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Brokers' Contractual Arrangements in the Manhattan Residential Rental Market*

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Abstract

We use new data from a rental brokers' multiple listings service to examine the contractual agreements between landlords and brokers. The data display two sources of variation in the way in which agents are compensated: 1) 69 percent of listings involve exclusive relationships between landlords and agents (the other 31 percent are non-exclusive); and 2) in 23 percent of listings, landlords commit to pay the agent's fee (in the other 77 percent, the agent collects the fee from the tenant). We show that contracts vary according to apartment characteristics and market conditions. Specifically, landlords are more likely to sign exclusive agreements with agents for more-atypical apartments and are more likely to pay brokers' fees when apartments are in rent-stabilized buildings and when local vacancy rates are higher.

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1 Introduction

The goal of this paper is to provide descriptive evidence on the use of real estate agents and their contracts, using new data on the Manhattan residential real estate rental market. This is a novel setting, with several noteworthy features. First, this is a large market, as more than 75 percent of Manhattan households live in rented dwellings, and brokers and agents are widely used.¹ Second, our rental listings data, provided by an online platform for renting real estate, display interesting variation in the way landlords and brokers contract. More specifically, 69 percent of listings involve exclusive relationships between landlords and agents (the remaining 31 percent are non-exclusive), and in 23 percent of listings, landlords commit to pay the broker's fee (in the remaining 77 percent, the broker collects the fee from the tenant). These contractual arrangements appear to be somewhat independent, since there is a substantial number of each combination of exclusive/open and landlord/renter paying fee. The market is also interesting in its level of regulatory intervention, as discussed in Section 3.

Landlords choose among these different contractual arrangements to find the most suitable tenants to maximize the long-term return for their units. We argue that concern about providing incentives to brokers determines landlords' choice between exclusive and non-exclusive arrangements, and that cross-sectional variation in *apartment characteristics* affects this choice. Specifically, a broker's effort has first-order effects on the time that the unit remains vacant and on the rent that the unit can command. Some of the broker's effort is specific to each apartment: viewing the unit to take photographs for advertising purposes; advertising and showing the unit to interested renters; learning building and neighborhood amenities in order to convey them to potential renters. Hence, landlords face the following trade-off when deciding to enter into an exclusive relationship with an agent. On the one hand, agents are more willing to exert greater effort when advertising exclusive apartments since they reap greater benefits from this effort. On the other hand,

¹We use the terms brokers and agents interchangeably. Formally, the licensing requirements for brokers and salespersons are different, and a licensed salesbroker or associate (licensed) broker typically works for a firm owned by a licensed broker. Our analysis is at the firm level, where a licensed broker will typically employ several other licensed brokers and salespersons. In common parlance, these are rental agents.

agents may show an apartment that it is not exclusive to them since they may have renters looking for similar units; granting exclusivity to one agent may dampen the incentives of others who may have otherwise shown the apartment. This trade-off varies according to the characteristics of the unit. More precisely, the more atypical the apartment, the less likely it is that an agent has renters looking for similar units. Thus, landlords should be more likely to use exclusive contracts when the apartment is more atypical.

Simple economic theory suggests that whether the landlord or the tenant pays the broker's fee should have no effect on outcomes, as landlords also set the prices at which to rent their apartments. However, if landlords face external constraints over the nominal rental price that they can charge, then which party pays the broker's fee affects parties' share of the surplus. The extreme case of explicit rent control, as described below, does not arise in our data; however, rent-stabilized apartments do feature. For these apartments, landlords do not have full discretion to change rental prices in the case of lease renewals. Thus, landlords may prefer to simultaneously pay brokers' fees and set higher initial rents for rent-stabilized apartments. In this way, the possibility of renewal implies that the decision to choose whether or not to pay the broker's fee affects the division of surplus between landlord and tenant for rent-regulated apartments.

In addition, Genesove (2003) finds nominal rigidities in apartment rents even for unregulated apartments and greater rigidities for units whose tenants continued from the previous year. Hence, when choosing between two identical apartments with a trade-off between the annual rent and the broker's fee—i.e., one apartment with a higher annual rent, but the landlord pays the broker's fee; the other apartment with a lower annual rent, but the tenant pays the broker fee—tenants expecting to stay in the apartment longer-term should be more willing to pay the broker's fee directly in anticipation of even lower relative rents if they renew their lease. Presumably, landlords' desire to attract longer-term tenants is likely to vary with market conditions. In particular, future nominal rigidities in rents reduce the value of a longer-term tenant relatively more in “cold” markets—i.e., when the demand is weak relative to supply and, thus, the vacancy rate is high—than in “hot” markets. Hence, landlords should be more likely to pay the brokers' fees when the vacancy rate is high.

Our descriptive empirical analysis finds evidence consistent with the hypotheses outlined

above. Specifically, we follow Haurin (1988) and construct an index of atypicality of each apartment; we find that more-atypical apartments are more likely to be listed with exclusive deals. The magnitude of this effect is quite large: A one-standard-deviation increase in the value of the index of apartment atypicality increases the probability that a listing is exclusive by 8.1 percentage points, which is approximately a 12-percent increase in the probability that the listing is exclusive. Moreover, we find that landlords are more likely to pay brokers' fees when the apartment is in a rent-stabilized building and when the neighborhood's vacancy rate is higher. Again, the magnitudes of these effects are sizable: The probability that the landlord pays the broker's fee is 8.4 percent higher for a rent-stabilized apartment than for an apartment that is not rent-stabilized, corresponding to a 37-percent increase in the probability that the landlord pays the fee. In addition, a one-standard-deviation increase in the value of the neighborhood's vacancy rate increases the probability that the landlord pays the broker fee by approximately two percentage points, which is approximately an eight-percent increase in the probability that the landlord pays the broker fee.

The paper proceeds as follows. Section 2 reviews the related literature. Section 3 presents some institutional details on the Manhattan residential rental market. Section 4 describes our main hypotheses. Section 5 introduces the data. In Sections 6, 7 and 8, we perform our descriptive empirical analysis. Section 9 concludes. Appendix A compares our listings data from U.S. Census data, and Appendix B presents some robustness checks.

2 Related Literature

This paper contributes to several strands of the literature.

First, the literature on real estate brokerage (surveyed in Benjamin, Jud and Sirmans, 2000a and b, and Zeits and Sirmans, 2011) focuses mainly on sales rather than rentals. Thus, the main issues of this paper do not arise: specifically, the use of exclusive rather than open listings and the question of which side pays the broker's fee. Moreover, in a rental transaction, the landlord might care about the type of tenant with whom he signs a contract, in contrast to a sale.

Our results on exclusivity suggest that the form of contracts may affect agent incentives for non-contractible efforts and that the nature of this effort (and the efficiency of more concentrated agency) might vary with apartment characteristics. Previous work on real estate sales demonstrates a role for broker incentives. Rutherford, Springer and Yavas (2001, 2004), studying the effect of brokers' contracts on their performance, find that houses sell faster under some contracts, but at a higher price under alternative brokers contracts. Levitt and Syverson (2008) compare brokers' incentives under two sets of circumstances: 1) a real estate agent is hired by others to sell a home; and 2) a real estate agent sells his or her own home. The authors find that homes owned by real estate agents sell for more and stay on the market longer than other houses. Hendel, Ortalo-Magne and Nevo (2009) study the performance of real estate marketing platforms and find a trade-off between selling faster on one platform and paying lower commission on the other platform, but no difference on final sale prices before commissions to brokers.

