

## Human resource recruitment module game analysis

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### Abstract

Nowadays, there is serious job-hopping in enterprises, so the high turnover- rate of employees has become a problem for many enterprises. Employee's turnover not only causes the cost of the enterprise to be lost, but also reduces the operation efficiency of the enterprise and affects the enterprise development. In order to achieve the goal of making ideal man match to the suitable work, this paper using the game theory of imperfect information dynamic game theory and combining the knowledge of the matching principle analysis the recruitment job in human resources management module. Finally it provides the feasible policies and Suggestions for the enterprise of the recruiter.

### Keywords

Recruitment,Game,The human resources.

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### 1. Introduction

The status of human resource recruitment: with the development of science and technology, the improvement of the quality level of the whole people and the constant emergence of talents in various fields, the talent competition has become the core competitiveness of enterprises. With the continuous improvement of the national education, however, the people achieving degree have become quite common. Pessimistic, along with the development of science and technology, record of formal schooling the phenomenon of fraud, this makes the enterprise in the process of hiring more difficult to select the candidates. If there is a mistake in hiring this important link, it will bring great loss to the enterprise and seriously affect the operation efficiency of the enterprise.

Nowadays, there is widespread job-hopping among enterprises in various regions of the society. The reason is that the enterprise neglects the matching degree of people in the initial stage of recruitment. After the employees leaving, the company can fill the job vacancies in order to find employees quickly, ignoring the important point: the problem of the match. The high staff turnover rate reflects the waste of human resources. It is not only the loss of the enterprise but also a loss of society. It indicates that the social labor force is not operating efficiently. There is a common phenomenon is the loss of talent, in the recruitment process, the actual circumstances of the applicant and personal career development plan is not fully understood for the enterprise , causing that employees working for a period of time and accumulating some basic skills leave for a better company. Above all the phenomenon is that people do not well match to the job, or individual ability is far higher than work requirements, or individual skills and qualifications of the existence of false composition, resulting in low efficiency of enterprise recruitment, recruitment cost suffered serious losses, affecting the normal operation of the enterprise at the same time.

Mr. Zhao in 2011 with the knowledge of the game theory analysis the hiring process it comes to the conclusion that the high quality employment, and the low quality is not employed, focusing on how to recruit more qualified talents and making the enterprise benefit maximization. In the game analysis of her human resource recruitment process, xi Jing only proposed that a method should be adopted to

reduce the occurrence of fraudulent behaviors of the applicant, and the specific method was not mentioned. In this paper, we use the knowledge of dynamic game of the imperfect information to propose a specific method to reduce the cheating behavior of the applicant.

## **2. The basic theory of game theory**

### **2.1 The origin of game theory**

"Game theory" means "Game theory". Our daily lives of guessing games, playing go and relay RACES or ball games are all games. These games have one common feature: strategy, or strategy. These strategies in the game has a very important role in the process of daily life in the game even though there are some basic qualities such as luck or physical, but once these factors is determined, the strategy choice of good or bad influencing the success or failure of the game is the key. However, when the participants in the game have the same basic situation, such as chess, the choice of strategy is the only factor determining the outcome of the game. Therefore, in the game, the question being worthy of studying should be the strategy question, rather than the basic qualities (such as physical qualities) and the problems (such as luck) that the participant cannot change. This presents a new discipline game theory. What we often call the prisoner's dilemma is a classic game. The two prisoners only considered their own best interests, so they got into trouble.

### **2.2 Game theory analysis paradigm**

- (1) Phenomenon Modeling
- (2) Equilibrium
- (3) Generalization explanation

### **2.3 Basic elements of a game model**

- (1) Players
- (2) Actions or strategies
- (3) Utility payment function (pays off)

## **3. The recruitment process of the employer and the applicant behavior modeling**

In the real life, business intends to recruit new employees. Employers and the candidate's game is a process of dynamic game, this article uses the relevant theoretical knowledge of a dynamic game to analyze the behavior in the process of human resources management recruitment module game.

In the process of hiring, recruiters and job candidates play games with each other, making decisions that are conducive to their decisions, and the decision-making process is in order. In the hiring process, the enterprise according to their personnel situation decides the condition of the candidates. Then the enterprise uses various channels to release the job requirements. The applicants according to their own conditions of the decision decide whether to apply for. According to the relevant information provided by the applicant and the comprehensive interview situation, the company will make a comprehensive evaluation and finally make the hiring decision. The hiring process is a dynamic game in which recruiters and applicants make the most favorable decisions for themselves, and not at the same time.

### **3.1 Model one**

The following are the model 1, which model the game behavior of recruiters and candidates in the recruitment process:

There are two players involved in the hiring process: recruiters and job candidates.

Action or strategy in the hiring process: recruiters have two choices: verify and not verify the recruiter's information;

Candidates have two choices: cheat and don't cheat employers.

Utility payment function:

It costs five units to verify the information for the recruiters;

If a candidate deceives a recruiter, the employer does not verify the information, and the employer loses 20 units .However the candidate has a 10 unit profit.

If a candidate is cheating the recruiter through various means, the recruiter later verifies the information, so the candidate loses 10 unit costs.

