variable measures the degree to which a home is overpriced at first time of listing. A value of 1 implies that the original list price is equal to the predicted sold price, and values above 1 indicate overpricing. A similar variable, “sold price to original list price”, was constructed by dividing the final actual sale price of the home by the original list price, and then winsorizing. This variable measures the extent to which a home sells for close to the original list price.

The limitations of these data are well known, and laid out in papers that have investigated the real estate industry. First, the MLS information is entered by agents, and there is not an independent verification system. While the MLS does actively monitor listings to ensure complete information, agents may make mistakes or enter estimates for some values, such as square footage. Second, to match up my datasets I had to rely on home addresses or tax ID numbers. In some cases tax ID numbers were not included in the listing, and addresses did not match up. Finally, while these data do include substantial information about each home, there are still home characteristics that are unobserved. While this could lead to concerns about omitted variable bias, the high  $R^2$  on my hedonic regression ( $R^2=0.87$ ) suggests this is not a significant problem.

There are also important limitations with the LDS congregation data. First, I do not observe when agents move residences. The license data only include current addresses, or the address last listed by agents. Consequently, if agents move I may be incorrectly specifying current congregation boundaries for that agent. Second, the congregation boundary data only include two snapshots of boundaries for homes in Utah County, and not a panel of boundary changes. These two snapshots, in conjunction with stake boundary change dates gathered online, allow me to identify congregation boundaries and boundary changes for many homes in the sample. However, if multiple stake changes occurred between 2008 and 2014 it is impossible to reliably track boundaries. Consequently,



boundaries in such instances had to be coded as missing. Similarly, I am unable to reliably identify congregation boundaries beyond the first stake split event or the first stake creation event for each stake preceding 2008. Finally, I am unable to identify which agents and home sellers are church members in my sample. While 90% Utah County residents report being members of the church (ASARB 2010), my data do not include data on church membership.

### **Interview Data**

In addition to collecting archival data, I carried out interviews with real estate agents and brokers in Utah. These interviews were informal in nature, and asked agents about their experiences selling real estate in Utah. During my interviews agents expressed feelings that, in general, they were able to be more productive when listing for congregation members. One agent attributed this to increased levels of trust. He noted that the “expectation is everyone is telling the truth, because [we are] all in the same ward. You don’t think, ‘Is this guy pulling my leg?’ You don’t get people always saying, ‘can you verify that?’” Similarly, another agent shared that information about the home and the financial situation of the seller is an important benefit to listing for affiliates. He stated, for instance, that when listing for affiliates it is easier to assess if individuals are upside down in their home, and to know what price sellers need to sell their home for.

My interviews also uncovered evidence of external and internal social pressures experienced by agents when listing for affiliates. One agent stated that he felt “more pressure to get the listing right” when working for congregation members. He remarked that, “You want to make sure you sell the home for the highest possible value in the neighborhood, as this affects the social community, and you want to do it right.” He went on to express his frustration when one ward client accepted a low-ball offer, against his advice. He thought, “...What do I do now? What will people think about this?” An agent also noted “you really want to do a good job for someone in your ward. Maybe less so than your best friend, or your mom, but much more than for the normal client.” He additionally

emphasized the increased social pressure when listing for affiliates: “the relationship is different... than when you list for a family member or your mom. [Your mom or a family member] won’t blame you [if something goes wrong] because they know you did your best. It won’t be awkward, and they will still love you.” He argued that this isn’t always the case for congregation members.

## EMPIRICAL MODEL

To investigate the impact of congregation boundaries on real estate performance outcomes, I use the following primary specification:

$$Y_{ib} = \alpha_i + \beta_1 * X_b + \beta_2 * Affiliation_{ib} + \epsilon_{ib}$$

where  $Y_{ib}$  is the dependent variable, such as the log of sold price, for listing agent  $i$  selling house  $b$  while employed in brokerage  $j$ .  $X_b$  represents a vector of house characteristics, transaction characteristics, quality controls (constructed using text analysis), time controls,<sup>9</sup> and geographic controls. Geographical controls include zip code dummies, which control for heterogeneity in areas and the impact of distance between agents and listed homes.<sup>10</sup>  $\alpha_i$  are listing agent fixed effects, and I include brokerage dummies to control for brokerage effects. “Affiliation” is a dummy that takes the value of 1 if the home is listed in the same ward or stake as the listing agent’s home address, 0 otherwise, and  $\epsilon_{ib}$  is the error term. The unit of analysis is the agent/listing for the agent-level hypotheses and the brokerage/year for the firm-level hypothesis. Table 3 provides a list of all variables, including their descriptive statistics. All regressions were estimated using OLS with robust standard errors clustered at the agent level. Additional analyses are run using Cox hazard and logit models. For

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<sup>9</sup> I use time fixed effects for list dates in instances where listing dates should influence outcomes, such as original list price and days on market, and fixed effects for sold dates in instances where sold dates should influence outcomes, such as for sold price, dual agency, and probability of default. Table notes specify which time controls are used in each model.

<sup>10</sup> The reported results use zip code dummies as geographic fixed effects. Alternative specifications using a dummy that takes the value of 1 if an agent and home seller share a same zip code provide qualitatively similar results.

discrete choice models I present OLS results as they avoid bias from the incidental parameters problem (Neyman & Scott 1948). However, logistic models provide similar results.

## **RESULTS**

### **Descriptive Statistics**

Tables 2 and 3 provide descriptive statistics for the primary variables in my sample. Table 2 lists dependent and independent variables, and Table 3 control variables. In my sample, the typical home sells for \$200,579 and stays on the market 110 days. It is originally listed at a 5% price premium, based on the predicted estimated sold price, and sells for 96% of the original list price. The average home has 3.8 bedrooms, 2.5 bathrooms, and 2444 square feet. Approximately 9% of sold homes in Utah County are listed by agents that live in the same ward or stake as the home, and an additional 1 % are sold by agents that previously shared a congregation with the home. The average church ward has less than one agent actively listing homes, and approximately 7.5 homes are sold in a ward every year. Figure 4 shows the distribution of final sold price divided by the predicted sold price, and suggests agents sell homes at higher prices, compared to the home's predicted selling price, when listing for affiliates.

\*\*\*\*\* INSERT TABLES 2, 3 AND FIGURE 4 HERE \*\*\*\*\*

### **Listing Agent Effort and Performance**

The first hypothesis argues that listing agents create more value in transactions when listing for affiliates. The results for this hypothesis are presented in Tables 4 and 5. Table 4 investigates how agent marketing efforts change when listing for affiliates. Column 1 explores the use of a key box. I find that agents are 5% less likely (from a base rate of 34%) to use a key box as the *only* method for showing the home when listing for affiliates. Additionally, after controlling for home vacancy and original list price, column 2 shows that listing agents request appointments 4% more often (from a base rate of 56%) when listing for affiliates. Results using seemingly unrelated regressions or seemingly

unrelated bivariate probit regressions provide similar results. This suggests agents exert greater care and marketing effort when listing for affiliates.

Table 5 presents results for sale price, time on market, and probability of sale. The models in Panel A investigate the change in home list and sale price when listing for affiliates. Because these models include agent fixed effects, home characteristics, transaction controls, and home quality controls, the results should be interpreted as the within-agent price change on comparable homes when listing for affiliates. My results in columns 1 and 2 suggest agents list and sell homes for approximately 2% more when listing for affiliates. Moreover, as shown in models 3 and 4, they list homes for much closer to the final home sale price, and list comparable homes at prices relatively higher than the predicted selling price when listing for affiliates.<sup>11</sup> These results suggest agents generate higher revenues when listing for affiliates, providing support for Hypothesis 1.

