The Coordination Game Analysis between Academic Power and Administrative Power in Universities Based on Inclusive Theory under the Background of "Double First-rate"

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Abstract. The "double first-rate" construction, which promotes the construction of world first-rate universities and first-rate disciplines, has drawn great attention and became the focus issues in educational circles in recent years. The construction of "double first-rate" requires the first-rate internal governance structure in universities according to university statue. The conflict of interest between academic power and administrative power is one of the most important factors influencing the first-rate internal governance structure in universities, to seek to maximize the common interests is the basis of power inclusiveness. There are differences in academic power and administrative rights among different types of universities. The power inclusive theory and university statue are the effective way to enable two rights to serve the construction the "double first-rate" better. This paper builds a coordination game model of academic power and administrative power on the basis of power inclusive system. The model demonstrates that the two kinds of rights can achieve inclusion and coordination to promote the construction of the "double first-rate".

Introduction

In 1954, our country began to implement the key university system. On the “key institutions of higher learning and resolution of expert working range”, the higher education designs six universities as the national key university, it involves Tsinghua University, Peking University, Renmin University, Beijing Agricultural University, Beijing Medical College and Harbin Industrial University. Since then, the number of universities has increased, and by the end of 1979, there were 97 key universities in China\cite{1}. Although China has the key university since the 1950s, it has not set up special funds for universities to support the development of key universities and key disciplines. In July 1993, the national development and reform commission (NDRC) has put forward some opinions on the key construction of a batch of several opinions of institutions of higher learning and key disciplines. The resolution has put forward the "211 project", and officially launched in November 1995. The construction contents of "project 211" mainly includes the overall condition of the school, the key subjects and the construction of the education public service system, which has effectively promoted the improvement of the quality of education in China.

"211 project" and "985 project" improve the management level of higher education in China greatly. The greatest achievement is to build a good foundation for China's further construction of world-class universities and first-rate disciplines\cite{2}. Although these projects promote the rapid development of education in China, but there is a lack of competition in the process of construction of these programs, severe homogeneity, lack of innovation and a series of problems. These problems have impeded the further development of our country's higher education, and China's education is in urgent need of innovative solutions. In order to further strengthen the construction work of colleges and universities, the State Council promulgated the program named "The overall plan to promote the world's leading universities and first-rate disciplines" on October 24th, 2015 (abbreviated as"plan"). In this way, we
can improve the mechanism of education and further promote the construction of universities and disciplines, which is called "double first-rate construction". "Double first-rate" is also the theme of education in the two sessions in March 2017, and also represents the topics of the committee's attention. Based on top universities and first-rate disciplines, "double first-rate" has made further corrections and additions to university development, making the next step more clear.

From "985", "211" to "double first-rate", it is not just change a name, but rather a mechanism of change. The former is monopolistic and rigid, and the latter is rolling and obsolescent, the two are relationship between inheritance and development. The “plan” proposes to adhere to the basic principles of "first class as the goal, discipline as the basis, performance as the lever, and reform as the driving force", so as to speed up the establishment of a number of world class universities and first-rate disciplines. The mechanism of rolling out builds a competitive field for Chinese University, which has given incentives to the non- "211" and "985" to motivate the features and advantages of prominent school subject and make it play a "catfish effect" to pursue the stronger. Thus, the competition consciousness of different types of colleges and universities can be stimulated and they can play their respective advantages, so as to promote the China university education and the level of scientific research and innovation ability in the overall increase.

Zhao Qinping, vice president of the China Institute of degree and postgraduate education and former Vice Minister of education, believes that the ten relationships between academic power and administrative power should be dealt with well in the process of building a first-class university. The relationship is a conflict relationship existing in the internal governance structure of colleges and universities, and the contradiction becomes more prominent as colleges and universities become more closely linked with society. In order to build first-class universities, it is necessary to deal with this relationship correctly. Zhao Qinping also stressed that taking care of the relationship is the key to establish a "double first-rate". He also emphasized the importance of the construction of laws, regulations and systems. Therefore, the contradiction and coordination between academic power and administrative power is inseparable from the system. In a sense, in order to achieve the coordination of academic power and administrative power according to the theory of inclusion, building the coordination game model, analyzing the strategies of both sides and the balance between them, thus to reveal the operating mechanism of university internal power to help to improve the university internal governance mechanism and promote the construction of "double first-rate".

