



# What factors drive public rental housing fraud? Evidence from Hangzhou, China



Hui Zeng<sup>a, b</sup>, Xiaofen Yu<sup>b, \*</sup>, Haizhen Wen<sup>c</sup>

<sup>a</sup> College of Public Management, Zhejiang University of Finance and Economics, Hangzhou 310018, China

<sup>b</sup> College of Economics and Management, Zhejiang University of Technology, Hangzhou 310023, China

<sup>c</sup> Center for Real Estate Studying, Zhejiang University, Hangzhou 310027, China

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## ABSTRACT

In China, considerable importance has been attached to public rental housing fraud since the central government decided on the large-scale construction of affordable housing in 2010. In recent years, this problem has also become a concern in countries such as Britain and the United States. In this paper, a multinomial logistic regression (MLR) model comprising 10 independent variables is developed to examine the driving factors of public rental housing fraud. The parameters of the model are estimated via maximum likelihood estimation based on the Hangzhou public housing household survey. Results from this study suggest that seven factors, namely, family size, education, PCDI, CSC, ADC, PMC and Occupation = 1(servants), are statistically significant under the 5% level. The coefficients of these five factors are  $-0.847$ ,  $-0.601$ ,  $-0.732$ ,  $-1.475$ ,  $0.987$ ,  $-1.106$  and  $1.669$ , respectively. The positive (negative) coefficients mean that the variables will increase (decrease) the probability of fraud. At the end of this paper, policy recommendations are proposed for relevant government departments based on the results of the regression analysis.

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## 1. Introduction

Public rental housing<sup>1</sup> in most countries is a safety net provided by governments for low-income groups (Ruel, Oakley, Wilson, & Maddox, 2010). However, the phenomenon of public rental housing fraud is not uncommon. According to an audit report released by the Department of Housing and Urban Development's (HUD's) Office of Inspector General (OIG) on July 21, 2015, as many as 25,226 families were no longer eligible for public housing because their household income has exceeded current income limits which are used to determine eligibility for public housing. Yet there are still at least half a million people waiting to get into public housing in America. In the U.K. the Audit Commission reported that approximately 98,000 social homes are subject to fraud, which was a substantial increase from its 2011 estimate of 50,000 properties. The National Fraud Authority estimates the cost of social housing

fraud to be roughly GBP 900 million per year. And a national campaign has begun to crack down on social housing fraud.

The central government of China has begun the construction of affordable housing projects on a large scale; roughly 36 million units were allocated during the 12th National Five-Year Plan, most of which are public rental housing (Huang & Du, 2015). The purpose of developing public rental housing is to solve the housing problem of the "sandwich layer," including those who cannot afford to buy affordable housing, also do not meet the conditions of low-cost rental housing (Li, Guo, You, & Hui, 2016a; Zhang, 2010). Public rental housing is only one type of transitional housing that is generally used for no more than two lease periods (a lease period is usually three years). Furthermore, if the tenants' income exceeds the upper limit (in Hangzhou, for example, the upper limit of families' per capita disposable income is CNY 47,691) or has purchased commercial housing, the tenants must exit at the end of the current period. Considering the lack of a perfect personal credit system, and the opaque information of assets, income, and so on, distinguishing applicants who are in genuine need can be much difficult in public rental housing management; thus, public rental housing fraud is especially acute in China (Luo, 2012). The National Audit Office investigated 272,500 public rental housing families in

\* Corresponding author.

E-mail address: [yxf88070398@126.com](mailto:yxf88070398@126.com) (X. Yu).

<sup>1</sup> Public rental housing is a type of rental housing in China that is supplied to low-income urban families; such housing is similar to public housing in America or social housing in Europe.

2014, and found that 47,500 families do not meet the rental conditions. With the increasing supply of public rental housing, the problem becomes more and more serious in China.

In China, public rental housing fraud refers to obtaining public rental housing by misconduct such as concealing facts, providing false information or forging evidence (Fan, 2015). It seems that there is no exact definition of public rental housing fraud in the West. However, a piece of news reported on September 24, 2013 by BBC about social housing fraud in Northern Ireland pointed out that social housing fraud is the use of social housing by those who are not entitled to it. The British “Fraud Advisory Panel” gives a similar but more detailed definition: tenancy fraud (also called social housing fraud) occurs when a housing association or council home is occupied by someone who is either not legally entitled to be there or has obtained use of the property fraudulently. The guide of “tackling fraud in the social housing sector” enumerated most common examples of public rental housing fraud in England: application fraud, key-selling fraud, subletting fraud, and succession fraud.

Public rental housing is designed to provide lower income families, who are among the most vulnerable in the nation, with decent, sanitary, and safe housing; such housing is a social stabilizer (Popkin, Cunningham, & Burt, 2005). Public rental housing fraud causes significant social harm and can lead to antisocial behavior. It deprives people who are genuinely in need from accessing to affordable homes, including older people and the vulnerable, and increases the financial burden of the government (Jin, 2004; Pan et al., 2015). Therefore, great importance has been attached to public rental housing fraud both in China and abroad. The Rule of “Strengthening Oversight of Over-Income Tenancy in Public Housing” was proposed by the Housing and Urban Development Department on October 3, 2016 in the United. And “The Prevention of Social Housing Fraud Act 2013” was introduced after the Audit Commission carried out the annual fraud survey of local government services in the U.K. However, we can find little research on this issue in Western Countries.

