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The value of property management services: an experiment

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management
services

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Abstract

Purpose – Assessing the value of property management services is challenging because of collinearity between property quality and the quality of property management companies. In order to overcome this challenge and isolate the impact of property management services, the purpose of this paper is to use an experimental approach inspired by work in labor economics (Bertrand and Mullainathan, 2004) to measure the value of property management services for residential properties in Hong Kong.

Design/methodology/approach – The authors surveyed over 150 experts in the real estate industry and asked them to estimate the value of five hypothetical properties. In each survey, the authors randomly assign different property management companies, which we have ranked by levels of quality, to the properties. In this way the authors were able to test whether property management services significantly impact property prices and whether this impact varies across types of residential buildings.

Findings – Results show that property management does add value, especially to older and more dilapidated properties.

Practical implications – Findings suggest that there is money to be made by high-quality companies providing services for lower quality buildings.

Originality/value – The experimental survey methodology applied in this paper provides an innovative way to measure company value.

Keywords Hong Kong, Surveys, Property management, Performance measure, Asset valuation

Paper type Research paper

1. Introduction

The value of real estate, like other market goods, is reflected in a marketplace by its price. However, due to attributes of fixity and durability, a high sensitivity to spatial externalities, and a high cost relative to incomes, residential property is one of the most complex commodities in the world. The value of residential property varies according to the macro-economic environment as political, economic, and socio-demographic factors alter market dynamics (Markmin, 1994). In a micro perspective, Roulac (2007, p. 428) concludes that “a property’s value is determined by its use, specifically what people will pay for the right to the use of the property.” Micro-determinants include location attributes, structural attributes, and neighborhood attributes of a residential property are considered the major criteria that determine the value of this heterogeneous commodity (Butler, 1982). Yet, there is one attribute of residential property that is extremely important in cases of multi-owner properties, but the value of which has been largely ignored in the academic literature: property management.

Property management is crucial to the residential environment of high-rise and high density in Hong Kong (Yuen and Yeh, 2011), as almost all of the city’s residents live in



multi-unit, multi-owner buildings. Multi-owner residential properties suffer from common problems – such as overuse of commonly owned spaces – as well as anti-commons problems – inefficient rates of redevelopment due to all owners having veto power (Hastings *et al.*, 2006). Many of these issues can be ameliorated by the outsourcing of property management services, especially in terms of regular maintenance to minimize the depreciation of the property. The importance of property management services became even clearer in Hong Kong with the SARS[1] outbreak in 2003. SARS raised people’s awareness of the importance of the day-to-day details of property management, especially environmental hygiene in public areas.

In spite of the importance of property management services for a large proportion of the world’s housing stock, there have been few efforts to measure its value quantitatively (with the notable exception of Hastings *et al.*, 2006). One reason for this limitation in the literature is the strong collinearity between the quality of a buildings property management company and its other characteristics, which makes it difficult to statistically separate the value of the property management services. Thus, this paper provides a new approach to the measurement of the value of property management services, an experiment. We create a number of brochures for fictitious properties and ask a large number of experts (over 150) to estimate their value. We randomly vary the property management company featured on the brochure, thus allowing us to identify the difference in value of companies. Not only does this provide us with an unbiased estimate of the value of different property management companies, it also allows us to test the hypothesis that property management is more important for older buildings.

2. Literature review

In the extensive body of literature that seeks to capture the determinants of residential property prices, the hedonic price model is the most widely used method. Developed by Rosen (1974), the hedonic modeling technique is based on the hypothesis that goods are valued for their many utility-bearing attributes, each of which has an implicit price. The technique is one of the workhorse models of urban economics and used frequently in the Hong Kong context (Mok *et al.*, 1995; So *et al.*, 1996; Tse and Love, 2000; Chau *et al.*, 2001). Generally, the relationship between the housing price (dependent variable) and its determinants (independent variables) is estimated using a regression model. This allows researchers to see whether a specific factor impacts property value, and by how much.

Hedonic models have been widely used to estimate the impacts of external amenities or disamenities on the price of housing, for example, high levels of airport noise or and air pollution were found to lead to a significant sales price discount (Mieszkowski and Saper, 1978; Brookshire *et al.*, 1982). One group of researchers has used a hedonic model to consider the property management services attribute, and they found it to impact price significantly (Hastings *et al.*, 2006). However, in spite of its widespread use, the hedonic model has a number of practical and some theoretical difficulties (Leishman, 2003). For example, it is data intensive, requiring several thousand observed housing transactions. Second, and more importantly, in order to assess the impact of attributes on property prices, there must be variation in the type of property an attribute is associated with. This is especially problematic for measuring the impact of property management services, as it is not the case that high-quality companies will manage low-cost properties.