Our paper further contributes to the literature that investigates the role of intermediaries in search markets. The theoretical literature has provided useful insights into the existence and use of intermediaries (for a thorough review, see Spulber, 1999), as well as their compensation structures and incentives (Inderst and Ottaviani, 2011; Lewis and Ottaviani, 2011; Loertscher and Niedermayer, 2012a and b). However, empirical studies on intermediaries' contractual arrangements have been hampered because data availability is usually limited and because they often display little variation within an industry. Further, in most papers, the intermediary holds inventory: Rubinstein and Wolinsky (1987), Yavas (1992), Johri and Leach (2002), Shevchenko (2004), and Shi and Siow (2011)). Instead, we focus on contractual arrangements between asset owners and intermediaries in a market in which intermediaries' main role is to match buyers and sellers. Finally, Inderst and Ottaviani (2011) study whether buyers or sellers should pay fees for recommendations, as well as the effects of these payments on intermediaries' incentives to misinform and mis-sell (for related issues in the credit-ratings industry, see, also, White, 2010). We contribute to this literature by studying a setting in which who pays the fee is largely unrelated to the provision of incentives to the intermediaries. Instead, it affects the division of the surplus between other parties.

Influential theoretical contributions have analyzed the role of exclusive contracts; for thorough reviews, see Whinston (2006) and Rey and Vergé (2008). The most relevant papers for our analysis investigate the role of exclusive contracts in fostering relationship-specific investments.² The empirical literature on the role of exclusive contracts is limited; for a thorough survey, see Lafontaine and Slade (2008). Sass and Sauerman (1993) study the effects of exclusive territories in beer distributions, finding that exclusive contracts increase beer demand and reduce beer supply, consistent with greater distributors' efforts or investments and with less competition among suppliers. Sass (2005) studies the determinants of exclusive contracts in beer distribution and finds that they are more likely to be employed in states allowing billboard beer advertisements, consistent with the idea that exclusive contracts protect parties' specific investments. Finally, Asker (2004) finds that exclusive contracts enhance efficiency and do not foreclose rivals. Our paper contributes to this literature by focusing on the determinants of exclusive contracts in a new empirical setting—rental apartments—that provides greater variation across assets and, thus, in parties' investment incentives.

Finally, this paper is also related to a strand of literature on organizational form that empirically investigates how asset specificity affects contracting between parties. Specifically, this paper is related to the important contributions of Monteverde and Teece (1982), Masten (1984), Joskow (1985) and Baker and Hubbard (2003, 2004). These papers investigate how asset specificity or task contractibility affect whether or not firms own assets. Similarly, Joskow (1987), Crocker and Masten (1988), Pirrong (1993) and Hubbard (2001) show that firms write longer contracts as assets become more specific.³ We add to these papers by providing empirical evidence on how asset characteristics affect the choice of

²See, for example, Marvel (1982) and the more recent literature, including Segal and Whinston (2000), de Meza and Selvaggi (2004) and Che and Sákovics (2004). Much of this literature is focused on exclusivity affecting bargaining and hold-up under an assumption of ex-post efficient trade. Our setting is a little different, inasmuch as terms of trade are (largely) determined ex-ante and investments affect the probability of trade. Exclusivity can lead a broker to exert more effort since, in the absence of exclusivity, the agent faces a free-rider problem because investing in advertising and showing an apartment might lead to no return if the apartment is rented through another agent.

³Also related are Benmelech, Garmaise, and Moskowitz (2005), Benmelech (2009), Benmelech and Bergman (2010) and Gavazza (2011), who empirically document how asset liquidity and asset redeployability affect mortgage, debt and lease contracts with detailed micro-data on different asset classes (i.e., commercial real estate, railroads, and commercial aircraft).

exclusive contracts.

3 Background: Real Estate Brokerage in the Manhattan Residential Rental Market

The Manhattan residential rental market offers several features which make it an interesting context in which to investigate the role of brokers' contractual arrangements.

First, this rental market is one of the most important in the U.S., both in terms of total number of units traded and total value. Rental housing is much more prevalent in Manhattan than in other U.S. cities. According to 2010 Census data, more than 75 percent of Manhattan households live in rented dwellings, in contrast to the U.S. as a whole, where approximately 65 percent of households live in owned units. Moreover, a well-known characteristic of the Manhattan real estate market is that it is among the most expensive in the world.

Second, housing markets are typical examples of decentralized markets, in which transactions involve material and opportunity costs. In these markets, brokers play an important allocative role by matching home sellers or landlords with home buyers or tenants. Brokers may further provide their clients with ancillary services related to their transactions, including performing credit-checks for landlords, helping transacting parties negotiate a mutually acceptable price, or helping renters complete application forms.

Third, the typical Manhattan residential rental transaction involves several steps, providing landlords, renters and brokers with several choices among different possible contractual agreements. First, the landlord chooses between working with a real estate broker or renting the rental unit on her own. If the landlord works with a broker, they often enter into an exclusive contractual relationship by which the broker agrees to market the rental unit for a specified period of time (usually two to three months), on the owner's stated terms. In contrast to the typical sales arrangement, in the Manhattan residential rental market, the landlord does not necessarily promise a commission in the case of a

transaction; rather, the agent often collects the fee from the renter—typically 15 percent of one year’s rent. An exclusive agent tries to find renters directly, often advertising to other brokers through a brokers’ multiple listing service (MLS) and potentially co-broking with a renter’s agent, thereby splitting the fee (typically a 50/50 split).⁴ If the landlord does not offer a broker an exclusive contract, she will advertise her rental property directly, either to potential renters (through Craigslist, the *New York Times*, listings services) or to brokers (through similar channels or through a brokers’ MLS).⁵ This is known as an “open listing,” and any licensed agent in the city has the right to advertise the listing and show the rental unit.⁶ Second, a landlord advertising an apartment on a brokers’ listing service can promise a commission fee (typically either one month’s rent or 15 percent of the annual rent) to the tenant’s agent; agents then show these apartments to prospective tenants as “no-fee” apartments (or “owner-pay” listings). If the landlord does not offer agents a fee, the open listing is a “fee listing,” in which case the agent recoups his costs by charging a commission directly to the prospective tenant. By law, the agent is supposed to disclose if he is receiving a fee from the landlord.

The Manhattan residential rental market is more heavily regulated than that of other U.S. cities. The New York State Controller Thomas Di Napoli reports that two thirds of New York City’s two million rental apartments faced some form of regulated rental rates in 2009 (Di Napoli, 2009). On aggregate, rent regulation induces misallocation and increases the prices of non-regulated units (Glaeser and Luttmer, 2003). Moreover, regulated apartments are less likely to be available for rent and are more likely than unregulated ones to be low-rent housing. For these reasons are less likely to appear in our listings data.

Several different forms of regulation affect Manhattan rental markets. (Only buildings with six or more apartment units can be regulated.) *Rent-control* applies to apartments that have been continuously rented by the same tenant since July 1, 1971 and implies that

⁴Members of the Real Estate Board of New York (REBNY) are obliged to share their listings and allow other agents to co-broke through REBNY’s listings service.

⁵The principal listings services at the time our data were collected were brokersNYC/MLX, OLR and RealtyMX. There is substantial overlap in their listings coverage, in part because these share data from the REBNY listing service.

⁶Consequently, when agents advertise open listings, they do not give full details of apartments. Thus, it is hard for renters to view them independently, and before showing potential renters an apartment, agents ask them to sign contracts saying that they will pay a fee or contact the landlord only through the agent.

the NYC Rent Guidelines Board establishes the maximum allowable rent that the landlord can charge the tenant. Hence, our data do not feature these rent-controlled apartments. *Rent-stabilized* units (comprising approximately 45 percent of New York City rental units) are apartments for which the NYC Rent Guidelines Board annually determines maximal rental increases for lease renewals.⁷ Rent-stabilized apartments include new-construction units, since owners receive tax advantages if they include rent-stabilized units. Our dataset likely includes several of these rent-stabilized apartments. It is worth noting that, in the period that our data cover, a landlord who improved a vacant apartment and rented it to a new tenant at a rent above \$2,000 could, in many instances, remove the apartment from rent regulation,⁸ though this does not apply to new construction.

