Superstition and “lucky” apartments: Evidence from transaction-level data

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Abstract
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Using a sample of apartment transactions during 2004–2006 in Chengdu, China, we investigate the impact of superstitions in the Chinese real estate market. Numerology forms an important component of Chinese superstitious lore, with the numbers 8 and 6 signifying good luck, and the number 4 bad luck. We find that secondhand apartments located on floors ending with “8” fetch, on average, a 235 RMB higher price (per square meter) than on other floors. For newly constructed apartments, this price premium disappears due to uniform pricing of new housing units, but apartments on floors ending in an “8” are sold, on average, 6.9 days faster than on other floors. Buyers who have a phone number containing more “8”’s are more likely to purchase apartments in a floor ending with “8”; this suggests that at least part of the price premium for “lucky” apartments arises from the buyers’ superstitious beliefs.

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1. Introduction

Numerology forms an important component of Chinese superstitious lore. The numbers 6 and 8 are lucky numbers because these numbers sound like the words for, respectively, “smooth” and “fortune”, while 4 is considered an unlucky number because its pronunciation is similar to the word for “death”. There is ample anecdotal evidence regarding the importance of “lucky numbers” in Asian real estate markets, even real estate markets in non-Asian countries with a high percentage of Asian immigrants.1

Using a 10% randomized sample from overall apartment transactions from July 2004 to December 2006 in Chengdu, China, we investigate the impact of superstitions in the Chinese real estate market. A unique feature of our dataset is that we observe a rich set of buyer’s characteristics, including arguably exogenous measures of buyers’ beliefs in superstition. This allows us to corroborate “superstitious” behavior in the housing market with other types of superstitious behavior, which provides a reality check on the results.

1 For instance, see Ni (2011) for a description of a southern California housing market.
We find that secondhand apartments located on floors ending with “8” fetch, on average, a 235 renminbi yuan (RMB) higher price (per square meter) than other floors. For newly constructed apartments, we do not find a lucky number effect on prices due to uniform pricing of new housing units, but apartments on floors ending in an “8” are sold, on average, 6.9 days faster than on other floors. These results suggest that buyers find apartments located on “lucky” floors to be especially attractive.

Of course, one explanation is simply that buyers in this market are superstitious; this is a direct effect of superstition. However, apartments are durable goods, and in durable goods markets, anticipation of high resale prices has important effects on current demand, so that even buyers who are not superstitious may buy a lucky apartment in order to enjoy the higher resale prices in the future; leading to an indirect effect of superstition. Exploiting our dataset, we use a unique and unusual measure – the number of “8”s in a buyer’s phone number – as an exogenous measure of how superstitious a buyer is. We find that buyers with more “8”s in their phone number are more likely to buy apartments on lucky floors; this suggests that at least part of the price premium for apartments on lucky floors arises from intrinsic superstitiousness on the part of buyers.

2. Existing literature

This paper joins a small but growing literature on the effects of superstitions (non-economic beliefs or norms) on economic outcomes in different markets. Bennett and Barth (1973) examined whether individuals born under the signs of the wargod Mars (in the western zodiac) were more likely to pursue military careers. Kramer and Block (2006) ran a field experiment to show that interviewees behave in a more risk-averse fashion on Friday the 13th. Recent studies of the Asian zodiac, including Akabayashi (2008), Bruckner et al. (2011), and Wong and Yung (2005) showed that superstition impacts Asians’ marriage and fertility decisions.

Among studies of Chinese numerology, Bourassa and Peng (1999), Chau et al. (2001), Ho (2008), Liu and Wong (2012), and Fortin et al. (2012) have studied the effects of lucky numbers in real estate markets. Woo and Kwok (1994), Woo et al. (2008) and Ng et al. (2010) quantified the value of superstitions in vehicle license plate auctions in Hong Kong. In their study of the impact of driving restrictions in Beijing, Fu and Viard (2011) showed that more (fewer) cars were on the road on days that license plates ending in “4” (“8”) were banned, suggesting a skewness in the distribution of digits on license plates consistent with superstition. Hirschleifer et al. (2011) demonstrated a preference towards “lucky numbers” in stock prices in Chinese stock markets.

As far as we are aware, however, this work is the first to correlate superstitious behavior with buyers’ characteristics, and thus assess the extent to which the price premiums on “lucky” apartments are driven by whether the buyers are superstitious. We are able to do this due to the unique nature of our dataset, which contains buyer’s characteristics (including their phone numbers) which may not be typically available in datasets on housing markets. Superstition and lucky numbers are a long-lasting cultural phenomenon in Asian countries, and we show here that these cultural beliefs can affect economic outcomes. It is also relevant to policymakers. When designing relevant economic policies, it could be necessary to take superstition into consideration. For instance, superstition may lead to mis-pricing in the real estate market relative to market fundamentals which may cause instability in related markets (such as mortgage markets) if the actors in these markets do not account for this superstition effect.

3. The housing market in Chengdu, China

China’s real estate market has been one of the most dynamic and fast-growing markets since the 1990s. The recent wave of price surges began as early as 2003. According to statistics from the National Bureau of Statistics of China, the average price of new residential housing rose from 3521 RMB per square meter in 2004, to 4350 RMB in 2006, an increase of 23.5%. The fast increasing house prices have greatly impacted households’ social and economic behaviors. We focus here on the housing market of the city of Chengdu, a large city in Sichuan province, in southwestern China.

The data used in this study come from an electronic database, the Chengdu Real Estate Transaction Information System, constructed and maintained by the Bureau of Real Estate Management in Chengdu. The database collects information of all real estate transactions in Chengdu since 2004. The variables include characteristics of the properties (such as apartment price and size), as well as buyer characteristics which were obtained from mortgage-related documents (including education level, employer, position, income, phone number, down payment, mortgage balance, mortgage interest rates, etc.).

In its efforts to evaluate trial reforms to the urbanization and land policies in Chengdu, the Bureau of Real Estate Management in Chengdu drew a random sample from the database to construct indexes and numbers for its annual report. In the sampling scheme, roughly 10% of the observations were randomly drawn, stratified by day, district, and apartment type. The random sample constitutes the data used in this paper. The data covers July 2004 to December 2006, a period in which housing market flourished. During this period, the Chinese government did not yet enact purchase restrictions to regulate the housing market. Later, after our sample period, the government tried to “cool down” the market by limiting the number of

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2 In 2004, the total housing supply was 12 million square meters, which increased to 20 million square meters by 2006. The average price of a new apartment in Chengdu rose from 3241 RMB/m² in 2004 to 4256 RMB/m² by 2006 (Chengdu Real Estate Development Annual Report, 2006).
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