

DILEMMA AND PATH SELECTION OF COLLEGE SPORTS RESOURCES INTO THE PUBLIC SERVICE SYSTEM OF NATIONAL FITNESS IN THE NEW ERA



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DILEMA E SELEÇÃO DO CAMINHO DOS RECURSOS DESPORTIVOS UNIVERSITÁRIOS QUE INTEGRAM O SISTEMA NACIONAL DE SERVIÇOS PÚBLICOS DE EDUCAÇÃO FÍSICA NA NOVA ERA

DILEMAS Y OPCIONES PARA LA INTEGRACIÓN DE LOS RECURSOS DEPORTIVOS DE LA NUEVA ERA EN EL SERVICIO PÚBLICO UNIVERSAL DE GIMNASIA

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ABSTRACT

With the improvement of people's yearning for a healthy and beautiful life, national fitness has become a hot word in academic circles. Combining Data Envelopment Analysis (DEA) and the Tobit technology, this paper constructs the evaluation model of college sports resource efficiency based on the DEA Tobit model. Based on the establishment of the input-output index system of college sports resources, the model achieves the effect of accurate analysis on the allocation efficiency of university sports resources. Taking 10 universities in a city as experimental objects, the model is verified. The verification shows that the three efficiency indexes of STU University and IPE University in group M are all 1, which shows that the resource allocation is more reasonable; the comprehensive efficiency of Ju university is low, and the sports resources investment is excessive; in group n, except for the EU University, the efficiency of other colleges and universities is lower than the pass line. It can be concluded that there are problems such as excessive input of sports resources and low output rate in Colleges and universities of a city. Therefore, colleges and universities in a city should make full use of the existing resources, enhance their social sports guidance force, while improving the publicity of national fitness. This study has high reference significance for the path selection of national fitness integration in Colleges and Universities.

Keywords: college sports resources; national fitness; public service system.

RESUMO

Com a melhoria do desejo das pessoas por uma vida saudável e agradável, a atividade física nacional tornou-se a palavra de ordem nos círculos acadêmicos. Combinando a Análise por Envoltória de Dados (DEA, do inglês Data Envelopment Analysis) e a tecnologia Tobit, foi construído o modelo de avaliação da eficiência dos recursos desportivos universitários com base no modelo DEA Tobit. Com base no estabelecimento do sistema de índice de entradas-resultados dos recursos desportivos universitários, o modelo produz o efeito de uma análise precisa da eficiência de alocação dos recursos desportivos universitários. Tomando dez universidades de uma cidade como objetos experimentais, o modelo é verificado. Após verificação, os três índices de eficiência da Universidade de Stu e da Universidade de IPE no Grupo M são todos 1, o que indica que a alocação de recursos é mais razoável; a eficiência global da Universidade de Ju é inferior à da Universidade UE, e a eficiência de outras universidades do Grupo n é inferior à linha de aprovação, com exceção da Universidade UE. Os resultados mostram que há alguns problemas nos recursos esportivos de faculdades e universidades em uma cidade, como muita entrada de recursos esportivos e baixos resultados. Por conseguinte, as escolas e universidades urbanas devem utilizar plenamente os recursos existentes, reforçar a orientação dos esportes sociais e melhorar a divulgação da aptidão física nacional. Este estudo tem um alta relevância de referência para a seleção do caminho da integração da atividade física nacional em faculdades e universidades.

Descritores: recursos esportivos universitários; educação física nacional; sistema de serviço público.

RESUMEN

Con el aumento del deseo de las personas de tener una vida saludable y plena, la educación física nacional se ha convertido en un concepto imperativo en los círculos académicos. Combinando el Análisis Envoltorio de Datos (DEA) y la tecnología Tobit, este documento construye el modelo de evaluación de la eficiencia de los recursos deportivos universitarios basándose en el modelo Tobit DEA. Con el uso del sistema de índice de insumo-resultado de los recursos deportivos universitarios, el modelo logra un análisis preciso de la eficiencia de asignación de dichos recursos. El modelo es verificado tomando 10 universidades de una ciudad como objetos experimentales. La verificación muestra que los tres índices de eficiencia de la Universidad STU y de la Universidad IPE en el grupo M son todos 1, lo que demuestra que la asignación de recursos es más eficaz. Por otra parte, la eficiencia integral de la universidad de Ju es baja y la inversión en recursos deportivos es excesiva. En el grupo n, a excepción de la Universidad EU, la eficiencia de otros colegios y universidades es menor que la línea de aprobación. Se puede concluir que existen problemas como la inversión excesiva en recursos deportivos y la baja tasa de resultados en los colegios y universidades de una ciudad. Por lo tanto, los colegios y universidades deben aprovechar al máximo



