Is the Strict Assessment to Teachers in Higher Education Institutions Justice and Conducive to Knowledge Innovation?

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Abstract. The assessment to teachers in Chinese universities is becoming increasingly strict, and such strict assessment has increased the survival pressure on teachers. This article deeply argues that strict assessment itself does not conform to justice. Administrative bureaucrats hold the power to evaluate the assessment results, but they themselves are not bound by the same assessment standards, and there is a lack of democratic participation of teachers in the process of formulating the assessment standards. Strict assessment standards are also not conducive to knowledge innovation. That is, strict assessment interferes with the gestation stage of scholars' creativity thinking，and is not conducive to the formation of scholars' "flow" state of mind and the full communication among scholars. This paper measures the efficiency of knowledge innovation using the DEA model. The results show that the average efficiency of knowledge innovation in each province in 2024 (0.949) is lower than that in 2016 (0.957). From the perspective of empirical data, it further proves the negative impact of strict assessment on knowledge innovation.

Keywords: Strict assessment, knowledge innovation, efficiency measurement, actor network

1 Introduction

At present, most Chinese higher education institutions generally conduct assessment to front-line teachers. Although the assessment standards vary from school to school, the assessment content basically includes the number of published papers (including the level of the journals in which the papers are included). The number, level of scientific research projects undertaken and the funds applied for; Class hour workload, etc. The assessment criteria are very detailed. If a front-line teacher fails to meet the assessment requirements for two consecutive years, the result will be "unqualified", and the front-line teacher will lose their teaching position jobs. On the one hand, teachers are under tremendous survival pressure. With the limited number and space of academic journals, the competition among teachers is becoming increasingly fierce (whether it is for publishing academic papers or applying for scientific research projects). On the

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other hand, the assessment standards of schools are constantly being tightened. The squeeze from both aspects has led to an increasingly narrow living space for front-line teachers.

Some scholars have described the problems existing in the assessment system of colleges and universities in the current situation. As Ma Jianyun (2022) pointed out, there is a tendency of instrumentalism in the assessment system of colleges and universities, teachers lack a say in the assessment and are marginalized. Ye Qiang (2023) analyzed from a legal perspective that the formulation of assessment standards in colleges and universities has the attribute of public power，and cannot be completely left to self-regulation by colleges and universities. If universities are completely autonomous within themselves, it is prone to the distortion of indicators and the administrative squeeze on academic research. Teachers should be fully involved in the formulation of assessment standards. The assessment results are related to teachers' salaries and dismissals, and seriously affect their right to work. If there is a labor change involved, legal procedures should be followed to avoid the "backroom operation" of internal rules. Pan Yuteng (2025) holds that the current assessment in colleges and universities is characterized by an overly short cycle and excessive pressure on teachers. The frequent and rigid assessment not only squeezes the development space for young teachers but is also not tolerant enough, reducing their sense of professional belonging. Zhu Endai (2025) holds that the subject of assessment and evaluation in colleges and universities is single, not diversified enough, and has a distinct administrative dominance. These studies accurately depict the current situation of university assessment, but the existing research lacks in-depth analysis of whether the strict assessment standards of universities are justice. There is also a lack of theoretical exploration and empirical analysis on whether it is conducive to knowledge innovation under strict assessment standards. Therefore, this paper conducts research from these perspectives, with the aim of making marginal contributions to existing research.

2 The Formulation of Strict Assessment Standards Does Not Conform to the Principle of Justice

In reality, there was once a case of black humor. A Western economist once worked at a finance and economics university in southern China. This scholar was dismissed by a Chinese university because he failed to meet the assessment criteria. The following year, the same scholar won the Nobel Prize in Economics. Even Nobel laureates in economics find it difficult to meet the assessment requirements of Chinese universities.

So who sets such assessment standards? In Chinese universities, there are two types of people: one is the teachers who are directly engaged in teaching and research on the front line, and the other is the administrative bureaucrats. The assessment standards and specific contents are mainly formulated by the administrative bureaucrats. Administrative bureaucrats not only formulate specific rules and regulations for assessment, but also take the lead in determining and evaluating the assessment results of front-line teachers. The assessment results of teachers (and thus their career-related livelihoods) are in the hands of administrative bureaucrats. However, administrative bureaucrats

themselves are not bound by the workload of teaching and research, as they neither teach students nor conduct research. In this way, the rule-makers can remain outside the rules which they have set by themselves. Administrative bureaucrats are basically not restricted by the rules, and the shackles of assessment are only placed on teachers.