**Academic Power and Administrative Power**

In general, the academic power is the special influence that academics have in their academic field. It can also accurately define that the subject of academic power has the right to handle academic affairs with advanced and systematic professional research, their own academic prestige and academic influence.

The administrative power refers to the rights granted by the state administration to implement the national will. As a kind of social organization, the university has the same administrative power as the administrative power of the state administrative organs, which is derived from the unique rights granted by the organization. Judging from the current situation of universities, the administrative power is the right of the administrative personnel to be granted by the authority of the authoritative department.

There are differences and similarities in academic power and administrative power. Both of them are the necessary means to maintain the operation of the university. The common goals of the both sides are to seek the maximum benefit of the university, which is also the interest link that encourages the two rights to participate in university affairs together. Different types of universities have a certain degree of imbalance phenomenon between academic power and administrative power. The imbalance is mainly reflected in: resource allocation imbalance, the overlap of subjects and the imperfect system.

1. Resource allocation imbalance is the focus of conflict. The distribution of educational resources in colleges and universities is the key to the conflict between administrative power and academic
power. In China, there are numerous universities facing difficulties to use academic power to allocate academic resources for teachers. The strong position of administrative power determines the administration’s control over academics. The excessive intervention from administrative power makes the academics gradually lose academic power. This phenomenon caused many academics in order to pursue administrative power, resulting in the complex academic environment of the university.

(2) The overlap of the main body intensifies the contradiction. In recent years, there has been a widespread phenomenon in universities that many academic staffs become the head of the administrative positions, and many administrative staffs hold academic titles, making the subject of administrative power and academic power is highly overlapping. Administrative staffs with academic titles do not focus on the management of administrative affairs, and rarely can really study the academic. Likewise, academic staff with administrative titles can also influence academic research because of distraction.

(3) Inadequate institutions lead to unequal rights. The most important step in building a "double first-rate" university is the reform of the university system. Only setting up appropriate administrative system and academic system can coordinate the relationship between the two powers and better serve the construction of "double first-rate" universities. Therefore, this paper, according to the inclusion theory and the form of institutional restriction according to the charter of the university, implements the inclusive coordination of administrative power and academic power to promote the construction of "double first-rate".

Theoretical and Institutional Arrangement of Academic Power and Administrative Power

Inclusive originates from the theory of social solidarity, and in recent years it has become a mainstream concept that promotes the harmonious development of international and domestic pluralistic interests. Giddens defines "equality" as "inclusiveness" and defines inequality as "exclusion", inclusion means that citizens have the qualifications, which means that members of society have civil rights, political rights and corresponding responsibility not only embodied in the form is more embodied in practice, which means that everyone is equal in front of opportunity. The essence of inclusiveness is equality of all status and opportunity, and its purpose is to maintain the interests of the organization through the cooperation, coordination, sharing and win-win situation among the members.

The charter of the university is a constitutional document, the internal structure of the university must be in accordance with the university constitution. University as a learning organization, its academic status must be protected. The existence of administrative organization is to ensure that academic activities can be more smoothly implemented, and administrative power should serve the academic power and respect for the existence of academic power sufficiently. To implement the requirements of the "plan", each university should perfect the constitution of the university, and bind the rights of both parties in the form of the system. Under the framework of the university charter, a reasonable administrative system and academic system should be formulated using the inclusion theory. The main body of the administrative system is the administrative organization, the main body of the academic system is the academic organization. Strict institutional development process must include the establishment of institutional issues, program design, program evaluation, program review, program modification and final program to establish these six processes. The establishment of the system must be inclusive, so that the academic power and administrative power can be inclusive and coordinated in the formulation of principles and norms of the contents, to maintain the maximum of the common interests of both sides (Figure 1). It should be noted that, based on the status quo of weakening academic power in colleges and universities, schools should improve the tilt of the academic system, focusing on cultivating and creating the impact of the academic system and the implementation of the atmosphere.
Figure 1. The establishment of administrative system and academic system.

