

Public Morality Construction of Construction Industry Based on the Prisoner's Dilemma Theory

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Abstract. According to the prisoner's dilemma theory which shows some certain construction enterprises dealing with the conflicts between individual and the collective interests, the author combines theory with practice and analyses the theory of the dilemma as well as its manifestations in the construction industry and the causes of the problems. Then in order to maintain the order of the construction market effectively, the author macroscopically proposes the advices of strengthening construction of social public morality.

Keywords: Prisoner's dilemma; construction industry; individual interests; collective interests; public morality.

1. Introduction

"Prisoner's dilemma" is the classical idea of "Game theory", which is often consciously or unconsciously applied. The conflicts of interest and gambling between construction enterprises or between construction enterprises and the country is a common objective, and accordingly is the main causes of "prisoner's dilemma" in the construction industry. Even some certain enterprises or persons confuse the relations of individual and collective interests, or take an advantage of "collective interest" which is the personal excuses indeed.

Therefore, this article starts with the "prisoner's dilemma". Then it explores the forms and causes of "prisoner's dilemma" which is mainly based on public morality in the construction industry to propose the ways of strengthening the social public morality of construction enterprises.

2. Prisoner's dilemma and prisoner's dilemma of construction industry

2.1 Prisoner's dilemma theory

The classical prisoner's dilemma is as follows: two suspects are arrested and separated by the police and both are provided the same choices which are:

(1) if one confesses the crime and betrays the other one who keeps silent, he will be released and the silence one shall be sentenced to prison for 10 years.

(2) if they both keep silent, their sentence will be 1 year in prison.

(3) if they both testify against each other, their sentence will be 8 years in prison.

Table 1 shows the strategies between A and B.

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	A (silence)	A (confession)
B (silence)	1 year in prison (both)	A released, B 10 years in prison
B (confession)	B released, A 10 years in prison	8 years in prison (both)

In the process of the game, assuming A and B are both rational, namely seeking their own best interests. Thus, there're two strategies. They are "If you are silent and I confess, then I'll be

released. so I'm going to choose to confess. "And" If I am accused of the crime, I have to sue him in order to get a lower sentence, so I would choose to confess. "Obviously, no matter which strategy, as a rational individual, both of them would choose to betray. Therefore, the Nash equilibrium of this game could be one result. That is both of them choose to confess the crime and get a punish of 8 years in prison. [1]

The Nash equilibrium of "prisoner's dilemma" is from the perspective of maximization of personal profit, which ignores maximization of collective interests. If A and B have been silent, the sentence will only be 1 year, which is analyzed from the collective point. Here, it's the best choice that we think, but that is against the initial assumptions that both of them are rational and they will seek their own maximum benefits. This is the "dilemma", or the contradictions and conflicts between individual and collective interests.

2.2 Different forms of "prisoner's dilemma" in construction industry

In construction industry, the game among the enterprises, stakeholders and different departments is related or similar to "prisoner's dilemma". Although the "prisoner's dilemma" theory is poorly understood, there is no doubt it's applied consciously or unconsciously by construction companies and many individuals. The following public moral anomie is the main manifestations.

(1) False bids. It's a common illegal phenomena in construction industry mainly including rigging, colluding, dismembering works, dodging the tender, guise of qualifications and malicious competition. [2] Taking the 2010 fire accident of Shanghai Jingan district for example, it is exactly because of the false bids, making 58 death, over 70 hurt and more than 56 missing, meanwhile, a probably 26 million dollars lost.

(2) Jerry acts. It often appears that contractors reduce labor hour and change the quality or standards of materials without permission so that they can get more benefits, which have made many of the projects a notorious "jerry-built projects". [3] On March 13, 2013, the CCTV in China exposed the sea sand whose excessive chlorine ions will severely corrode the reinforcement in concrete were heavily used in Shenzhen because of the cheap price. It is popular with many unscrupulous developers, even involving some large-scale real estate groups.

(3) Achievement projects. In the respective of purposes and interests, some individuals or groups do not take account of the reality and objective conditions as well as the needs of the people. Instead they cost a lot to construct image projects which waste both money and manpower. [4] Even in order to cater to the intent that the local government desire to gain notable achievements, related parties frequently set out to operate privately without permission and relevant formalities or speed up the progress which have increased great risk of these projects.

