

Hong Kong people are no longer superstitious? The pricing of residential units' luckiness revisit

Abstract

Many Chinese people believe that the pronunciation of 4 and 14 are similar to the meaning of "dead" and 8 is linked with wealth. Numbers start or end with 3 means alive and brings good luck to home owners. Therefore, many of the newly developed residential towers skip all these so-called unlucky numbers so as to boost their sales. Some firemen, however, find that it adversely affects their jobs when somebody claims to live in 63 floor should be forty something only. This paper sheds light on a New Town area Tsueng Kwan O in Hong Kong to test if there is any impact of lucky number and unlucky number on residential property prices.

Keywords: superstitious, lucky number, property prices, housing, Hong Kong

1. Property prices, transportation network and superstitious

Previous literature shows that there are many different factors which affect the property prices. Narwold (2008)'s model shows that the value of housing increase by 3.8% when there is a historical property within 250 feet and 1.6% when the distance is between 250 and 500. In Hong Kong, most of the housing attributes, such as apartment size, floor level and age are not priced equally by homebuyers”(Choy *et al.* 2012). In the log-linear hedonic pricing model, when the distance from the railroad line is double, property price increases by about 10% within a 100 meter bound in Norway. The effects are even stronger when the distance is less than 100 meters from the lines (Strand & Vagnes 2001). Cocconceli and Medda conduct a case study on Tallinn in Estonia. By using hedonic price regression, they find out that the public transport cost is capitalized in the property price and had a negative relationship. As the transport cost decreases, the property price increases. Moreover, regions with lower transport cost are less affected in price during economy downturn. Li (2006) suggests that a transport system benefits some regions and produces negative externalities repeat-sales model. Metro Line 2 (ML2) has a significant positive impact on the property price within the walking distance from metro stations. Debrezion *et. al* (2003) point out that transportation system has positive effect on property price. The meta-analysis further evidences that commercial properties have greater impact on price than residential area. Furthermore, the impact of commuter railway stations will have a greater impact on property price than heavy or light railway or metro station. It was because the services provided by the commuter railway have larger coverage. That impact is also greater on property price.

Apart from transportation, there are a few studies which shed light on factors which affect the property prices. With the help of a sample of apartment transactions from 2004 to 2006 in Chengdu, China, the numbers 8 and 6 are lucky number where 4 is unlucky number. It is found that the secondhand apartments locate on floors ending with “8” fetch, on average are 235 RMB higher prices per square meter than on other floors. Although this price premium disappears due to uniform pricing of new housing units for newly constructed apartments, apartments on floors ending in an “8” are sold, 6.9 days faster on average than on other floors (Shum *et al.* 2014). Buyers may be hesitate or unwilling to live in a house or apartment where there is a murder or other unnatural cause of death case. A sample of 4,893 apartment transactions in one of the most popular estates (Tal Koo Shing) in Hong Kong shows that transaction prices are reduced by around 7.5% for stigmatized flats (Man & Wong 2012). People are willing to pay a premium for a ‘lucky’ property. For example, ‘8’ is lucky as 8 has similar pronunciation as prosperity in Cantonese. Therefore, a lucky floor number is considered as a valuable attribute. A hedonic price model results show that flats with lucky floor numbers are sold at a significantly higher price during property booms than during property slumps (Chau *et al.* 2001).

2. Data Collection

In the case study, private estates near the Po Lam Station are selected. They include Metro City Phase 1, 2, 3, Verbena Heights, Well on Garden, Finery Park and Serenity Place. All transactions data is obtained from Centaline Property Agency Limited (2013) and macroeconomic data is obtained from Census and Statistics Department (2013). We have included the dummy “lucky” for numbers start with / end with “8”

and “3”. Flat numbers start with/ end with 4 are included as dummy which are bad luck number.

Table 1: Summary of Estates

Estate Name	Metro City	Verbena Heights	Well on Garden	Finery Park	Serenity Place
Developer	Henderson Land Development	Hong Kong Housing Society	Nan Fung Group	Henderson Land Development	Hong Kong Housing Society
Building age	17 (Phase1) 13 (Phase2) 11 (Phase3)	17-16	19	19	14
No. of Blocks	21	6	4	2	5
Total no. of flats	6768	1894	1280	688	1526

As property prices are affected by many factors, the study shall also include the housing attributes such as distance of MTR and age, floor, gross area into the hedonic model and macroeconomic factors such as inflation and unemployment are also included.