Game Analysis of Academic Power and Administrative Power Based on Rights and Inclusion System

The internal structure of the university is a dynamic system with feedback characteristics that make input to the university: people, talent, content and information, etc.; through the university internal administrative power and academic power will produce a certain output: personnel training, scientific research, social services and cultural heritage. At the same time, the four outputs will have a certain feedback on the university's resource input. In other words, it is necessary to effectively deal with the two powers within the university, and to achieve the coordination of the two inclusive, and promote the long-term development of the university. Academic power and administrative power are the two main game subjects in university power. At present, there is a certain degree of academic power and administrative power imbalance in our university. Therefore, with the help of the right inclusion system, the use of game theory analysis can realize the coordination and coordination between academic power and administrative power.

The Construction of "Prisoner's Dilemma" Model of College Rights Structure and Its Game Analysis

The "prisoner's dilemma" model in game theory is derived from the story of the "prisoner's dilemma": It is assumed that two prisoners A and B are jointly seized and caught by the police and are held in two separate and non-communicable cells for trial. For every prisoner, the policy given by the police is that if both A and B are confessed and surrendered, the evidence is conclusive and the two are sentenced to five years; if only one party is confessed, the confession is commuted for five years; If only one side confessed, then confessed to the side of the confession was commuted for 5 years, and then immediately released, the resistance of the party because of obstruction of official imprisonment for 3 years; If the A and B are resisted, the police can not convict two people for theft because of insufficient evidence, but the two people can be sentenced to two years’ imprisonment for private entry. Table 1 shows the payment matrix for the prisoner's dilemma game:

"Prisoner's Dilemma" game is a non-cooperative game and is also incomplete information game, A and B can not communicate and have only one chance. For A, although he does not know what choice B will make, but the choice of "confession" is the best. Obviously, according to the symmetry, B will also choose "confession", the game's only Nash equilibrium is (confession, confession). From the payment matrix can be found, if A and B have chosen "resistance", then the two were sentenced to 2 years, this is a win-win results, but the fact is not the case. "Prisoner's dilemma" reveals to us that A
and B are perfectly rational when they can not communicate and have only one chance, and they are the ones who choose the strategy that have the greatest benefit and the least risky. The results of both sides are unfavorable, which also reflects the profound contradiction between personal ideals and group rationality.

Table 1. "Prisoner's Dilemma" game.

<table>
<thead>
<tr>
<th></th>
<th>confess</th>
<th>resist</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>confess</td>
<td>(-5,-5)</td>
<td>(0,-8)</td>
</tr>
<tr>
<td>resist</td>
<td>(0,-8)</td>
<td>(-2,-2)</td>
</tr>
</tbody>
</table>

This paper tries to construct the Prisoner's Dilemma Game to analyze the game relationship between academic power and administrative power. The academic power and administrative power are the decision-making parties. The optional strategies of administrative power in universities are: {offside, standard}, and the optional strategies of academic power are: {unfair competition, fair competition}. The table 2 shows the utility values of academic power and administrative power in universities under different choices.

Table 2. The game matrix payoffs of the Prisoner's Dilemma between academic power and administrative power.

<table>
<thead>
<tr>
<th></th>
<th>academic power</th>
<th>unfair competition</th>
<th>fair competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>offside</td>
<td>(1,2)</td>
<td>(0,-2)</td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td>(0,-2)</td>
<td>(2,2)</td>
<td></td>
</tr>
</tbody>
</table>

In the first quadrant, if the administrative power is offside and the academic power chooses unfair competition strategy, then the academic power subjects can obtain the legitimate profits and the weighted profits. The weighted profits consist of the project funds, teaching materials, and special subsidies, etc. The legitimate profits and the weighted profits have 2 units of utility. The administrative power may obtain 1 units of utility over unfair competition. In the second quadrant, if the academic power chooses the strategy of fair competition, it will be affected by the offside of the administrative power. The academic power will lose the legitimate profits and the weighted profits, and obtain the utility of -2. The administrative power will obtain the utility of 0 because of the interference of academic affairs.