4 Landlords' Decision-Making

We focus on two key decisions of landlords: 1) whether to enter into an exclusive relationship with an agent; and 2) whether to commit to pay a broker's fee or, instead, ask brokers (or the exclusive broker) to collect their own fee from the tenant.

Landlords choose among these different contractual arrangements to find the most suitable tenants to maximize the long-term return of their units. We argue that the provision of incentives to brokers determines landlords' choice between exclusive and non-exclusive arrangements, and that cross-sectional variation in *apartment characteristics* affects landlords' choices. More precisely, the literature discussed in Section 2 suggests that exclusive contracts could be optimal when the agent's effort is key to determining the surplus of the relationship. In the case of real-estate markets, agents' effort has first-order effects on the time that the unit remains vacant and on the rent that the unit can command. Specifically, an agent makes specific effort to market an apartment: viewing the unit to take photographs for advertising purposes; advertising and showing the unit to interested renters; learning building and neighborhood amenities in order to convey them to potential

⁷For example, in our data period, the Rent Guidelines Board, in Apartment & Loft Order #41, determined on June 21, 2009 that for one-year lease renewals for rent-stabilized apartments where the landlord provides heat, the maximum by which the base rent could rise for a new lease commencing between Oct 1, 2009 and Sep 30, 2010 was three percent.

⁸This threshold rose to \$2,500 in June 2011.

renters; and, possibly, learning landlords' preferences (for example, understanding a landlord's requirements in terms of guarantors, financial background etc.). Some investment is at the level of the landlord or building rather than at the level of individual units, and, thus, landlords tend to use the same exclusive agents for several units, and agents tend to specialize in certain types of rental units. This specialization also reflects the fact that agents show several similar units to renters, seeking the best matches.

These arguments suggest that landlords face a trade-off when deciding to enter into an exclusive relationship with an agent. On the one hand, an agent may show an apartment in the absence of any exclusive relationship since the agent may have renters looking for similar units, but incentives for such agents may be dampened if another agent is awarded an exclusive contract. On the other hand, an agent is more willing to exert greater effort when advertising exclusive apartments (for standard free-riding arguments). Presumably, this trade-off varies according to the unit's characteristics. Specifically, the more atypical the apartment, the less likely it is that the agent has renters looking for similar units and the more important may be the agent's specific effort; thus, it becomes more important that the landlord contracts with one agent to market it (even at the cost of reducing the incentives of other agents to do so, as well). Hence, our first hypothesis is:

H1: *Landlords are more likely to use exclusive contracts when the apartment is more atypical.*

Of course, landlords choose not only a contractual arrangement with brokers, but also the prices at which to rent their apartments.⁹ Hence, simple economic theory suggests that whether the landlord or the tenant pays the broker's fee should have no effect on outcomes (in the same way that tax incidence does not depend on where the revenue is collected). However, several features of this market suggest that who pays the fee may make a difference.

If landlords face external constraints over the nominal rental price that they can charge, then who pays the broker's fee affects parties' share of the surplus. Genesove (2003) finds

⁹More precisely, the landlord sets the listed price (this is the price that we observe in our data). There may be negotiation over the transacted price; however, anecdotally, the correlation between listed and transacted rental prices is high and, most often, units are rented at the listed price.

nominal rigidities in apartment rents and greater rigidities for units whose tenants continued from the previous year. As we described in Section 3, this type of price rigidity specifically applies to rent-stabilized apartments. Thus, the landlords of these rent-stabilized apartments may prefer simultaneously to pay brokers' fees and set higher *initial* rents. Hence, our second hypothesis is:

H2: *Landlords are more likely to pay brokers' fees for apartments that are rent-stabilized.*

Moreover, landlords' choices of whether or not to pay the broker's fee can allow them to screen for particular types of tenants. For example, when choosing between two identical apartments with a trade-off between the annual rent and the broker's fee—i.e., one apartment has a higher annual rent, but the landlord pays the broker's fee; the other apartment has a lower annual rent but the tenant pays the broker fee—tenants expecting to stay in the apartment longer-term should be more willing to pay the broker's fee directly, to the extent that they expect some nominal rigidity in the rental price (of the kind documented by Genesove, 2003). Similarly, credit-market imperfections imply that tenants and landlords may have different preferences over incurring the fixed up-front payment of the broker's fee rather than spreading it over the life of the lease. Landlords' desire to attract longer-term tenants is likely to vary with market conditions. Presumably, future nominal rigidities in rents reduce the value of a longer-term tenant relatively more in “cold” markets—i.e., when the demand is weak relative to supply and, thus, the vacancy rate is high—than in “hot” markets. Hence, our third hypothesis is:

H3: *Landlords are more likely to pay the brokers' fees when the vacancy rate is high.*

5 Data

We use a unique dataset on the New York rental market provided by MLX, an online platform for renting and buying real estate (www.mlx.com; in the earlier period of our sample, the name of the platform was brokersnyc.com). The website is one of the leading platforms for rental listings in New York City. It is used primarily by management companies

and landlords' brokers to advertise their openings, and by renters' brokers to search among those openings.

The original data contain some old listings. However, we restrict our analysis to the most recent 12-month period in the data (May 2009-April 2010) since there are many more missing values in the oldest listings. In Appendix A, we also assess the representativeness of our data by comparing them with housing information from the U.S. Census. The comparison indicates that our database is broadly representative of the Manhattan rental market, although the apartments in our sample are, on average, smaller and more expensive than the average Manhattan apartment reported in the Census. Moreover, since our data comprises apartments listed by management companies and by landlords' brokers, it represents a selected sample of Manhattan real estate. However, conversations with Manhattan real-estate brokers indicate that is representative of the Manhattan rental market.

We complement this main dataset with additional information on Manhattan housing markets. First, we obtain the list of rent-stabilized buildings from the website of the New York City Rent Guidelines Board.¹⁰ With these additional data, we create an indicator variable `RENT STABILIZED`, equal to one for any apartment in our listing data whose exact address appears in this list of rent-stabilized buildings, and zero otherwise. Second, we obtain monthly aggregate reports on Manhattan rental markets from the website of Citi Habitats.¹¹ These data report the `VACANCY RATE` for each month-neighborhood pair. We match these additional data to each listing based on the neighborhood and the month in which each apartment is available for rent.

Table 1 provides summary statistics of the main variables used in the empirical analysis. These are self-explanatory, with the possible exception of `NO FEE`, which is an indicator variable equal to one if the landlord commits to pay the broker's fee, and equal to zero if the broker collects his/her own fee from the prospective tenants (a `FEE` apartment). The dataset contains more than 20,000 listings, distributed over all Manhattan areas. The average listing is for a one-bedroom apartment—one bedroom, two additional rooms (typically, a living room and a kitchen) and one bathroom—but the dataset contains listings of

¹⁰http://www.housingnyc.com/downloads/resources/sta_bldngs/2010ManhattanBldgs.pdf

¹¹<http://www.citi-habitats.com/market.php>

apartments of many different sizes. The average rent is approximately \$3,500 per month, with a large variation, as well. Interestingly, there is substantial variation in landlords' agreements with brokers: 59 percent of all listings are EXCLUSIVE and FEE; 18 percent are NON-EXCLUSIVE and FEE; 14 percent are NON-EXCLUSIVE and NO-FEE; and nine percent are EXCLUSIVE and NO-FEE.

The data provide a fairly comprehensive description of the Manhattan residential rental market and are well-suited to investigating how contractual agreements between landlords and brokers vary with apartment characteristics and market conditions. Even with all these advantages, however, the datasets pose some challenges. In our view, the main limitation is that the data do not report the transaction outcomes. Specifically, we do not know how long each apartment remained on the market and the price at which it was eventually rented. Hence, one important limitation of our analysis is that we cannot evaluate the ex-post performance of the different contractual features that we focus on.