According to the above situations, we can get the game results shown in the following table1:

Table1 Game result of both parties

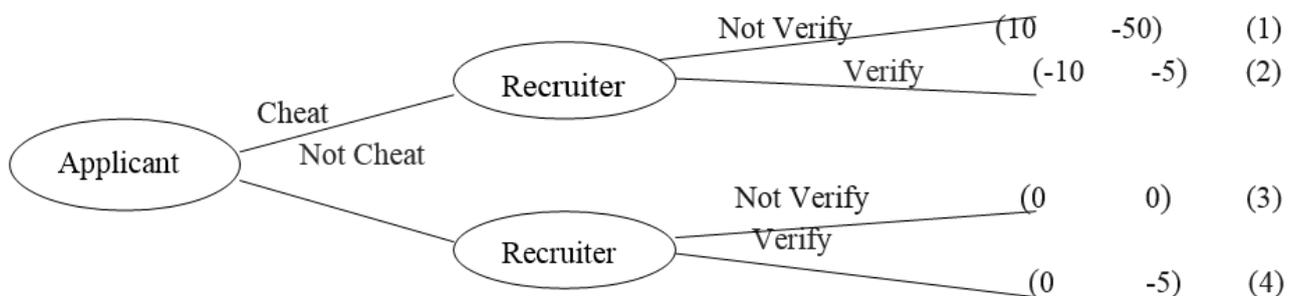
		The applicant	
		Don't cheat	Cheat
Recruiters	Verify	(-5,0)	(-5,-10)
	Don't verify	(0, 0)	(-20,10)

The Nash equilibrium in dynamic game is unstable because it cannot rule out the untrustworthy behavior of the game. This flaw in the Nash equilibrium concept makes it impossible for participants to make effective predictions and judgments in the game.

There is no Nash equilibrium in the table1, the enterprise wants to impose a means to get satisfactory results (not verify, not cheating), the result is the most beneficial for enterprises, not only reduce the recruitment costs, and improve the efficiency of recruitment. So the following the introduction of a condition, i.e., if the applicant with a fraud information entry, but recruiters don't verify the applicant's information. The enterprise will give recruiters a punishment: at this time to deduct the 80% when monthly wages (in this paper, according to the deduction of 30 units) The information listed as expressly provided otherwise, especially let candidates know the relevant provisions of the company, the introduction of this condition will change the unbelievable threat to the believable threat. So the applicant providing the materials is highly cautious and this condition caused serious psychological impact to the applicant. The applicant will think the company will be to verify the authenticity of the candidate's information, so they are afraid to cheat then there will be a new model. The company's announcement made it a big advantage in recruiting this game, both reducing the cost of recruitment and effectively completing the hiring plan, killing two birds with one stone.

**3.2 Model two**

Applicant Recruiter



The numerical results from the model table1 show that, Step 1: use the inverse method to see the benefits of the employer in both cases.  $-50 < -5$ , so the first branch is cut off.

Step 2: similarly,  $-5 < 0$  the fourth branch is cut off.

Step 3: analyze the benefits of the applicant. From the first, the second step can be known as  $-10 < 0$  so the cheating branch is cut off.

Model two finally got: (no deception, no verification) this result achieved the purpose of the enterprise. Model 2 is on the basis of the model1 given a condition, the condition is that a punishment. It would

change the unbelievable threat into a believable threat. Thus it makes the enterprise use low cost to enhance the efficiency of the recruitment. The game behavior emphasizes the individual rationality, that is, under the given constraint conditions, the game of the two sides to pursue the overall utility maximization. It is a scientific and practical quantitative analysis method. The enterprise should apply game theory to human resource management and realize scientific and rationalization of human resource management.

#### 4. Deficiencies and Prospects

Dynamic game Nash equilibrium is unstable. The root cause is that it cannot rule out game strategies contained not credible behavior set, and cannot solve the dynamic problem of trusted game camera choice. Therefore, based on model 1, model 2 is established, and an appropriate and feasible method is found for the recruitment department to select by reverse induction. The explanation of the above model can provide some effective suggestions for the recruitment of enterprises to improve the recruitment efficiency. This is just a personal assumptions, the actual game behavior in the process of hiring far more than these, for example, applicants in their own ability under the condition of no problem, in the face of the treatment the enterprise given, determining whether to go is also a kind of gambling behavior.

In the rapid development of human resources, talent competition has become the core competitiveness of enterprises. The enterprises and the various industries should be candidates, servants, nurtures and visitors. The first step of the selection process is to show how to make the correct and efficient decision in the recruitment process, select the right people to fit the appropriate position, and the relevant theories of the game can provide good guidance. In order to keep the healthy development of the talent market, human resources should be equipped with high efficiency. The three parties should work together to build a social atmosphere of integrity and a competitive market for talents. As a candidate, we should take honesty as our own, face the recruitment enterprise seriously and seek truth from facts, which will also help us to find the right position for ourselves. As an enterprise, we should strive to improve working conditions, optimize the working environment, create brand image, attract and retain excellent talents. The government and society should provide legal guarantee for the standardization of labor market, establish the integrity file of talents, increase the cost of deception, and prevent cheating by the legal system.

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