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House prices and superstition among ethnic Chinese and non-Chinese homebuyers in Auckland, New Zealand

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Abstract

Purpose – Numerical superstition is well-known in Asian countries and can influence decision-making in many markets, from financial investment to purchasing a house. This study aims to determine the house price effects of superstition and understand if these have changed over time.

Design/methodology/approach – Using sales transactions of freestanding houses in Auckland, New Zealand, the authors use hedonic price analysis to investigate whether superstitious beliefs associated with lucky and unlucky house numbers affect property values.

Findings – The analysis reveals ethnic Chinese buyers in Auckland displayed superstitious home buying behaviour in the period 2003-2006 by attributing value to homes with street addresses starting or ending with the lucky number eight. However, this willing to pay higher prices for lucky numbers was not reflected in the analysis of 2011-2015 sales transactions. The disappearance of superstition price effects may indicate that ethnic Chinese in the Auckland housing market have, over time, assimilated New Zealand's Western culture and have become less superstitious.

Originality/value – Unlike previous studies, the authors parse buyers into two populations of homebuyers, ethnic Chinese and non-Chinese purchasers, and model the two groups' housing transactions independently to more accurately establish if numerical superstition influences house prices.

Keywords New Zealand, Housing markets, Ethnic Chinese, Hedonic models, Superstition, Westernization

Paper type Research paper

Introduction

The Beijing Summer Olympics opened on August 8, 2008, at 8:08 p.m. This may seem odd to those not familiar with Asian culture and the affinity of the lucky number "8". This particular number is deemed lucky because it rhymes with the Chinese word "prosper". On the contrary, the number "4" is considered unlucky, as the number rhymes with the Chinese word "death". The superstitious preference for numbers is considerable in Asian culture and can influence important decision-making, for example some buildings in China have no fourth floor (Kramer and Block, 2008). While numerical superstition is more pronounced in Asia, similar superstitious behaviours are also found in Western countries. For example, it is estimated that as many as 85 per cent of high-rise buildings in the USA do not have public floors designated level 13, a number that is broadly deemed unlucky in that country (Perkins, 2002).

Focusing on Auckland, New Zealand, this study uses hedonic price models to investigate whether superstitious beliefs behind lucky and unlucky house numbers affect house prices and whether this effect persists through time. There are three key reasons why Auckland is an ideal case study for studying house price effects of numeric superstition. First, the city features a diverse mix of ethnicities with nearly one-quarter of Aucklanders belonging to

Asian ethnic groups as of the 2013 Census and 8.3 per cent of Auckland's population being ethnic Chinese (Statistics New Zealand, 2014). Second, Auckland has been analysed in the past for numerical superstition by Bourassa and Peng (1999) using earlier data not available to the present study's authors. As one of the focuses of the present research is to understand how superstitious behaviour by Auckland homebuyers has changed over time, the earlier study's results offer a helpful indicator of past buyer behaviour.

It is important to note that Auckland's ethnic mix has been transformed since Bourassa and Peng's analysis of mid-1990s residential sales. Figure 1 presents shares of Auckland ethnic groups based on the past five censuses. Three ethnic groups, Maori, Pacific Islander (Pasifika) and Middle Eastern, Latin American and Africa (MELAA), have maintained fairly stable proportions of Auckland's ethnic mix, whereas two ethnic groups, European and Asian, have followed equal but opposite trajectories. At the time of the 1991 Census, ethnic Europeans comprised roughly 76 per cent of Auckland's population, while ethnic Asians accounted for only 6 per cent. However, at the most recent census in 2013, the European share of the population dropped to 60 per cent, while the Asian share rose to 23 per cent.

The third reason why Auckland is an ideal case study is availability of detailed property data. A key contribution of the present study is the development and implementation of a novel method to identify subpopulation of homebuyers using proprietor names. This approach is unique in property research and enables insights into the differences between distinct groups of market participants. In the present research, the groups being analysed are ethnic Chinese homebuyers and non-Chinese buyers. Individual data on proprietors were made available to the authors for Auckland residential sales transactions but were not accessible for other housing markets.