6 The Role of Exclusive Agreements

In this section, we report descriptive patterns of the use of exclusive agreements. These patterns suggest that exclusive agreements are more likely to be used for more-atypical apartments, according to both observable and unobservable characteristics, confirming our hypothesis H1.

One dimension of atypicality suggested by the data is whether the apartment is furnished: Table 1 shows that a minority of the listings—i.e., 12 percent—refer to furnished apartments. Interestingly, 94 percent of these listings are EXCLUSIVE.

An additional way to investigate the role of the atypicality of an apartment is to compare apartments based on their size. The average apartment in Manhattan is notoriously small, and in Figure 1, we plot the number of listings by number of bedrooms (dotted line): Small apartments are the norm, whereas larger apartments are more atypical. Interestingly, in Figure 1, we also plot the fraction of EXCLUSIVE listings by number of bedrooms¹² (solid

¹²One-bedroom apartments include studio apartments.

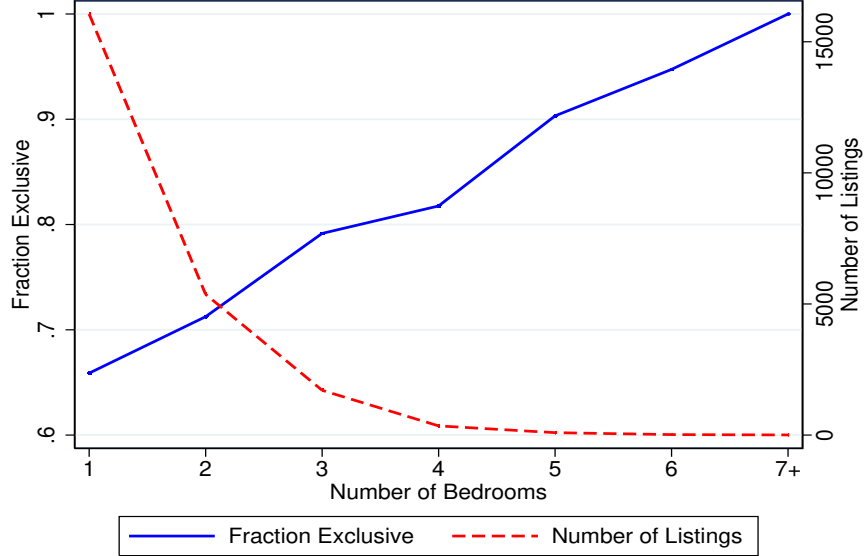


FIG. 1: The figure displays the fraction of apartments with exclusive agreements (left scale) and the number of listings (right scale), by number of bedrooms.

line). Larger, more “niche” apartments are more likely to have exclusive agreements in which the broker collects the fee from the prospective tenant.

A further way to analyze whether the atypicality of an apartment matters for brokers’ contractual arrangements is by classifying apartments by their listed monthly rent. Since the correlation between number of bedrooms and apartment rent is equal to 0.508, exclusive agreements are also employed more frequently for more-expensive apartments: The average monthly rent of an exclusive rental is \$4,002, whereas the average monthly rent of a non-exclusive rental is \$2,720. To control for the effect of size, we plot in Figure 2 the fraction of one-bedroom EXCLUSIVE listings by quintile of monthly rent. The patterns are clearly non-monotonic: One-bedroom apartments in the tails of the distribution—i.e., either the cheapest or the most expensive ones—are more likely to have exclusive listings than apartments in the middle of the distribution.

A Measure of Atypicality. To investigate the choice of contractual terms through more-sophisticated empirical techniques, we use a measure that summarizes the atypicality of each apartment in the data. Specifically, we follow Haurin (1988) and define an index of

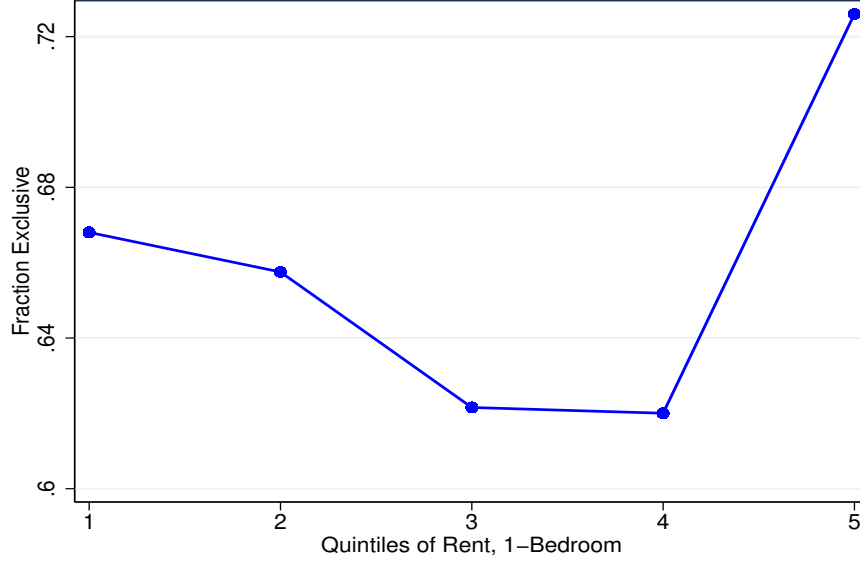


FIG. 2: The figure displays the fraction of one-bedroom apartments with exclusive agreements by quintiles of rent.

ATYPICALITY as:

$$\text{ATYPICALITY}_i = \beta |h_i - \bar{h}|, \quad (1)$$

where h_i is the vector of observable characteristics of apartment i , \bar{h} is the vector of average observable characteristics in the sample, and β is the vector of implicit hedonic prices of observable characteristics derived from the hedonic regression

$$p_i = \beta h_i + \epsilon_i.$$

Figure 3 plots the histogram of this measure of atypicality of each apartment. The plot shows that the measure exhibits substantial variation and a long right-tail: The average equals 2.348, the standard deviation equals 2.271 and the skewness equals 4.597. Most apartments are quite typical—one-bedroom, one-bathroom, unfurnished apartments in the Upper East Side—whereas other apartment types are less common—large apartments in the Financial District or in Harlem, in particular.

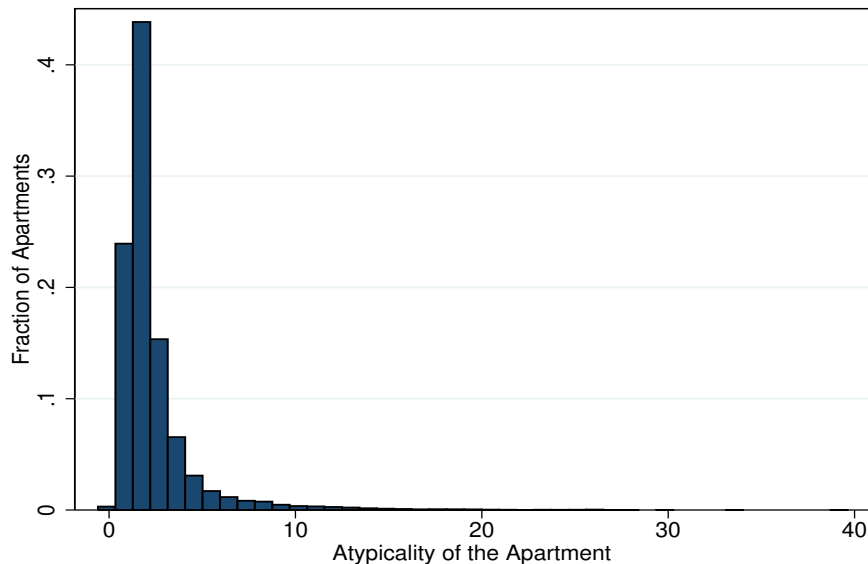


FIG. 3: Histogram of the measure of atypicality of the apartment in the data.

