

# Research on the Economic Disputes and Countermeasures for House Expropriation Combined Information Processing Model

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**Keywords:** Expropriation of Houses, Economic Dispute, Information Processing Model, Countermeasures.

**Abstract:** With the rapid development of urbanization in China, more expropriation of houses occurs, which is giving rise to much more contradictions and economic disputes. In the situation, lots of problems need to be solved. Based on the previous researches, this paper analyzes the economic disputes and explores the reasons between the expropriators and those who have been expropriated from their houses by means of comparison, graph and Nash bargaining model, then proposes corresponding countermeasures to ensure that the expropriation can be implemented smoothly.

## 1 INTRODUCTION

In recent years, with the sustained economic development in China, the core position of the city is increasingly enhanced in the regional economy development, and the city size is expanding constantly. Kinds of city planning projects can be seen everywhere, such as old city reconstruction, commercial development and major government projects. the amount of expropriation and the newly completed area in China.

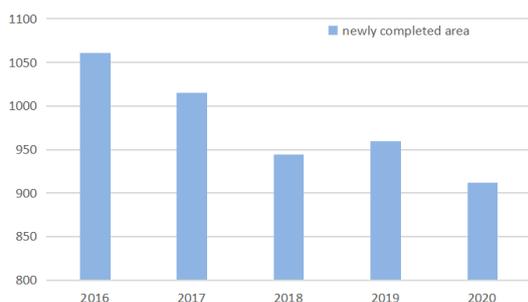


Figure 1: The amount of the newly completed area in China.

As can be seen from Figure 1, there has been a great deal of development in urbanization and industrialization in China. Under the circumstances of rapid urbanization, it's imperative to expand the scope of urbanization and make use of land more intensively and efficiently in the conditions of limited resources, which has resulted in a large number of

housing levy activities (Peng 2009). During the development and transformation in city, as a job destroying the old and establishing the new, the housing levy makes significant sense to improve the production and living environment of the residents, furthermore, it promotes the development of city and regional economy development. Nevertheless, housing expropriation concerns the interests of the expropriators and those to be levied, which is likely to induce sharp conflicts and affect social stability with a slight error. Lately, contradictories caused by expropriation happen frequently and attract widespread attention in society, which makes it necessary to take measures to deal with interests of relative departments and to prevent and solve various disputes.

In order to avoid conflicts in expropriation, the government has taken legal corresponding countermeasures, and the provisions in the laws are increasingly humanistic. Table 1 illustrates some of the laws and regulations issued concerning expropriation and compensation in China (Shan 2012).

Table 1: Laws and Regulations.

Implementation Time	Laws and Regulations
2007	Property Law of the PRC
2011	The assessment methods of the housing levy on the state-owned land
2012	Provisions on handling a number of issues in applying to the people's court for enforcement of the case of the housing levy compensation on the state-owned land
2020	The housing levy and compensation ordinance on the state-owned land

In addition, some domestic scholars have conducted researches concerning expropriation of houses, the majority of which mainly study from the theoretical level like news reports, while literatures in deeper levels are relatively less. This paper applies Game theory to analyze the issue and puts forward corresponding advises based on the analyzed results.

## 2 LEVIED DISPUTES AND CAUSES

### 2.1 The Economic Disputes

The contradictory between the individuals to be levied and the expropriators playing an important role in expropriation, is the most prominent in all disputes, and the impact resulted from it is profound, and even affect social harmonious and stability (Qiu 2021). Disputes mainly come from the two sides attempting to maximize their own benefit through the game which threatens other's interests. The individuals to be levied seek to get excess interests, while the expropriator hopes to reach the goal with the least cost.

### 2.2 Causes Analysis

#### 2.2.1 The Narrow Scope of Compensation

The ordinance provides the scope of expropriation compensation in China, furthermore, the author collects compensation information about some foreign countries. Table 2 lists the compensation range in several countries (Song 2019).

Table 2: Compensation Range.