For value to be created, the spread between revenues and costs has to be greater when listing for affiliates than non-affiliates. I investigate costs using time on market and probability of sale. Typically when price increases it also increases time on market and decreases probability of sale. However, Column 1 of Table 5, Panel B, shows that the probability of home sale increases nearly 3% when agents list for affiliates, and column 2 shows that agents are 6.4% more likely to complete the sale during the 180 days of a typical listing contract. Column 3 shows that time on market also does not increase. After controlling for the degree of overprice, my results suggest agents sell homes slightly quicker when listing for affiliates. However, this result is not statistically significant at the 10% level ( $pval=0.13$ ) for the aggregate results. Results are similar using a hazard model. Similarly, including unsold houses in the regression and specifying time on market as either time to sale or time to expiration/withdrawal shows affiliate homes sell or expire 3 days quicker ( $pval=0.06$ ) on average.

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<sup>11</sup> I also ran the model in column 4 by constructing a variable that predicted original list price, following the same procedure outlined earlier for the predicted sold price, and dividing this variable by the actual original list price. Results for this model were nearly identical to the results in column 4.

Overall these results provide strong support for Hypothesis 1, and suggest agents sell comparable homes at higher prices without increasing costs when listing for affiliates.

\*\*\*\*\* INSERT TABLES 4 AND 5 HERE \*\*\*\*\*

### **Tactics to Appropriate Value in Transactions**

My next hypothesis argues that listing agents will experience increased flexibility and engage in additional tactics to appropriate value when transacting with social affiliates. In particular, I expect that agents will increase use of dual agency and decrease home selling prices in order to “break slumps.” Table 6 provides these results. First, as shown in column 1, I find that agents are 17% more likely to engage in dual agency when listing for affiliates, a significant increase from the base rate of approximately 25%. Moreover, I find that commission percentages provided to buyer agents do not significantly decrease under dual agency with affiliates ( $pval=0.87$ ), and sellers do not contractually negotiate rates differently in anticipation of dual agency situations ( $pval=0.77$ ). As dual agency doubles commission amounts, this provides strong support for Hypothesis 2.

Table 7 provides results on home sale price and time on market when agents engage in dual agency with affiliates. These results suggest agents sell affiliate homes for cheaper and quicker under dual agency. Models 1 and 3, which present results on sale price, suggest agents reduce price by increasing seller concessions. These concessions are typically given to cover buyer-closing costs, and ultimately decrease the amount paid by the buyer for the home. I find that agents typically give fewer concessions when listing for affiliates under single agency, or when listing as dual agents for non-affiliates. However, when listing for affiliates agents increase sold concessions approximately 20% (base rate is 1% of home sale price). Relatedly, I find that dual agents sell affiliate homes 6 days quicker. Overall these results suggest agents reduce sale price prematurely to engage in dual agency deals, providing support for Hypothesis 2. However, it is important to note that this could indicate a tradeoff for sellers, where they trade off value created by affiliations with agents to sell their home quicker

under dual agency. It may also suggest dual agents are more careful about final sale price amounts when they also represent buyers, who will become future members of the congregation.

Next, I investigate whether agents leverage flexibility from affiliations to relieve financial need and “break slumps.” Models 2 and 3 of Table 6 present these results. I measure financial need or “slumps” as the log of the number of days since the agent’s last listing went under contract (either as a listing or buyer agent).<sup>12</sup> I then interact this variable with “Affiliation.” After controlling for the last sold home’s selling price, I find that agents typically sell homes for more when not listing for affiliates and time since last sale increases. However, I find that when listing for affiliates the opposite occurs: agents sell affiliate homes for cheaper as time since last sale increases. This result suggests agents use different strategies to sell affiliate homes when experiencing “slumps”, and that they may leverage affiliations to “break slumps” by decreasing the price premium. While my results in column 3 show that time on market does not significantly change, agents may engage in this strategy in an effort to relieve pressures from financial need. Overall these results provide strong support for Hypothesis 2. It is important to note, however, that my results suggest sellers still receive equal or higher prices in all cases using an affiliated agent compared to a non-affiliated agent. Figure 5 shows the flow of value based on the results from these first two hypotheses.

\*\*\*\*\* INSERT TABLES 6 AND 7 AND FIGURE 5 HERE \*\*\*\*\*

### **Impact on Firm Performance**

My final hypothesis argues that, *ceteris paribus*, firm performance will increase with the proportion of total homes listed by agents for affiliates. In particular, I expect the dollar amount of real estate sold in a year to increase for brokerages with the percentage of listings (compared to total number of listings) sold for affiliates. The results for these brokerage/year analyses are presented in

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<sup>12</sup> I use contract date for my financial need measure because this is the date that an agent has confidence a home will be sold, and the approximate price it will sell for. Results using the number of days since last sale are qualitatively similar.

Table 8. Because these models include brokerage fixed effects, the results are interpreted as the within-brokerage effect of increasing the percentage of yearly sales to affiliates on yearly brokerage revenues. Column 1 suggests that brokerage revenues increase approximately 2% for a 10% increase in the yearly percentage of transactions with affiliates. This provides strong support for Hypothesis 3. Interestingly, the Column 2 results suggest that brokerages do not list fewer homes when listing more for affiliates. This result implies that while agents exert more effort listing for affiliates, this does impact the number of brokerage listings. These results are robust to using logs (instead of levels) or to using count models. Overall, these results suggest both agents and brokerages improve performance by listing for affiliated clients, and provide strong support for Hypothesis 3.

\*\*\*\*\* INSERT TABLE 8 HERE \*\*\*\*\*

## **IDENTIFYING MECHANISMS AND ALTERNATIVE EXPLANATIONS**

### **Evidence Suggestive of Mechanisms**

To investigate the mechanisms underlying the results I examine the use of different types of real estate contracts. There are two major types of listing contracts. “Exclusive Agent” listing (EAL) agreements require sellers to pay a commission on the property if the property is sold through the efforts of any real estate broker. However, the seller is not obligated to pay the commission if the property is sold solely through their own efforts. “Exclusive Right to Sell” listing (ERS) agreements require sellers to pay a commission regardless of whose efforts resulted in a sale, although these agreements may stipulate particular individuals, for whom a commission is exempt, should the property be sold to them. I find that EAL agreements are used approximately 3% of the time in my sample. However, with affiliates, I find that they are used 31% less often by agents ( $pval < 0.01$ ) after controlling for relevant observables. This result suggests that sellers may have greater trust in listing agents, and are consequently less vigilant about protecting their option to not pay a commission if the home is sold solely through their own efforts.

I also investigate how agent behaviors change depending on the financial situation of the home buyer. I expect that when homebuyers exhibit financial need the price premium normally accruing to sellers from affiliated agents will disappear. This may occur, for instance, as listing agents advise sellers to accept lower offers from more needy homebuyers. In my data, homebuyers exhibit financial need by using an FHA-backed loan. FHA loans require smaller down payments, lower overall credit scores, and have less stringent restrictions on the amount of time necessary to grant a loan after negative financial events, such as bankruptcy. I find that when buyers use an FHA loan the price premium decreases by about 80% ( $pval < 0.01$ ). This result suggests that agents are consciously influencing value creation and appropriation in transactions, and that they may be using the benefits of the social structure to act in ways that benefit financially-needy buyers.

### **Geographic Proximity vs Social Affiliations**

A conspicuous alternative explanation to my results is that they are driven by geographic proximity, independent of social affiliations, and that the specifications do not adequately control for this using the 26 zip code dummies. To investigate this alternative explanation I collected data on census tracts and block groups for each home in my sample. I then re-estimated the models using 339 tract-block group dummies as geographic controls. My results for these analyses are qualitatively similar to the zip code results. Second, I ran additional analyses creating a dummy variable that takes the value of 1 if an agent and home seller share the same zip code. The results of these analyses are also qualitatively similar. Finally, I geocoded homes in my sample to capture their latitude and longitude. I then constructed a measure of distance (in miles) between agent and seller homes. This analysis allows me to compare agent performance on homes that are more geographically proximate, but outside the social structure, to performance on homes that are more geographically distant, but within the social structure. My results for these analyses are also similar. These additional analyses suggests that social affiliations, and not simply proximity, are driving my results. Because I am unable



to accurately geocode all addresses, or to identify census tracts and block groups for all homes in my sample, my primary specifications present results from the zip code dummies.