los recursos existentes, reforzando la orientación respecto a los deportes sociales y, al mismo tiempo, mejorando la publicidad de la educación física nacional. Este estudio tiene una gran importancia como referencia para la selección del camino de integración nacional de la educación física en colegios y universidades.

Descriptor: recursos deportivos de la enseñanza superior; gimnasia General; sistema de servicios públicos.

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INTRODUCTION

The state calls on all walks of life to carry out national fitness activities to improve people's physical quality. It has become the core of China's development.¹ Chinese state leaders once pointed out that sports is a symbol of the development and progress of human society and a concentrated embodiment of comprehensive national strength and social culture. Sports play an important role in improving the health level of the whole people, enriching people's life, promoting economic and social development, and promoting national spirit.² At present, China's development has entered a new era, and economic development has shifted from high-speed to medium high-speed, and people's yearning for a better life plays a more and more leading role.³ Therefore, it is necessary to deepen the reform of sports and further clarify the overall layout of national sports. As an important carrier of sports resources in China, colleges and universities not only have relatively complete sports facilities, but also have professional sports talents. Colleges and universities play an important role in promoting national fitness.⁴ Faced with the development challenges in the new era, there are great difficulties in integrating university sports resources into the public service system of national fitness, which are mainly manifested in the following aspects: insufficient investment in college sports funds, low social guidance of professionals, low degree of sports openness, insufficient participation in national fitness and unreasonable allocation of sports resources.⁵ This study analyzes the efficiency of university sports resources into the public service system of national fitness from the perspective of input-output, in order to find the most appropriate path for colleges and universities to integrate into the public service system of national fitness under the background of the new era.

This innovation lies in the effective use of DEA Tobit technology, the establishment of university sports resources allocation efficiency evaluation model. The model can not only achieve accurate efficiency evaluation, but also analyze the influencing factors of allocation efficiency. It can provide decision support for relevant personnel to improve the allocation efficiency of university sports resources, which is of great significance to better integrate university sports resources into the public service system of national fitness.

EFFICIENCY EVALUATION AND PATH SELECTION OF COLLEGE SPORTS PUBLIC SERVICE SYSTEM

Experimental data acquisition

In order to use DEA Tobit model to test the efficiency of colleges and universities integrating into the public service system of national fitness, this paper takes some colleges and universities in a city as the research object to analyze the integration efficiency. Contact the relevant staff, fill in the "questionnaire of public service system for national fitness of colleges and universities in city a", consult the sports statistics yearbook of city a and the website of city a sports bureau, and select the public service input-output data of public fitness of the whole people of 10 colleges and universities with comprehensive sports supporting facilities in city a in 2018, which are divided into two groups: group M and group n. The specific situation of group M is shown in Table 1.

In the table, Si represents the investment of school sports funds, with the unit of 10000 yuan; NP represents the number of sports practitioners

in Colleges and universities; SG represents the number of social sports instructors; Si represents the per capita sports land area, in square meters; NP represents the number of university sports publicity; QS represents the national fitness qualification rate (percentage system); TN represents the number of national fitness activities; TT the number of participants of national fitness. From table 1, it can be seen that group M colleges and universities have a greater response to the national fitness, and spend more money on sports every year; at the same time, the school teachers and students and the public outside the school have a high degree of participation in the national fitness. In order to improve the accuracy of experimental detection, on the basis of selecting group M data, another five groups of experimental data are added. The details of these five groups of data are shown in Table 2.