Table 2: Statistics of Data

	Maximum	Minimum	Mean	Standard Deviation
Price	7,100,000	1,250,000	3,345,168.1	956,136.71
Age	19	11	15.7	2.38
Floor	48	1.0	21.2	12.14
Grossarea	1026	456	639.5	128.58
Inflation	7.9	1.0	4.0	1.32
Unemployment	4.8	3.0	3.6	0.46
Distance	513.6	70.6	283.7	150.37

3. Hedonic pricing model

Hedonic Pricing Model usually includes property price as dependent variable with a number of explanatory / dependent variables such as the environmental factors, binary variables and lagged variables. Rosen has provided a basic framework for Hedonic pricing model (Rosen 1974).

$$P_i = f(S_i, N_i) \quad (1)$$

Where P_i = property price i,
 S_i = vector of property's structural characteristics and
 N_i = vector of neighborhood characteristics

In case the hedonic pricing model tests environmental characteristics, then the revised model is revised as follows:

$$P_i = f(S_i, F_i, D_i, G_i) \quad (2)$$

Where: P_i = property price,
 S_i = structural characteristics such as area, floors (presented in dummy), etc.,
 F_i = foreign economies' characteristics,
 D_i = domestic economy's characteristics, and
 G_i = environmental characteristics (emission on different gases)

The Hedonic model is designed to find out the marginal effect on potential omitted variables which can be mostly classified as structural characteristics and neighborhood characteristics. It implies that the real estate market varies not only because of the internal property value (depreciation, fire or damage...) but also external factors from neighborhood.

Kang and Reichert (1987) propose that there is no single functional form which is good in every aspect. Thus, the selection of functional form is ultimately depending on whether the appraiser's goal is to minimize mean prediction error or to maximize prediction stability (Kang & Reichert 1987; Kryvobokov 2013). Theoretically, hedonic pricing model considers the pricing of bundles of attributes and the demand and supply of those attributes under different assumptions about market structure, preferences and technology (Rosen 1974; Ekeland *et al.* 2002). Empirically, it is used to estimate the marginal contribution of those individual characteristics (Sirmans *et al.* 2005).

Cebula (2009) modifies the dependent variable into logarithm function and binary explanatory variables. The hedonic pricing model has been used on the Savannah and Savannah Historic Landmark District from 2000 to 2005. The factors include interior and exterior physical characteristics for property.¹

Hedonic pricing model can be used to analyze the mortgage lending industry in real estate market (Laurice & Bhattacharya 2005) . It can make use of a large, pooled cross-sectional data to establish price prediction model in different regions.² (Laurice & Bhattacharya 2005). In this paper, hedonic pricing model has been applied on

¹ The model establishes as: $\ln P_i = f(I_j, E_j, SC_j, O_j)$

² Those regions that have been investigated are southern California counties, Los Angeles County, Orange County and San Diego County from January 2002 to June 2003.

environmental factors' characteristics. The influences from environmental factors can significant contribute to the property price, however, there is no further research through hedonic pricing model to study the environmental factors effect in Hong Kong.

Table 3: Variables and descriptions

Independent Variables	Descriptions
Age	The age of the flat or estate
Floor	The floor of the flat or estate
Dist	The shortest Distance between Po Lam Station and estates which measures in meters.
Inflation	Inflation at the time of transaction
Unemployment	Unemployment at the time of transaction
Grossarea	The total area of the flat unit
Lucky_C	1 if the floor of the flat transacted is considered as a lucky number in Chinese, 0 if otherwise
Unlucky_C	1 if the floor of the flat transacted is considered as an unlucky number in Chinese, 0 if otherwise.

Dependent variable is the transaction price

Table 3: Expected Results

Variables	Expected result	Reason
Age	Negative	Older flats look less attractive and the facilities are outdated and may have problems. The older

		is the flat and lower the price
Floor	Positive	High floor level means better views. It is preferred to have better views and pay higher price.
Dist	Negative	The longer distance between home and MTR will decrease the property price as it is not convenient enough
Inflation	Positive	Property price will increase with the inflation
Unemployment	Negative	High unemployment rate means lesser people enable to afford the purchase of property
Grossarea	Positive	Larger Grossarea provides spacious and comfortable living environment
Lucky_C	Positive	If the floor is the lucky number, it will bring good fortune to the flat owner and people are willing to pay for this.
Unlucky_C	Negative	If the floor is the unlucky number, it will bring bad fortune to the flat owner.

