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## Family structure and home ownership: Evidence from China

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## ABSTRACT

This paper studies how individuals, particularly low-income individuals, have financed housing purchases since the housing market was privatized in urban China in the 1990s. To the surprise of many policy makers and economists, more than 80% of the households in urban China owned private housing by the end of 2010. In contrast to most developed countries, we find that male siblings are important borrowing resources to purchase housing. Conditional on the number of siblings, having more brothers instead of sisters increases the probability of owning housing among male individuals born during the baby boom (1949–1978) in urban China. However, there is no such brother effect for females. The brother effect is stronger for males with low income or low levels of education and is also stronger when brothers are wealthier. Our results are robust to different model specifications. Our results suggest that females are likely to be excluded from family-based informal financial market for housing purchase among baby boom generations in China.

## 1. Introduction

In recent decades, China has been transforming from a centralized economy into a decentralized economy. One of the most prominent decentralization policies was to privatize the housing market in the 1990s (Wang, 2011, 2012; Wu, Gyourko, and Deng, 2012). While the private housing market was almost nonexistent before the 1990s, to the surprise of many policy makers and economists, more than 80% of the households in urban China owned private housing by the end of 2010.<sup>1</sup> In contrast to most other counties, the majority of middle- and even low-income households in China were also able to purchase housing during those two decades. As these groups of people tend to be credit constrained and have difficulty obtaining mortgages from the banking sector, many economists suspect that they encountered considerable difficulties in purchasing housing. A natural question is how they were able to finance their housing purchases.

In the housing literature, although researchers have spent decades exploring those elements that could affect home ownership, most studies have focused on mortgage markets, housing prices, other investment decisions, and life-cycle effects.<sup>2</sup> To date, however, we know little about how extended family members, such as siblings, could affect home ownership.<sup>3</sup> To the best of our knowledge, this is the first paper investigating the sibling effect on home ownership. In developing countries, it is commonly observed that relatives or friends help one another to overcome financial shocks and share risks through gift exchanges and informal loans.<sup>4</sup> Thus

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E-mail addresses: [swang@kdis.ac.kr](mailto:swang@kdis.ac.kr) (S. Wang), [weina.zhou@dal.ca](mailto:weina.zhou@dal.ca) (W. Zhou).<sup>1</sup> Data source: China Family Panel Studies. Home ownership in this sentence is defined as family members or relatives owning the housing currently occupied.<sup>2</sup> See Chan et al. (2015), Davis and Nieuwerburgh (2014) for detailed surveys.<sup>3</sup> For individuals in their twenties, evidence suggests that parents are likely to support their housing purchase (Wei and Zhang, 2011).<sup>4</sup> See Cox and Fafchamps (2008); Fafchamps (2011) for detailed surveys.

far, however, little attention has been devoted to how family members could affect housing purchases—one of the most important decisions in household finance. This paper fills the gap in these two strands of literature by investigating the sibling effect on the individual's home ownership, using Chinese data.

The unique experiment in the Chinese housing market provides us with a rare opportunity to study how households obtain financing when they are suddenly able to purchase their own housing in urban areas. The policy change in the 1990s immediately affected the baby boom generation (1949–1978), those born after the foundation of the People's Republic of China and before the implementation of the One Child Policy.

The main reason that siblings, particularly male siblings, could affect home ownership is that siblings altruistically provide borrowing resources at low cost. Data show that, after banks, siblings are the largest borrowing resource for individuals purchasing housing in China. In addition, siblings do not typically charge interest or set a clear repayment date for the loan (see detailed evidence in Section 3.2).

The main difficulties in identifying the causal effect of siblings on home ownership arise from endogeneity, namely, that the number of siblings an individual has could be correlated with that individual's unobserved characteristics, such as the parents' wealth or preferred number of children. Following Zhou (2014), this paper explores the exogenous variation in random gender assignment of siblings. For urban residents<sup>5</sup> born during the baby boom, the technology of sex-selective abortion was not yet available. Conditional on the number of siblings, whether an individual has a brother or a sister could be considered a random assignment by nature. The identification strategy estimates the effect of having a brother instead of a sister on home ownership (a relative effect).

