

# Relationship Duration and Returns to Brokerage in the Staffing Sector<sup>1</sup>

Matthew Bidwell  
INSEAD  
1 Ayer Rajah Avenue  
Singapore 138676  
+65 6799 5396  
[Matthew.bidwell@insead.edu](mailto:Matthew.bidwell@insead.edu)

Isabel Fernandez-Mateo  
London Business School  
Regent's Park  
London NW1 4SA  
Great Britain  
+44 20 7000 7000  
[ifernandezmateo@london.edu](mailto:ifernandezmateo@london.edu)

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## Abstract

We examine how long-term relationships affect brokers' abilities to create and extract value in mediated markets. We argue that long-term relationships between brokers and their contacts reduce information asymmetries, increasing the value of brokered exchanges. We also propose that the broker is able to capture most of the returns from these relationships, as long-term relationships reduce the brokered party's access to alternative exchange partners. We further argue that the broker's ability to create and extract value from long-term relationships is limited by the presence of long term relationships between the buyer and seller. Our propositions are supported using fieldwork and quantitative data on 328 workers working for an IT staffing agency.

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While economic metaphors picture exchange as taking place within atomistic, anonymous markets, much economic activity occurs among individuals who know one another (Baker, 1984). Recent decades have seen substantial advances in our understanding of how social relationships between actors influence economic outcomes. One of the central ideas in this literature is that actors gain economic advantage by brokering across different social and market spheres, allowing them to uncover and exploit opportunities for trade in goods, ideas and services (Burt, 1992; Simmel, 1950). Brokers play a critical role in bringing together buyers and sellers in many of the most important markets in modern economies. Indeed, dedicated brokers, such as real estate agents, head-hunters, venture capitalists and investment bankers, are crucial to the operation of markets for land, labor and capital.

Much research has demonstrated that actors in brokerage positions achieve higher power, faster career progression, superior creativity and better innovation outcomes (Padgett and Ansell, 1993; Podolny and Baron, 1997; Stuart and Podolny, 1999; Burt, 2004). Most of this literature has explored how the *structure* of brokers' relationships affects the benefits they receive (e.g. Burt, 1992, 2005). Yet very little research has studied how the *nature* of the dyadic relationships that brokers maintain with other parties shapes brokers' outcomes. While it is tempting to think of brokers as constantly engaging in spot transactions by closing structural holes, in reality market brokers, such as investment banks and staffing agencies, often maintain long-term relationships with at least some of the parties they broker. The literature on relational embeddedness suggests that long-term relationships can fundamentally alter the nature of economic exchange (Granovetter, 1985), by adding unique value to market interactions through fine-grained information transfer and increased trust between partners (Uzzi, 1997). These effects are also

likely to be important to how brokers carry out their activities. Yet, because brokerage is usually studied cross sectionally, we know little about how longer term interactions might shape the broker's rents from intermediation (Burt, 2007: 48). In this paper, we examine the consequences of long-term relationships for how brokers obtain rents in mediated markets. In particular, we propose that long-term relationships affect brokers' ability to create value by matching market participants, as well as to capture a share of the value created.

We use concepts from the literature on relational embeddedness to argue that long term relationships have a significant effect on the process by which market brokers create value. A key insight of this literature is that long-term, embedded relationships play an important role in the transmission of private information (Uzzi, 1996, 2004; Hansen, 1999). Access to such information is a key source of advantage for market brokers, allowing them to create better matches than could buyers and sellers on their own (see Bull, Ornati, and Tedeschi, 1987). We propose that brokers' ability to create matches is enhanced by their establishing long-term relationships with at least one of the parties they broker, allowing for higher value creation in mediated exchanges.

A particular focus of this paper is to understand how the additional value created through long-term relationships is shared between the broker and its counter-parties. Research on brokerage emphasizes that brokers' advantages derive both from their ability to create value, and their ability to capture some of that value for themselves (Reagans and Zuckerman, 2006; Ryall and Sorenson, 2007; Rodan, 2007). Surprisingly few studies, however, have examined how the benefits from brokerage are split between the broker and its contacts. Most research has instead focused on examining the performance advantages that accrue to brokers – as compared to non-

brokers. Even less is known about how such value capture might evolve over time as the broker and its contacts develop long-term relationships.

Research on embedded, long-term ties provides similarly little guidance on how the benefits of these dyadic, embedded relationships will be shared.<sup>2</sup> Some studies implicitly or explicitly assume that any added value will be shared relatively evenly among the actors (see Uzzi and Lancaster, 2004). According to these scholars, as long-term relationships become embedded in social attachments they incorporate a “social logic” rather than the “economic logic” of arm’s-length relationships (see Granovetter, 1985). As a result, long-term, embedded relationships “both *create* unique value and motivate exchange partners to *share* the value for their mutual benefit” (Uzzi, 1999: 483, emphasis added). Most often, however, research on the value added by long-term dyadic relationships simply does not examine how such value is distributed between the two partners (with some notable exceptions in the literature on strategic alliances, such as Gulati and Wang (2003)).

We draw on social exchange and power-dependence theories to analyze how the returns to long-term relationships will be shared between the broker and the brokered parties. Research on power-dependence emphasizes that actors’ abilities to capture value are shaped by their access to alternative exchange partners (Emerson, 1962; Brass, 1984). We show that this theory suggests that long-term relationships will lead to a reallocation of power between the broker and its counter-parties. Where long-term relationships create unique value between two actors, those actors become increasingly dependent on one another; thus this value can only be created if they

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<sup>2</sup> This issue has rarely been examined empirically in the literature on long-term/embedded market relationships. However, there is a stream of literature in social-psychology that has addressed how friendships (a particular type of long-term relationships) affect the distribution of the pay-offs from negotiations. This research is mostly based on laboratory experiments, and suggests that the effect of friendship on negotiation outcomes varies depending on a number of contingencies related to the characteristics of the negotiation itself (see McGinn & Keros, 2002).

continue to transact with each other. Yet this dependence is not symmetric. We argue that establishing long-term relationships with a broker tends to reduce the attractiveness of alternative exchange partners for the brokered parties, much more than it reduces the attractiveness of the brokers' alternatives. As a consequence, long-term relationships lead the brokered parties to become more dependent on the broker, allowing the broker to capture the lion's share of the additional value created by the relationship.

A particular feature of brokered markets is that transactions are inherently triadic: broker, buyer and seller must all be involved together. As well as exploring the direct effects of long-term relationships between the broker and one of the counter-parties, we also examine how these processes are modified when the two brokered parties (buyer and seller) also maintain a long term relationship. We claim that such buyer-seller relationships limit the ability of the broker both to raise prices and to extract the benefit of any price rises achieved. As a result, long-term relationships with one side of the market allow the broker to achieve higher rents – but only when those long-term relationships do not form one side of an enduring triadic exchange.

We test our theoretical arguments by using a unique dataset obtained from the records of a labor market intermediary (i.e. a staffing agency in the IT industry). This company operates by matching workers (sellers) to client companies (buyers). We have information on over 2,000 matches, involving 328 workers and 654 companies, accomplished by this firm over a 5-year period, as well as a wealth of data on each party and the relationships between them. Most importantly, we have access not just to the prices that the agency charges to clients, but also to the margins that it obtains for each transaction. This is a unique advantage of our study, since – to the best of our knowledge – this is the first time that such information (which is crucial if we are to estimate the “rents” from brokerage) has been made available to researchers. Having

longitudinal data on margins allows us to track how these vary with the length of the relationship that the staffing firm maintains with the workers and the relationships between workers and client companies. We complement this quantitative study with the insights gained from field observations and interviews. We draw heavily on these observations to illustrate how ideas in the embeddedness and power-dependence literatures can expand our understanding of market brokerage. Before developing our propositions in more detail, in the next section of the paper we describe the context in which our theory is situated.

### **Brokerage in the Staffing Sector**

The staffing sector is a typical example of a brokered market. It is also one of the most rapidly growing industries in the U.S. The temporary help services industry grew by almost 125 percent between 1990 and 2006 (Monthly Labor Review, March 2006) and generated approximately \$87 billion in sales in 2006 (American Staffing Association, 2007). Intermediaries operate at all levels of the labor market, from temporary help agencies that place blue-collar workers in manufacturing jobs, to executive search firms that find CEOs for Fortune 100 corporations. The context of our study is situated between these two extremes – in the high skill information technology sector.

Staffing firms provide clients with workers to carry out short-term projects. These workers are legally employed by the staffing firm, but take direction from the client and usually perform their work at the client's site. The positions in which temporary workers are staffed usually rely on general skills and can involve very little accumulation of client-specific human capital. Critically for our study, market participants in the staffing sector often trade repeatedly through the same intermediary. As workers and clients enter the market again and again, the staffing firm is able to build long-term relationships on both sides of the market (see also Baron, 2000).