But in China, relevant literature is prevalent (see Liu & Tong, 2008; He & Guo, 2010; Cao & Yu, 2012; Wang, 2013; Xiao & Gao, 2014; Zhang, 2015). They have made much analysis on the causes of public rental housing fraud, and put forward a lot of suggestions. However, studies in this field remain insufficient, few empirical studies have been made due to the lack of relevant data. This study attempts to fill this gap. We take Hangzhou as a case to establish a multinomial logistic regression (MLR) model for quantitatively examining the effect of factors, such as personal and family characteristics, other tenants' fraud behavior, punitive measures, and private rent affordability on public rental housing fraud, based on the data we obtained from a large-scale questionnaire survey.

The rest of this paper is presented as follows. Section 2 reviews the literature on public rental housing fraud. Section 3 constructs the framework of empirical analysis. Section 4 describes the data, explanatory variables, and the model specification. Section 5 reports the results of the MLR models. Several conclusions and suggestions are drawn in Section 6.

## 2. Literature review

### 2.1. Public rental housing fraud

Laws and regulations is an important influencing factor for public rental housing fraud. Take the United States as an example, the federal law requires that only families with net income at the time of admission less than five times the rental will be eligible (Friedman, 1966). If the income rises above a “continued occupancy” level, the resident family must be evicted by Local Housing

Authority (LHA) (Blumenthal, 1978). However, beginning in 1970, when “42 U.S.C. § 1410(g)(3)” was added to the Housing Act of 1937, over-income families could not be evicted if the LHA determined that they could not reasonably afford decent housing in the private market. This provision eventually became an excuse for poor management. In the U.K. social landlords were obliged to adopt allocation systems based rigorously on housing need. However, social housing fraud remains a serious problem in England due to the lack of punishment (Morrison, 2000). The tenants in Berlin would be evicted from affordable housing for his tainted credit rating (i.e., SCHUFA in Germany) (Soederberg, 2017).

Wang (2013) and Zhang (2015) believe that the punishment of public rental housing fraud in China is too light and that fraud is classified too low on the legal hierarchy; the tenants involved in fraud should bear criminal responsibility instead of merely a fine of ¥1000. By contrast, article 26 of the housing regulations in the *Laws of Hong Kong* provides for a maximum of six months in prison and fines of HKD 20,000 to the households that provide false assets and income information (Liu & Tong, 2008). Li et al. (2016b) suggested that once specified events (such as sub-tenancy, sub-lease) happened, qualifications for renting must be canceled. Xiao and Gao (2014) pointed out that complex procedures, high cost, and long duration make law enforcement highly difficult. Fan (2015) suggested that the key problem is the lack of a unified law to define the rights and responsibilities of each department in the field of public rental housing. Dai (2011) and Zhu (2015) argued that personal credit system construction is seriously lagging behind in China, which makes the cost of cheating so low that public rental housing fraud recurs.

Information asymmetry is yet another important contributor. At present in China, most government departments still have not yet networked, and individuals often have a high proportion of hidden income. Thus, it is quite difficult to make sure that all applicants are eligible, i.e., the tenants' assets and income not exceeding the ceiling limits. Shen and Sun (2013) suggested that government establish regular spot checks and on-site inspection systems to obtain the tenant's housing situations, economic conditions, personnel structure, and other basic changes on time. However, this step requires the establishment of specialized departments with specialized personnel who are responsible for it (Qi, 2012). Cao and Yu (2012) and Chen (2012) suggested that the government set up a special income statistics departments and build a national information sharing platform in favor of examining the applicants' real income level. The Hong Kong Housing Authority has established a system of *Combating Housing Abuses* in 2004 to strengthen public housing management. To prevent public housing resources abuse, the system strictly reviews all types of subsidized plan applicants' income and assets information, in addition to handling of suspected abuse cases (Wang & Wang, 2006).

Individual characteristics will also have an impact on public rental housing fraud. Pan et al. (2015) analyzed the factors that affect the willingness to vacate public rental housing, and found that the impact of individual characteristics, including marital status, education, occupation, family size and household per capita disposable income (PCDI), is significant. However, another two factors, age and sex, are not significant. Li and Huangfu (2016) conducted a similar study, and the result showed that family characteristics, satisfaction and cognition towards public rental housing have significant influences upon vacation. Some scholars, such as Baldry (1987), Andreoni, Brian, and Jonathan (1998), and Christian (1994), have also found significant effect of individual characteristics in the studies of public sectors fraud. Although these studies didn't explicitly address the problem of public rental housing fraud, the conclusions can be used as an important frame of reference for this study.

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