Literature review

According to the *Merriam-Webster Dictionary*, superstition is defined as:

[…] a belief or way of behaving that is based on fear of the unknown and faith in magic or luck: a belief that certain events or things will bring good or bad luck.
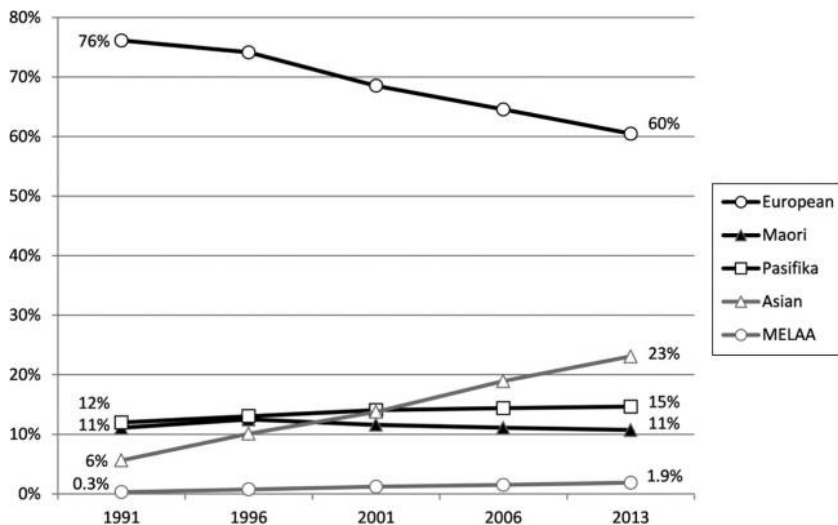

Figure 1.
Auckland ethnicities
(1991-2013)

Source: Authors and Statistics New Zealand's Census of Population and Dwellings

It is a belief that many consider irrational because it is not based on logic. Nevertheless, superstition can sway people's behaviour. For instance, Peltzer and Renner (2003) interviewed taxi drivers in South Africa and found superstitious drivers tended to drive less carefully and were therefore involved in more traffic accidents. The researchers explain that because superstitious drivers tend to explain events by uncontrollable factors such as fate or bad luck, they tend to be more passive and less willing to obey traffic rules.

Superstitious behaviour is also found in markets. One such market influenced by numerical superstition is the vehicle plate market and centres on the willingness to pay for particular vehicle licence plates. Ng et al. (2010), Woo et al. (2008) and Woo and Kwok (1994) analysed licence plates auctioned in Hong Kong and found people pay higher prices for plates with the number "8" and lower prices for plates with "4". Woo et al. (2008) further found that plates with proportionally more lucky numbers receive higher bids than those with fewer lucky numbers.

Unlike vehicle plates, which in many ways can be considered as a luxury good because it provides no tangible benefits to the purchaser, financial investment is a pure business decision and therefore, theoretically, should not be influenced by superstitious beliefs. Bhattacharya et al. (2014) examined limit order submissions in the Taiwan Futures Exchange (TAIFEX) and found that institution investors are less likely to be affected by numerical superstitious beliefs because institutional investors tend to hinge on their rational and professional analysis. However, Bhattacharya found that individual investors exhibit numerical superstitious behaviour, as the limit order submission ratio for lucky number "8" was significantly higher than unlucky number "4" for this group of investors. Similarly, Anderson et al. (2015) examined price clustering by using an intraday trading data set containing more than 77 million bid-ask orders from 1996 to 2009; they found that Chinese are attracted to the number "8", as it is considered lucky. Furthermore, the researchers found that superstitious behaviour is more likely to be displayed by uninformed investors, with this behaviour declining over time as they become more seasoned.

Further research on superstition in financial markets includes Hirshleifer et al. (2014), who found that firms take advantage of such numerical superstitious beliefs through initial public offerings (IPOs). The authors studied IPOs in China between 1991 and 2005 and discovered that newly listed Chinese firms paid premiums for listing codes containing lucky numbers. Such lucky codes initially stimulated listing price, but the price effect dissipated within three years.