Brokers in the staffing industry capture rents from the differences between bill rates and wage rates. The client pays an hourly fee to the staffing agency for the worker's services. The agency in turn pays the worker a percentage of this fee as wages. The remainder of the client fee is retained by the broker to pay for its services. This payment, often known as the margin, is the toll that the broker charges for connecting the two parties (Gould and Fernandez, (1989); see also Barley and Kunda (2004) for a detailed description of this industry). The size of staffing agencies' margins is usually a well-kept secret. Most staffing firms do not publicize them, and participants in the market rarely discuss them openly. Most of the workers that we interviewed did not know the size of the margins that the agency charged, and proffered wildly inaccurate guesses when asked. In fact, the average margin charged by the agency in our data was 40.6 percent of the bill rate (a markup of 69 percent of the pay rate).

The workers we studied were qualified professionals commanding high pay rates. For most of the period of our study (1998-2002), they were in high demand due to the effects of the Internet bubble. Most importantly, these workers had several potential sources of work other than the staffing firm we studied. There was extensive competition among different staffing agencies within the local market, and over half of the workers in our sample were affiliated to other staffing firms while working with the agency. All of these firms were perceived to be similar in terms of how they conducted their business. In addition to working through agencies, sometimes workers were directly employed by clients, bypassing intermediaries altogether.

Given the availability of alternative sources of work, it is unlikely that the size of the agency's margins represent a power differential between agency and workers. Instead, the magnitude of these margins highlights the difficulties that workers faced in getting projects on their own, and that companies faced in finding workers without using the services of a middleman. Participants

in this labor market face considerable uncertainty about the quality of potential partners, as well as substantial search costs. Contracting through a broker considerably reduces these problems, and thus creates value for the matched parties (see Bull, Ornati and Tedeschi, 1987; Yavas, 1994; Brass, 2006).

In order to simplify our theoretical arguments, we focus only on the broker's relationships with one of the brokered parties - the worker. We anticipate that the issues of information asymmetry and availability of alternative ties will be more salient in the agency's relationship with its workers. That said, the processes that we predict should be symmetric in the case of the broker-client tie. We elaborate on this issue in the discussion section. Figure 1 offers a schematic representation of the relationships among actors in this setting.

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Insert Figure 1 about here

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### **Long-term Relationships and the Rents from Brokerage**

Recent theoretical work has emphasized that brokers' rents are determined by the two distinct roles they may play (Reagans and Zuckerman, 2006). On the one hand, some brokers are able to create value by bridging "non-redundant" *alters* that are very different from one another (such as clients and workers). In this "middleman" role,<sup>3</sup> the broker transfers goods or information between the *alters* that are of value to them. On the other hand, a broker's ability to capture some of the value that it creates is strengthened when it has ties to multiple *alters* who are very similar

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<sup>3</sup> This is similar to the *liaison* role described by Fernandez & Gould (1994), and the "go-between" referred to by Corra & Willer (2002). It also presents some similarities with Obstfeld's (2005) *tertius iungens*, although in his case the broker can connect people either by introducing disconnected individuals or by facilitating new coordination between already connected individuals. Moreover, the *tertius iungens* describes a strategic, behavioral orientation, not just a position in the social structure.

to one another – such as several different workers. In this *tertius gaudens* role, there is little economic value to be created in brokering exchanges between the *alters*. Yet the presence of alternative, redundant partners increases the brokers’ power in negotiations. This is the case in Simmel’s classic example of a woman who is courted by two male suitors, and thus captures value (i.e. derives “power”) from her availability of alternatives – even though she does not create any value by being the only link between the two gentlemen. While some brokers function purely as middleman and others purely as *tertius*, many market brokers (staffing agencies, real estate agents, venture capital firms, etc.) combine both roles: their primary function is to connect buyers and sellers; yet their ability to play buyers off against one another, or sellers off against one another, provides them with market power. The argument that brokers both create and extract value from their activities also appears in Ryall and Sorenson (2007: 14), as they argue that “a broker’s ability to profit from its position depends jointly on the alternatives available to it as well as on the value it adds.”<sup>4</sup>

In the following sections we explore how long term relationships impact how a market broker plays both the middleman and *tertius gaudens* roles. We focus on understanding how these relationships affect two determinants of brokers’ rents: the total price of the transaction; and the proportion of the price retained by the broker. In many settings, it is common for market brokers to set their rents as a proportion of the overall size of the transaction. Realtors demand a proportion of a property’s sale price; investment bankers seek a percentage of a given offering. Hence, brokers’ rents can usefully be thought of as reflecting both factors that raise the price of

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<sup>4</sup> Notice that the correspondence between middleman with value creation and *tertius* with value capture is not perfect. Middleman roles can combine value creation and value capture processes, particularly where brokers accumulate valuable resources beyond their position in the social structure (see Ryall & Sorenson (2007) for a complete theoretical treatment of value creation and value capture in brokerage). *Tertius* roles, however, are predominantly about value capture.

the transaction and factors that raise the proportion of the price that the broker retains. We develop hypotheses about each of these quantities.

### Relationships between broker and seller

As brokers enter longer term relationships with brokered parties, they are likely to be able to create additional value through improved bridging of information asymmetries. Information transmission between previously disconnected parties is a central function of brokers (Fernandez and Gould, 1994; Burt, 2000). In some cases, this information may simply be the existence of a potential exchange partner, and can be transmitted via a “weak tie.” Many markets, however, are characterized by high uncertainty about actors’ quality, as well as substantial search costs. In these situations, potential exchange partners require more detailed, private information on one another, information that is not there “for the asking” (Uzzi, 1999). Such private information is certainly crucial in the staffing sector. In deciding whether to hire a particular temporary worker, a client firm will want to know about the worker’s strengths and weaknesses. How productive, creative, or accurate are they? Do they work well with a team? Do they fit with the organizational culture? What kind of work do they enjoy doing? This kind of private information cannot be gained from reading a resume, or even from a brief interview.

A variety of research indicates that long-term relationships facilitate the transfer of such private information (Uzzi, 1999). For example, Uzzi and Lancaster (2004) argue that longer term, “embedded” relationships create more trust between the partners, allowing for more fine-grained information transfer between participants. Hansen (1999) also finds that more frequent interactions within a multi-unit firm improve information transfer. Hence, to the extent that brokers can create value by reducing information asymmetries, such value should be increased when they have longer term relationships with the parties that they broker.

Our fieldwork revealed two specific mechanisms by which long-term relationships between the worker and the broker can create value. First, long-term relationships provide the intermediary with opportunities for learning about the individual's underlying capabilities and motivation (see also Autor, 2001). Over the course of the relationship, the broker learns about how the worker performs in many transactions, and the worker becomes more willing to share private information with the broker. Second, longer term relationships help the agency to find a better fit for any given worker as the broker learns how her skills fit with different types of companies and assignments. For example, placement agents in the staffing firm we studied told us:

When people have been affiliated to the agency for a longer period of time] it allows us to figure out more about the fit between the job and the person. If a company says, "we need a web designer," we come up with a list of web designers, but the better we know the client and the talent, what about their personality? Can they keep up with the pace in this client's environment? Will they fit with the team? Will they fit with this client's clients? The better we know the talent the better the match.

Once I work with a freelancer and know their history, and they know me, I can place them almost blindly, without any problem. I know where they fit...

To the extent that this private information raises the overall value of the exchange, it should also influence the intermediaries' rent by increasing the transaction price. Where the broker can credibly claim to find a better match for a client's needs, the client should be willing to pay more for the transaction. Similarly, if the broker can credibly vouch that a counter-party is of high quality, then the client would be willing to pay more for the counter-party's services.

We found this argument to be consistent with evidence from our fieldwork. When the agency knew a worker very well and knew that she was likely to perform particularly well at a job, the agency was willing and able to negotiate a higher bill rate for that job without jeopardizing its relationship with the client firm. As one of the placement agents explained to us:

“[Workers who have a long-term relationship with the agency] are easier to sell, because they have a history with us, we can prove to the client what they have done in the past. We have this “problem, action, result.” It’s almost like a performance evaluation. After each assignment we identify what the problem or requirement of the client was, what actions the contractor took to solve it, and what the results were [...] For people who stay longer, we have a longer history of these, and we are able to sell them better to the clients [...], to place people better. We can show to a long-term client that this person worked at [Company X], and they had a similar problem as you have, and the contractor did this, and it generated these results [...]. We can charge more for these people (and pay them more too), if we can adequately explain to clients why this person is worth more, because they have more experience with us. We can show them exactly how they will be more valuable.”

This quote illustrates how long-term relationships between two actors can impact the transaction price in this context. The idea that long-term relationships may affect prices is common in the embeddedness literature (Uzzi, 1999; Uzzi and Lancaster, 2004). Most empirical research on this issue analyzes how long-term relationships between two actors affect prices for the actors involved. In the intermediation context, however, the key question is how such long-term ties affect the price paid by the third actor involved in the brokered exchange. Based on the above arguments, we thus propose:

*Hypothesis 1.a:* The transaction price will increase with the length of the broker’s relationship with the seller (i.e. the worker).