Regression Analysis. We investigate whether exclusive agreements are more likely to be employed for more-atypical apartments using the following specification:

$$\text{EXCLUSIVE}_i = f(\beta_0 + \beta_A \text{ATYPICALITY}_i + \beta_X X_i). \quad (2)$$

The dependent variable EXCLUSIVE_i is equal to 1 if listing i is exclusive, and 0 otherwise. The main variable of interest is ATYPICALITY , our measure of apartment idiosyncrasy defined in equation (1). X_i is a set of variables specific to each apartment i , such as $\text{NUMBER OF BEDROOMS}$, $\text{NUMBER OF BATHROOMS}$ and other characteristics. We also include in some our specifications zipcode fixed-effects and month-of-listing fixed-effects to capture any unobserved zipcode- and month-specific factor, thus allowing a cleaner identification of the effect of market thickness. Letting f be the c.d.f. of the normal distribution, equation (2) is a simple probit regression that we estimate by maximum likelihood.

Table 2 reports the maximum-likelihood estimates of the coefficients. Specification (1) includes month-of-listing fixed-effects and specification (2) further includes zipcode fixed-effects. Specification (3) also adds fixed-effects for the most popular 30 streets in the data to capture any street-specific unobserved non-random components that could bias the

results; in this way, we identify the effect of apartment idiosyncrasy comparing within each street how the probability that a listing is exclusive covaries index of `ATYPICALITY` of the apartment, thus providing an even stronger test of our hypothesis.¹³

The coefficients of the main variable `ATYPICALITY` are significantly larger than zero in all specifications, indicating that more-atypical apartments are more likely to have exclusive agreements, as predicted by our hypothesis H1. Moreover, the coefficients reported in Table 2 imply that the proxy for the atypicality of the apartment is also economically significant. According to specification (3), a one-standard-deviation increase in the value of `ATYPICALITY` increases the probability that a listing is exclusive by 8.1 percentage points, which is approximately a 12-percent increase in the probability that the listing is exclusive.

The coefficients of other explanatory variables confirm the previous descriptive evidence. Specifically, larger apartments are more likely to be listed as exclusive. Similarly, furnished rentals are almost always exclusive. It is noteworthy that `RENT-STABILIZED` apartments are less likely to be listed as exclusive. This may be consistent with the view that `RENT-STABILIZED` apartments are appealing to renters, and so marketing them may require less effort from agents. Interestingly, the neighborhood `VACANCY RATE` does not significantly affect the choice of exclusive or non-exclusive agreement.

7 The Role of No-Fee Listings

In this section, we report descriptive patterns on the use of `NO-FEE` listings. These patterns indicate that the broker is more likely to collect the fee from the landlord than from the tenant when the apartment is rent-stabilized, thus confirming our hypothesis H2. Moreover, we find that brokers are more likely to collect the fee from the landlord when the neighborhood's `VACANCY RATE` is higher, thereby providing evidence in favor of our hypothesis H3.

The simplest tests are suggestive: Among listings of rent-stabilized apartments, 27.8

¹³We have further estimated a specification with building fixed-effects, as we sometimes observe multiple units within the same building. The estimated coefficients are similar to those reported in Table 2. However, in most cases, they are not statistically different from zero.

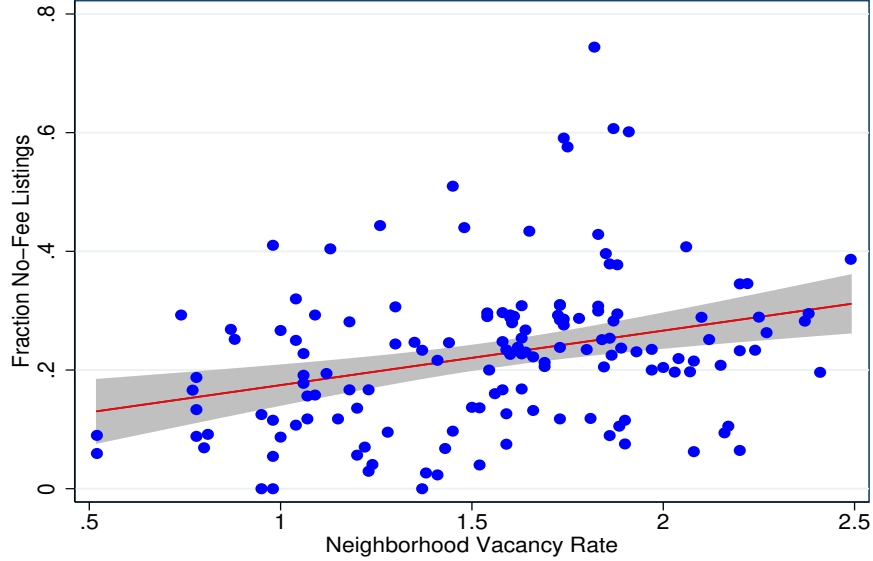


FIG. 4: This figure plots neighborhoods’ vacancy rates (horizontal axis) and neighborhoods’ fraction of listings in which the owner pays the broker fee (vertical axis), along with the estimated line of best fit and its 95-percent confidence intervals.

percent are NO-FEE, whereas only 19.2 percent of non rent-stabilized apartments are NO-FEE (the p -value of the t -test of the null hypothesis that the difference is equal to zero is 0). Moreover, Figure 4 displays the simple univariate relationship between the neighborhood’s VACANCY RATE (on the horizontal axis) and the neighborhood’s fraction of NO-FEE listings (on the vertical axis). As the line of best fit shows, the two variables are positively correlated.

Regression Analysis. We further estimate regression equations similar to those reported in Table 2. However, the dependent variable is now NO-FEE: an indicator equal to 1 if the listing specifies that the owner pays brokers’ fees, and 0 if the broker collects his/her fee from the prospective tenant. The main variables of interest are now whether the apartment is RENT-STABILIZED and the neighborhood’s VACANCY RATE. As before, we control for a set of variables specific to each apartment i , such as NUMBER OF BEDROOMS, NUMBER OF BATHROOMS and other characteristics. We also include in some our specifications zipcode fixed-effects and month-of-listing fixed-effects to capture any unobserved zipcode-

and month-specific factor, thus allowing a cleaner identification of the effects of a RENT-STABILIZED apartment and the neighborhood's VACANCY RATE.

Table 3 reports the maximum-likelihood estimates of several probit specifications. Specification (1) includes month-of-listing fixed-effects, and specification (2) further includes zip-code fixed-effects. Specification (3) also adds fixed-effects for the most popular 30 streets in the data to capture any street-specific unobserved fixed components; thus, we identify the effect of the neighborhood's VACANCY RATE by comparing how the probability that the listing is NO-FEE covaries with the VACANCY RATE over time for apartments on the same street, thus providing a strong test of our hypothesis. Thus, since we include location fixed-effects, the variation that we exploit is time-series rather than cross-sectional variation.

The coefficients of the variable RENT-STABILIZED are positive in all specifications. This agrees with our hypothesis H2 that landlords of rent-stabilized units should prefer to pay brokers' fees, so they can set higher initial rents anticipating the constraints over the increase in nominal rents for lease renewals. The magnitude of this effect is quite large. According to the coefficients of specification (3), a RENT-STABILIZED apartment has an 8.4-percent higher probability of having a NO-FEE listing than an unregulated apartment, which represents a 37-percent increase in the likelihood that the listing is NO-FEE.