Housing markets are also influenced by numerical superstition involving addresses which typically bear numbers such as street number, unit number or floor number. Similar to vehicle plate numbers and stock exchange listing codes, house numbers themselves hold no intrinsic value. Nevertheless, several studies have found price premiums associated with lucky address numbers and discounts for unlucky addresses. Shum et al. (2014) using a sample of apartment transactions during 2004-2006 in China found that units ending in eight are traded at a premium, whereas units with a number ending in four suffered a discount. Similarly, Agarwal et al. (2016) using data on 50,000 new residential units in Singapore's high-rise apartment market sold between 2000 and 2009 uncovered evidence of superstition, with buyers displaying a strong preference for lucky addresses. However, buyers with Western names demonstrated weaker address preference.

Shum, Sun and Ye further found that buyers who had more eights in their mobile phone number were more likely to buy apartments on the lucky eighth floor, suggesting these preferences could be an expression of conspicuous spending. Consistent with conspicuous spending theory, Agarwal identifies lower demand for lucky addresses in luxury districts, as owning in an elite area is a sufficient signal of wealth and status.

Interestingly, Agarwal also found superstition is more pronounced among older homebuyers, whereas younger purchasers are less prone to foster superstitious beliefs and therefore attribute value to particular house numbers. Li and Chau (2016) identified this same generational difference in numeric superstition. Li developed a hedonic pricing model on housing transactions in Tseung Kwan O (a settlement in Hong Kong, China) to quantify price effects of lucky and unlucky numbers. Unlike previous studies however, Li found no evidence of numerical superstition in house prices. Li concluded that the lack of price effect was due to the fact that those buying into Tseung Kwan O are relatively young and less superstitious.

Most prior studies on superstition and house prices have focused on China or countries where homeowners are predominately ethnic Chinese. However, two studies investigated numeric superstitions in housing markets where ethnic Chinese are minorities. Fortin *et al.* (2014) analysed the sale prices of 117,000 single-family homes between 2000 and 2005 in the Great Vancouver area to determine if houses with street address numbers ending in "8" or "4" commanded premiums or discounts. The authors specifically studied areas whose share of Chinese residents exceeded the metro average and found that houses with address numbers ending in "4" were sold at a 2.2 per cent discount, while those with numbers ending in "8" were sold at a 2.5 per cent premium. It is worth noting that Vancouver maintains a flexible approach to numbering buildings and allows property owners to change their address by completing an online form and paying the associated fee (currently CAD$806). In 2010 alone, 135 Vancouver homeowners opted to change their home's street number (Hendry, 2011).

As previously mentioned, Bourassa and Peng (1999) studied numeric superstition in Auckland along with effects of Feng Shui on house prices. They analysed 2,164 housing transaction prices from 1989 to 1996 in an Auckland submarket with a relatively high percentage of Chinese households. Both studies found that lucky house numbers have a significant positive impact on house prices. While the submarkets studied by these researchers had relatively high concentrations of ethnic Chinese residing within them, they did not represent the majority ethnic group in these suburbs. Furthermore, the researchers had no information as to the ethnicities of the homebuyers themselves. Therefore, Fortin and Bourassa and Peng would have likely underestimated any superstition price premiums and discounts, as they analysed transactions involving a mix of predominantly non-Chinese homebuyers along with some ethnic Chinese buyers.

Bourassa and Peng's analysis of home sales in Auckland was during a time prior to the recent boom in ethnic Asian population, and therefore provides a helpful indicator of numeric superstition before the present study's timeframe. Unlike previous studies that have analysed numeric superstition in housing markets where the primary group practising the superstition (ethnic Chinese) forms part of the minority, the present research undertakes a novel approach to distinguish buyer ethnicities, namely, the superstition-prone ethnic Chinese and the non-superstitious control group, non-Chinese buyers.