Thus far, we have argued that long-term relationships affect how the broker plays the role of middleman between the worker and the client. Yet these same long-term relationships also affect the brokers’ ability to play the *tertius gaudens* among different workers. Concepts from power-dependence theory suggest that, as well as raising transaction prices, the process of establishing long-term relationships also allows the broker to extract a higher share of those prices.

Research in power-dependence theory has repeatedly demonstrated that the availability of alternative transaction partners is a key determinant of an actor's bargaining ability within a given relationship (Emerson, 1962; Cook and Emerson, 1978; Bae and Gargiulo, 2004). When an actor has multiple redundant alters, her bargaining power is high. When she only has one potential alter, her bargaining power is low. One effect of establishing a long term relationship is to reduce the extent to which an *alter* is redundant with other potential partners. To the extent that a long term relationship creates value through learning and other mechanisms, an *alter* within such a relationship is at an advantage compared to other partners. For example, as a worker's skills become better known to the broker, they remain partially unobservable to other potential clients and intermediaries. Because alternative brokers know less about the worker than the focal broker does, they cannot place the worker in as high value positions as the focal broker. In other words, these alternative agencies are no longer such good substitutes for the worker's current staffing agency.

How long-term relationships affect each party's bargaining power will depend on the number of different partners with which they can maintain long term relationships. If both workers and agencies could maintain long term relationships with multiple *alters*, then long-term relationships should have little effect on bargaining power. Similarly, if both partners become dependent on one another at a similar rate, then we would also see little effect on bargaining power. However, where one actor can maintain fewer long term relationships than her *alters*, then we will see changes in bargaining power.

We argue that brokers and brokered parties may often be asymmetric in their ability to maintain multiple different long-term relationships. Almost by definition, brokers maintain many more relationships within each side of the market than do the brokered parties. After all, were the

brokered parties able to maintain as many ties as their brokers, their need for the brokers would be questionable. In the staffing sector context, the worker can only be staffed by one agency on any given day. Where learning about the worker requires an agency to actively staff the worker over a substantial period of time, it is not possible for multiple agencies to simultaneously learn about the same worker; instead, only one or a few agencies will develop long-term relationships and accumulate detailed private information about the worker. Of course, when an agency staffs one worker repeatedly, it is giving up the chance to staff another worker instead. However, the opportunity cost of not building relationships with alternative parties will be lower for the intermediary, as the agency is staffing a large number of different workers on any given day.

In short, as the duration of the relationship increases, the two parties learn about each other and are more willing to exchange private information, which reduces information asymmetry and increases the transaction price (hypothesis 1.a). While an increase in the transaction price will benefit both parties, we argue that the broker will capture a higher proportion of this increase than the brokered party, since it has a higher availability of alternative transaction partners. In our context, the agency may have long-term relationships with many workers. Yet the worker may have only one agency that really knows her, and knows about her abilities and performance in depth. We therefore predict:

*Hypothesis 1.b:* The proportion of the transaction price (margin) retained by the broker will increase with the length of its relationship with the seller (i.e. the worker).

The boundary conditions of this proposition are that learning about the other party must be relatively slow, and that the brokered parties must maintain limited ties simultaneously so that learning by one intermediary is at the expense of learning by others. As our description of this

sector suggests, these conditions are likely to be present in mediated markets in which information asymmetries are severe.

### Relationships between the brokered parties

We propose that the existence of a longer-term relationship between the worker and the client (see Figure 1 above) can mitigate the very processes that allow the broker to extract higher rents from its long-term relationships with workers. A straightforward prediction from structural holes theory (Burt, 1992; 2000) is that brokerage opportunities disappear and rents are driven down once previously disconnected actors are linked to each other. Yet in many settings, complete disintermediation of market brokers is not possible. In the staffing industry, for example, clients sign contracts that prohibit them from directly hiring workers that were initially provided through a staffing agency. Nonetheless, we argue that long term relationships between the two brokered parties reduce the brokers' rent by limiting its ability to raise the transaction price and reducing its bargaining power with respect to the brokered party.

We argued above that a long-term relationship between the agency and the worker increases the sharing of private information, which increases the value of the transaction and allows the broker to charge the client a higher price. This process, however, may be more difficult within an existing client-worker relationship. A variety of research on price setting indicates that prices are "sticky" within relationships. According to classic research in behavioral economics (Kahneman, Knetsch and Thaler, 1986), the initial terms under which parties trade constitute a "reference transaction" that acts as a precedent in future trade. Attempts by one party to deviate from the terms of this reference transaction are perceived as unfair, unless those deviations are clearly required to maintain that party's profits. As a consequence, prices are observed to be much more responsive to changes in the cost of supply than to changes in demand (Okun, 1981). Crucially,

survey research finds that reference transactions are applied quite specifically. For example, attempts by employers to reduce wages in response to a loose labor market are perceived as unfair. Where, however, employers seek to transfer employees to different kinds of work, reducing wages is seen as more acceptable (Kahneman, Knetsch and Thaler, 1986: 730).

Ethnographic research on markets similarly finds that actors resist changes to the terms of trade in on-going relationships, even in the face of changes in supply and demand (Sahlins, 1972; Granovetter, 2005).

Where prices are sticky within relationships, it will be difficult for a broker to raise the price under which a specific buyer and seller transact. Such deviations from the reference transaction will be perceived as unfair by one of the parties. Attempts to raise prices may even be perceived as an attempt to “hold-up” the buyer by exploiting his desire to continue transacting with a known seller. To the extent that the client cannot tell whether the agency has genuinely learned that the worker performs well, the client may believe that increases in bill rates are an attempt to take advantage of the existing relationship between the client and the worker (which creates some switching costs for the client). Such perceptions of opportunism would be damaging for the agency’s long-term relationships with the clients. In our fieldwork, we found that the agency placed great emphasis on building good relationships with clients and would thus avoid this kind of “hold-up” situations. As a consequence, we argue that the broker will not be able to realize the gains from long term relationships with the worker if the worker continues to work for the same client. The broker can only achieve these increases in price when it moves the worker to a new client, enabling it to establish a new reference transaction. To the extent that transaction prices would normally rise with the relationship between the broker and the seller, we propose:

*Hypothesis 2.a:* The transaction price will decrease with the length of the relationship between the brokered parties (i.e. the worker and the client).

Note that this hypothesis does not imply that bill rates should necessarily decrease in absolute terms. According to hypothesis 1a, bill rates should be increasing as the agency builds a relationship with the worker. For hypothesis 2a to hold, it suffices that the bill rate growth process is slowed down if the worker stays with the same client for longer periods.

Not only does the broker have a harder time charging higher bill rates when matching a worker and a client who have a relationship with each other. The broker's ability to extract a better margin from the transaction decreases as well. As the brokered parties enter relationships with one another, the intermediary is less able to play off multiple actors against one another, on one side or another of the market. When the two brokered parties exchange repeatedly - and thus build longer-term ties, they are likely to prefer continuing to exchange with one another (see also Kollock, 1994). This prevents the broker from easily replacing either one of those parties. Long-term relationships between the brokered parties therefore reduce the availability of alternative exchange partners for the broker, which should decrease its ability to extract profits from its position as *tertius gaudens* (see Ryall and Sorenson (2007) for a related argument).

From the perspective of the brokered party, establishing a direct long-term relationship with the other side of the market has a similar effect to the classic "balancing operations" discussed by Emerson (1962). This reduces her dependency on the previously more powerful party - the intermediary. In the staffing context, when the agency first introduces the worker to the client there are often multiple different workers that it could propose for the position. If the worker demands too high a pay rate, then the agency can take the job to another worker. Once the

worker has a longer-term relationship with the client, however, the agency becomes more dependent on the worker. When the client needs future work done, it might demand the services of the same worker. If the worker accepts the job, then the agency receives its commission. If the worker refuses the job, the client may well open the position to other intermediaries. Hence, the agency's ability to get repeat business depends much more on its striking a deal with a specific worker than did its ability to win the first job. In terms of power-dependence theory, the two relationships (worker-broker and worker-client) become "positively connected" (Cook and Emerson, 1978; Cook, Emerson, and Gillmore, 1983), as exchange between the agency and the client becomes partly contingent upon exchange between agency and worker. The worker thus becomes less substitutable with respect to other workers, and gains bargaining power with the broker. Hence we predict:

*Hypothesis 2.b:* The intermediary's margin will decrease with the length of the relationship between the brokered parties (i.e. the worker and the client).

These hypotheses specify how long-term relationships in a mediated market contribute to the evolution of brokerage rents over time, by affecting the broker's ability to both create and extract economic value from its activities. We test these arguments below.

## **Research Method**

### Research Setting

We tested our hypotheses using data from a large, global staffing agency that specializes in placing highly skilled "creative information technology" professionals in temporary positions. In order to focus our study on a single geographic and occupational labor market we gathered data from a single subsidiary, located in the same city as the office headquarters. Doing this allowed

us to limit potential sources of unobserved heterogeneity, which increases our confidence in the results of the analyses. We assembled the final dataset from a variety of sources provided by the agency itself (paper resumes, client information, demographic data, project characteristics, prices, etc.), as well as public information on the clients' size and industry classification.