### **Strength of Affiliation**

As an additional robustness check, and to further explore the mechanisms underlying the results, I examine how strength of affiliation, as measured by stake vs ward affiliations, influence agent value creation and appropriation. As shown in Table 1, individuals in church wards interact more frequently than members of church stakes. This high degree of interaction, and the closer geographic proximity, make it uncommon for ward members to not know each other's names, or to have some experience interacting together through callings or activities. Consequently, ward affiliations are much closer to friendships. In contrast, stake-level interactions are much less frequent, as members meet together less often and live further apart. Thus, stake interactions are more similar to affiliations than friendships, although still stronger than market transactions.

I expect that solidarity and information benefits are strongest at the ward level, as ward members interact more and share common expectations, norms, and obligations with other ward members that are enforced through social pressures increased interaction. At the stake level all these benefits are lessened due to reduced interactions and increased distance. I consequently expect that value creation and appropriation will be largest at the ward level. However, I also expect positive benefits when agents list for stake affiliates, compared to listing for non-affiliates.

Tables 9 and 10 present the results for these analyses. First, shown in Table 9, I find that strong affiliations lead to the largest value creation for agents. Listing agents sell comparable affiliate homes for 1.1% more in the ward than in the stake (T-test  $p\text{-value} < 0.01$ ), and sell comparable homes 4 days quicker. I do not find evidence that agent effort is larger at the ward level, compared to the stake level (T-test  $p\text{-value} = 0.59$ ), or that agents are more likely to complete the sale in 6 months.

However, taken together these results provide additional support and suggest that strong social affiliations positively impact value creation.

Table 10 presents results on flexibility and value appropriation by affiliation strength. First, in column 1, I find that agents engage in dual agency 4% more often when listing for ward affiliates, compared to stake affiliates (T-test  $p\text{-value} < 0.01$ ). Moreover, as shown in columns 2-4, agents decrease home sale prices more and sell homes quicker under dual agency at the ward level. This suggests agents leverage the flexibility from strong social affiliations to increase their use of dual agency. Unreported results on the impact of days since last sale find that agents do not significantly change their use of affiliations to “break slumps” when listing for ward affiliates vs stake affiliates (T-test  $p\text{-value} = 0.70$ ). However, taken together these results provide additional support for the hypotheses and suggest value appropriation is largest when affiliations are strongest.

\*\*\*\*\* INSERT TABLES 9 AND 10 HERE \*\*\*\*\*

### **Unexpected Changes to Congregation Boundaries**

Finally, I exploit unexpected changes to congregation boundaries to explore the differential impact of previous affiliations, compared to current affiliations, on agent value creation and appropriation. Congregation boundaries are occasionally unexpectedly changed by LDS headquarters due to growth or to rebalance units. When changes occur this impacts solidarity and informational advantages. It is important to note, however, that while boundary changes influence social interactions and the social structure, they do not impact the physical location of agents and sellers.

Tables 11 and 12 present results from current and previous affiliations. I find that effort, price, time on market, probability of sale, and dual agency are all positively impacted by current affiliations, compared to previous affiliations. I find that agent effort is not significantly different when agents list for previous affiliates, compared to non-affiliates, and time on market and probability that a listing will stay on the market more than six months increase significantly. While the home sale price and

probability of sale are higher when agents list for previous affiliates, compared to listing for current affiliates, it appears that this is driven by the significant increase in time on market. I also find that agents are no more likely to engage in dual agency or to leverage social affiliations to “break slumps” when listing for previous affiliates, compared to non-affiliates, suggesting that current affiliations are driving such tactics. Thus, taken together, these results suggest that the effects of this paper are driven by strong current social affiliations.

\*\*\*\*\* INSERT TABLES 11 AND 12 HERE \*\*\*\*\*

## **DISCUSSION AND CONCLUSION**

While many studies have emphasized the efficiency and cost benefits from transacting within social structures, it has remained unclear the extent to which experts and firms can create and appropriate value when transacting with social affiliates, especially in the absence of repeat transactions. This paper has argued that information benefits, solidarity benefits, and increased effort lead to value creation in transactions when experts transact with social affiliates. Additionally, this paper has argued that social structures create flexibility and provide experts increased access to value appropriation tactics. Value creation and appropriation leads to significant performance benefits for experts and firms as the percentage of listings with affiliates increases.

Using a novel approach, the results suggest that agents create and appropriate more value in transactions, and exert more effort, when listing for social affiliates. Agents sell comparable homes for 2% more without significantly increasing costs and are 17% more likely to serve as dual agents when listing for affiliates. This results in a 2% increase in commission amounts for the average transaction, and a ~50% (~\$6017) increase in commission amounts on dual agent transactions. Moreover, I find that improved expert performance significantly impacts brokerage revenues—a 10% increase in the percentage of yearly sales to affiliates increases brokerage revenues by approximately 2%. Finally, I find that clients, on average, are strictly better off using an affiliated agent, compared to a non-affiliated

agent. However, some of the benefits of using an affiliated agent appear to be mitigated through dual agency, as well as agent and homebuyer financial need.

Theoretically, the results of this paper imply that under conditions of incomplete information experts make choices about how to behave in social structures. A consistent criticism of studies investigating networks and social structures is that they overlook human agency (Salancik 1995; Coleman 1988; Kilduff & Brass 2010) and treat individuals in an “over socialized” way (Granovetter 1985). Consequently, actors are often theorized to be enabled or constrained by social structures, but are left with little choice regarding their own actions. The results of this paper suggest that experts make conscious choices when dealing with social affiliates, and that these choices are influenced by other elements of the context.

More practically, these results have important implications for firms. Apart from financial incentives, experts respond to social factors and in-group preferences that positively impact effort and performance in transactions. Consequently, firms may improve expert productivity, and motivate experts at low cost, by hiring and staffing experts to take advantage of affiliations. Moreover, heterogeneity in firm outcomes in many service industries may be driven by the number and quality of social structures to which employee-experts belong.

This study likewise has important implications for markets. My results suggest that social affiliations can, on average, lead to efficiency benefits in transactions and reduce moral hazard problems in markets. Financial incentives and incomplete information in the real estate industry have been shown to lead to problems of moral hazard (Levitt & Syverson 2008; Rutherford et al. 2005). Such problems contributed to an 8 trillion dollar housing bubble, the collapse of which resulted in the largest financial meltdown in recent history and the loss of 8.4 million jobs (Economic Policy Institute 2014). My results suggest that agents experience increased motivation, exert more effort, and improve

performance when listing for socially-affiliated clients. Thus, declines in social institutions not only impact civic health (Putnam 2001), but also businesses and economic prosperity.

While this paper has used a distinctive setting to investigate the impact of a social structures on expert performance and behaviors, the results are likely generalizable to many settings where employee-experts interact with clients and information is incomplete. Examples of such settings include financial services, sales, consulting, healthcare, and the construction industry. For instance, doctors are given discretion about when a cesarean section is needed during delivery (e.g., Gruber & Owings 1996). Because patients have limited information about their health status and the true need for a cesarean section, they often rely on the advice of doctors. However, doctors have incentives to engage in cesarean sections to increase revenues and decrease risk from lawsuits. Caring for social affiliates may provide physicians increased opportunity to steer patients into cesarean sections, particularly when medically necessary, which allows them to avoid lawsuits. However, it may also create stronger obligations for physicians to minimize costs and avoid downside health complications from the procedure. Similarly, in the financial services industry clients often depend on financial advisers when deciding investment strategies. However, advisers face financial incentives to steer clients into certain products to increase commissions (e.g., Mullainathan et al. 2012). Sharing a social affiliation with clients may provide advisers increased opportunity to steer clients to higher-commission products, or to sell a greater range of products. However, it may also lead to value creation if clients are more receptive to “coaching” and advisers use solidarity and knowledge benefits to more efficiently construct portfolios.