Data and methods

This study analyses freehold, arms-length sales transactions of freestanding houses (excluding units, flats and apartments) that occurred during two distinct periods, an earlier period of 2003 through 2006 and a later period from 2011 through 2015. The sales data are drawn from Auckland Council's valuation database, which serves as the council's "Sale Audit File" submitted to the Valuer General at Land Information New Zealand (LINZ) as per the Ratings Valuation Rules (LINZ, 2010).

To determine whether a given property was purchased by an ethnic Chinese buyer versus a non-Chinese homebuyer, proprietor information was acquired from Landonline, New Zealand's digital cadastral system of recording land rights and ownership. The proprietor information was specifically accessed from title memorials which record all title instruments from the launch of Landonline in 2002 to present (for detailed information on Landonline data, see LINZ, 2014, 2016).

Ethnic Chinese proprietors are identified by means of a list of Chinese surnames published by Quan *et al.* (2006). Quan's research paper sought to develop and document the accuracy of using a database of common ethnic surnames to categorise medical patients by ethnicity. The study analysed a group of patients who had self-identified with an ethnicity and then compared this categorisation with an automated coding method using the researchers' composite list of 1,186 ethnic Chinese surnames. Quan's coding methods achieved a positive predictive value of 75 per cent or greater across multiple iterations.

To test the accuracy of Quan's surname list applied to registered proprietors of Auckland homes, one of the present study's authors, who speaks fluent Mandarin, carried out a sense check of the coding results. The test involved randomly selecting 100 records from the registered proprietors of sold homes which were coded as being ethnic Chinese. These individuals' names were then manually checked for coding errors. Of the 100 randomly sampled records, only 11 were not genuine Chinese surnames. This represents a positive predictive value of 89 per cent.

As the coding of buyer ethnicity uses proprietor names, only properties purchased by natural persons are considered. Homes bought in the name of a company were excluded from analysis. Fortunately, Landonline clearly codes proprietors as either being "individuals" or "companies". In 2015, 13.7 per cent of freestanding homes in Auckland were purchased using a company structure.

With homebuyers organised into two populations, ethnic Chinese and non-Chinese, a series of hedonic pricing models were developed to determine if either group attributes value to lucky and unlucky house numbers. As with past studies on housing markets, house street address was coded as lucky if it started or ended with the number "8", while an address starting or ending with "4" was coded as unlucky. This approach varies slightly from Bourassa and Peng (1999), who focused solely on the last digit of a house number, but aligns with more recent studies such as Ng *et al.* (2010).

Hedonic specification

The hedonic specifications used in this study draw upon an extensive literature on this method, with particular focus on New Zealand-specific evidence on factors that determine house value such as vintage (Rehm *et al.*, 2006), water views (Filippova, 2009; Bourassa *et al.*, 2005), leaky building stigma (Rehm, 2009) and proximity to arterial roads (Filippova and Rehm, 2009).

Let $P(\mathbf{X}) = P(\mathbf{S}, \mathbf{E}, N, \mathbf{T}, \mathbf{L})$ be a house price function that maps housing characteristics onto market value. This function maps the following structural characteristics, $\mathbf{S}$ (floor area, site area, vintage, cladding, etc.); externalities, $\mathbf{E}$ (water view, arterial, schools, etc.); numerical superstition, N (lucky 8s, unlucky 4s); temporal, $\mathbf{T}$ (quarter when transaction occurred); and location, $\mathbf{L}$ (suburb where the house is located).