We used the data to follow the trajectories of the 328 individuals that joined the agency in 1998 and 1999 and were placed in temporary assignments, from their starting date as entered in the database through to September 2002. This group of workers was placed in 2,075 projects across 654 different companies during the period. This unique dataset, therefore, has an unbalanced panel structure in which each individual-assignment observation includes person, project and client characteristics. The most noteworthy feature of these data is that we have bill and pay rate information at project level, which allows us to calculate the percentage margins that the broker obtained for each transaction.

In addition, we conducted 48 semi-structured interviews, with both placement agents and contractors who had been affiliated to this agency at some point in their careers. The interviews lasted for an average of 45 minutes, and most were taped and subsequently transcribed. The combination of quantitative and qualitative data allows us to clarify the conditions under which the theoretical mechanisms that we propose take place, and it helps rule out alternative hypotheses for the observed statistical findings (Jick 1979; Sieber 1973).

Given the case-study nature of these data, we make no claims with respect to the representativeness of this particular firm. However, the uniquely in-depth information available makes it an ideal setting for dissecting a number of the mechanisms by which long-term relationships between an intermediary and its contacts affect the returns to brokerage. In

particular, the fact that we have data on actors, relationships, prices and margins over time allows unique insights into the longitudinal dynamics of the broker's activities. Thus, this case provides a window through which we can view a set of processes that normally are hidden from view.

### Description of Variables

*Log bill Rate.* This is the log of the hourly bill rate that the agency charges to the client for each assignment. The mean bill rate in the sample is \$45 per hour, with a minimum value of \$19.5 and a maximum of \$150. In comparison, the average pay rate is \$26.93, with a minimum of \$13 and a maximum of \$100.

*Percentage Margin.* This is our key dependent variable, which we use in order to calculate the agency's share of the billings. It is the difference between the bill rate and the pay rate, as a proportion of the bill rate. The average value is 0.40. This means that, if a worker was paid \$40 hr, the staffing agency charged \$67.60 hr to the client on average. The full distribution of percentage margins in our sample is displayed in Figure 2.

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Insert Figure 2 about here

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*Worker-agency relationship duration.* Our main measure of a worker's relationship with the agency is the total number of days spent working on an assignment for the agency, as measured on the first day of the project being analyzed. Note that this measure does not correspond to the number of days since the worker first affiliated with the agency. Instead, individuals' job histories often contain spells when they are not working with the agency, interlaced with spells when they are. On average, the "days worked with the agency" variable is 60 percent of the total days since workers began their first assignment in our data. Our theoretical propositions argue

that the mechanisms through which worker-agency relationships affect margins are reduction of information asymmetries through long-term relationships and worker dependence. Both of these processes are only likely to happen while the worker is actually on assignment for the intermediary. Hence, “days worked” – as opposed to time in the database - is the appropriate measure of this relationship.

Our use of the “days worked” variable does raise the question of what individuals are doing on those days when they are not working for the agency. Our interviews suggest that these contractors seek work from multiple sources simultaneously. Many contractors told us that they were affiliated to several staffing firms at the same time. They also spoke about finding jobs through personal contacts in the sector. One contractor told us: “When you ask me how I look for work, there is not one particular way, I will call [the agency], I’ll call the other agencies, I’ll call my contacts, and so, if I can find work through an agency, great, if I can find it on my own, even better.” As a result, it is likely that individuals are usually working on assignments received from elsewhere when they are not working for the agency. This is especially the case during years 1999 and 2000, in which the demand for this type of services was at an all time high. However, there is some probability that they may not be working during this period. We discuss some of the biases that this may produce and our attempts to deal with them, later in the paper.

The “days worked with the agency” variable is heavily skewed in our sample. The mean value is 170 days, but the median is only 75 days. 16 percent of the observations have a value of zero, while the maximum value is 1,579 days.

*Client-worker relationship duration.* Our measure of the worker’s relationship with the client is the total number of days spent on assignment with that specific client, at the beginning of the

project under analysis. Again, the fact that we have workers' entire job histories with the staffing firm allows us to measure this entire relationship, provided that the worker and the client did not have a relationship prior to the workers' registering at the agency. The institutional details of the staffing industry suggest that this is a safe assumption: when the agency introduces client and worker, it takes a large commission on the transaction. When clients and workers have already established relationships, it is unlikely that they would choose to transact through an intermediary in this way. In fact, a number of contractors we spoke to emphasized that they made clear to the placement agent if they had a prior relationship with a client firm when they joined the staffing agency, so that the agency would not try to place them there. Our measure of the client-worker relationship is also heavily skewed. The mean value of the variable is 41.83, but 60 percent of the observations have a value of zero. The maximum value is 1,102.

*Client controls.* We control for some basic characteristics of clients, because of a concern that these could be associated both with higher bill rates/margins and longer relationships. We used information both from the agency's database, as well as from a variety of external sources including firm web sites and directories, such as Hoovers and CorpTech, in order to code industry and firm size. We included 13 industry dummies: advertising and marketing; architecture, engineering and construction; non-profits, associations, government and education; electronics and computers; retail and consumer products; accounting and financial services; healthcare; legal and professional services - including consulting and staffing; pharmaceuticals, biotechnology, manufacturing and R&D; media and entertainment; printing and publishing; and telecommunications. We were unable to code the industries of three clients, representing six observations in our sample, and so we created a "residual" category for these observations. Client size is measured as the number of client employees, and ranges from 1 to 370,000

employees. The distribution of this variable is very skewed (the median is 500 and the average is 8419 employees). For the regression models below, we use the natural logarithm of firm size.

*Assignment controls.* We also control for two characteristics of the assignments that might influence prices. First we include dummy variables for the type of project, classified by the agency in terms of difficulty/skill requirements. There are eight categories - technical, web and multimedia, writing, secretarial, spreadsheets, print design and creative, print production and presentations. This classification should accurately represent the work that individuals perform. The agency spends a lot of time and effort in classifying projects, as pay rates vary across skill segments. Brochures with detailed rules for classifying assignments are regularly distributed to all placement agents, and frequently revised to make sure they are up to date. Second, we control for the assignment duration measured by number of days. The duration of the median assignment was 12 days, while the mean was 39.5 days.

*Career history controls.* We expect that workers will continue to acquire general human capital over time, and that this acquisition could potentially be confounded with our relationship variables - which also increase over time. Hence, we directly control for the length of time that the worker has been in the agency's database.

*Labor market controls.* Because we are looking at a single geographic location and a single occupational market, to a large extent we are able to isolate labor market factors from our analysis. However, our time period of analysis (1998-2002) included a marked rise in demand for these workers. Hence, we include a dummy for each month in our sample to fully control for any effects of the external labor market on prices and margins.

*Worker characteristics.* In some models we use information on individual characteristics, coded both from the agency’s personnel records as well as from workers’ resumes. We have the following individual-level data: gender (46 percent of the sample are women); years of education (average is 15.83; 75 percent have at least a bachelors degree); “college in the field”: whether the worker has college-level studies that are related to computer science, arts, or design (it takes value “1” for 48 percent of the sample); “special training in the field”: if the individual has specialized certifications in either computer science or graphic design (it takes the value “1” for 34.6 percent of the sample); years of experience (average is 7 years, with a minimum of 0 and a maximum of 31); and “contractor in last job,” whether the worker was a contractor or temporary worker in his/her last position before joining the agency (this is the case for 35.7 percent of the sample). Table 1 contains summary statistics and correlations.

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Insert Table 1 about here

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### Data Analysis

We perform our analyses using individual fixed effects regressions in order to eliminate unobserved heterogeneity among the workers. Fixed effects analyses examine changes in bill rate and margin within an individual’s work history, allowing us to explore how changes in relationships over time affect bill rates. Because fixed effects regressions do not compare bill rate across individuals, they allow us to eliminate any effects of time-invariant individual unobserved heterogeneity from our analyses. The use of fixed effects is particularly important given the unbalanced structure of our data. Because different individuals have very different work histories with the agency, those that perform more assignments with the agency might also be the ones that have higher skills and therefore command higher bill rates. Such selection

effects would lead to a spurious association between relationship length and bill rates. Notice that this specification does not estimate coefficients for workers' characteristics (gender, education, etc.), as these are invariant by individual. All models were implemented with robust standard errors to account for any heteroskedasticity in the errors.

Our analyses of the broker's margin include controls for the bill rate for that transaction. It is possible that the brokers' percentage margin might change systematically with the overall transaction price. For example, the broker might retain a higher percentage of the billings when bill rates are low, reflecting the fact that the broker incurs a somewhat fixed cost in staffing any worker. We looked for non-linear effects of bill rates on margins by regressing the margin on first, second, third and fourth orders of bill rate. Plotting the resulting relationship indicated a clear inflection point in the relationship: above \$40.50, margins were a roughly fixed ratio of bill rates; below \$40.50, margins rose rapidly with bill rates. This appears to reflect the difficulty of paying workers much less than some \$15-\$17 per hour; as bill rates fell below \$40, the agency could not reduce workers' wages as quickly, and was forced to reduce its margins. We controlled for this bifurcated relationship between bill rates and margins using a two-part spline with a knot at the inflection point of 3.7 ( $\ln(40.50)$ ). This allows us to model the different relationships of bill rates and margins above and below this point.