3. Methodology: an experimental approach

In order to overcome the challenge of using a hedonic model to estimate the value of property management services, we use an experimental approach inspired by the work of researchers studying labor market discrimination (Bertrand and Mullainathan, 2004; Pager *et al.*, 2008). In order to test the prevalence of discrimination in labor markets, they created and applied to jobs with fictitious resumes that differed only by the name of the applicant, which they chose to be strongly identifiable as belonging to different racial and ethnic groups. By randomly choosing which name was placed on resumes sent out, they were able to see the difference in likelihood the applicant would be called for an interview.

We modify this approach to assess the implicit price of property management services for private residential properties. Based on market research we create a number of fictitious properties and for each we create a standard brochure for a unit. We then ask a large number of experts to estimate the value of these properties. We randomly vary the name of the company managing the property when surveying the experts. This approach not only gives us an unbiased estimate of the value of these different property management companies, it also enables us to investigate the changing importance of property management throughout the life cycle of a property. New residential properties are of higher quality and require less care thus are expected to benefit more from property management over time. Thus, the two main research questions we set out to answer are:

RQ1. Do property management services of different qualities impact property value?

RQ2. Do property management services of the same quality have different impacts on different grades of properties?

In order to test the two hypotheses, we must develop the two key independent variables; property management services of different qualities and different grades of properties. In both cases, the dependent variable is property value.

3.1 Measuring property management service quality

In Hong Kong, the property management industry is regulated by a series of laws and ordinances and to some extent the basic provision of services is standardized. A number of institutions, such as the Hong Kong Quality Assurance Agency, the Federation of Hong Kong Industries, Hong Kong Productivity Council, and the Occupational Safety and Health Council have various certification programs and recognitions that attempt to measure the quality of property management service. Major areas are quality management systems, environmental protection, and occupational health and safety. We consider these parameters in choosing four companies that are representative of the range of possible property management service quality. Additionally, a major distinction in property management companies in Hong Kong is those that are owned by a real estate development company and of those that are only property management firms. We use this distinction as a further method of differentiating between company qualities.

We choose four real property management companies[2] as representative of four levels of quality and create one fictitious property management company as the control group. Table I presents the different characteristics of the four companies in

Criteria	Property management			
	PMC-I	PMC-II	PMC-III	PMC-IV
Nature	Developer subsidiary	Agent	Developer subsidiary	Agent
Reputation	High	High	Low	Low
ISO certification	ISO 9001 ISO 10002 ISO 14001 ISO 18001 ISO 5001	ISO 9002 ISO 14001 ISO 18001	ISO 9002	Nil
Industrial award (in 2011)	Hong Kong Eco- Business Awards Indoor Air Quality Certificate Business Superbrands Sing Tao's Excellent Services Brand Award	Hong Kong Environmental Excellence Awards Indoor Air Quality Certificate Power Smart Contest	Security Services Best Training Award Indoor Air Quality Certificate	Hong Kong Green Mark Certification Scheme
Management portfolio	Comprehensive portfolio of various residential properties across the territory			
Note: PMC-V is a fictitious company thus of unknown, but presumably low, quality				

Table I.
Formulation of property
management services
variable

detail. Property Management Company I (PMC-I), is a wholly owned subsidiary of a well-established local real estate developer and is regarded as the market leader for its premium service. It has a series of ISO certifications and has won several recognitions in the industry. Property Management Company II (PMC-II) is solely a property management agency. It also has a number of ISO certifications and industry awards, though not as many as PMC-I. Property Management Company III (PMC-III) and Property Management Company IV (PMC-IV) are market players with standard levels of service provision. They have a moderate reputation and have strategically not sought to achieve standard certifications or industry recognitions. PMC-III is a subsidiary of a real estate developer whereas PMC-IV is not. The name and logo of a fifth PMC (PMC-V) was created by the authors as a fictitious control company.

All four real companies have large management portfolios and occupy substantial market share in spite of distinct business strategies. They are benchmarks of different levels of service quality in the market.