This study is not without limitations. First, while this setting provides an opportunity to improve upon the endogeneity problem encountered from individuals choosing affiliations, social affiliations in this study are still not completely exogenous. Real estate agents choose where to live, and agents and sellers choose whom to transact with. Thus, it is difficult to extrapolate these results

to all social affiliations. Second, this paper has largely disregarded the impact of other important affiliations in the transaction, such as between buyers and buyer agents, as well as between real estate agents. This provides an opportunity for future research. Finally, I am unable to observe whether individuals are members of the church, and unable to measure the intensity of social relationships. Thus, this paper has focused on the impact of “social affiliations” instead of friendships or social connections. Directly measuring the strength of these relationships would provide added insight into the mechanisms driving the observed outcomes and allow for a more detailed understanding of the factors influencing expert choices when dealing with social connections.

Moving forward there is significant potential for expanding and extending this work. First, future work should focus on understanding how varying degrees of incomplete information influence social pressures and in-group preferences for experts, and how this influences expert choices and performance. Second, future studies should extend this work by exploring affiliations between buyers and buyer agents, as well as between agents. Investigating these affiliations would allow additional insight into how professional and social affiliations interact, and how experts utilize professional affiliations when transacting with social affiliations. Third, future work should explore selection issues surrounding which firms and agents are most likely to secure transactions with affiliates. Such an investigation could yield valuable insights into firm entry and hiring decisions. Finally, future research could explore the extent to which survival at entry and subsequent growth is impacted by the quality of an expert’s social structure. For instance, it may be that superstars arise because of advantageous social structures at entry, which allow experts to quickly build reputation and experience. The results of this paper suggest undertaking such research is important to enlarging our understanding of expert productivity, social capital, and firm performance.

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FIGURES AND TABLES

Figure 1: Theoretical Framework

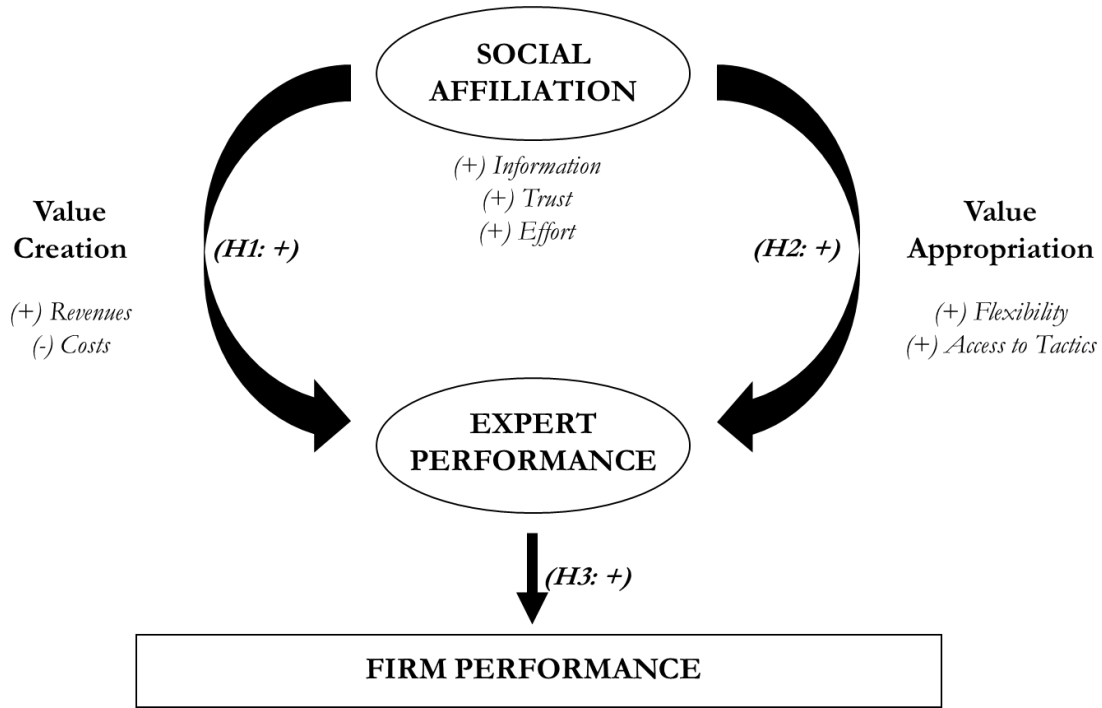
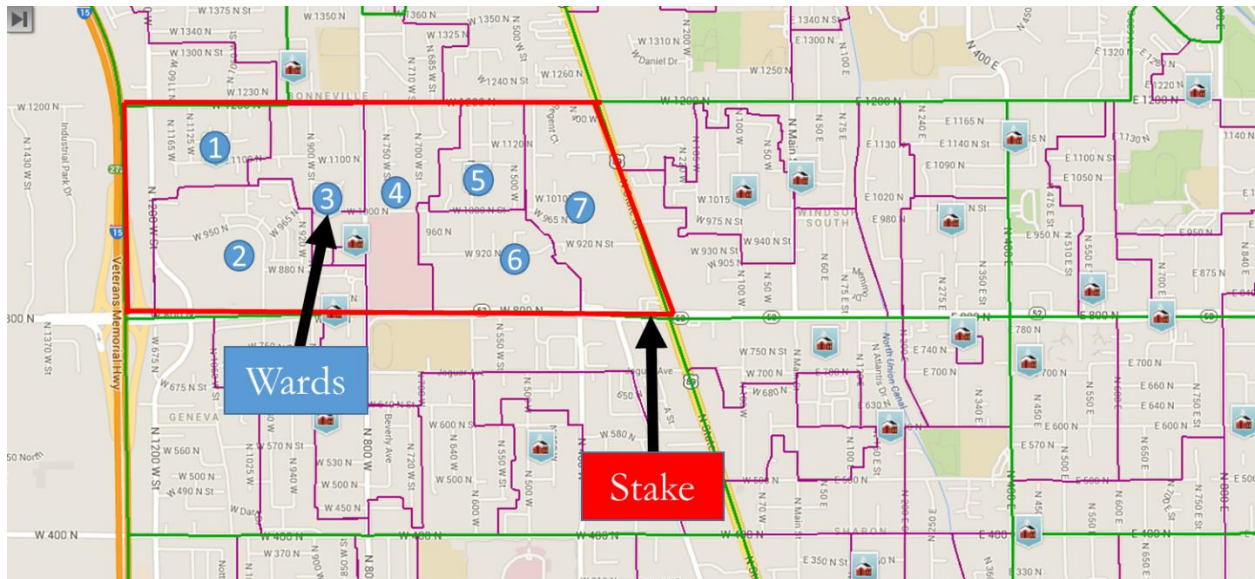