## **Results**

Table 2 presents the main results, which provide support for our theory. In Model 1 we analyze the determinants of the agency's bill rate. Consistent with hypothesis 1.a, we find that bill rates increase with the length of the agency-worker relationship. Hypothesis 2.b. is also supported: the bill rate declines with the length of the worker-client relationship. In fact, the coefficient on the client-worker relationship is of almost exactly the same magnitude as the coefficient on the

agency-worker relationship. This suggests that long term relationships between the client and the worker prevent the agency from realizing the benefits of the private information it accumulates through its long-term ties with workers.

Model 2 provides our analysis of the agency's percentage margin. The broker's margin increases significantly as its relationship with the worker increases (hypothesis 1.b), while it decreases with the duration of the tie between the worker and the client (hypothesis 2.b).

In Model 3 we provide additional results on pay rates. These models confirm that workers' pay rates increase significantly with the length of the worker's relationship with the agency. This suggests that the worker is able to capture some of the benefits of its long-term relationship with the broker. It also helps to explain why workers choose to remain in these long term relationships: doing so raises their wages. Nonetheless, the model also confirms that workers' wages rise less rapidly than bill rates, resulting in increased agency margins. Similarly, workers' wages fall less slowly than bill rates as the worker-client relationship lengthens - in fact, the negative effect on pay is barely significant (thus the agency's margin decreases).

Among the controls in these models, a number of the dummies for industry, skill segment, and month are significant (results not shown but available from the authors). However, project duration, days in the database, and client size did not have a significant effect on margins or bill rate.

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Insert Table 2 about here

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Effects of the Worker-Agency Relationship: Additional Analyses

Our theoretical argument for why bill rates increase with “days worked for the agency” is that the sharing of private information allows for higher value creation as the relationship between the worker and the broker evolves over time. We conducted additional analyses to further understand the mechanisms underlying this effect.

First, we explored whether our results were shaped by non-random selection of long-term ties. One possibility is that the firm is more likely to retain long-term ties with those workers that it finds to be of high ability (Jovanovic (1979) makes a similar argument in analyzing turnover). Such an effect would be consistent with improved information as the mechanism behind the increase in bill rates: the agency learns which workers are good and can then demand higher prices from clients for these workers. A second possibility is that the agency forms long-term relationships with workers who cannot find jobs elsewhere. The weaker bargaining power of these low-skilled workers might then account for declines in margins over time.

Additional regressions found weak support for either story. We used pay rate in current job to proxy for a worker’s ability, and then explored in cross-sectional regressions whether higher paid workers were more likely to work for longer with the agency (results available from the authors). We did not find a significant effect of pay rate on the future days that an individual worked for the agency. We did however find a significant positive effect of pay rate on the number of future projects that the individual works on for the intermediary.

We also explored what demographic characteristics might be associated with longer relationships between workers and the agency. We ran a number of models predicting the probability of a given individual being at the top of the “days worked” distribution with the agency. None of the individual variables (gender, years of experience, etc.) had a significant effect.

We also looked at whether people who stayed longer with the agency are more or less likely to be eventually placed in permanent positions by the agency. This addresses the possibility that “stayers” are perhaps those that cannot get a regular job. If this were the case, we should find that those that are paid less (and thus may be assumed to be of “worse quality”) are less likely to be placed in a permanent position. We found no such effect, however. We also found no relationship between “days worked with the agency” and the probability of permanent placement. Moreover, our interviews with contractors suggest that many of them are not interested in getting a permanent position, but instead like the opportunity of working in flexible contracting arrangements. Their staying with the agency, therefore, is not an *a priori* indication of “quality,” but is determined instead by personal preferences for contracting versus regular employment (see Barley and Kunda (2004) for similar qualitative arguments on contracting).

These results reinforce our argument that those who continue working for the agency are not low ability workers who cannot find jobs elsewhere. The results suggest that, if anything, there may be some weak selection of higher skilled workers into longer term relationships. Such selection may be one of the mechanisms by which private information increases bill rates. When the agency learns that workers have higher ability, it pays them more and is more likely to keep staffing them. When the agency learns that workers are of lower ability, it pays them less.

We also examined whether the positive effect of the worker-agency relationship duration on bill rate could be driven by increases in workers’ general human capital, rather than learning within the relationship (this, however, would not be an explanation for the higher percentage margins). We noted above that if workers are unemployed when they are not on assignment with the agency, then the days worked with the agency may be picking up accumulation of experience. In order to probe this argument, we ran pooled cross-sectional regressions of bill and pay rates,

which allows us to estimate the effects of individual-level characteristics on the dependent variable. We cluster errors by person in order to take account of correlated errors for assignments carried out by the same individual. Table 3 shows these results.

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Insert Table 3 about here

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This cross-sectional model allows us to estimate the size of the premium for experience, based on workers' histories before joining the agency. The results indicate that the bill rate rises by 1 percent for every year worked. In contrast, an extra year worked for the agency increases the bill rate by 14.62 percent. The magnitude of the relationship effect is thus much larger than that of the experience effect. This allows us to argue more confidently that our "days worked" variable is not simply capturing accumulation of general human capital by the worker, but instead is capturing the effects of the relationship between the workers and the agency.

A further question is whether increases in bill rates could be driven by workers' acquisition of agency-specific skills over time. The institutional details of this setting make such acquisition of agency-specific skills an unlikely explanation for the effects we found. Unlike some consulting firms, the agency does not have a specific set of methodologies or tools that workers adopt in carrying out projects. The main role that the agency plays in the assignments is in staffing the workers and checking on their performance once in a while. It does not therefore seem likely that there would be skills specific to the intermediary that could account for the marked rise in bill rates that we observe as workers build their relationships with the agency. Admittedly, one could always interpret the mutual learning process between worker and agency over time as a relationship-specific investment. There is nothing wrong with such interpretation and it is not

inconsistent with our theory. However, the characteristics of our setting make us confident that firm-specific human capital of the kind emphasized by labor economic models of the employment relationship (Becker, 1962) is not relevant here.<sup>5</sup>

#### Effects of Worker – Client Relationships: Additional Analysis

We now turn to a more detailed analysis of the negative effect of a prior relationship between the worker and the client on the broker's bill rates and margins (our second set of hypotheses). First, we examined whether the negative effect of worker-client ties leads to an actual fall in margins, or simply slows their rate of increase. We found that the net effect of the two duration variables (worker-agency and worker-client) is in most cases an increase in margins over time. That is, the positive effect of the relationship between the agency and the worker dominates the negative effect of the relationship between the worker and the client. For example, if we take a worker who is at the 75<sup>th</sup> percentile of the worker-agency tie duration (217 days) and also at the 75<sup>th</sup> percentile of the worker-client tie duration (19 days), the effect of these two variables on the margin will be a net 1.19 percent increase. Only in a handful of cases (six individuals in the sample) did margins actually decrease for the agency.

Second, we looked for further evidence that the negative effect of client-worker relationships on bill rates was caused by the difficulties in raising prices within existing relationships. We noticed

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<sup>5</sup> A final potential alternative explanation for the negative effect of worker-agency relationships on margins could be that our price variables are not capturing some sizeable source of rents for the actors. While it is unlikely that this is the case, we considered the possibility that the worker may obtain some additional benefits from the agency over time (which would in turn affect margins). In particular, this staffing firm offers contractors the possibility of receiving health insurance after they have been working continuously for the agency for 400 hours (i.e. 50 days). This insurance has a very limited coverage, and we do not have information on whether it would be reflected on the wages obtained by the contractors - or on who chooses to use it. Moreover, our fieldwork indicates that most workers in this market do not rely on agencies for continuous coverage; since it is quite risky for them to do so (they are only covered while on assignment). In order to address this issue, however, we explored whether being eligible for insurance had any effect on our margin results, by entering a dummy for whether the worker has been continuously on assignment for the agency for longer than 50 days. This indicator is negative and only marginally significant. Its magnitude is very small (-0.007), and it has no effect on the magnitude and significance of the other coefficients.

that around 30 percent of the projects in our sample are project renewals. We then created two variables (“bill change” and “pay change”) that take the value 1 if the bill (pay) rate of the current project is higher than the one in the previous assignment, the value -1 if it is lower, and 0 if it is the same as in the previous assignment. We then examined how such changes in bill rates were related to whether or not the project involved was a renewal. The results (Table 4.1) are striking. We find that when workers change clients, the bill rate changes 84 percent of the time. When workers stay with the same client, the bill rate changes only 16 percent of the time. This provides strong evidence that the negative effect on bill rates is driven by “price stickiness” within the relationship. Table 4.2 demonstrates a similar pattern for pay rates: pay rates usually stay the same when a project is renewed, but tend to change if there is a different client.<sup>6</sup> Nonetheless, Tables 4.1 and 4.2 demonstrate that pay decreases are not as likely as bill rate decreases, while pay rate increases are significantly more likely than bill rate increases in the case of project renewals ( $p < 0.000$ ). This provides further insight into how workers are able to reduce the agency’s margins through a long relationship with the client.