Using the approach developed by Oster (2015), we find that any unobserved factors need to be at least 4 times as important as the observables to eliminate the brother effect. We further show that our results are robust to (1) the state-owned housing reform policy and (2) the effect of inheritance from parents.

Using the identification strategy discussed above, this paper finds that for a male of the baby boom generation<sup>6</sup> in urban areas, conditional on the number of siblings, having one more brother instead of a sister increases the probability of owning a home by approximately 3 percentage points. Moreover, the brother effect on home ownership for males is stronger when (a) a male has a low lifetime income (he is more likely to rely on an informal financial market), and (b) the brothers of a male are relatively wealthier than he is (brothers are more likely to be able to help him). Statistical evidence suggests that sisters may also behave altruistically and affect housing ownership, although the effect is likely to be small or close to zero. For this reason, the estimated relative effect of brothers for males is likely to be the lower bound of the absolute effect (having a brother instead of not having one). In contrast to males, we do not find such a brother effect for females.

There are several potential reasons for such gender differences among siblings. Firstly, a woman's connection with her brothers tends to be weaker than the connection among brothers. China is described as a deep-rooted Confucian patriarchal society where male dominance and son preference have been prevalent (Bray, 1997; Greenhalgh, 1985; Lee and Wang, 2001; Li and Wu, 2011; Raymo et al., 2015). Only sons (rather than daughters) could inherit family line (Bernhardt, 1995). Moreover, traditionally, a woman would marry into her husband's family and upon marriage, would be viewed as part of her husband's family, living together with his clan (Duiker and Spielvogel, 2012). Though subject to change, those old values still persisted at the time of the study cohort (Raymo et al., 2015; Santos and Harrell, 2016; Xie, 2013). Secondly, given her lack of control of family income and assets, a married woman would be less likely to help her siblings. Relative to men, women in the patriarchal society of China are socially and economically at a disadvantage (Raymo et al., 2015; Sechiyama, 2013; Whyte, 2005). This could be seen to come from the widely accepted Confucian ethics that have been imposed upon women in historical China for over 2000 years.<sup>7</sup> Though in contemporary China the situation has been improving, gender gaps in the areas of education, employment, and income are still widely documented (Liu et al., 2016; Li and Wu, 2011). As known in the literature, women's lesser ability to provide income for the family loses them bargaining power in decision making within the household (Agarwal, 1994; Antman, 2014).

The gender difference found in this paper suggests that informal credit networks for housing purchase are mainly arranged along male siblings, implying a clear gender inequality in access to informal credit. Females born in the baby boom generation are less likely to receive support from their extended family members. In the current situation of high borrowing cost from a formal household financial market, married females' lack of access to an informal financial market is likely to place them in a weak position in intra-household bargaining; single females are also less likely to be able to purchase housing compared to single males with the same personal incomes. As gender inequality becomes a growing concern in China (Kuhn and Shen, 2013; Liu et al., 2014), policy makers need to also become aware that its dimension may not be limited to the labor market. The severe inequality in access to an informal financial market is likely to cause females, as opposed to males, to have a far greater need for the development of a formal household financial market.

This paper contributes to several strands of the literature. First, this paper suggests that housing decisions could differ considerably between developing and developed countries. Differences in the borrowing resources that individuals can rely on are largely ignored in the existing literature. In addition to introducing the newly discovered factor (brothers) that could affect housing ownership in developing countries, this paper adds to the discussion on the post-reform housing market in China (Fang, Gu, Xiong, and Zhou, 2015; Wei and Zhang, 2011; Wei, Zhang, and Liu, 2012; Wu, Gyourko, and Deng, 2015). The high price-income ratio in

<sup>5</sup> Urban residents are defined as individuals who have urban resident cards (*Hukou*).

<sup>6</sup> The estimation results are robust if we exclude the cohort born during the Great Famine (1958–1961).

<sup>7</sup> Mencius outlined the “Three Subordinations”: a woman was supposed to be subordinate to her father in youth, to her husband in maturity, and to her son in old age (Wei, 1989).

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