The coefficients of neighborhoods' VACANCY RATE are positive in all specifications, indicating that owners (rather than tenants) are more likely to pay brokers' fees when market tightness is lower, as predicted by our hypothesis H3. Furthermore, the estimates of specifications (3) mean that a one-standard-deviation increase in the value of VACANCY RATE increases the probability that a listing is NO-FEE by approximately two percentage points, which is approximately an eight-percent increase in the probability that the listing is NO-FEE.¹⁴

Moreover, Table 3 indicates that, conditional on all characteristics contained in our listings, more-expensive apartments are more likely to be listed as NO-FEE. Thus, this coefficient provides suggestive evidence consistent with the idea that landlords may

¹⁴Since the time-series variation in the VACANCY RATE over the business cycle is likely to be larger than our 12-month sample variability, this may understate the economic significance of this relationship.

prefer to simultaneously pay brokers' fees and set higher rents. The other coefficients reported in Table 3 indicate that more-expensive, smaller and unfurnished apartments are more likely to be listed as NO-FEE.

One potential concern with the results reported in Table 3 is that the neighborhoods' VACANCY RATE may be correlated with some unobserved time-varying neighborhood characteristics that may determine landlords' and brokers' decisions to list an apartment as NO-FEE. To alleviate these concerns, in Appendix B, we report the results of instrumental variable regressions that use arguably exogenous instruments that shift the VACANCY RATE for reasons unrelated to changes in neighborhood characteristics. These additional regressions confirm that owners (rather than tenants) are more likely to pay brokers' fees when the VACANCY RATE is higher. Moreover, the magnitude of the estimated effect is larger than the corresponding one obtained from the coefficients reported in Table 3, indicating that neighborhood characteristics that are omitted from the specifications of Table 3 and that make NO-FEE listings more likely are negatively correlated with the VACANCY RATE.

8 Joint Choices

We use a multinomial logit to analyze in a more-complete way the range of contractual arrangements between landlords and brokers. Specifically, based on the analyses of the previous sections, we consider the following possible four outcomes: 1) a NON-EXCLUSIVE, FEE listing—i.e., a listing in which the broker collects a fee from the prospective tenant; 2) a NON-EXCLUSIVE, NO-FEE listing—i.e., a non-exclusive listing in which the broker collects a fee from the landlord; 3) an EXCLUSIVE, FEE listing—i.e., an exclusive listing in which the broker collects a fee from the prospective tenant; and 4) an EXCLUSIVE, NO-FEE listing—i.e., an exclusive listing in which the broker collects a fee from the landlord.

Table 4 presents the results of several specifications. Specification (1) includes month-of-listing fixed-effects. Specification (2) further adds zipcode fixed-effects. Specification (3) also adds fixed-effects for the most popular 30 streets in the sample. In all specifications,

the excluded base outcome is a NON-EXCLUSIVE, FEE listing—i.e., a non-exclusive listing in which the broker collects a fee from the prospective tenant.

The coefficients of the ATYPICALITY is always positive in all outcomes that involve an EXCLUSIVE listing in all specifications. Similarly, with the exception of specification (1), the coefficients of the neighborhood VACANCY RATE are positive in all outcomes that involve a NO-FEE listing, although the statistical significance is sometimes weak, in particular in the case of EXCLUSIVE, NO-FEE listings. Interestingly, RENT STABILIZED apartments are strongly associated with NON-EXCLUSIVE, NO-FEE listings; this is consistent with the intuition that such apartments require relatively little marketing effort from agents (accounting for the lack of exclusivity) and that landlords might aim for slightly higher initial rents when the rate at which they increase the rent for an existing tenant is limited (accounting for the no fee).

Overall, the results presented in Table 4 confirm the previous results that different contractual features, such as the exclusivity of the agreement and who pays the broker fee, are different margins that adjust in response to different apartment and market characteristics, respectively. Moreover, the magnitudes of the estimated effects are also comparable to those reported in Tables 2 and 3.

9 Concluding Remarks

We presented novel descriptive evidence on the choice of contractual agreements between landlords and brokers in the Manhattan rental market. The market has some interesting features—most notably, considerable variation in the use of exclusive contracts and in which side of the rental transaction pays the broker’s fee. We find that landlords are more likely to use exclusive contracts when the apartment is more atypical, suggesting that agents’ provision of specific effort may be relevant for this decision. However, agents’ effort does not seem to play a role in the decision of whether or not to pay the brokers’ fee. Instead, we find that a landlord is more likely to pay the fee when the apartment is rent-stabilized, and when the local vacancy rate is high. These findings suggest that the landlord’s decision to pay the broker’s fee might be motivated by the desire to influence the rent in case of

renewal and the selection of tenants that a listing attracts.

While our empirical findings are consistent with our hypotheses, a lack of further data prevents us from examining these mechanisms in more detail. Specifically, our data provide few outcome measures, such as whether the unit transacts at the listed price (though we believe that most units do), the length of time that the unit is on the market before it is rented,¹⁵ and the satisfaction of the renter/landlord with the match (for example, characteristics of the renter, whether the renter paid rent in a timely fashion, whether the lease is renewed). Thus, our data do allow us to document some interesting correlates with contractual form but are not amenable to exploring their consequences.

Perhaps one of the unusual features of the data is the variation in who pays the broker's fee. Our data suggests that this contractual arrangement may play a role in screening tenants, but this poses a theoretical challenge inasmuch as one could imagine screening through more-sophisticated contracts (for example, longer-term contracts with provisions for renewal rather than standardized 12-month contracts). In part, this may reflect legal restrictions in a market that is subject to substantial regulation, or it may reflect other features of the market and its participants that lie beyond the scope of this paper.

¹⁵This is not only a concern about selection into our dataset, which may not be at the “start” of the time at which the landlord seeks a renter, but the nature of our data also provides poor measures of time listed in the MLS from which the data are provided.

A Representativeness of the MLX Data

We compare our listings data with the publicly-available five-percent sample of the 2000 Census—the most-recent available Census. The Census asks some dwelling questions, including ownership status (rent versus own), along with detailed geographic information, such as the county. Hence, we can construct a sample of all households in rented apartments in Manhattan. Similar samples have been constructed by Glaeser and Luttmer (2003), among others.

Table 5 reports this comparison. The NUMBER OF ROOMS in the MLX dataset is almost identical to that in the 2000 Census, whereas the NUMBER OF BEDROOMS is smaller in the MLX than that reported in the Census. The last column of Table 5 reports Census statistics conditioning on households that reported having moved into their residence “This year or last year.” Those households report living in apartments that have fewer rooms (2.589 versus 3.312), but more bedrooms (2.055 versus 1.127). The latter difference might reflect the fact that in Manhattan, sharing an apartment (with friends, colleagues, or other people) is common. In these cases, tenants often convert rooms for use as bedrooms, whereas brokers cannot legally advertise these rooms as bedrooms.

B Robustness Checks

In this appendix, we report the results of instrumental variable regressions that use arguably exogenous instruments that shift the VACANCY RATE for reasons unrelated to changes in unobserved neighborhood characteristics. More specifically, for each month t -neighborhood k pair in our data, we use the CRSP-Compustat database to calculate the aggregate market capitalization in month t of all listed firms whose headquarters are in neighborhood k . We further calculate the average over the previous three months of this “neighborhood market capitalization” (to reflect some stickiness in mobility decisions and housing markets) and each neighborhood’s fraction of the aggregate market capitalization of all firms listed whose headquarters are in New York City. The idea of these instruments is that market capitalization is likely to be correlated with employment: For example, during our sample periods, many financial institutions headquartered in New York were simultaneously losing

market value and firing or losing employees. In addition, individuals' decisions of where to live and where to work are related. Hence, if the stock-market value of many firms headquartered in a neighborhood varies, it should affect the neighborhood's VACANCY RATE.