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Insert Table 4 about here

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We also explored whether the agency’s difficulty in raising prices in existing relationships might be related to the task that a worker performed. Imagine that, for some reason, a given client always pays the same bill rate for a given piece of work because they need a particular level of

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<sup>6</sup> We also calculated the average magnitude of these changes (results available from the authors) in order to examine whether our results may be caused by large price decreases in a small number of cases. On average, the pay and bill rate decreases seem larger than the average pay increases. In order to check that a few outliers were not driving our results, we eliminated the largest decreases from the sample (all 59 projects in which bill rate decreases were larger than \$15) and re-ran our regression models. The results on margins barely change in magnitude or significance level, which confirms that our findings on margins are not driven by a few cases in which bill rates decrease a lot, but they are indeed the result of bill rates not increasing as much or as often when the worker is rehired by the same client.

worker (a kind of “client fixed effect” mechanism). If this were the case, then the only way that the agency could obtain a higher price would be by moving the worker to a better paying client. In order to address this possibility, we examined how much of the variance in bill rates is explained by the client. We ran an OLS regression of bill rates on segment and month dummies, in order to extract the effects of months and skill segments on bill rates. We then conducted an ANOVA analysis on the residuals. Results are shown in Table 5.1. We find that there is plenty of within-client as well as between-client variance, demonstrating that bill rates are not fixed for a given client; only for a given client-worker pair. We also checked how frequently a client takes multiple different people, and find that many clients hire several different workers, both within and across segments.

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Insert Table 5 about here

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Table 5.2 offers additional descriptive results in which we analyze whether bill rates for a given client are likely to increase or decrease depending on whether the next assignment within a skill segment is taken by the same worker or by a different worker. We calculate whether bill rates increase, remain stable or decrease for the same segment (“bill change within segment”), as well as whether the worker changes from one project with the client to the next – also within segment. If client fixed effects were driving the results, we should not expect clients to adjust bill rates very much within segment. Our analysis, however, shows that bill rate changes within client are actually quite common; just not when the same person is rehired. These results emphasize the narrowness with which “reference transactions” are defined in this context. The agency is able to raise prices with a given client as long as they offer a different worker. It is only when

negotiating the renewal of a project with an existing worker that the agency's ability to raise prices is constrained.

In summary, our analysis indicates that the negative effect of the worker-client relationship on the agency's bill rates and margins is due to problems in increasing bill rates when the project is renewed - rather than bill rates actually falling when workers are renewed. This discards an obvious alternative explanation for our results: price discounts for clients that hire workers for longer periods of time. Discounts could potentially be offered either because the agency is happy to trade off volume for price, or because servicing project renewals is cheaper and thus prices are also lower. Yet we rarely find bill rates actually falling over time. In any case, we would also expect that such discounts would probably be associated with lower bill rates for projects of longer duration, something that we do not find in Table 2.

Similarly to what we did for the worker-agency tie, we also ran a series of separate analyses to assess whether individuals who stay longer with a client may be of "lower quality." Such a selection effect would provide an alternative explanation for the negative association between client-worker relationships and bill rates. This is *a priori* not a significant concern, since we run within-individual analyses in all our models. Nonetheless, were the agency and client to learn over time about worker quality, and were lower quality workers to remain in relationships with clients, selection might affect pay – and thus margins. Additional models available from the authors indicate that workers who have lower pay rates (which may be an indication of "worse quality") are not more or less likely to work longer for a given client. Pay rate does not affect either whether the worker is rehired by a client or whether he or she takes a permanent position – controlling for everything else. Similarly, one might argue that perhaps the agency will accept lower margins for certain clients (those who employ the workers for longer) if it has the

expectation that it will receive a fee for permanent placement in the future. Although our fieldwork showed no evidence of this being an important motivation for placement agents, we ran a logit regression predicting the probability of the individual taking a permanent position, and found that margin had no effect on it. That is, the negative effect of worker-client ties on margins does not seem to be driven by the agency accepting lower margins for projects that may be eventually converted into permanent positions. These supplementary analyses, together with the results presented in Tables 4 and 5 are thus consistent with the explanation that the ability of the broker to extract rents from the brokered parties is diminished when the worker and the client have a longer-term relationship.

A final alternative mechanism for bill rate stickiness when the worker and the client have a previous tie is that perhaps workers do not learn as much when they are placed with the same client repeatedly. Although this mechanism would not explain our margin results, we checked it anyway in order to delve deeper into the value creation aspect of these ties. We created the variable “maximum days at any given client.” According to a learning story, staying in one client for too long will reduce the worker’s ability to learn new skills, and thus decrease the bill rate that the agency can charge for her in future projects. “Max days at a client” evaluates whether staying at any client for long periods of time reduces the worker’s price at any client, while “client days” evaluates the effects on the worker’s price at that particular client. A learning story would predict “max days at a client” to have a negative effect on bill rates. We find, however, that this variable does not have a significant effect on bill rates, which casts doubt on the learning story and reinforces the price stickiness argument. All these supplementary analyses are available from the authors.

## **Discussion and Conclusions**

A central claim in Economic Sociology and Organization Theory is that the nature of relationships between actors has significant consequences for market interactions (Baker 2000; 1984). While there are multiple ways in which market ties can influence the terms of exchange, brokerage (Gould and Fernandez, 1989; Burt, 1992) and long-term/embedded relationships (Uzzi, 1996; Granovetter, 1985) have been shown to be relevant for market dynamics in many contexts. Previous research, however, has rarely combined the insights of these literatures to examine how long-term relationships might shape the activities of brokers. In this paper, we argue that the presence of long-term relationships can have significant effects on the ability of brokers to create and extract economic value from their position. We show how, in mediated markets, the broker's rent can increase with the length of its relationship with the brokered party, but will decrease when the two brokered parties have a prior long-term tie with each other. This provides us with unprecedented insight into the longitudinal dynamics of brokerage.

These findings make several contributions to the literature. First, they bring out the importance of considering how the nature of dyadic relationships affects the ability of brokers to create and extract value. This in turn highlights the dynamic aspect of brokerage processes, demonstrating how the returns to intermediation vary with the history of interactions between a broker and its contacts - as well as between the brokered parties themselves. Second, this study is one of the first to explicitly address the question of how brokers extract rents from their counter-parties. Previous research has inferred brokers' ability to capture value by comparing their outcomes to those of non-brokers. Little work, however, has directly examined the intermediary's ability to extract rents from the brokered parties. As has been noted recently (Brass, 2006; Burt, 2007), directly exploring rent extraction is important to understanding the balance of benefits and costs

of being linked to brokers. It is also central to our ability to empirically disentangle the value creation and value capture elements of the brokerage role (see Reagans and Zuckerman, 2006; Ryall and Sorenson, 2007). We show that connection to brokers can benefit market participants, but that, under certain conditions, most of the returns accrue to the broker.

The paper also contributes to research on the effects of long-term relationships by showing that the gains from relational embeddedness need not be equally shared among the actors. Our findings demonstrate the importance of bringing notions of power and dependence into studies of embedded relationships in other markets (see Gulati and Sych (2007) for a different take on this issue). Finally, this study contributes to our understanding of the mechanisms by which employment intermediaries match workers with firms and obtain profits in the labor market.

Given the scarcity of detailed data on the workings of this industry, particularly on the magnitude and determinants of staffing firms' margins and their effects on workers' outcomes, our analysis sheds some new light on the mechanics of an increasingly significant – yet little understood – market.

We have illustrated our theoretical arguments using data from a broker in the high-skill IT sector, which matches workers with firms and obtains its margins from the difference between how much the client company pays and how much the worker receives for a given project. We argue that the staffing industry is a typical example of a brokered market. Although some of the dynamics observed in this setting are specific to employment intermediaries, the broad mechanisms identified here should also apply to other market brokers that match buyers and sellers in markets plagued by information asymmetries (e.g. real estate agents, venture capitalists, etc). While there do not seem to be systematic differences between this company and its competitors, we do not make any claims with respect to the representativeness of our findings.

Nonetheless, the in-depth information available in this setting allows us to observe some processes, mechanisms and outcomes that are normally invisible to students of brokerage and its market consequences. To our knowledge, no staffing agency so far has allowed the collection of systematic data on both bill *and* pay rates. In fact, how much these intermediaries charge clients versus how much they pay workers is one of the best kept secrets in the labor market. While ideally we would like to replicate this study with other brokers within this industry as well as in other industries, the need to have very detailed within-firm data to examine our theoretical mechanisms has forced us to trade-off depth versus breadth in this case.