Figure 2: Boundaries for a Representative Stake in Utah County with Seven Wards



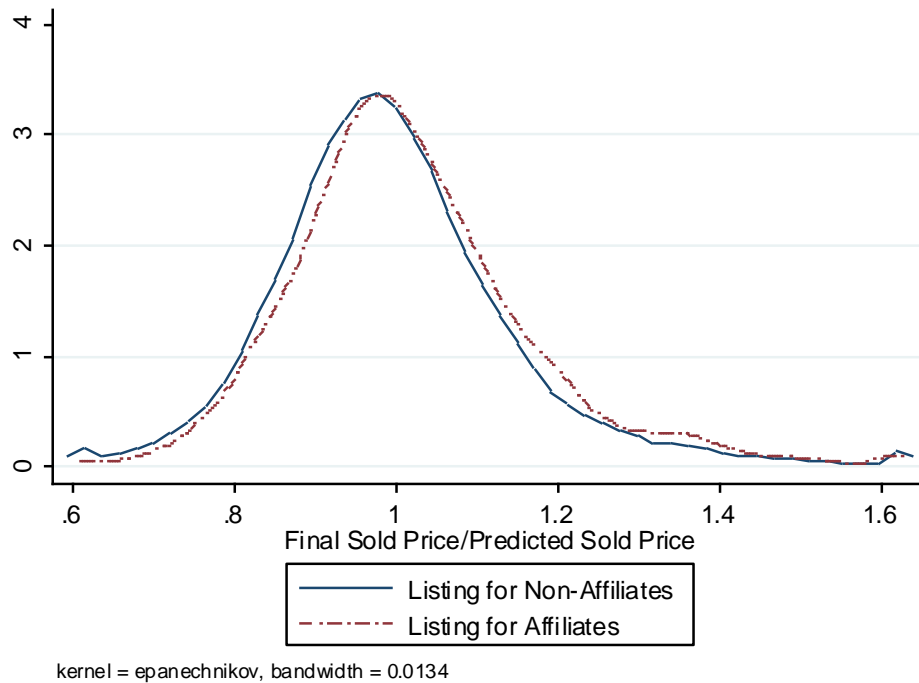
Note: This figure shows a representative stake in Utah County with seven wards. The green boundaries (including the highlighted red boundary) represent stake boundaries, and the purple boundaries ward boundaries. This map covers approximately 2.5 square miles of Utah County.

**Figure 3: Setting-specific Predictions Corresponding to the General Hypotheses**

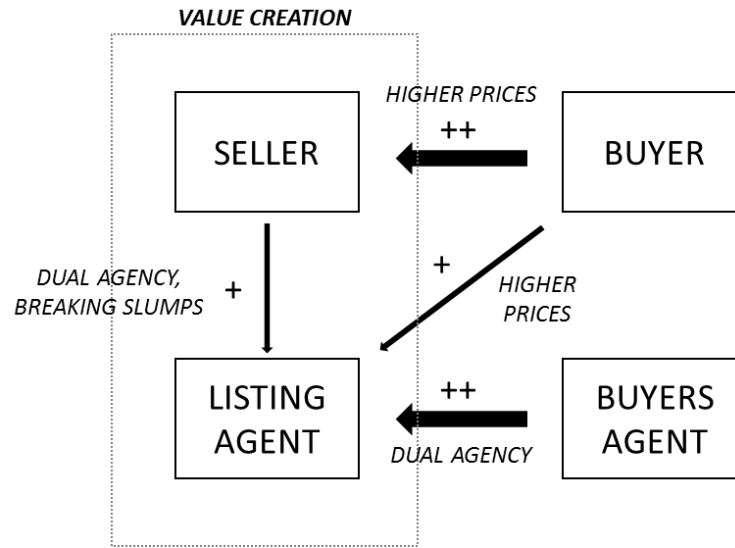
*When agents transact with socially-affiliated clients...*

<u>H1: Increased Value Creation</u>	<u>H2: Increased Value Appropriation</u>
<ul style="list-style-type: none"> <li>• Increase care and marketing efforts</li> <li>• Sell comparable homes at higher prices</li> <li>• Sell homes without increasing time on market</li> <li>• Increase probability of sale</li> </ul>	<ul style="list-style-type: none"> <li>• Increase use of dual agency</li> <li>• Decrease sale price to engage in dual agency deals</li> <li>• Sell homes cheaper as financial need increases</li> </ul>
<p><u>H3: Increased Firm Performance</u></p> <ul style="list-style-type: none"> <li>• Increase in yearly amount of real estate sold by the brokerage, with dual agency deals counting as double.</li> </ul>	

**Figure 4: Agents Sell Homes Higher Above Predicted Sold Price when Listing for Affiliates**



**Figure 5: Impact of Social Affiliations on the Flow of Value in Transactions**



**Table 1: Typical Interactions in LDS Church Wards and Stakes**

*Ward Level – (~450 individuals, 188 families, 154 housing units)*

Weekly Interactions

- Church services: 3 hours
- Two hours of interactive classes
- Responsibilities associated with callings (e.g., teaching, library, clerk, etc.)
- Multiple leadership meetings for approximately 30 members
- Weekday youth activities (youth and leaders)

Other Interactions

- Bi-monthly social activities
- Monthly women’s organization gatherings
- Monthly assigned visits to 2-4 families
- Monthly temple days – members invited to come same day/time
- Calling interactions
- Sports league

*Stake Level – (~3150 individuals, 826 families, 1081 housing units)*

Regular Interactions

- Bi-annual church conference, all members
- Bi-annual training meetings for leadership
- Monthly scheduled temple days—members invited to come same day
- Youth activities (youth, leaders, and parents)
  - \*Multi-day annual event
  - \*Full day events (~2/year)
  - \*Youth dances (~6/year)
  - \*Annual week long boys and girls camps for youth, leaders, and parents

Weekly Interactions

- Leadership meetings (5-15 people)

Other Interactions

- Monthly meetings between Stake and Ward clergy
- Stake leadership visits to ward (~6X/year)
- Stake-wide social activities (~2/year)
- Service activities
- Calling interactions
- Sports league

**Table 2: Descriptive Statistics for Primary Specifications: Dependent and Independent Variables**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Std Dev</b>	<b>Min</b>	<b>Max</b>
<i><u>Dependent Variables</u></i>					
Sold	82739	0.49	0.50	0	1
Original list price	40838	211679	119306	60000	1,149,000
Sold price	40838	200571	106456	30000	1,500,000
Days on mkt	40838	109.71	80.08	1	481
Six months	82739	0.25	0.43	0	1
Dual agent	40838	0.25	0.43	0	1
Seller concessions %	40838	0.01	0.02	0.00	0.10
Sold price/original list price	40838	0.96	0.08	0.62	1.19
Predicted sold price/original list price	40838	1.05	0.18	0.66	1.90
Brokerage revenue/yr	2789	3,820,214	8,216,161	71900	894,000,000
Brokerage # sold/yr	2789	14.70	31.88	1	370
<i><u>Independent Variables</u></i>					
Affiliation	40838	0.09	0.29	0	1
Previous affiliation	40838	0.01	0.07	0	1
Same ward agent/house	40838	0.04	0.20	0	1
Same stake agent/house	39328	0.05	0.21	0	1
Franchise brokerage	40838	0.46	0.50	0	1
# sold to date, agent	40838	92.25	144.39	1	1138
# list to date, agent	82739	162.39	272.00	1	1870
# sold to date, brokerage	40838	620.07	694.26	1	3435
Key box used	40838	0.61	0.49	0	1
Key box used only	40838	0.34	0.47	0	1
Call agent for appt.	40838	0.56	0.50	0	1
FHA loan	40838	0.27	0.44	0	1
Brokerage % sold to affiliation/yr	2789	11.49	22.54	0	100

**Table 3: Descriptive Statistics for Primary Specifications: Control Variables**

Variable	N	Mean	Std Dev	Min	Max
<i>Control Variables</i>					
Total # bedrooms	40838	3.79	1.22	1	16
Total # bathrooms	40838	2.51	0.96	1	13
Total # kitchens	40838	1.07	0.26	1	4
Total # fireplaces	40838	0.55	0.73	0	5
Total # laundry rooms	40838	1.00	0.34	0	5
Total # dining rooms	40838	0.13	0.34	0	2
Total # family rooms	40838	1.14	0.71	0	5
% of basement finished	40838	41.14	45.37	0	100
Garage capacity	40838	1.50	1.09	0	10
Pool	40838	0.07	0.25	0	1
Square feet	40838	2444	1204	500	18400
Acres	40838	0.28	1.00	0	4.48
Year built	40838	1985	24.63	1860	2014
HOA fee	40838	23.68	70.34	0	10000
Property type					
<i>Condominium</i>	40838	0.10	0.29	0	1
<i>Mobile</i>	40838	0.00	0.02	0	1
<i>Recreational</i>	40838	0.00	0.01	0	1
<i>Single Family</i>	40838	0.79	0.40	0	1
<i>Townhouse</i>	40838	0.09	0.28	0	1
<i>Twin</i>	40838	0.02	0.15	0	1
Short sale	40838	0.06	0.23	0	1
Year	40838	2006	4.30	1998	2014
Commission % offered buyer	40139	2.93	0.25	0	6
Owner agent	40838	0.04	0.20	0	1
Co-agent present	40838	0.24	0.42	0	1
Immediate possession	40838	0.27	0.44	0	1
<i>Other</i>					
# agents in ward	40838	0.86	1.17	0	8
# houses sold in ward/yr	40838	7.45	7.27	0	51