The above-mentioned phenomena do not conform to the current principle of supreme justice in China. First of all, they do not comply with the principle of leaders taking the lead and setting an example. President Xi Jinping once said that "We must never forget our original aspiration and keep our mission firmly in mind. Leading organs and leading cadres must set an example and take the lead." "Leading organs and leading cadres take the lead and act first." "Shout follow me (meaning to lead the charge yourself——the author of this article explains) and shout move forward for me (meaning to force others to charge ahead while you hide behind——the author of this article explains), a difference of just one character makes a world of totally difference". According to this principle, administrative leaders of colleges and universities should take the lead in teaching and research, and achieve outstanding results in these fields, playing a leading and exemplary role. But, in fact, many administrative bureaucratic leaders in colleges and universities not only have no outstanding teaching and research achievements, but even do not engage in teaching or research at all.

Secondly, it does not conform to the principle of putting people at the center. The report of the 19th National Congress of the Communist Party of China proposed to "provide education that satisfies the people". Education should respond to people's expectations, meet their needs and pursue their satisfaction. It is necessary to thoroughly implement the development philosophy of "putting people at the center"---president Xi Jinping once proposed. The ultimate purpose of the existence of colleges and universities is for the development of society and the well-being of the people. The people that colleges and universities directly faced are students and their parents. According to the above principles, in terms of form and procedure, whether higher education is well run and whether the work of university teachers and administrative bureaucrats is qualified should be aimed at whether students and parents are satisfied. The assessment results should be evaluated by students and their parents. In terms of content and essence, the assessment should mainly focus on whether students have acquired knowledge in college, whether their personal abilities have been enhanced, and whether it is conducive to employment and has a good employment prospect, rather than emphasizing project funds and article publication. But in reality, even without considering the content and specific details of the assessment criteria, merely in terms of procedures, students cannot make evaluations of administrative bureaucrats in colleges and universities. Students only have evaluations of front-line teachers. Moreover, the evaluation results of students have insufficient say and weight in the final assessment result determination, and there is no procedural channel for parents to express their evaluations either. Thus, the phenomenon presented is that the evaluation and assessment results of teachers are mainly in the hands of administrative bureaucrats, who themselves are free from the evaluations of students and parents as well as the heavy pressure of teaching and research.

Thirdly, it does not conform to democratic procedures. In accordance with the highest principle, China implements whole-process people's democracy. Under this

principle, the interests and demands of the people can be expressed smoothly, the rules and procedures for the exercise of power should conform to democracy, and the people should have extensive rights of democratic participation. Based on this supreme principle, the formulation of assessment standards to teachers in colleges and universities, since it involves the vital interests of the majority of teachers, should fully incorporate teachers' participation in the assessment standards formulation process. After repeated negotiations and games, the final assessment standards will naturally be in line with the interests of teachers, at least to the minimum extent. However, in the process of formulating the assessment standards, the participation of teachers is obviously insufficient, resulting in the fact that the assessment measures are sometimes clearly contrary to the interests of teachers. In 2026, a certain university in southern China stipulated that if ordinary teachers fail to be promoted from associate professor to full professor within the six-year assessment period, they will be dismissed. Dismissal means unemployment for college teachers and the huge livelihood pressure that follows. This measure has sparked widespread public controversy on the Internet as soon as it was introduced. Meanwhile, the teachers of this school also released an open letter to administrative bureaucrats on the Internet to express their own interests and demands. The open letter questioned the justice of the assessment method, arguing that it placed "front-line teachers under the heaviest pressure, while administrative bureaucrats enjoyed the privilege of exemption", and "rule-makers should have even more respect for the fairness of the rules". Ironically, the main administrative bureaucrats who led the formulation of this rule took more than seven years to complete the promotion from deputy position to principal position, while requiring ordinary teachers to be promoted within six years. Leaving aside the right and wrong between administrative bureaucrats and front-line teachers for the moment, if front-line teachers fully participate in the formulation of the assessment methods in terms of democratic procedures, how could the issued assessment methods be obviously unfavorable to teachers? If the assessment methods are fully communicated and negotiated with front-line teachers within the school before being officially released, why would front-line teachers publicly appeal their own interests and demands through the Internet? From this, it can be seen that the assessment methods of this school do not fully comply with the principle requirements of whole-process people's democracy.