This paper differs from many other studies of brokerage in examining the determinants of prices rather than firms' or individuals' performance. The use of margins as an indicator of the broker's ability to extract rents is not without empirical disadvantages. Since we do not have data on the broker's costs, we cannot draw conclusions on overall firm's profits (although industry informants view margins as a key driver of profitability). Yet, transaction prices and margins are a very direct measure of the broker's returns. Moreover, studying prices has the particular advantage of allowing us to examine how value is captured by the broker. Looking exclusively at final measures of performance may not allow us to disentangle how the returns from long-term ties are distributed; to what extent is performance driven by firms' ability to create value versus capture value (Coff, 1999)? Analyzing the prices obtained by workers and the staffing agency on the other side, provides a more direct measure of distributional outcomes. If one is interested in the distributional aspect of long-term relationships, it is hard to do better than study prices (see also Kollock, 1994).

Our data also allow us to analyze the effect of relationships on prices at a level of detail fairly unique in the literature. Obtaining detailed pricing data by transaction is generally unfeasible for

industry-level studies (but see Sorenson and Waguespack, 2006). As a consequence, previous studies on the relational basis of price formation generally use data at more aggregate levels, as they employ samples of firms within an industry rather than within-firm data. Uzzi and Lancaster (2004), for example, use average firm prices as opposed to the specific price charged for each project. Our transaction level data provides a much clearer test of how relationships shape prices.

One limitation of our study is the absence of data on each party's alternative ties, which play a key role in our theoretical predictions about the broker's value capture. We are able in part to compensate for this by exploiting our very detailed information on how the margin is determined (i.e., we have data on both bill *and* pay rates, not just on the final percentage margin). In our empirical section we systematically addressed a number of potential explanations for the results, and found no obvious alternative story that would explain the findings on percentage margins. In particular, the fixed-effects models and other checks for individual selection ensure that our results are not due to unobserved heterogeneity, while a number of other analyses have discarded the "bulk discounts" hypothesis. This, coupled with our in-depth fieldwork in the sector, allows us to be confident that the hypothesized mechanisms about power and dependence from alternative relationships are a sensible explanation for our results. They are also consistent with recent theoretical treatments of brokerage dynamics, which bring in the need for brokers to have several alternative partners in order to profit from their positions (see Ryall and Sorenson, 2007).

In this paper, we focus particularly on examining the consequences of long-term relationships for the broker. Our arguments and results also have implications for the brokered parties. Although its position allows the broker to extract the lion's share of the benefits of long-term relationships, we found that these relationships also benefit workers. Workers' pay increases significantly with the duration of relationships with the agency. Indeed, such increases are necessary for workers to

choose to remain in these long term relationships with the staffing agency. While long-term relationships increase the agency's bargaining power, they do so only as long as the agency provides the worker with more benefits than would be available from alternative agencies.

By taking a dynamic, longitudinal perspective on brokerage, this study contributes to our understanding of how brokerage positions are sustained over time. This issue is rarely addressed in the literature (see Ryall and Sorenson, 2007; Brass, 2006), although there have been some studies that analyze the stability of structural holes (Burt, 2001; Soda et al., 2004). Rodan (2007) contributes to this debate by showing that the usefulness of managers' structural holes declines the longer these managers remain in a particular position. Our results, in turn, indicate that the nature of intermediaries' ties with their contacts can play a key role in how the returns to brokerage evolve. Indeed, they suggest that these returns can increase with the duration of the relationship between broker and brokered party. Moreover, our findings on lower margins when the brokered parties have longer-term relationships among themselves are in line with Burt's (2000) prediction that brokerage advantages are eroded once the bridge between the brokered parties has been made – even though the institutional context prevents the brokers from being fully disintermediated. Interestingly, though, our analysis also shows that erosion does not necessarily imply the total elimination of brokerage rents; the positive effect on margins from long-term relationships with the worker tends to overcome the negative effect of the worker-client relationship. We believe that this pattern likely emerges from a boundary condition of our theory, the fact that we are analyzing a mediated market with high information asymmetry in which the broker plays both the middleman and the *tertius gaudens* role. That is, the broker creates economic value and, in doing so, it also increases its negotiation power with respect to the brokered party. It is possible that pure *tertius gaudens* strategies will be comparatively less

sustainable over time – especially if a direct connection between the bridged parties is hard to avoid. Ryall and Sorenson (2007), for example, propose a theoretical model in which brokerage positions are rarely sustainable for the type of brokers that “contribute nothing beyond their ability to connect productive actors.”

It is possible that focusing on the nature of dyadic relationships can help us to resolve other tensions in brokerage theory. In this paper, we have focused on the role of long-term relationships in shaping the acquisition of private information. The same relationships can also allow actors to build trust over time. Burt (2005: ch. 3) notes that trust is also important for the activities of brokers; while brokerage positions allow actors to identify profitable trading opportunities, some trust among participants is necessary for facilitating trade. Burt (2005) describes some of the structural features of networks that might facilitate such trust. Long-term, dyadic embedded relationships between brokers and brokered parties are another potential mechanism. Future research might examine the role that long term relationships play in building the trust necessary for brokers to be effective.

Analyzing triadic market structures is not a straightforward task, since the three ties (i.e. broker-worker, broker-client, and worker-client in this case) interact in complex ways. In order to simplify our theoretical arguments, we focused on only two of these ties (broker-worker and worker-client). Including hypotheses about the broker-client relationship would have made our theory unnecessarily cumbersome. Furthermore, the distribution of value between the broker and the worker can be measured reasonably accurately by the distribution of the bill rate. Without measuring worker productivity, it is much more difficult to assess how value is distributed between the broker and the client. We would expect, however, that the general theoretical mechanisms that we have identified in this paper also apply to the other side of the market. Our

fieldwork indicates that long-term relationships with clients also allow the staffing firm to learn more about these companies and thus improve the efficiency of the worker-client match. The most severe information asymmetry in this market, however, is about the quality/fit of the worker – and not so much about the quality of the client. Similarly, the issue of increasing dependence of the brokered party on the broker is more easily observed in the broker-worker tie. We can be quite sure that a given worker is not able to invest in several long-term relationships with brokers at the same time; making that assumption about a client company is not straightforward. In any given mediated market, information asymmetries and availability of alternative ties will not necessarily be equally intense on both sides of the market. The extent to which these processes are symmetric in a variety of contexts is an open empirical question that is beyond the scope of this paper.

Integrating concepts from the literatures on long-term ties and brokerage also encourages us to address a relatively unexplored question in the embeddedness literature – how the gains from long-term relationships are shared between the partners. Our theoretical predictions and empirical results about the effect of long-term ties on economic rents are situated within the context of brokered relationships, which have a number of peculiarities distinguishing them from other types of market ties. An avenue for future research would be to investigate whether some of our findings generalize to long-term relationships in contexts other than mediated markets. If similar mechanisms to the ones we propose are at play in other settings, one may hypothesize that, given that mutual dependency increases for both actors as they invest in the relationship (Emerson, 1962), whoever has more or better alternatives will extract a higher rent from the added value created by the embedded tie (see also Gulati and Wang, 2003). Indeed, these ideas are closely related to Gulati and Sytch's (2007) recent study of joint dependence in inter-

organizational relationships (see also Bae and Gargiulo, 2004). These authors propose that mutual dependence can infuse the relationship with a logic of embeddedness (as opposed to a logic of power), which in turn enhances the potential for value creation in the tie and thus actors' performance. Our arguments and results are consistent with this idea that embeddedness and mutual dependence can enhance the value created by a given dyadic relationship. Since embeddedness and dependence are iterative, however (more joint dependence leads to embeddedness, but also more embeddedness may increase dependence - as we suggest), the dynamics of appropriation created by dependence asymmetry will still be at play and may affect how such extra value is distributed. As Gulati and Sytch (2007) suggest, the relational dynamics between embeddedness, dependence asymmetry and joint dependence would be best studied longitudinally and with data from both sides of the dyad. We concur, and hope that this longitudinal study on relationships and prices for both parties involved in the relationship has helped to shed light on at least some of these key theoretical and empirical dynamics.