Note: Additional quality dummies were constructed for the following text strings, and their common variants: TLC, Needs Updating, Estate Sale, Foreclosure, Handyman, As-Is, Rehabber, Bank-Owned, Priced to Sell, Motivated, Potential, Close, !, New, Spacious, Elegance, Beautiful, Remodeled/Renovated, Historic/Vintage, Maintained/Well-Cared, Wonderful, Fantastic, Charming, Stunning, Amazing, Granite, Immaculate, Breathtaking, Neighborhood, Spectacular, Landscaped, Stained Glass/Art Glass, Built-in, Tasteful, Must See, Fabulous, Leaded, Delightful, Move-In, Gourmet, Corian, Custom, Unique, Maple, Newer, Hurry/Will Not Last, Pride, Clean, Quiet, Dream, Block, Huge, Deck, Mint, Hardwood, Views, New Roof/New Shingles, Upgraded/Updated, Vaulted, Floor plan, Award, Hot Tub, Tile, Cul-de-sac, Jetted Tub, Park, Brick, Value, Windows, Mother-in-law, Stainless, Theater, Surround Sound, Pickiest, Rare, Starter, Master, Cute, Warranty, Temple, and Fenced. Summary statistics are included in the appendix



**Table 4: Listing Agents Exert More Care and Effort when Listing for Affiliates**

Dependent Variable:	(1) Pr(Key Box Only)	(2) Pr(Agent Appointment)
Affiliation	-0.017* (0.009)	0.020** (0.010)
Vacant	0.406*** (0.014)	-0.327*** (0.014)
Log(original list price)	-0.046*** (0.018)	0.087*** (0.016)
Constant	1.288*** (0.270)	0.194 (0.344)
House Controls	Y	Y
Transaction Controls	Y	Y
Time Controls	Y	Y
Listing Agent FE	Y	Y
Listing Brokerage FE	Y	Y
Experience Controls	Y	Y
Quality Dummies	Y	Y
Geographic Controls	Y	Y
R <sup>2</sup>	0.429	0.422
Observations	40838	40838

Note: Robust standard errors presented in parentheses are clustered by listing agent.

Transaction controls include dummies for immediate possession, owner agents, presence of a co-agent, use of a dual/variable rate commission, and use of an EAL listing contract. Time controls include year and month dummies for when the house was listed, as well as their interaction. Significance levels: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

**Table 5: Agents Create More Value when Listing for Affiliates**

**Panel A**

Dependent Variable:	(1) Log(List Price)	(2) Log(Sold Price)	(3) Sold to Original List	(4) Original list to predicted sold price
Affiliation	0.019*** (0.005)	0.020*** (0.005)	0.003** (0.001)	0.021*** (0.005)
Constant	4.408*** (0.168)	3.671*** (0.186)	1.076*** (0.076)	2.760*** (0.180)
House Controls	Y	Y	Y	Y
Transaction Controls	Y	Y	Y	Y
Time Controls	Y	Y	Y	Y
Listing Agent FE	Y	Y	Y	Y
Listing Brokerage FE	Y	Y	Y	Y
Experience Controls	Y	Y	Y	Y
Quality Dummies	Y	Y	Y	Y
Geographic Controls	Y	Y	Y	Y
R <sup>2</sup>	0.894	0.898	0.404	0.257
Observations	40838	40838	40838	40838

**Panel B**

Dependent Variable:	(1) Pr(Sold)	(2) Pr(Six Months)	(3) Days on Mkt
Affiliation	0.014* (0.008)	-0.016** (0.006)	-2.323 (1.490)
Constant	3.849*** (0.265)	-0.668*** (0.234)	-67.179 (57.761)
House Controls	Y	Y	Y
Transaction Controls	Y	Y	Y
Time Controls	Y	Y	Y
Listing Agent FE	Y	Y	Y
Listing Brokerage FE	Y	Y	Y
Experience Controls	Y	Y	Y
Quality Dummies	Y	Y	Y
Geographic Controls	Y	Y	Y
R <sup>2</sup>	0.225	0.193	0.282
Observations	82739	82739	40838

Note: Robust standard errors presented in parentheses are clustered by listing agent. Transaction controls include dummies for immediate possession, owner agents, dual agency, dual brokerage, presence of a co-agent, and short sales, as well as variables for the percentage of sold concessions (except models 1 and 2 of Panel B) and the original list price to predicted sold price (model 3 of Panel B only). House controls include the log of original list price for Panel A model 3 and Panel B models 1 and 2. Time controls include year and month dummies, as well as their interaction, for when the house was listed for Panel A models 1, 3 and 4 and Panel B models 1-3, and for when the house was sold for Panel A model 2. Significance levels: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

**Table 6: Increased Flexibility and Access to Value Appropriation Tactics when Listing for Affiliates**

Dependent Variable:	(1) Pr(Dual Agent)	(2) Log(Sold Price)	(3) Days on Mkt
Affiliation	0.040*** (0.010)	0.036*** (0.009)	-0.674 (3.585)
Log(# days since last contract)		0.001* (0.001)	1.139*** (0.391)
Affiliation X Log(days since last contract)		-0.005** (0.002)	-0.426 (1.056)
Log(last home sold price)		0.003 (0.002)	0.986 (0.975)
Constant	0.772** (0.318)	3.634*** (0.189)	-87.353 (58.746)
House Controls	Y	Y	Y
Transaction Controls	Y	Y	Y
Time Controls	Y	Y	Y
Listing Agent FE	Y	Y	Y
Listing Brokerage FE	Y	Y	Y
Experience Controls	Y	Y	Y
Quality Dummies	Y	Y	Y
Geographic Controls	Y	Y	Y
R <sup>2</sup>	0.203	0.897	0.278
Observations	40838	39899	39899

Note: Robust standard errors presented in parentheses are clustered by listing agent. Transaction controls include dummies for immediate possession, owner agents, presence of a co-agent, dual agency and dual brokerage (models 2 and 3 only), and short sales, as well as variables for percentage of sold concessions and the original list price to predicted sold price (model 3 only). Time controls include year and month dummies, as well as their interaction, for when the house was sold for models 1 and 2, and when the house was listed for model 3. Results for models 2 and 3 are robust to excluding part time agents, defined multiple ways, and to excluding observations where # of days since last contract is high. Significance levels: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

**Table 7: Evidence of Increased Flexibility that Aids in Engaging in Dual Agency**

Dependent Variable:	(1) Log(Sold Price)	(2) Days on Mkt	(3) Sold Concessions %
Affiliation	0.023*** (0.005)	-0.781 (1.636)	-0.001** (0.0004)
Dual agent	0.006 (0.004)	7.083*** (1.733)	-0.001*** (0.0004)
Affiliation X Dual agent	-0.012 (0.008)	-5.554* (3.261)	0.0013** (0.001)
Constant	3.671*** (0.187)	-67.809 (57.753)	0.080*** (0.014)
House Controls	Y	Y	Y
Transaction Controls	Y	Y	Y
Time Controls	Y	Y	Y
Listing Agent FE	Y	Y	Y
Listing Brokerage FE	Y	Y	Y
Experience Controls	Y	Y	Y
Quality Dummies	Y	Y	Y
Geographic Controls	Y	Y	Y
R <sup>2</sup>	0.898	0.282	0.244
Observations	40838	40838	40591