Similarly, from table 2, it can be seen that group n colleges and universities have greater support and response for comprehensive fitness, and spend more money on sports construction every year; at the same time, school teachers and students as well as the street public can better participate in the national fitness activities, and the average annual number of physical exercise is more. It can be seen that the sharing of university sports resources has a higher impact on the improvement of people's physical quality positive effect.

Analysis of configuration efficiency results

After collecting the above data, deap64 software is used to calculate the efficiency of the data. The calculation software version is 2.1, and the model used in the calculation is the variable scale reward BBC model. The efficiency indicators calculated mainly include the comprehensive efficiency, scale efficiency and pure technical efficiency of public sports of colleges and universities in city A. the calculation results are shown in Figure 1 and Figure 2, and each university is represented by the code in the figure. Among them, Figure 1 shows the efficiency analysis results of

Table 1. Input output ratio of colleges and Universities.

Universities and streets	SI	NP	SG	SI	NP	QS	TN	TT
University of science and technology	56	34	8	0.029	21	93.9	3	5300
Institute of Physical Education	76	11	4	0.014	9	92.4	1.3	2200
Jiaotong University	59	13	4	0.026	21	92.9	1.6	3300
Comprehensive University	62	10	5	0.029	19	93.2	1.4	3900
nationalities university	54	9	4	0.019	16	93.6	1.2	2300

Table 2. Input output ratio of colleges and Universities.

Universities and streets	SI	NP	SG	SI	NP	QS	TN	TT
University of Finance and Economics	83	61	9	0.006	31	93.7	10.9	6600
School of transportation	90	78	11	0.013	46	93.4	9.6	12000
University of traditional Chinese Medicine	47	44	9	0.012	26	93.6	4.2	4700
Agricultural university	41	16	6	0.01	19	94.4	1.7	5100
Academy of Fine Arts	49	56	16	0.011	41	94.2	9	9100

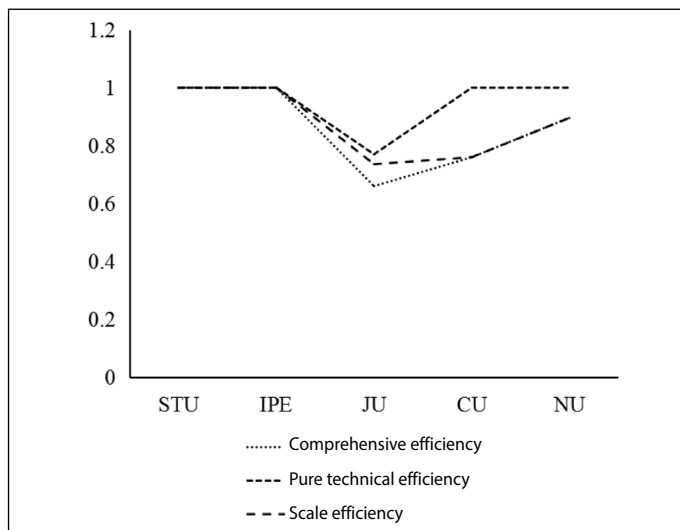


Figure 1. Analysis on the efficiency of public sports in M group colleges and Universities.

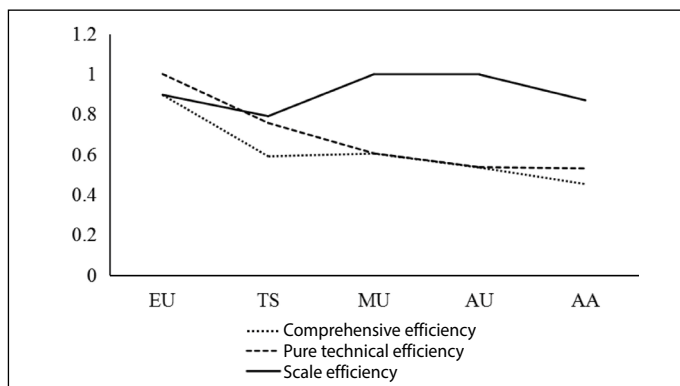


Figure 2. Analysis on the efficiency of public sports in N group colleges and Universities.