4. Results

According to the results, the adjusted R^2 is 0.699858, i.e. nearly 70% of the variations in price can be explained by this model. As most of the variables are statistically significant at 1% level which the p-values of variable are smaller than 0.01 or 0.05, the results are reliable. As the number of variables increased will increase the R^2 , this will affect the percentage of variation being explained, and the adjusted R-squared would be more reliable.

The model shows the transaction price of the property will be \$3,664,258 if the flat has an age of 0, 0 distances from MTR, 0 floors, 0 gross floor area, 0 inflation, not a lucky number nor an unlucky number and 0 unemployment rate. The coefficients represent transaction price will increase 11949.64, -2038.593, 7009.264, 4831.706, 5302.168, 33057.93, -883936.4, -7595.646 if the age, distance, floor, gross floor area, inflation, lucky, unemployment and unlucky are 1 respectively.

Age, floor and gross floor area increases with the transaction price significantly at 1% level while distance and unemployment decreases the transaction price significantly at 1% level. The unlucky number / lucky number's relationship with the property prices are positive but insignificant, implying that Hong Kong people may not be superstitious, rather, they prefer higher floor with better view. Age of estates is positive and significant, probably the variation of age of the estate is small which varies from 19 to 11. Older estates have established a good reputation that home buyers have more information about these older estates.

What this paper focus is the distance between flat unit and Po Lam MTR station. The result shows 1 meter increase in distance will decrease the property price by 2038.593, keep other things being constant. From our data set, Metro City Phase II has the shortest distance from Po Lam MTR station and Serenity Place has the longest distance. That means, these two estates have a price different because of the distance. This can be explained by Hong Kong living style as Hong Kong people emphasizes on convenience and efficiency. The time cost saved from going to MTR station was reflected in the property price. Therefore, it is not hard to imagine estate developers will choose to establish new estates near MTR station with higher unit price.

Table 2: Factors affecting property price

Variables	Coefficient	p-value
Intercept	3664258***	0.0000
Age	11949.64**	0.0153
Dist	-2038.593***	0.0000
Floor	7009.264***	0.0000
Grossarea	4831.706***	0.0000
Inflation	5302.168	0.5950
Lucky_C	33057.93	0.2545
Unemployment	-883936.4***	0.0000
Unlucky_C	7595.646	0.8051
R²	0.699858	
Adjusted R-squared	0.698843	

Note:

1. Coefficients statistically significant at 10%, 5% and 1% level are represented as *, ** and *** respectively.
2. P-values are two-tailed test

5. Limitation

Only some factors affecting the property price are taken into model, and some factors such as pollution, the size and facility of house club. Moreover, each flat unit is heterogeneous even though the flats units are in the same estate, same building and floor. It is difficult to consider all the flat units as independent. Therefore, flat units

are roughly categorized. This means the model is still a rough idea without a very detailed data as in reality there are too many factors.

6. Conclusion

This research includes 2380 transactions data five housing estates in Po Lam: Metro City Phase 1 to 3, Verbena Heights, Well on Garden, Finery Park and Serenity Place during 2010 to 2013. In the model, age of the building, floor, distance from Po Lam Station, gross area, inflation, unemployment and lucky number of the floor are included in the study. The results show that increase in distance from Po Lam Station decrease the property price. That means the closer the property located from the MTR station will more valuable of the property. Therefore, Metro City Phase 2 has the shortest distance with the Po Lam Station and has a higher transaction price in general, keep other factors constant. Transportation brings benefit in accessibility and promotes economic growth and convenience. These kinds of benefit are captured in the price of property. It is highlighted that the government and estate developers should realized that not every district in Hong Kong is suitable for building MTR station as some districts are characterized with silence and away from central business districts. Finally, even though the previous research suggests that lucky number increases property prices and vice versa. The lucky and unlucky number, however, in this district are insignificant. The authors speculate that this is because many of the residents in Tseung Kwan O are quite young and they are not superstitious on the good / bad luck bring by these numbers. The accessibility plays a more important role.

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