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**TABLES**

**Table 1: Descriptive Statistics and Correlations**

	<b>Mean</b>	<b>S.D.</b>	<b>Min</b>	<b>Max</b>	<b>-1</b>	<b>-2</b>	<b>-3</b>	<b>-4</b>	<b>-5</b>	<b>-6</b>	<b>-7</b>
-1 Ln bill rate	3.745	0.336	2.97	5.011	1						
-2 Ln pay rate	3.219	0.358	2.565	4.605	0.96	1					
-3 Percentage margin	0.406	0.061	0	0.657	-0.1	-0.36	1				
-4 Days with agency	170.093	240.922	0	1579	0.37	0.38	-0.12	1			
-5 Tenure at assignment	319.975	353.663	0	1692	0.32	0.33	-0.11	0.73	1		
-6 Client max days	132.852	221.872	0	1246	0.38	0.39	-0.12	0.9	0.62	1	
-7 Days with client	41.834	114.137	0	1102	0.08	0.13	-0.21	0.5	0.29	0.46	1
-8 Gender	0.474	0.499	0	1	-0.24	-0.23	0.03	-0.09	-0.01	-0.05	0.07
-9 Ln client size)s	6.088	2.859	0	12.821	-0.08	-0.07	-0.03	0.01	0	0.03	0.16
-10 Project duration	39.509	75.692	0	1070	0.08	0.11	-0.14	0.1	0.05	0.08	0.24
-11 Years education	15.841	1.184	12	18	-0.02	-0.02	0.01	-0.11	-0.02	-0.1	-0.07
-12 College in field	0.516	0.5	0	1	0.06	0.05	0.04	0	0	-0.03	0.02
-13 Special training	0.299	0.458	0	1	0.25	0.27	-0.09	0.16	0.14	0.23	0.06
-14 Years experience	6.853	4.848	0	31	0.15	0.19	-0.18	0.01	0.02	0.06	0.06
-15 Contractor last job	0.387	0.487	0	1	0.19	0.19	-0.03	0.05	0	0.03	0.05

**Table 1: Descriptive Statistics and Correlations (continued)**

	Mean	S.D.	Min	Max	-8	-9	-10	-11	-12	-13	-14	-15
-1 Ln bill rate	3.745	0.336	2.97	5.011								
-2 Ln pay rate	3.219	0.358	2.565	4.605								
-3 Percentage margin	0.406	0.061	0	0.657								
-4 Days with agency	170.093	240.922	0	1579								
-5 Tenure at assignment	319.975	353.663	0	1692								
-6 Client max days	132.852	221.872	0	1246								
-7 Days with client	41.834	114.137	0	1102								
-8 Gender	0.474	0.499	0	1	1							
-9 Ln client size)s	6.088	2.859	0	12.821	0.13	1						
-10 Project duration	39.509	75.692	0	1070	-0.01	0.11	1					
-11 Years education	15.841	1.184	12	18	0	-0.02	-0.06	1				
-12 College in field	0.516	0.5	0	1	0.15	0.1	0.01	0.03	1			
-13 Special training	0.299	0.458	0	1	0.1	-0.05	0.04	-0.01	0.01	1		
-14 Years experience	6.853	4.848	0	31	0.07	0.07	0.03	0.16	0.06	0.2	1	
-15 Contractor last job	0.387	0.487	0	1	0.02	0.03	0.04	0.01	0.12	0.03	0.14	1

**Table 2: Individual-fixed effects regressions**

	(1) Ln (bill rate)	(2) Percentage margin	(3) Ln (pay rate)
Days with agency	0.000285** (0.000070)	0.000041* (0.0000165)	0.000177** (0.000060)
Tenure at assignment	0.000324 (0.000504)	0.000173 (0.000115)	-0.000029 (0.000460)
Days with client	-0.000275** (0.000060)	-0.000075** (0.000016)	-0.000096+ (0.000055)
Hilnbill	—	0.0279414* (0.010874)	—
Lolnbill	—	0.314160** (0.017490)	—
Ln client size	0.002635 (0.002060)	-0.000742 (0.000529)	0.001902 (0.001838)
Project duration	-0.000036 (0.000070)	-0.000028 (0.000017)	0.000025 (0.000045)
Skill segment dummies	Included	Included	Included
Industry dummies	Included	Included	Included
Month controls	Included	Included	Included
Constant	3.800630** (0.170348)	-0.647833** (0.079465)	3.168575** (0.164697)
Observations	1467	1467	1467
Number of individuals	251	251	251

Standard errors in parentheses

\* significant at 5% level; \*\* significant at 1% level

**Table 3: Pooled Cross-Sectional Models of Bill and Pay Rates**

	(1) Ln (bill rate)	(2) Ln (pay rate)
Days with agency	0.000401** (0.000075)	0.000398** (0.000084)
Tenure at assignment	0.000049 (0.000058)	0.000057 (0.000066)
Days with client	-0.000362** (0.000092)	-0.000203* (0.000103)
Gender	-0.037316 (0.024931)	-0.031573 (0.026160)
Ln client size	0.004586 (0.003236)	0.002705 (0.003259)
Project duration	-2.00e-06 (0.000090)	0.000089 (0.000082)
Years education	0.013468 (0.008922)	0.015543 (0.009171)
College in field	0.045610 (0.029216)	0.031723 (0.031997)
Special training	0.080409** (0.028470)	0.090296** (0.031771)
Years experience	0.010264** (0.003418)	0.013378** (0.003979)
Contractor last job	0.039822 (0.028991)	0.037671 (0.032021)
Skill segment dummies	Included	Included
Industry dummies	Included	Included
Month controls	Included	Included
Constant	3.137337** (0.199602)	2.560846** (0.220130)
Observations	1467	1467
R-squared	0.62	0.61

Robust standard errors in parentheses

\* significant at 5% level; \*\* significant at 1% level

**Table 4: Lower Margins for Long-Term Worker-Client Ties Driven by Project Renewal**

**4.1. Bill Rate Increases and Decreases Depending on Project Renewal**

New Client	Bill Change			Total
	-1	0	1	
0	33	511	68	612
	5.39	83.50	11.11	100.00
1	420	186	529	1135
	37.00	16.39	46.16	100.00
Total	453	697	597	1747
	25.93	39.90	34.17	100.00

Pearson chi2(2) = 748.6665 Pr = 0.000

**4.2. Pay Rate Increases and Decreases Depending on Project Renewal**

New Client	Pay Change			Total
	-1	0	1	
0	19	493	100	612
	3.10	80.56	16.34	100.00
1	324	351	460	1135
	28.55	30.93	40.53	100.00
Total	343	844	560	1747
	19.63	48.31	32.05	100.00

Pearson chi2(2) = 406.3796 Pr = 0.000

**Table 5: Tests For “Client Fixed Effects” on Bill Rates**

**5.1. One-way ANOVA**

<b>One-way Analysis of Variance for resid</b>					
<b>Source</b>	<b>SS</b>	<b>df</b>	<b>MS</b>	<b>F</b>	<b>Prob &gt; F</b>
Between Client id	70.421273	659	.10686801	2.96	0.0000
Within Client id	50.968736	1413	.03607129		
Total	121.39001	2072	.05858591		

<b>Intraclass Correlation</b>	<b>Asy. S.E.</b>	<b>[95% Conf. Interval]</b>	
0.38599	0.03512	0.31715	0.45483

Estimated SD of client id Effect	.1505856
Estimated SD within client id	.1899244
Est. reliability of a client id mean (evaluated at n=3.12)	0.66245

Observations	2073
R-Squared	0.5801

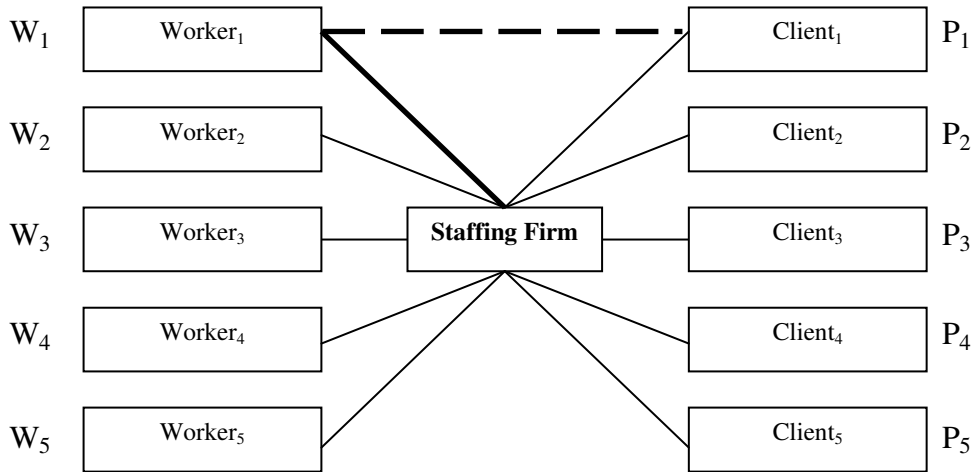
**5.1. Bill Changes Within Segment versus Person Changes Within Segment**

<b>Personchange</b>	<b>Bill Change Within Segment</b>			<b>Total</b>
	<b>-1</b>	<b>0</b>	<b>1</b>	
<b>0</b>	40	537	67	644
	6.21	83.39	10.40	100.00
<b>1</b>	182	159	241	582
	31.27	27.32	41.41	100.00
<b>Total</b>	219	696	308	1226
	18.11	56.77	25.12	100.00

Pearson chi2(2) = 392.29      Pr = 0.000

## FIGURES

**Figure 1: Labor market intermediation**



$P_i$  = Bill rate that the intermediary charges to the client firm  
 $W_i$  = Pay rate that the intermediary pays to the worker  
 Intermediary's margin =  $P_i - W_i$

Note: The thicker lines represent the ties about which we theorize and offer empirical evidence in this paper.  
 The discontinuous line represents the existence a previous relationship between the worker and the client at the time in which the staffing firm matches the two parties for a new project.

**Figure 2: Distribution of percentage margin**