3 Strict Assessment Standards are not Conducive to Knowledge Innovation

Knowledge innovation, especially breakthroughs in basic disciplines, often requires long-term accumulation and persistent research and exploration. However, the assessment period of Chinese higher education institutions is usually only three years. If university teachers have academic ideals and delve into a challenging topic, it is naturally difficult to achieve any results within just three years. Once the assessment period arrives, one will face the embarrassing situation of losing their teaching position and job. In order to first maintain their basic survival, a rational strategy for teachers must be to give up tackling difficult or major topics and instead invest their time and

energy in simpler directions, achieving so-called "results" that meet the assessment requirements in a very short period of time and barely keeping their jobs. Obviously, if such a situation is widespread and persists for a long time, it is bound to be detrimental to breakthroughs in knowledge innovation.

Of course, the advantage of strict assessment is that it can be accompanied by an increase in efficiency. That is, through the survival pressure of potential unemployment, it forces college teachers to do more and faster in a short period of time, thereby appearing more efficient. By increasing some quantifiable surface data, thus adds luster to the achievements of administrative bureaucrats. However, true innovation and breakthroughs in human knowledge require complex thinking by researchers in a peaceful state of mind. Only when researchers are not threatened by "punishment" can they more easily devote themselves wholeheartedly and perform more creatively. If the threat of potential unemployment occupies too much of the attention and energy of scientific researchers, it is a waste of psychological energy for teachers and researchers. Given the large number of front-line teachers, the waste of such psychological energy at the macro level across the country will be huge. Under the control of the assessment baton, front-line teachers have no choice but to force themselves to meet or even cater to the assessment standards, directing their research attention to areas that are easy to produce results in the short term (rather than those that are truly important or of personal interest), and accelerating their research pace even faster. During this process, the time, energy and capacity of front-line teachers have been re-arranged by the assessment standards. On the surface, front-line teachers seem increasingly in line with external standards and more obedient to administrative arrangements. In essence, this is precisely a process in which their autonomy and intrinsic motivation are constantly being eroded. The decline in autonomy and intrinsic motivation is clearly not conducive to the production of creative knowledge and the breakthrough of innovative knowledge.

The strict assessment standards in colleges and universities can more easily make teachers submit to the bureaucratic administrative authority and make front-line teaching staff easier to manage under a rough and simple (rather than humanized) management level. Essentially, it is still the management ideology of the Taylor system during the industrial period, comparing teachers to simple manual laborers. Teachers are required to be obedient, obedient and follow instructions, and it is best for them to work non-stop like machines. In an environment with strict assessment standards, it will damage scholars' independent thinking ability and is not conducive to the cultivation of independent thinking scholars. However, breakthroughs in scientific research, more in-depth studies, the proposal of novel ideas, and the formation of novel thinking patterns precisely require the ability to think independently, a curious imagination, and a high level of creativity. It is evident that strict assessment standards are not conducive to knowledge innovation.

Knowledge innovation requires creative thinking. The acquisition of creative thinking demands an open and inclusive external environment with a certain tolerance for errors, and even encourages scholars to trial and error and taking risks. Only in a relaxed environment can scholars be driven by academic enthusiasm and ideals, and conduct in-depth research and exploration with a pure and heartfelt love for academia.