3.2 Measuring property grades

Three dimensions of property characteristics – location, property structure, and neighborhood – are used to generate fictitious properties of clearly different grades for valuation in the survey. In Hong Kong, where almost all properties are multi-unit buildings, location and age play a larger role in housing price than in other cities, and newer properties near the central business district are much more costly, whereas aging residential ones built in farther-flung areas are less expensive. After undertaking a survey of the market and literature on housing prices in Hong Kong (Mok *et al.*, 1995; So *et al.*, 1996; Tse and Love, 2000; Chau *et al.*, 2001) five fictitious residential properties of distinct grades were created considering location attributes such as distance to MTR and the city center, structural attributes such as age, area, layout, floor level,

orientation, and views, and neighborhood attributes such as proximity to amenities like a clubhouse or car park and whether the property is in an estate or not.

Table II presents a summary of the characteristics of the five grades of properties. The first one, Grand Garden, located in the mid-levels close to the center of Hong Kong Island is given the characteristics of a Grade A property. The second, Good View Terrace, is designed to be a Grade B property and located in Tsuen Wan an inner suburb of the New Territories. Sunrise Mansion, the Grade C property is located in a slightly more distance neighborhood, in Tseung Kwan O, the New Territories, and is 15 years old. The fourth property is located in Tuen Mun, New Territories, a very distant location. The fifth and oldest property at 25 years of age is called Trend Villas and located in Sham Shui Po, Kowloon; a fairly dilapidated part of the city.

The majority of the properties' attributes are identical so as to minimize the influence from factors other than property grades. According to the trends of real estate development in Hong Kong, properties 15 years old and younger are estate-type with a private clubhouse and car park. The size of the properties are all set at 558 square feet – a small to medium-size premises but the most common property size in the city. All units are on the 18th floor and orientated facing south – an important property attribute from the viewpoint of Chinese *Feng-shui*[3]. Unit layouts, the walking distance from MTR, and nearby facilities are set as identical for the five premises. Unit layouts are presented with floor plans and photos of different rooms and the view in the brochures described below.

3.3 Creating the survey instrument

After developing the five different quality levels of property management services and five property grades, we combine them to make 25 possible residential premises. We create 25 brochures that show all the property attributes discussed above as well as the property management company's name and logo. Figure 1 is an example of one of the brochures.

Variable	Property grade				
	A	B	C	D	E
Property name	Grand Garden	Good View Terrace	Sunrise Mansion	Pleasant Court	Trend Villas
Location	Mid-levels, HK Island	Tsuen Wan, New Territories	Tseung Kwan O, New Territories	Tuen Mun, New Territories	Sham Shui Po, Kowloon
Age (years)	5	10	15	20	25
Type	Estate	Estate	Estate	Non-estate	Non-estate
Private clubhouse	Available	Available	Available	Not available	Not available
Car park	Available	Available	Available	Not available	Not available
Area-GFA	558 Sq. Ft.				
Floor level	18/F				
Orientation	Facing south				
Walking distance from MTR	5-10 minutes				
Nearby facilities	School, super market, public sports centre				
Layout	Drawings of floor plan				
Interior design	Real photos (including one living room, one dining room, two bedrooms, one kitchen, and one toilet)				

Table II.
Formulation of property grading variable


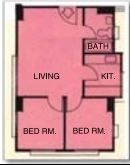



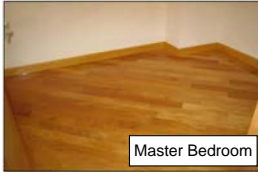

Property Information			
Property Name	Trend Villas		
Location	Sham Shui Po, Kowloon		
Property Age	25 years		
Property Type	Non-Estate-type (without private clubhouse and car park)		
Management	Far Well Management Services Company (PMC-V)		
Walking Distance	5-10 minutes		
Nearby Facilities	School, Super Market, Public Sports Centre		
Premise Particulars			
Floor	18 th Floor	Layout	
Area	558 Sq. Ft.		
Orientation	South		
Design	     		

Figure 1.
Example of Brochure

We asked each survey respondent to review five different brochures corresponding to one of each property grade with a randomly determined management company and estimate a price for the premise based on the given information. The respondents were also asked to answer some questions about their age, education, monthly household income, and property ownership. An additional effort made to limit bias in the survey was to consider that, given the ordinal nature of the different property grades and property management company qualities, the sequence of the five premises presented to one respondent was also randomly ordered.