3. The causes of "prisoner's dilemma" in construction industry mainly based on public morality deficiency

The causes of "prisoner's dilemma" in construction industry mainly based on public morality deficiency are as follows:

(1) Professional unhealthy tendencies. In recent years, more and more enterprises are exposed that there are no relevant qualifications or lower levels. Even some certain individuals or enterprises "sale" or "buy" projects by the means of bribery. Such acts of speculation have made some certain companies and people taste the "sweetness". Thus, to some extent, it has encouraged corrupt in the industry, and unknowingly distorted the values of the society. The results not only disrupted the order in the industry, but also seriously affected the atmosphere of industry.

(2) Low levels of education and ideological consciousness. Some front-line workers, technical personnel and managers are within few education or experiences of systematic training which have led to the low quality of current personnel. In addition, while some enterprises will hold regular training and reeducation, most of them are superficial.

(3) Imperfections of positive and negative incentives. On one hand, the related support policies are less or the support awards are useless which can not reflect the political orientation of the government. On the other hand, the country is on the period of transformation stage of the market economy. The long-standing abuse of the old system has not been fully eradicated, and the new system is on the way to maturity. What's more, lack of oversight has made the rights imprecise and balances invalid [5].

(4) A psychology of overnight fortune. It is well known the construction industry is more profitable than some certain industries. Thus, many companies and individuals are eager to make a fortune. Because of this psychology and being shortsighted, a lot of business became "one-shot deal" so that it's unable to form long-term relationships with customers. Such behavior not only has suffered most, but also has damaged the image of companies and individuals.

In brief, the reasons are not all due to the construction industry and enterprises, but the serious incidents that always happen are strongly challenging the honest and trustworthiness of our nation.

4. Effective ways to strengthen the public morality in the construction industry with correct understanding of "prisoner dilemma"

4.1 It is vital to enhance staff's moral awareness

Managers and staff at senior positions play an important role in architecture companies, as well as leading to build the company culture. Frankly speaking, their behavior and words could direct a way for the development of the company, meanwhile, influence surrounding colleagues and business.

Thus, by increasing their public morality and consciousness, can they become role models for others, using their behaviors to influence people directly. Therefore, handling the relationship of interests correctly among the state, the collective and individuals gets on well with the survival and development logic for a company.

4.2 Using Rule of Virtue and Law together, as well as positive and negative encouragement

After talking with colleagues in architecture field, it is easy to find out an unspoken rule is that some practitioners make profits for themselves to a maximized extent, which is because they are lack of awareness on rule of virtue and rule of law, as well as positive and negative encouragement.

Therefore, it is high time to improve the predictability and pertinence. In terms of those intractable phenomena and new problems in new era, it is necessary to find out problems in time, analyse the main points and strengthen policy guidance. On the one hand, it is of importance to educate and guide people to clarify misconceptions; additionally, it is crucial to have a profound analysis on the cause of the problem, to understand the main points of public morality building of architecture field and strengthen working predictability and pertinence. On the other hand, establishing effective and efficient positive and negative encouragement institution is a must. Combining rules of virtue and rules of law, it is better to give those companies and individuals punishment if they have not obeyed the rules, even to abandon them forever to get into the field.

4.3 Internet can be used to build the public morality in architecture field

Due to the convenience and influence of Internet, it is easy to know the information and situation of architect projects, to monitor the consensus for improving the company's self-discipline.

Under this circumstance, no matter the company would like to accept or not, people are willing to use internet to comment on the company qualification, business scopes, projects, architecture quality, brand, staff qualification and so on. Thus, internet can be seen as a double-edged sword. According to

this, the company and those senior managers should make full use of it, otherwise those who ignore negative comments online would damage the company's branding.

5. Conclusions

(1) Taking a full advantage of the positive influence of managers and staff at senior positions in company could direct a way for the development of the company, meanwhile, influence surrounding colleagues and business.

(2) Using Rule of Virtue and Law together, as well as positive and negative encouragement

Could not only make the encouragement legal and powerful, but also appear impartial in the dispensation of reward and punishment.

(3) At the time, internet is a powerful weapon to reveal bad or good reputation. So it is better to make full use of it to spread the truth.

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