Parameters of hedonic equations are frequently estimated by using a semi-logarithmic functional form to conform to rules of parametric tests. This specification regresses the natural log of sales price net of chattels on a linear combination of housing characteristics. The semi-log functional form is given by:

$$\mathbf{P} = e^{\mathbf{X}b+e} \tag{1}$$

where $\mathbf{P}$ is the net sales price, $\mathbf{X}$ is a vector of housing characteristics, $\mathbf{b}$ is the vector of unknown hedonic coefficients and e is the residual. Taking natural logs of equation (1) yields the transformed equation:

$$\mathbf{Z} = \ln \mathbf{P} = \mathbf{X}b + e \tag{2}$$

The empirical hedonic specification for the analysis is:

$$
\begin{aligned}
\ln(P_i) =\ & b_0 + b_1(\text{Floor\_area}) + b_2(\text{Floor\_area2}) + b_3(\text{Site\_area}) + b_4(\text{Site\_area2}) \\
& + b_{5-6}(\text{Exterior}) + b_{7-8}(\text{Interior}) + b_9(\text{Pool}) + b_{10}(\text{Water\_view}) \\
& + b_{11}(\text{Cross\_lease}) + b_{11}(\text{Arterial}) + b_{12}(\text{Steep\_contour}) \\
& + b_{13}(\text{Monolithic\_clad}) + b_{14}(\text{School\_achievement}) + b_{15}(\text{Lucky\_8}) \\
& + b_{16}(\text{Unlucky\_4}) + b_{17-25}(\text{Vintage}) + b_{26-34}(\text{Depriv\_index}) \\
& + b_{35-50}(\text{Sales Quarter}) + b_{51-455}(\text{Suburb}) + e
\end{aligned}
\tag{3}
$$

where:

P_i	= net sales price of the ith house;
Floor_area	= house's total building floor area in square metres;
Floor_area2	= total building floor area squared;
Site_area	= area of the land plot in square metres;
Site_area2	= site area squared;
Exterior	= set of two dummy variables for whether the house's exterior walls were coded by the valuer as being in "Good" or "Fair/Poor" condition, with the default category being "Average";
Interior	= set of two dummy variables for whether the house's interior fixtures and finishes were coded by the valuer as being in "Good" or "Poor" condition, with the default category being "Average";
Pool	= dummy variable for the existence of an in-ground swimming pool;
Water_view	= dummy variable for whether the house features a water view;
Cross_lease	= dummy variable for whether the house is on a cross lease title, with the default category being fee simple;
Arterial	= dummy variable for whether the house is accessed from an arterial road versus a collector or local road;
Steep_contour	= dummy variable for whether the house is sited on a land plot with a steep contour;
Monolithic_clad	= dummy variable indicating whether the house is monolithic clad or features another cladding type;
School_achievement	= highest percentage NCEA pass rate of in-zone secondary schools (or nearest school if no zones);
Lucky_8	= dummy variable indicating that the house's street address number starts or ends with "8";
Unlucky_4	= dummy variable indicating that the house's street address number starts or ends with "4";

Vintage	= set of nine dummy variables corresponding to the vintage (decade) in which the house was built, with the default category being the most recent vintage;	
Depriv_index	= set of nine dummy variables corresponding to the Deprivation Index of the house's meshblock, with the default condition being an index of "5";	
Sales_quarter	= set of dummy variables indicating the year and quarter in which the house was sold, with the default category being the earliest sales quarter;	
Suburb	= set of dummy variables corresponding to the property's 2013 Statistical Area Unit[1]; and	
e	= random error.	

Results

Table I provides the unstandardized coefficients and model summaries for four hedonic models. Model 1 considers the behaviour of ethnic Chinese homebuyers during the period 2003 through 2006, which represents the earliest sales data available to the authors. Model 2 covers the same timeframe but includes only those transactions involving non-Chinese buyers. Models 3 and 4 follow the same pattern of ethnic Chinese and non-Chinese buyers but for the period 2011 through 2015, which represents the latest sales data available. The models are well-specified, yielding strong adjusted coefficients of determination ranging from 0.883 to 0.906. The independent variables are largely in their expected directions and statistically significant. Although not the focus of this research paper, several key differences in housing attribute preferences are evident between ethnic Chinese purchasers and their non-Chinese counterparts. The model results indicate that ethnic Chinese buyers attribute less value to in-ground swimming pools than non-Chinese buyers but place more value on access to good schools. This is particularly the case in the 2011-2015 period. The other considerable difference lies in non-Chinese buyers' fondness of vintage homes. This group in both periods paid substantially higher price premiums for older vintage homes constructed in the 1920s and earlier (Victorian villas and early bungalows). In other words, buyers are willing to pay more for such vintage homes than a recently built home, all else held equal.