The first-stage regressions (unreported) confirm that the instruments that use our "neighborhood market capitalization" and the neighborhood's VACANCY RATE are correlated. More precisely, the first-stage regressions indicate that the lagged market capitalization of firms headquartered in the neighborhood is *positively* correlated with the neighborhood's VACANCY RATE. This positive correlation is consistent with the idea that, since some neighborhoods are predominantly residential (such as the Upper West Side or the Upper East Side), whereas others are predominantly commercial (such as the Financial District around Wall Street), individuals are moving into the more-residential neighborhoods (thereby decreasing their VACANCY RATE) when firms in more-commercial neighborhoods are expanding.

Table 6 presents the results of the second stage of these instrumental-variables regressions. The coefficients of neighborhoods' VACANCY RATE are positive in all specifications, confirming that owners (rather than tenants) are more likely to pay brokers' fees when market tightness is lower. Moreover, these coefficients are larger than the corresponding ones reported in Table 3, suggesting that neighborhood characteristics that are omitted from the specifications of Table 3 and that make NO-FEE listings more likely are negatively correlated with the VACANCY RATE. The economic magnitudes that these coefficients imply are quite large: The estimates of specification (3) mean that a one-standard-deviation increase in the value of VACANCY RATE increases the probability that a listing is NO-FEE by approximately 23 percentage points, which implies that the probability that the listing is NO-FEE approximately doubles. The coefficients of most other explanatory variables are similar to those reported in Table 3. In particular, the coefficients of the indicator variable RENT STABILIZED confirm that landlords of these rent-stabilized units prefer to pay brokers' fees. Similarly, more-expensive apartments are more likely to be listed as NO-FEE, consistent with the idea that landlords may prefer to simultaneously pay brokers' fees and set higher rents.

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TABLE 1: Summary Statistics

| VARIABLE | OBS | MEAN | STD. DEV. | MIN | MAX |
|---------------------|--------|----------|-----------|------|-------|
| MONTHLY RENT | 21,670 | 3717.851 | 4109.829 | 0 | 88000 |
| NUMBER OF ROOMS | 21,670 | 3.312 | 1.277 | 0.5 | 16 |
| NUMBER OF BEDROOMS | 21,670 | 1.127 | 0.956 | 0 | 9 |
| NUMBER OF BATHROOMS | 21,670 | 1.279 | 0.618 | 0 | 9.5 |
| FURNISHED | 21,670 | 0.126 | 0.332 | 0 | 1 |
| RENT STABILIZED | 21,670 | 0.391 | 0.488 | 0 | 1 |
| VACANCY RATE | 21,670 | 1.703 | 0.419 | 0.52 | 2.49 |
| NO-FEE | 21,670 | 0.234 | 0.423 | 0 | 1 |
| EXCLUSIVE | 21,670 | 0.680 | 0.466 | 0 | 1 |

Notes—This table provides summary statistics of the main variables in the dataset.

TABLE 2: Exclusive Agreements

| EXCLUSIVE | (1) | (2) | (3) |
|-----------------------|---------------------|---------------------|---------------------|
| ATYPICAL | 0.1540 (0.0243) | 0.1284 (0.0230) | 0.1147 (0.0227) |
| VACANCY RATE | -0.0366 (0.0735) | -0.0432 (0.1187) | -0.0644 (0.1150) |
| RENT STABILIZED | -0.3080 (0.0452) | -0.4048 (0.0454) | -0.4102 (0.0537) |
| LOG(MONTHLY RENT) | -0.1135 (0.0883) | -0.1450 (0.0857) | -0.1892 (0.0876) |
| NUMBER OF ROOMS | 0.7126 (0.0505) | 0.6985 (0.0503) | 0.7063 (0.0529) |
| NUMBER OF BEDROOMS | -0.5793 (0.0501) | -0.5949 (0.0484) | -0.5799 (0.0507) |
| NUMBER OF BATHROOMS | -0.2914 (0.0711) | -0.2345 (0.0772) | -0.2238 (0.0765) |
| FLOOR NUMBER | -0.0109 (0.0019) | -0.0066 (0.0017) | -0.0048 (0.0015) |
| PENTHOUSE | -0.5000 (0.1167) | -0.3909 (0.1061) | -0.2529 (0.1086) |
| FURNISHED | 0.9666 (0.1644) | 0.9917 (0.1728) | 1.0167 (0.1597) |
| PET ALLOWED | 0.5005 (0.0627) | 0.5208 (0.0647) | 0.6140 (0.0592) |
| ELEVATOR | -0.0916 (0.0529) | -0.0996 (0.0531) | -0.1228 (0.0542) |
| ELEVATOR AND DOORMAN | 0.3676 (0.0651) | 0.4391 (0.0623) | 0.4785 (0.0697) |
| MONTHLY FIXED EFFECTS | YES | YES | YES |
| ZIPCODE FIXED EFFECTS | NO | YES | YES |
| STREET FIXED EFFECTS | NO | NO | YES |
| OBSERVATIONS | 21670 | 21670 | 21670 |

Notes: This table investigates how market thickness affects whether or not apartment listings are exclusive. The dependent variable is equal to one if the listing is exclusive, and zero otherwise. Specifications (1)-(3) present the coefficients of maximum-likelihood probit regressions. The standard errors in parentheses are clustered at the neighborhood level.

TABLE 3: Who Pays the Fee?

| NO-FEE | (1) | (2) | (3) |
|-----------------------|---------------------|---------------------|---------------------|
| ATYPICAL | -0.1206 (0.0177) | -0.0788 (0.0170) | -0.0644 (0.0171) |
| VACANCY RATE | 0.1674 (0.0594) | 0.1480 (0.0799) | 0.1650 (0.0780) |
| RENT STABILIZED | 0.2394 (0.0379) | 0.3409 (0.0403) | 0.3007 (0.0451) |
| LOG(MONTHLY RENT) | 0.0325 (0.0525) | 0.1272 (0.0550) | 0.1439 (0.0568) |
| NUMBER OF ROOMS | -0.0756 (0.0311) | -0.0804 (0.0300) | -0.0767 (0.0309) |
| NUMBER OF BEDROOMS | 0.0561 (0.0360) | 0.0719 (0.0340) | 0.0444 (0.0342) |
| NUMBER OF BATHROOMS | 0.1197 (0.0588) | 0.0011 (0.0572) | -0.0172 (0.0583) |
| FLOOR NUMBER | 0.0084 (0.0014) | 0.0035 (0.0011) | 0.0024 (0.0011) |
| PENTHOUSE | 0.4456 (0.0926) | 0.2719 (0.0966) | 0.1613 (0.0952) |
| FURNISHED | -0.7748 (0.0511) | -0.8116 (0.0479) | -0.7583 (0.0495) |
| PET ALLOWED | 0.1348 (0.0496) | 0.1621 (0.0529) | 0.1063 (0.0590) |
| ELEVATOR | -0.2193 (0.0644) | -0.2001 (0.0659) | -0.2397 (0.0647) |
| ELEVATOR AND DOORMAN | 0.3324 (0.0498) | 0.2426 (0.0482) | 0.2237 (0.0473) |
| MONTHLY FIXED EFFECTS | YES | YES | YES |
| ZIPCODE FIXED EFFECTS | NO | YES | YES |
| STREET FIXED EFFECTS | NO | NO | YES |
| OBSERVATIONS | 21670 | 21670 | 21670 |

Notes: This table investigates how apartment characteristics affect whether the owner pays brokers' fees or brokers collect fees from the tenants. The dependent variable is equal to one if the owner pays brokers' fees, and zero otherwise. Specifications (1)-(3) present the coefficients of maximum-likelihood probit regressions. The standard errors in parentheses are clustered at the neighborhood level.