Note: Robust standard errors presented in parentheses are clustered by listing agent. Transaction controls include dummies for immediate possession, owner agents, dual agency and dual brokerage (model 1 only), presence of a co-agent, and short sales, as well as variables for the percentage of sold concessions (except for model 3) and the original list price to predicted sold price (model 2 only). Time controls include year and month dummies, as well as their interaction, for when the house was listed for model 2, and for when the house was sold for models 1, and 3. Significance levels: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

**Table 8: Listing for Affiliates Improves Firm Performance**

Dependent Variable:	(1) Log(Revenue/yr)	(2) Log(# Sold/yr)
% Affiliation/yr	0.002*** (0.001)	-0.001 (0.001)
Log(# Agents in Brokerage/yr)	0.017 (0.022)	0.832*** (0.052)
Log(# Listings Sold/yr)	1.026*** (0.015)	
Constant	12.282*** (0.050)	0.887*** (0.111)
Time Controls	Y	Y
Listing Brokerage FE	Y	Y
R <sup>2</sup>	0.963	0.836
Observations	2789	2789

Note: Robust standard errors presented in parentheses are cluster by brokerage. Time trends include year dummies. Results using count models for model 2 or logged % of Affiliation/yr are similar. Significance levels: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

**Table 9: Agent Value Creation Largest at the Ward Level (Strongest Affiliation)**

Dependent Variable:	(1) Log(Sold Price)	(2) Pr(Six Months)	(3) Days on Mkt
Same ward agent/house	0.026*** (0.006)	-0.015* (0.009)	-4.225* (2.252)
Same stake agent/house	0.015*** (0.006)	-0.016** (0.008)	-0.190 (1.951)
Constant	3.713*** (0.188)	-0.646*** (0.238)	-85.715 (58.341)
House Controls	Y	Y	Y
Transaction Controls	Y	Y	Y
Time Controls	Y	Y	Y
Listing Agent FE	Y	Y	Y
Listing Brokerage FE	Y	Y	Y
Experience Controls	Y	Y	Y
Quality Dummies	Y	Y	Y
Geographic Controls	Y	Y	Y
R <sup>2</sup>	0.898	0.193	0.282
Observations	39328	78017	39328

Note: Robust standard errors presented in parentheses are clustered by listing agent. Transaction controls include dummies for immediate possession, owner agents, dual agency, dual brokerage, presence of a co-agent, and short sales, as well as variables for the percentage of sold concessions (except model 2) and the original list price to predicted sold price (except model 1). Time controls include year and month dummies, as well as their interaction, for when the house was listed for models 2 and 3, and for when the house was sold for model 1. Significance levels: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

**Table 10: Agent Value Appropriation Largest at Ward Level (Strongest Affiliation)**

Dependent Variable:	(1) Pr(Dual Agent)	(2) Log(Sold Price)	(3) Days on Mkt	(4) Sold Concessions %
Same ward agent/house	0.046*** (0.015)	0.032*** (0.006)	-1.222 (2.535)	-0.001* (0.0004)
Dual agent		0.006 (0.004)	7.333*** (1.795)	-0.001*** (0.0004)
Same ward X dual agent		-0.023** (0.011)	-11.273** (4.656)	0.001 (0.0008)
Same stake agent/house	0.037*** (0.012)	0.016*** (0.006)	-0.165 (2.203)	-0.001 (0.0005)
Same stake X dual agent		-0.004 (0.010)	-0.733 (4.311)	0.001* (0.0008)
Constant	0.720*** (0.326)	3.713*** (0.188)	-85.302 (58.099)	0.084*** (0.014)
House Controls	Y	Y	Y	Y
Transaction Controls	Y	Y	Y	Y
Time Controls	Y	Y	Y	Y
Listing Agent FE	Y	Y	Y	Y
Listing Brokerage FE	Y	Y	Y	Y
Experience Controls	Y	Y	Y	Y
Quality Dummies	Y	Y	Y	Y
Geographic Controls	Y	Y	Y	Y
R <sup>2</sup>	0.202	0.898	0.283	0.246
Observations	39328	39328	39328	39092

Note: Robust standard errors presented in parentheses are clustered by listing agent. Transaction controls include dummies for immediate possession, owner agents, presence of a co-agent, and short sales, as well as variables for percentage of sold concessions (except for model 4) and the original list price to predicted sold price (model 3 only). Time controls include year and month dummies, as well as their interaction, for when the house was sold for models 1, 2, and 4, and when the house was listed for model 3. Significance levels: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

**Table 11: Less Effort and Value Created when Agents List for Previous Affiliates**

Dependent Variable:	(1) Log (Sold Price)	(2) Days on Mkt	(3) Pr(Key Box Only)	(4) Pr(Agent Appointment)
Affiliation	0.020*** (0.005)	-2.222 (1.487)	-0.017* (0.009)	0.020** (0.010)
Previous affiliation	0.039* (0.021)	11.754* (6.504)	-0.020 (0.031)	-0.030 (0.047)
Constant	3.673*** (0.186)	-66.782 (57.766)	1.287*** (0.269)	0.192 (0.341)
House Controls	Y	Y	Y	Y
Transaction Controls	Y	Y	Y	Y
Time Controls	Y	Y	Y	Y
Listing Agent FE	Y	Y	Y	Y
Listing Brokerage FE	Y	Y	Y	Y
Experience Controls	Y	Y	Y	Y
Quality Dummies	Y	Y	Y	Y
Geographic Controls	Y	Y	Y	Y
R <sup>2</sup>	0.898	0.282	0.429	0.422
Observations	40838	40838	40838	40838

Note: Robust standard errors presented in parentheses are clustered by listing agent. Transaction controls include dummies for immediate possession, dual agents and dual brokerage (models 1 and 2 only), owner agents, presence of a co-agent, and short sales, as well as variables for percentage of sold concessions (except for models 3 and 4), and the original list price to predicted sold price (model 2 only). Models 3 and 4 include controls for home vacancy, original list price, and compensation contract terms. Time controls include year and month dummies, as well as their interaction, for when the house was sold for model 1, and when the house was listed for models 2-4. Significance levels: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

**Table 12: Value Creation and Appropriation Reduced when Listing for Previous Affiliates**

Dependent Variable:	(1) Pr(Six Months)	(2) Pr(Sold)	(3) Pr(Dual Agent)
Affiliation	-0.016** (0.006)	0.015* (0.008)	0.040*** (0.010)
Previous affiliation	0.074*** (0.019)	0.103*** (0.039)	0.019 (0.035)
Constant	-0.665*** (0.234)	3.852*** (0.264)	0.773*** (0.318)
House Controls	Y	Y	Y
Transaction Controls	Y	Y	Y
Time Controls	Y	Y	Y
Listing Agent FE	Y	Y	Y
Listing Brokerage FE	Y	Y	Y
Experience Controls	Y	Y	Y
Quality Dummies	Y	Y	Y
Geographic Controls	Y	Y	Y
R <sup>2</sup>	0.193	0.225	0.203
Observations	82739	82739	40838

Note: Robust standard errors presented in parentheses are clustered by listing agent. Transaction controls include dummies for immediate possession, owner agents, presence of a co-agent, and short sales, as well as a variable controlling for the original list price of the home (except Model 3). Time controls include year and month dummies, as well as their interaction, for when the house was sold for model 3, and when the house was listed for models 1 and 2. Significance levels: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.