4. Data collection and analysis

Data were collected through a survey carried out from February 15, 2012, through March 30, 2012. Participants were either property sales agents or property management professionals from eight companies, including two real estate

development firms, two property sales agencies, and four property management companies. These real estate practitioners are experts well suited to value properties. To avoid conflicts of interest, no overlap was allowed between the companies selected in the experiment and the employers of participants. The surveys were applied either via face-to-face interview or e-mail. 250 participants were randomly assigned one set of five brochures out of the 120 possible combinations.

Of the 250 surveys sent out, a total of 162 responses were successfully collected, among which 51 cases were carried out by face-to-face interview and the remaining 111 cases via e-mail. The responses resulted in the 25 premises being priced 810 times altogether or an average of about 32 times each. The mean estimated value of the premises is 3.3 million Hong Kong Dollars (HKD)[4], with a standard deviation of 1.7 million. As expected, the highest price – 7.5 million HKD – is for a Grade A property managed by PMC-I while the lowest price – 1.6 million HKD – is for a Grade E property managed by PMC-V, the fictitious company.

A matrix of estimated prices for the 25 premises is presented in Table III, including the mean, standard deviation, and sample size. For example, the cell horizontally belonged to Grade A and vertically managed by PMC-I stands for P-1 category, which has a mean estimated value of 6.5 million HKD and standard deviation of 0.4 million with the sample size of 33. In addition, the means and standard deviations of estimated values are summarized for each property grade and company.

When comparing estimates values by company, properties managed by higher quality companies have higher prices property value. The fact that the estimated value of properties managed by PMC-V is always ranked last thus indicates the four real companies to some extent play a role in the life span of the residential building and contribute to the property value exceeding the basic level. Particularly, if to assess them based on ISO qualifications and industrial recognition, such ranking is actually identical with the respective means of estimated property value.

The second hypothesis of the project is that property management service become more important for lower property grades. For better comparison, we divide mean prices by respective standard deviations for each property grade to see how the property value deviates under different qualities of management. These estimates are presented in Table IV. There is a clear trend of increasing price variance as the

All Premises	PMC-I	PMC-II	PMC-III	PMC-IV	PMC-V	By grade
	6.5	6.4	6.4	6.2	6.0	6.3
Mid-level (5 years)	(0.4)	(0.5)	(0.5)	(0.4)	(0.5)	(0.5)
	3.2	3.1	3.1	3.0	2.9	3.1
Tsuen Wan (10 years)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)
	3.1	2.9	2.8	2.8	2.7	2.9
TKO (15 years)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)
	2.5	2.4	2.2	2.1	2.0	2.3
Tuen Mun (20 years)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)
	2.3	2.2	2.0	2.0	1.9	2.1
Sham Shui Po	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)
	3.6	3.4	3.3	2.5	2.4	3.3
By company	(1.6)	(1.6)	(1.6)	(1.6)	(1.5)	(1.6)

Notes: Value is reported in millions of HKD. Standard deviations are in parentheses

Table III.
Matrix of means and
standard deviations of
estimated property value

grade of the property declines. Newer properties in good locations derive more of their value from location, structural attributes and neighborhood attributes, and property management services are less important. However, aging properties inevitably depreciate over time and for those located in less desirable districts, security and sanitary issues are of great concern. People seem to be willing to pay more for quality management.

4.1 Hypothesis testing

Due to the experimental design of the survey, we are able to employ a simple *t*-test of difference in means in order to test the two hypotheses statistically. The first hypothesis is that different qualities of property management impact the value of an identical property. Table V presents the results of *t*-tests for each possible comparison.

Table IV.
Comparison of the variance of estimated value

Property grade	A	B	C	D	E
Mean value	6.3	3.1	2.9	2.3	2.1
SD	0.5	0.3	0.2	0.3	0.3
Degree of variance	7.9	8.2	8.7	11.6	12.3

Note: Value is reported in millions of HKD

Table V.
Pairwise comparisons of value of property management companies by property grade