TABLE 4: Joint Decisions: Exclusive and Fee

| OUTCOME | (1) | | | (2) | | | (3) | | |
|-----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | NON-EXCL. NO-FEE | EXCL. FEE | EXCL. NO-FEE | NON-EXCL. NO-FEE | EXCL. FEE | EXCL. NO-FEE | NON-EXCL. NO-FEE | EXCL. FEE | EXCL. NO-FEE |
| ATYPICAL | -0.1929 (0.0631) | 0.2291 (0.0444) | 0.0318 (0.0516) | -0.0788 (0.0170) | 0.2766 (0.0499) | 0.1257 (0.0598) | -0.0083 (0.0551) | 0.2615 (0.0499) | 0.1260 (0.0607) |
| VACANCY RATE | -0.1644 (0.1636) | -0.2270 (0.1475) | 0.5803 (0.1647) | 0.1480 (0.0799) | 0.2089 (0.2272) | 0.3285 (0.2960) | 0.6435 (0.2256) | 0.2043 (0.2319) | 0.2465 (0.3054) |
| RENT STABILIZED | 0.1619 (0.0926) | -0.4960 (0.0816) | -0.1586 (0.1112) | 0.3409 (0.0403) | -0.5589 (0.0816) | -0.1860 (0.1066) | 0.3923 (0.1317) | -0.6242 (0.0996) | -0.2856 (0.1249) |
| LOG(MONTHLY RENT) | 0.2117 (0.1689) | -0.1131 (0.1931) | -0.1675 (0.2043) | 0.1272 (0.0550) | -0.0611 (0.1877) | -0.0234 (0.1968) | 0.4773 (0.1820) | -0.1350 (0.2003) | -0.0943 (0.2081) |
| NUMBER OF ROOMS | 0.2123 (0.0943) | 1.3254 (0.0950) | 1.4623 (0.1112) | -0.0804 (0.0300) | 1.3731 (0.1029) | 1.4613 (0.1154) | 0.3687 (0.0980) | 1.4014 (0.1060) | 1.4842 (0.1163) |
| NUMBER OF BEDROOMS | -0.1243 (0.0915) | -1.0456 (0.0908) | -1.2266 (0.1259) | 0.0719 (0.0340) | -1.1359 (0.0961) | -1.2732 (0.1273) | -0.2932 (0.0924) | -1.1530 (0.0984) | -1.2873 (0.1250) |
| NUMBER OF BATHROOMS | -0.1155 (0.1941) | -0.6215 (0.1519) | -0.3153 (0.1915) | 0.0011 (0.0572) | -0.6886 (0.1603) | -0.5587 (0.2016) | -0.4586 (0.1801) | -0.6763 (0.1625) | -0.5768 (0.2073) |
| FLOOR NUMBER | 0.0095 (0.0035) | -0.0149 (0.0043) | -0.0080 (0.0041) | 0.0035 (0.0011) | -0.0124 (0.0042) | -0.0088 (0.0042) | -0.0007 (0.0037) | -0.0098 (0.0036) | -0.0072 (0.0040) |
| PENTHOUSE | 0.5995 (0.2859) | -0.7272 (0.2194) | -0.0087 (0.3090) | 0.2719 (0.0966) | -0.8429 (0.2184) | -0.2404 (0.3036) | -0.1295 (0.2885) | -0.6737 (0.2148) | -0.1500 (0.3032) |
| FURNISHED | -1.6665 (0.5590) | 1.3293 (0.4337) | 0.5168 (0.4304) | -0.8116 (0.0479) | 1.2714 (0.4303) | 0.4320 (0.4262) | -1.9268 (0.4910) | 1.3429 (0.4052) | 0.5571 (0.4080) |
| PET ALLOWED | 1.0331 (0.1210) | 1.2810 (0.1019) | 1.0802 (0.1270) | 0.1621 (0.0529) | 1.3127 (0.1124) | 1.1946 (0.1340) | 1.0487 (0.1680) | 1.4670 (0.1084) | 1.2560 (0.1359) |
| ELEVATOR | -0.8415 (0.1509) | -0.3533 (0.1016) | -0.2264 (0.1772) | -0.2001 (0.0659) | -0.3066 (0.0998) | -0.1545 (0.1847) | -0.8909 (0.1491) | -0.3985 (0.1002) | -0.2762 (0.1747) |
| ELEVATOR AND DOORMAN | 1.5876 (0.1346) | 1.2146 (0.1139) | 1.0724 (0.1520) | 0.2426 (0.0482) | 1.2147 (0.1142) | 1.0544 (0.1537) | 1.3014 (0.1438) | 1.2389 (0.1234) | 1.0938 (0.1600) |
| MONTHLY FIXED EFFECTS | | YES | | | YES | | | YES | |
| ZIPCODE FIXED EFFECTS | | NO | | | YES | | | YES | |
| STREET FIXED EFFECTS | | NO | | | NO | | | YES | |
| OBSERVATIONS | | 21670 | | | 21670 | | | 21670 | |

Notes: This table investigates how apartment characteristics affect the choice of contractual agreement between the landlord and the broker using a multinomial logit. The excluded base outcome is a non-exclusive listing in which the broker collects the fee from the tenant. The standard errors in parentheses are clustered at the neighborhood level.

TABLE 5: Comparison among datasets

| Variable | MLX | 2000 Census | 2000 Census, Moved in Last Year |
|--------------------|------------------|------------------|------------------------------------|
| NUMBER OF ROOMS | 3.312 (1.277) | 3.355 (1.457) | 2.589 (1.359) |
| NUMBER OF BEDROOMS | 1.127 (0.956) | 2.575 (1.027) | 2.055 (0.978) |

Notes: This table compares the MLX dataset with the 2000 Census. The last column reports statistics conditioning on households that reported having moved into their residence “This year or last year.”

TABLE 6: Who Pays the fee? IV Regressions

| NO-FEE | (1) | (2) | (3) |
|-----------------------|---------------------|---------------------|---------------------|
| ATYPICAL | 0.0407 (0.1526) | -0.0790 (0.0169) | -0.0646 (0.0170) |
| VACANCY RATE | 1.5283 (1.1431) | 0.8949 (0.5060) | 0.8788 (0.5203) |
| RENT STABILIZED | 0.1996 (0.0592) | 0.3395 (0.0400) | 0.3001 (0.0449) |
| LOG(MONTHLY RENT) | 0.3030 (0.2451) | 0.1200 (0.0540) | 0.1374 (0.0559) |
| NUMBER OF ROOMS | -0.2160 (0.1239) | -0.0807 (0.0300) | -0.0772 (0.0308) |
| NUMBER OF BEDROOMS | 0.1651 (0.0991) | 0.0711 (0.0339) | 0.0437 (0.0342) |
| NUMBER OF BATHROOMS | -0.4314 (0.4982) | 0.0125 (0.0563) | -0.0068 (0.0573) |
| FLOOR NUMBER | 0.0036 (0.0049) | 0.0034 (0.0011) | 0.0023 (0.0011) |
| PENTHOUSE | 0.1196 (0.3483) | 0.2760 (0.0954) | 0.1652 (0.0937) |
| FURNISHED | -0.8322 (0.0728) | -0.8166 (0.0485) | -0.7634 (0.0497) |
| PET ALLOWED | 0.2040 (0.0675) | 0.1660 (0.0530) | 0.1103 (0.0595) |
| ELEVATOR | -0.1349 (0.1087) | -0.2007 (0.0654) | -0.2395 (0.0643) |
| ELEVATOR AND DOORMAN | 0.3421 (0.0595) | 0.2414 (0.0479) | 0.2225 (0.0473) |
| MONTHLY FIXED EFFECTS | YES | YES | YES |
| ZIPCODE FIXED EFFECTS | NO | YES | YES |
| STREET FIXED EFFECTS | NO | NO | YES |
| OBSERVATIONS | 21670 | 21670 | 21670 |

Notes: This table investigates how apartment characteristics affect whether the owner pays brokers' fees or brokers collect fees from the tenants, using instrumental-variables probit regressions. The dependent variable is equal to one if the owner pays brokers' fees, and zero otherwise. The standard errors in parentheses are clustered at the neighborhood level.