Country	Range
China	Value of houses, temporary settling-fees, moving and relocating cost, compensation for suspension of production or business
Germany	Value of houses, temporary settling-fee, cost for rights, operating loss, scrap value of land, moving cost, cost for lawyer or experts, hardship grants
Japan	Value of houses, temporary settling-fee, operating loss, scrap value of land, moving cost, engineering cost
Canada	Value of houses, temporary settling-fee, operating loss, market value of land, loss caused by disturbance, mortgage of land

Compared with other countries in Table II, the compensation scope in China, which doesn't take the potential loss into consideration, is relatively narrow. As a consequent, some individuals are not satisfied with the compensation standards.

#### 2.2.2 Lacking of Participation Echanism for the Subjects to Be Expropriated

The 10th provision in Ordinance stipulates that: "the government should conduct feasibility studies on the compensation scheme and consults with the public, so as to solicit their opinions, furthermore, the consultation period is not less than 30 days." However, in the actual process, hearings are scarcely organized, giving rise to low transparent information about expropriation (Gui 2011). The individuals know little about levy information in the decision-making process, such as the levy purpose and decision-making of the plan as well as compensation for the price, which causes that the folks' rights to information and dissent is difficult to be achieved. As a consequence, the phenomenon that the people suspect of the compensation and refuse to sign up the levy agreement generates.

#### 2.2.3 Unreasonable Charge of Compensation

Lately, with human rights and private rights of property gradually paid attention, expropriation becomes one of the most difficult problems that should be solved. However, in order to get excessive benefit, some subjects being expropriated boycott expropriation maliciously, like asking for exorbitant prices, which leads expropriation can't proceed

smoothly and affects development progress (Xin 2021).

### 3 ANALYZE OF SUBJECT BEHAVIOR SUPPORTED ON INFORMATION PROCESSING MODEL

In expropriation, the game exists between the government and the subjects being expropriated. The expropriator always pursues to achieve requisition land quickly and smoothly, meanwhile, keeping the society peace, while the land ownerships expect more benefit with the least loss. Furthermore, in the whole procedure, the department who has access to information, masters the messages concerning expropriation abundantly, while the land ownerships are underdogs. Under this circumstance, in fact, the game of behavior is one of benefits for the subjects in the asymmetric information instances (Wang 2010).

#### 3.1 Several Hypothesis and Information Processing Model

There are two types for the expropriator's behavior in expropriation: reasonable compensation and unreasonable compensation. The land ownership's performance divides into two types: cooperation and boycott. In the end, there are five different choices for the behavior: (reasonable compensation, cooperation), (reasonable compensation, successful boycott), (reasonable compensation, unsuccessful boycott), (unreasonable compensation, cooperation), (unreasonable compensation, successful boycott), (unreasonable compensation, unsuccessful boycott).

Given the hypothesis, the unreasonable compensation price provided by the government is  $P_1 (P_1 > 0)$ , and the reasonable compensation price is  $P_0 (P_0 > 0)$ , while the land ownerships expect the price is  $P'$ . The probability that the expropriator gives the low allowance is  $\theta$ , and if the beings expropriated resist it, the cost that the expropriator takes measures is  $C_1$ , and the gain of expropriation is  $L (L > 0)$ . However, once the unreasonable compensation is founded by high authorities. The gain and n times of it will be as the penalty. Besides, the probability for the land ownerships' boycott and the successful boycott is  $\lambda$  and  $\beta$ , meanwhile, the cost it takes is  $C_2$ .

According to above hypothesis, the benefit matrix can be drawn as Table 3.

Table 3: Benefit matrix.

Land ownerships the expropriator	Successful boycott ( $\lambda\beta$ )	Unsuccessful boycott ( $\lambda(1-\beta)$ )	Cooperation ( $1-\lambda$ )
Unreasonable compensation	$(P' - P_0 - C_2, -\mu(L - C_1))$	$(P_1 - P_0 - C_2, (L - C_1))$	$(P_1 - P_0, L)$
Reasonable compensation	$(P' - P_0 - C_2, -C_1)$	$(-C_2, -C_1)$	$(0, 0)$

Note: the game compute the benefit of each department through making (reasonable compensation, cooperation) as the datum mark.