	PMC-I	Percent difference in estimated property value			PMC-IV
		PMC-II	PMC-III		
<i>Grade A properties</i>					
PMC-II	2.3				
PMC-III	1.9	-0.4			
PMC-IV	5.1	2.7	3.1		
PMC-V	8.3*	5.8*	6.3*		3.0
<i>Grade B properties</i>					
PMC-II	3.0				
PMC-III	6.0*	2.9			
PMC-IV	8.0*	4.9*	1.9		
PMC-V	11.5*	8.3*	5.3*		3.3
<i>Grade C properties</i>					
PMC-II	6.5*				
PMC-III	9.1*	2.5			
PMC-IV	11.2*	4.5*	1.9		
PMC-V	14.8*	7.8*	5.2*		3.23
<i>Grade D properties</i>					
PMC-II	4.6*				
PMC-III	14.0*	9.0*			
PMC-IV	18.7*	13.5*	4.1		
PMC-V	22.2*	16.8*	7.2*		3.0
<i>Grade E properties</i>					
PMC-II	7.7*				
PMC-III	14.0*	5.9*			
PMC-IV	18.8*	10.2*	5.1*		
PMC-V	24.8*	15.8*	9.4*		4.1

Note: *Difference of means is statistically significant at the 0.05 confidence level

For each property grade, we compare the difference in the estimated value of each of the five property management companies. We report the percent difference between each pair and whether this difference is statistically significant.

The first null hypothesis is therefore rejected partially. For properties of higher grade, i.e. newly built in a desirable location, the difference in values under different PMCs are mostly not statistically significant. For example, for Grade A properties, the value of services provided by the four real PMCs is statistically different from that of the fictitious company PMC-V, the four companies are not different from one another. However, for lower grades of property, there is a statistically significant difference between the value of properties managed by difference companies. The differences are large in many cases. The value of the middle grade of properties, Grade C, is up to 15 percent higher simply due to the quality of the property management company and for the lowest grade of property the value is up to 25 percent higher.

5. Sensitivity analysis: who values property management?

The data from the experimental survey can also tell us interesting information about the variation in the importance of property management among industry experts. In the survey, we asked five demographic and socio-economic questions of respondents; age, monthly household income, education level, and housing tenure. Table VI presents the difference in respondents' estimates of the value of properties and the results of *t*-tests used to test the significance of these differences. We expect older, richer, more highly educated homeowners to value property management more as they will likely have benefited more from these services over their lifetime.

Surprisingly, education and income do not significantly alter expert valuation of property management services. However, being a home owner does, as does being above the age of 34. Property owners better understand the importance of property management services and are willing to pay more for them, roughly 5 percent more. Those older than 34 also value property management services significantly more than younger people do, but only by about 3 percent. One noteworthy result is the large value of Grade C properties by owners; 8.1 million HKD. This is likely due to the age (about 15 years old) and other characteristics of these properties that make them the most common and desirable type of entry-level dwelling for middle-income people.

6. Conclusion

This paper uses a novel approach in order to determine the importance of property management services for the value of private residential properties in Hong Kong. We conduct an experiment similar to those that have been employed to test the importance of racial segregation in labor markets, in order to estimate the value of property

	Owner	Over age 34	High income ^a	High education ^b
Grade B	5.7*	3.3*	2.4	-0.5
Grade C	8.1*	3.3*	2.7	0.2
Grade D	4.5*	2.7	2.3	0.7
Grade E	4.0*	2.4	2.1	0.1
Average	5.4*	2.9*	2.5	0.2

Notes: ^aMedian HH income > 38,000 HKD per month; ^buniversity degree or higher. *Difference of means is statistically significant at 0.05 confidence level

Table VI.
Difference of mean
values by socioeconomic
and demographic
characteristics of
respondents

management services. Although hedonic price models have been used in this effort previously, they are limited in testing hypotheses about the value of property management, especially for properties of differing levels of quality, because higher quality PMCs only manage high-quality properties thus models suffer from collinearity. The experimental approach creates a new technique for future researches in examining property markets.

Results show that property management does add value, especially to older and more dilapidated properties. These results are encouraging for property management professionals they show that criteria such as achievement of ISO certifications and industry awards matters. They also imply that there is room for the expansion of the business. Apparently, there is money to be made by high-quality companies providing services for lower quality buildings or for lower quality companies to increase their profile by improving services.

Notes

1. Severe acute respiratory syndrome, a disease that spread first through residents of a single residential estate and later throughout the city (Wong, 2004).
2. For the purposes of confidentiality we do not name the companies used in the study here.
3. *Feng-shui* is a traditional Chinese practice often applied to the orientation of buildings and their layout in order to increase their positive energy.
4. The Hong Kong dollar is pegged to the US dollar with an exchange rate of 7.78 to one.

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