In the third quadrant, if the administrative power chooses the strategy of standard and the academic power’s strategy is unfair competition, the academic power will be eliminated initial utility and obtain the utility of -2 because of the unstandardized operations. The administrative power will obtain the utility of 0 because of the interference of academic affairs. In the forth quadrant, the academic power will get the utility of 2 if the strategy of fair competition. Similarly, the administrative power will obtain the utility of 2 because of the standard management.

The equilibrium solution of the game is: (offside, unfair competition) and (standard, fair competition). Both sides of the game will obtain the utility of 2 in (standard, fair competition). However, this result is not the optimal solution of the game. The strategy is perfectly rational for game subjects which don’t exit in reality. In realistic game, the academic power will gain unfair benefits by unfair competition and the administrative power will select offside to gain more benefits. Because of the asymmetry of information, the only Nash equilibrium of the Prisoner's Dilemma Game is: (offside, unfair competition). The result will lead to a large number of rent-seeking behavior and
endanger the interests of universities. For the long-term development of the university, this paper try to build a coordination game model of academic power and administrative power on the basis of inclusive theory.

The coordination game analysis between academic power and administrative power in universities based on inclusive theory

In the one-shot game of the Prisoner's Dilemma between academic power and administrative power, the best strategy for both side is: (standard, fair competition). But, the strategy can not be implemented in one-shot game. The game between academic power and administrative power is repetitive game. Each repeat game of the both sides will not be a simple repetition of the previous, the both will learn from the experience, improve their understanding and evolve gradually to make the next game more perfect and rational. Therefore, the repeated game is complete information game for each participant. The act of misbehavior by one side, the other side has the opportunity to retaliate. In such a long-term relationship, both sides of the game will find the importance of cooperation.

A cooperative solution can be designed when the game has been repeated three times, because the last phase must be balanced. In the first game, the strategies without inclusive theory for both side is: (standard, fair competition). The both sides try to cooperate in first game. In the second game, the both sides try to cooperate, and the strategies for both side is: (standard, fair competition). In the third game, the strategies for both side is: (offside, unfair competition). In the first game, if academic power did not intend to cooperate with administrative power and chooses unfair competition, and the administrative power chooses offside in the second game and the third game, then the repeated game is shown in table 3.

<table>
<thead>
<tr>
<th>academic power game times</th>
<th>academic power: cooperation</th>
<th>academic power: noncooperation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>strategies</td>
<td>values</td>
</tr>
<tr>
<td>1</td>
<td>(2,2)</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>(2,2)</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>(1,2)</td>
<td>1</td>
</tr>
</tbody>
</table>

As shown in table 3, if the academic power tries to cooperate with the administrative power in the first game, the administrative power may obtain the utility of 5 from the cooperation program, contrarily, 2 utilities. The result shows that the two parties can increase their utility value through cooperation.

Conclusion

The "double first-rate" is a further correction and enrichment of the development goals of first-rate universities, and makes the development goals of universities more clear. The important content of the "double first-rate" construction is to coordinate the conflict between academic power and administrative power and achieve inclusive development. Although the academic power and the administrative power have differences over some specific interests and some issues, the fundamental interests of the both sides are for the long-term development of the university. The fundamental interests of both parties are consistent and the conditions for inclusion are fulfilled. The power inclusive theory and university statute are the effective way to achieving power inclusiveness and enable two rights to serve the the construction the "double first-rate" better. The power inclusive theory clearly defines the responsibilities of academic power and administrative power. In addition, the existence of retaliation in repeated games makes the both sides toward the strategy of (standard, fair competition) and produce both-win. Under the system factor restriction, the responsibilities of
both sides are clearly defined. If the administrative power tries to offside, it will be punished severely. Therefore, both sides will gradually find that the effectiveness of cooperation is higher and towards the strategy of (standard, fair competition) with the increase of the game.

Universities in China should put the personnel training at an important position, and formulate a reasonable incentive system, restraint system and resource distribution system. Learn from the valuable experience of American Higher Education Information Association, China's participation in education resources should set up educational resources sharing Association to establish shared systems and protocols. The government should encourage universities to share educational resources and give compensatory incentives. In addition, the government should formulate reasonable restraint system and coordinate the interests of all stakeholders.

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