Other independent variables are closely aligned between the two groups and across both timeframes. In terms of the variables of interest, Lucky_8 and Unlucky_4, Model 1's results capturing ethnic Chinese homebuyers are largely as expected, with Lucky_8 showing a statistically significant 1.4 per cent price premium. However, the coefficient for Unlucky_4 was not negative but slightly positive, albeit insignificant. This mimics the findings of Bourassa and Peng (1999) showing buyers are willing to pay a 2.4 per cent premium for houses with lucky house numbers. As anticipated, the coefficients capturing numeric superstition were miniscule and statistically insignificant for Models 2 and 4 involving non-Chinese purchasers.

Interestingly Model 3, which considers ethnic Chinese buyers from 2011 through 2015, found no evidence of numerical superstition. Given that Bourassa and Peng (1999) estimated a price premium of 2.4 per cent for properties with street addresses featuring lucky number "8", it is somewhat surprising that the current study has found this premium has diminished to a 1.4 per cent premium in 2006 and then disappeared altogether in the later 2011-2015 study timeframe. Despite the methodological differences between Bourassa and Peng and the present study, it appears that the property preferences of ethnic Chinese purchasers in Auckland have changed considerably over time. One possibility for this is that Chinese buyers have assimilated into New Zealand's Western culture and therefore have shed their numeric superstition, which is alive and well in Hong Kong and mainland China according to recent publications. This would especially be the case for younger immigrants who came to Auckland with their families at a young age. These individuals may have less

Variable	Model 1 Ethnic Chinese buyers 2003-2006	Model 2 Non-Chinese buyers 2003-2006	Model 3 Ethnic Chinese buyers 2011-2015	Model 4 Non-Chinese buyers 2011-2015
(Constant)	12.189**	12.315**	12.534**	12.567**
Floor_area	2.60E-03**	3.17E-03**	2.09E-03*	2.58E-03**
Floor_area2	−6.19E-07*	−1.41E-06**	−2.51E-07*	−5.09E-07**
Site_area	1.05E-08**	1.60E-10	3.32E-04**	1.38E-04**
Site_area2	2.83E-16**	8.72E-16**	−2.89E-08**	−9.22E-09**
Exterior_good	0.021**	0.028**	0.025**	0.031**
Exterior_poor	0.006	−0.040**	−0.037**	−0.039**
Interior_good	0.059**	0.075**	0.034**	0.051**
Interior_poor	−0.037**	−0.033**	−0.052**	−0.044**
Pool	0.078**	0.105**	0.043**	0.076**
Water_view	0.117**	0.117**	0.074**	0.083**
Steep	−0.013	−0.013**	−0.068**	−0.042**
Monolithic_clad	−0.010	−0.001	−0.105**	−0.077**
School_achievement	0.097*	0.063**	0.137**	0.073**
Arterial	−0.021**	−0.032**	−0.036**	−0.035**
Cross_lease	−0.093**	−0.088**	−0.077**	−0.080**
Lucky_8	0.014**	−0.002	−0.002	0.000
Unlucky_4	0.002	−0.001	−0.001	0.001
V1910	0.018	0.084**	0.052**	0.121**
V1920	−0.018	0.032**	0.034**	0.085**
V1930	−0.070**	0.004	0.029**	0.051**
V1940	−0.069**	−0.042**	−0.046**	−0.002
V1950	−0.059**	−0.055**	−0.043**	−0.021**
V1960	−0.095**	−0.079**	−0.087**	−0.044**
V1970	−0.123**	−0.110**	−0.122**	−0.081**
V1980	−0.101**	−0.082**	−0.109**	−0.074**
V1990	−0.046**	−0.042**	−0.084**	−0.061**
Depriv_index_01	0.072**	0.065**	0.040**	0.062**
Depriv_index_02	0.058**	0.048**	0.019**	0.044**
Depriv_index_03	0.032**	0.026**	0.009*	0.025**
Depriv_index_04	0.014	0.013**	0.000	0.014**
Depriv_index_06	−0.005	−0.011*	−0.015**	−0.006
Depriv_index_07	−0.026*	−0.037**	−0.021**	−0.018**
Depriv_index_08	−0.043**	−0.055**	−0.047**	−0.043**
Depriv_index_09	−0.048**	−0.082**	−0.070**	−0.067**
Depriv_index_10	−0.090**	−0.133**	−0.099**	−0.118**
N	4,191	28,386	17,276	51,484
Adjusted R^2	0.906	0.883	0.906	0.904