M group universities, and Figure 2 shows the efficiency analysis results of N groups of universities. Comprehensive efficiency is the product of scale efficiency and pure technical efficiency, which is mainly used to measure resource input; pure technical efficiency represents the factor output efficiency under the optimal scale condition; scale efficiency can measure the rationality of the scale of university sports resources operation. As can be seen from Figure 1, the comprehensive efficiency, scale efficiency and pure technical efficiency of stu and IPE universities are all 1, so it can be seen that their resource allocation is more reasonable; while the comprehensive efficiency of Ju university is only 0.66, which shows that there is a problem of excessive investment in sports resources; the comprehensive efficiency of the other two universities is 0.76 and 0.896 respectively, which shows that there is still some surplus in their sports resources investment.

It can be seen from Figure 1 that, except for EU universities, the overall efficiency, pure technical efficiency and scale efficiency are higher; the efficiency of other universities is lower than the pass line, and even the

efficiency value of some colleges and universities is lower than the pass line. For example, the comprehensive efficiency of TS University, Au University and AA university is lower than 0.6, which shows that there is a large investment surplus in the allocation of sports resources. In addition, it can be seen from Figure 1 that the pure technical efficiency of Au and AA universities is relatively low, both of which are failed. Therefore, it can be seen that the output efficiency of sports elements in these two universities is relatively low.

In conclusion, in order to improve the integration efficiency of University Sports Resources National Fitness public service system in city a, it is necessary to formulate differentiated policies and measures based on the local situation of a city. In general, the allocation of college sports resources in a city should focus on the output efficiency of sports input elements, that is, how to use limited resources to obtain more and better output. It is reflected in the choice of integration path, that is, colleges and universities in a city should make full use of the existing sports resources, increase the per capita sports land area, improve the social guidance of sports professionals, increase the publicity of the whole people's fitness and the opening of sports venues, so as to comprehensively improve the physical quality of the people in a city Business.

CONCLUSIONS

In the research on the path selection of university sports resources into the public service system of national fitness in the new era, the key is to determine the allocation efficiency of sports resources in Colleges and universities. This study uses DEA Tobit model to determine the input-output analysis index of college sports resources, and constructs the efficiency evaluation model of university sports resources based on DEA Tobit. This model not only objectively and scientifically analyze the allocation efficiency of university sports resources, but also analyze its causes, so as to lay a foundation for the integration of university sports resources into the public service system of national fitness. Taking 10 universities in a city as samples, this paper analyzes the current situation of sports resources allocation and integration. The results show that the comprehensive efficiency of Ju University in group M is low, which indicates that there is a problem of excessive investment in sports resources; in group n, except for the three indicators of EU University, the efficiency of other schools' sports resource allocation is low. It can be seen that the vast majority of colleges and universities in a city have the problems of excessive input and low output efficiency of sports resources. Therefore, under the condition of maintaining the existing sports funds, colleges and universities in a city should make full use of the existing resources, increase the per capita sports land area, improve the social guidance of sports professionals, increase the publicity of national fitness and the opening of sports venues, and comprehensively optimize the path of integrating sports resources into the public service system of national fitness.

The author declare no potential conflict of interest related to this article

AUTHORS' CONTRIBUTIONS: Combining DEA and tobit technology, this paper constructs the evaluation model of college sports resource efficiency based on DEA Tobit model. Based on the establishment of the input-output index system of college sports resources, the model achieves the effect of accurate analysis on the allocation efficiency of university sports resources. The model not only objectively and scientifically analyzes the allocation efficiency of university sports resources, but also analyzes the reasons for the allocation of university sports resources, which lays a foundation for the integration of university sports resources into the public service system of national fitness. Taking 10 universities in a city as experimental objects, the model is verified. It can be concluded that there are problems such as excessive input of sports resources and low output rate in Colleges and universities of a city. Therefore, colleges and universities in a city should make full use of the existing resources, enhance their social sports guidance force, and at the same time improve the publicity of national fitness. This study has high reference significance for the path selection of national fitness integration in Colleges and Universities. The author has already done the writing of the article or the critical review of its knowledge content; this paper can be used as the final approved version of the manuscript. Each author has made an important personal contribution to this manuscript. Zhu Liu: writing and executing manuscripts.

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