## APPENDIX

**Table A1: House Description and Quality Indicator Dummies from Public Remarks**

Quality Indicators	Mean	Std. Dev.	Quality Indicators	Mean	Std. Dev.
TLC	0.01	0.09	Custom	0.06	0.24
Needs Updating	0.002	0.04	Unique	0.01	0.08
Estate Sale	0.002	0.04	Maple	0.02	0.14
Foreclosure	0.002	0.05	Newer	0.06	0.23
Handyman	0.001	0.03	Hurry/Will Not Last	0.03	0.17
As-Is	0.01	0.11	Pride	0.002	0.05
Rehabber	0.0002	0.01	Clean	0.07	0.25
Bank-Owned	0.01	0.08	Quiet	0.08	0.27
Priced to Sell	0.02	0.14	Dream	0.01	0.09
Motivated	0.02	0.14	Block	0.02	0.13
Potential	0.01	0.12	Huge	0.09	0.28
Close	0.19	0.39	Deck	0.06	0.24
!	0.40	0.49	Mint	0.002	0.04
New	0.33	0.47	Hardwood	0.07	0.26
Spacious	0.07	0.25	Views	0.10	0.30
Elegance	0.01	0.08	New Roof/New Shingles	0.02	0.13
Beautiful	0.19	0.39	Upgraded/Updated	0.09	0.29
Remodeled/Renovated	0.05	0.22	Vaulted	0.11	0.31
Historic/Vintage	0.003	0.06	Floor plan	0.09	0.28
Maintained/Well-Cared	0.03	0.17	Award	0.001	0.04
Wonderful	0.05	0.22	Hot Tub	0.02	0.14
Fantastic	0.03	0.17	Tile	0.12	0.33
Charming	0.01	0.12	Cul-de-sac	0.05	0.21
Stunning	0.01	0.10	Jetted Tub	0.05	0.22
Amazing	0.02	0.15	Park	0.14	0.35
Granite	0.06	0.24	Brick	0.05	0.21
Immaculate	0.04	0.19	Value	0.03	0.16
Breathtaking	0.01	0.05	Windows	0.05	0.22
Neighborhood	0.14	0.34	Mother-in-law	0.02	0.15
Spectacular	0.01	0.10	Stainless	0.02	0.15
Landscaped	0.09	0.29	Theater	0.01	0.12
Stained Glass/Art Glass	0.001	0.02	Surround Sound	0.01	0.10
Built-in	0.03	0.17	Pickiest	0.01	0.07
Tasteful	0.003	0.05	Rare	0.01	0.08
Must See	0.07	0.26	Starter	0.04	0.20
Fabulous	0.01	0.12	Master	0.15	0.36
Leaded	0.001	0.04	Cute	0.02	0.16
Delightful	0.001	0.04	Warranty	0.03	0.16
Move-In	0.03	0.17	Temple	0.01	0.07
Gourmet	0.01	0.08	Fenced	0.10	0.30
Corian	0.01	0.07			

Note: These house characteristic and quality dummies take the value of 1 if they (or their common derivatives) are referenced in the public comments section of the listing, 0 otherwise.

**Table A2: Effect of Linear Distance on Value Creation and Appropriation**

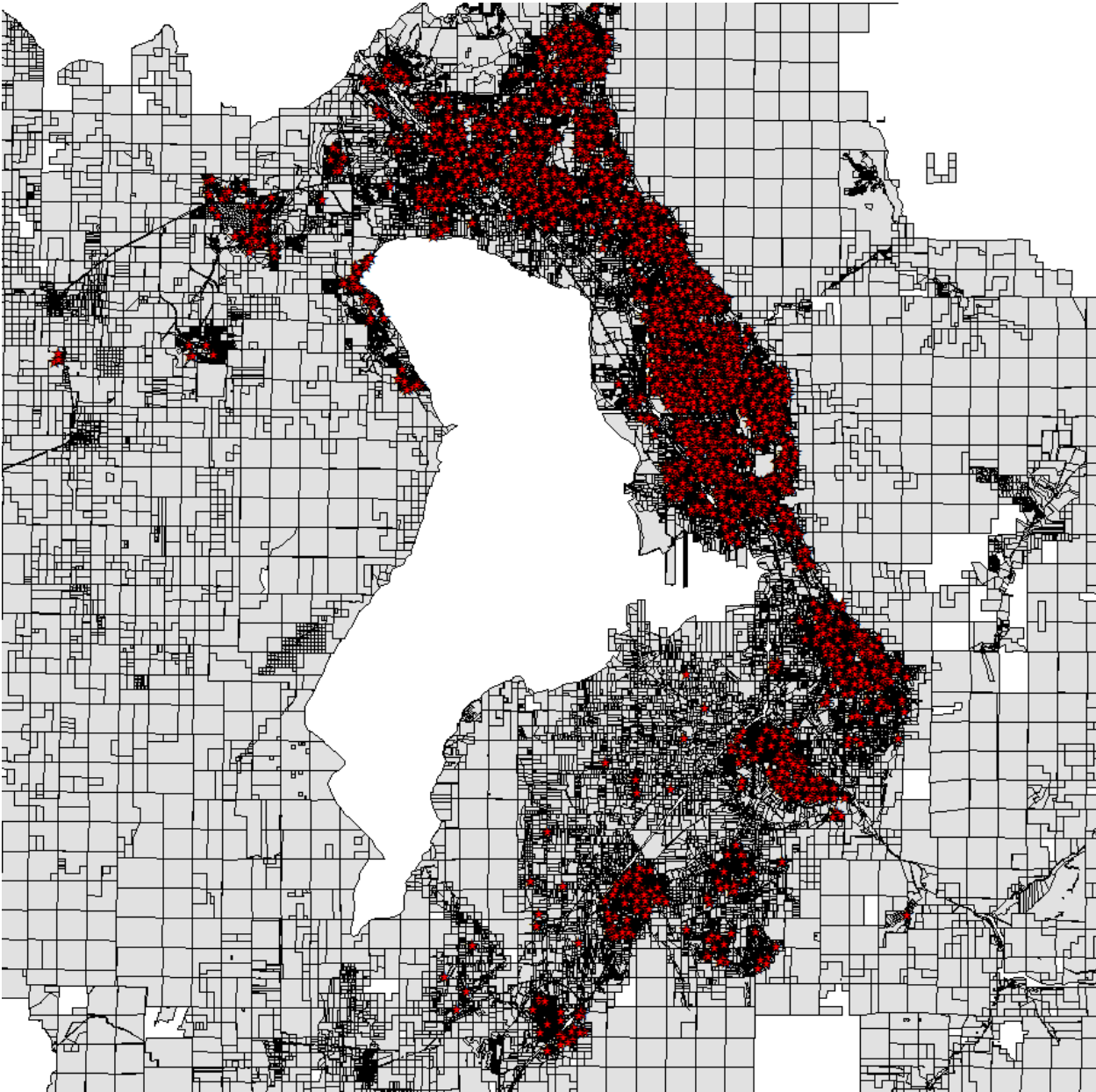
Dependent Variable:	(1) Log(Sold Price)	(2) Original list to predicted sold price	(3) Pr(Dual Agent)
Affiliation	0.018*** (0.005)	0.018*** (0.005)	0.036*** (0.010)
Log(Distance in miles)	-0.008*** (0.002)	-0.007*** (0.002)	-0.001* (0.004)
Constant	3.654*** (0.183)	2.723*** (0.178)	0.830*** (0.317)
House Controls	Y	Y	Y
Transaction Controls	Y	Y	Y
Time Controls	Y	Y	Y
Listing Agent FE	Y	Y	Y
Listing Brokerage FE	Y	Y	Y
Experience Controls	Y	Y	Y
Quality Dummies	Y	Y	Y
Geographic Controls	Y	Y	Y
R <sup>2</sup>	0.898	0.253	0.201
Observations	39884	39884	39884

Note: Robust standard errors presented in parentheses are clustered by listing agent. Transaction controls include dummies for immediate possession, owner agents, presence of a co-agent, dual agency and dual brokerage (models 1 and 2 only), and short sales, as well as percentage of sold concessions. Time controls include year and month dummies, as well as their interaction, for when the house was sold. Significance levels: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

**Figure A1: Flow Chart of a Typical Real Estate Transaction for Listing Agents**



Figure A2: Map of Utah County with Listing Agent Home Addresses



Note: This map of Utah County shows the approximate locations of home addresses for real estate agents living in Utah County that listed a home during my sample period. The red stars represent a single agent's home.