Table I.
Hedonic model
coefficients and
model summaries

Notes: Dependent variable = natural log of net sales price; sales quarter and suburb dummies omitted from table for brevity; **Indicates significance at 0.01 level, using a two-tailed test; *Indicates significance at 0.05 level

superstitious beliefs than the generation before them. For these younger ethnic Chinese, their focus is likely on proximity to good schools, quality neighbourhoods and sound construction (Gibson, 2015; Game-Lopata, 2016). This explanation aligns with the findings of Li et al. (2014), where younger generations do not attribute value to numeric superstitions.

The reduction of superstitious beliefs documented here in the Auckland housing market likely reflects a broader change in Chinese culture as China's economy globalises. For

instance, Faure (2008) observed that after two decades of economic reform via the Open Door Policy (a policy that promotes China's international trade) and continuous exposure to Western culture and media, there has been a shift from a traditional, Confucian doctrine towards a more Westernised consumer culture.

Conclusions

This study aims to determine if ethnic Chinese homebuyers attribute value to lucky and unlucky property addresses in the Auckland housing market. The capitalisation of lucky number "8" and unlucky "4" into house prices due to numeric superstition has been documented in several international markets, including Auckland. Unlike previous studies, the present research uses a novel method to distinguish a particular superstition-prone group, ethnic Chinese, from a pool of homebuyers. By segmenting the sales data between affected and non-affected (control) subpopulations of buyers, a more accurate measure of buyer preferences, such as numeric superstition, is possible.

The findings of this study have uncovered a number of interesting differences between ethnic Chinese and non-Chinese homebuyers, including different affinities for features such as in-ground swimming pools, access to good schools, home vintages and, of course, numeric superstition. Although distinct differences exist between these two groups, the gulf appears to have lessened over time. In particular, ethnic Chinese had in the earlier sales data (2003-2006) placed discounts on older vintage homes, whereas in more recent years (2011-2015), ethnic Chinese buyers do not assign price premiums to these older homes above the value of an equivalent recently purchased home. The price premiums remain less than their non-Chinese counterparts but provide an indication that these groups' preferences are becoming more similar over time.

This is certainly true of preferences for "lucky" house numbers. While Bourassa and Peng (1999) estimated a price premium of 2.4 per cent for Auckland homes with addresses ending in lucky number "8", the present, more refined study, finds that this premium has diminished to a 1.4 per cent premium in 2006. Moreover, it has disappeared altogether by 2015 and is now indifferent to the buyer behaviour of non-Chinese. In Chinese culture, there remains a strong affinity for the number "8"; however, ethnic Chinese Aucklanders appear to have assimilated New Zealand's Western culture and have acquired tastes for some property attributes such as vintage homes and, in the process, have shed their numeric superstition.

This study's findings will be useful for real estate agents and property values. The evidence uncovered by this research suggesting that ethnic Chinese might be assimilating into New Zealand culture comes at a critical time when xenophobia is on the rise, particularly when it comes to the Auckland housing market (Walters, 2015).

Note

1. Area Units are the second smallest enumeration units used by Statistics New Zealand. In urbanised areas, the target size for an Area Unit is 3,000 to 5,000 people.

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