#### 3.2 Solution of the Model

Under the condition that the probability of the land expropriated resisting the expropriation is  $\lambda$ , the expected revenue that the expropriator gets through reasonable and unreasonable compensation respectively is respectively as follow.

$$E(\lambda) = \theta \times \beta \times (P' - P_0 - C_2) + \theta \times (1 - \beta) \times (P_1 - P_0 - C_2) + (1 - \theta) \times \beta \times (P' - P_0 - C_2) - (1 - \theta) \times (1 - \beta) \times C_2 \quad (1)$$

$$E(1 - \lambda) = \theta \times (P_1 - P_0) \quad (2)$$

When there is no difference between reasonable compensation and unreasonable compensation, namely  $E(\lambda) = E(1 - \lambda)$ , so the solution can be got.

$$\theta_0 = \frac{\beta \times (P' - P_0) - C_2}{\beta \times (P_1 - P_0)} \quad (3)$$

When the probability of unreasonable compensation surpasses  $\theta_0$ , the optimal choice for the land ownership is cooperation, on the contrary, the optimal choice is rejection. When the probability of unreasonable compensation is  $\theta$ , the expected revenue that the land ownerships get through boycott and cooperation is respectively as follows.

$$E_1(\theta) = \lambda \times [-\beta \times \mu \times (L - C_1) + (1 - \beta) \times (L - C_1)] + (1 - \lambda) \times (P_1 - P_0) \quad (4)$$

$$E_1(1 - \theta) = \lambda \times \beta \times (P' - P_0 - C_2) + \lambda \times (1 - \beta) \times (-C_2) \quad (5)$$

When there is no difference between boycott and cooperation, that is to say  $E_1(\theta) = E_1(1 - \theta)$ , so the solution could be got.

$$\lambda_0 = \frac{P_1 - P_0}{(\beta + 1) \times (P' - P_0) - \beta \times C_2 + \beta \times \mu \times (L - C_1)} \quad (6)$$

When the probability of boycott surpasses  $\lambda_0$ , the optimal choice for the beings expropriated is

unreasonable compensation, on the contrary, the optimal choice is reasonable compensation. While the probability of unreasonable compensation is  $\theta_0$ , namely the probability of reasonable compensation is  $1-\theta_0$ . Figure.2 gives the optimal reaction function of the land ownerships, namely the optimal point of  $\lambda$ .

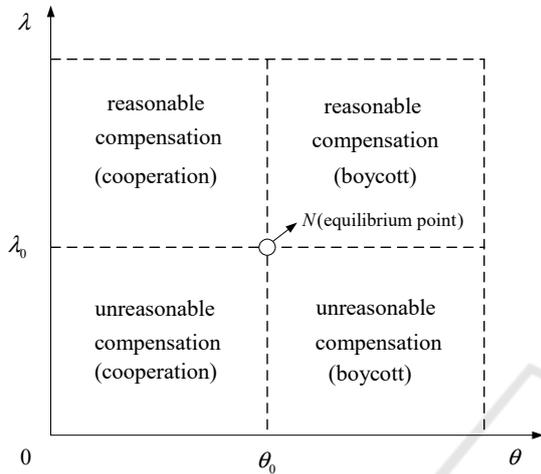


Figure2: The mixed strategy.

Form the Figure 2, the intersection point is the point of Nash equilibrium in the game. The analyzed outcome is as follows.

The following result can be obtained

$$\theta_0 = \frac{\beta \times (P' - P_0) - C_2}{\beta \times (P_1 - P_0)} \quad (7)$$

Behavior of the expropriator is concerned with the probability of successful boycott  $\beta$ , the cost of boycott  $C_2$ , the unreasonable compensation  $P_1$ , the reasonable compensation  $P_0$  and the required allowance of the house owners  $P'$ . When the higher imposed boycott cost and require compensation amount, meaning that the stronger attitudes boycott imposes, the smaller the possibility of collecting departments to take unreasonable compensation.

### 3.2.1 According to the Following Equation

$$\lambda_0 = \frac{P_1 - P_0}{(\beta + 1) \times (P' - P_0) - \beta \times C_2 + \beta \times \mu \times (L - C_1)} \quad (8)$$

Levied countered behavior is related with punishment imposed by behavior of collection department  $\mu$ , unreasonable compensation amount  $P_1$  and other relevant factors. When collecting departments fear of severe punishment, namely  $\mu$  is large, the possibility

of unreasonable compensation reduces, which means that probability of taking boycotts decreases, namely  $\lambda$  reduces. Considered when the greater the unreasonable compensation amount is, the wider the range is, the smaller the molecule is in the formula, so the smaller  $\lambda$  is, meaning that the smaller will the impossibility of the house owners imposed to take boycotts.

## 4 DISPUTES SOLUTIONS

### 4.1 Expanding the Scope of Compensation for Expropriation

What can be drawn based on the results of the above model, in order to reduce disputes in the housing levy process, the scope of compensation for expropriation should be appropriate to expand, that is,  $P_1$  increases, so that the interests of the people could be subject to further protection, thereby reducing the possibility of taking boycott. Expanding the scope of compensation for expropriation follows two cases.

#### 4.1.1 The Housing Levy Compensation Need to Consider Special families

In housing expropriation process, it is usual for the expropriators to encounter the household staff and complex family relationships, for these cases, the compensation standard is no longer applicable (Peng 2010). Housing expropriation departments can understand the actual situation of the special families through family visits and gather information, at last, develop a mutually satisfactory special compensation program in consultation with the requisitioned owners, without violating levied laws.

#### 4.1.2 Compensating for the Price Expected to Rise as Well as Intangible Benefits

Accompanied in the process of urban transformation, real estate industry is rapidly developed in China, and the price increase is also increasing. The 19th article in the Ordinance says: The compensation of the value of the houses shall not be less than market prices of similar real estate since the decision of housing levy is announced to the public, which dose not consider the rise of prices of housed to be levied. Therefore, in the valuation of expropriated houses, its future price appreciation should also be taken into consideration, thus expanding the scope of compensation for expropriation. Additionally housing levy process also

involves the compensation of intangible benefits. When living in the same place for a long time, people are more familiar with the living environment like transport, entertainment facilities and the neighbors' feelings (Zhang 2011). Once the houses are levied, they are placed into a strange place, and the new environment is likely to affect all aspects of their social interaction, medical care, children's education, entertainment, which are related to the pros and cons of the intangible benefits. However, the compensation provisions for intangible benefits lack of a certain computing standards, which makes it difficult to determine the specific amount of compensation. So compensation for intangible benefits need to be decided through mutual consultations.

#### 4.1.3 Perfecting the Levied Participatory Mechanisms

In the actual collection process, in order to reduce the occurrence of disputes, the implementation of the legislative hearing system can make the legislative process more open and transparent (Zhou 2021). At the hearing, representative figures elected by the public take participation in the hearing, and make statements about the views on behalf of the public, which makes the legislative process more adopt the viewpoints of the public, and to some extent increase the involvement of the public, so that the formulation of the law is more concerned about the coordination of the interests of all parties, thus reducing the possibility of expropriation disputes.

## 5 CONCLUSIONS

Since expropriation involves multi-stakeholders, rational and humane method should be used to actively deal with the various disputes in the collection process. It is necessary to protect the legitimate rights and interests of the people to be levied, but also to ensure binding of the levy regulations. The paper explores the behavior that may be taken under different conditions in the collection process through the analysis of the disputes between the people and their causes and building the game model. According to the analysis results, it puts forward appropriate countermeasures on how to resolve the disputes, so as to provide some valid suggestions to ensure the collection process more smoothly.

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