On the contrary, if scholars are constantly in a state of fear of unemployment and work under the high-pressure atmosphere of strict assessment, even if they passively achieve some so-called research results in the short term, its innovation will surely be greatly reduced. So-called research achievements without any innovation are like junk food with no nutrition at all. Just as the ancient Chinese saying goes, "Slow work produces fine results," and Confucius said, "Haste makes waste." The truth is obvious. Knowledge innovation requires the drive of scholars' inner non-utilitarian value orientation, with the aim of enabling humanity to lead a better life and thereby changing the world through scientific research in the pursuit of truth. This value orientation is more likely to lead to knowledge innovation. However, under the pressure of strict assessment standards, scholars have no choice but to adopt a short-term value orientation that seeks quick success and instant benefits. In order to make a living first, they try every possible way to publish papers and apply for patents as quickly as possible. The result is that the research achievements show the characteristics of low-level repetition, and even plagiarism. There are few truly revolutionary innovations. In the continuum of the two value orientations, the stricter the assessment criteria, the more short-term value orientations that seek quick success and instant benefits there are, and the less knowledge innovation there is.

Administrative bureaucrats, of course, have their reasons of acting. The purpose of their leading the formulation of strict assessment standards is to punish somebody who they consider as "lazy". The so-called "lazy ones" refer to front-line teachers who have achieved relatively few research results in the short term. Administrative bureaucrats describe these front-line teachers as being in a "lying flat" state. In fact, even if front-line teachers temporarily lack research achievements, they still undertake heavy teaching tasks such as giving lectures and guiding students. Literally speaking, all teachers are in a straight "standing" position when giving lectures, and no one is "lying flat" in teaching. If there is any "lying flat" teacher to speak of, it would be the Buddha who still preached to his disciples on his deathbed over 2,500 years ago!

First of all, strict assessment undermines the gestation process of knowledge innovation. Psychological research indicates that there is a gestation stage in the formation of creativity, during which the scholar's consciousness seems to have stopped thinking. On the surface, it seems that the scholar no longer continues to study and explore the problem. He may temporarily put aside his painstaking research and engage in teaching or other activities such as taking a walk or even cooking. In fact, the subconscious of scholars is still working on that issue. The subconscious processes various information，or establishing possible neural connections. Under the work of the subconscious, creative insights often form unconsciously, and eventually lead to knowledge innovation. For instance, Mendeleev saw the original periodic table of elements in his dream. Sometimes administrative bureaucrats only notice that scholars have not published any articles in the short term. In fact, scholars are in the subconscious gestation stage of the problems which they are researching. It is very likely that they will achieve a major breakthrough in the problem in a short period of time. At this time, administrative bureaucrats punished scholars with strict assessment standards, which strongly interrupted the gestation process of creativity and was essentially a brutal destruction of knowledge innovation.

Secondly, strict assessment undermines the "flow" state required for knowledge innovation. Psychological research also indicates that when scholars actively reduce the sensory space, lower the overload of information received by the senses and avoid the interference of sensory experiences, it is easier for them to conduct in-depth rational thinking in complex logic. Some scholars, in order to be able to think more deeply, voluntarily place themselves in a narrow and dark space environment. The advantage of doing so is that it deliberately Narrows their field of vision, preventing their attention from being distracted and disturbed, which is conducive to concentrating all their energy on the in-depth thinking of important issues. Mihaly Csikszentmihalyi(1996) holds that scholars in a state of "flow" are more likely to have knowledge innovation. "Flow" refers to the psychological state in which scholars can fully concentrate their minds, be completely immersed in it and enjoy themselves during the research process. The strict assessment criteria, however, take the opposite approach, forcibly pulling scholars' attention back from in-depth thinking about the problem to unemployment anxiety and the priority of keeping their jobs, making it difficult for them to fully concentrate. In order to meet the strict assessment standards, teachers first have to keep their jobs and even have to please administrative bureaucrats, which improperly occupies too much of scholars' attention. What's more, some administrative bureaucrats, in order to appear they concerned about the progress of science and technology, frequently hold meetings, urging scholars to speed up their progress. One formalistic meeting after another to promote the advancement of scientific research，this causes multiple interferences to the scholar's complete attention, making it difficult for them to immerse themselves in research activities without being disturbed. Strict assessment standards bring to teachers fear, anxiety and afraid about unemployment. In such a psychological state, there is no talk of enjoyment at all, and it is difficult to enter the "flow" state，so is not conducive to knowledge innovation.

Thirdly, strict assessment cuts off interpersonal communication, which is not conducive to knowledge innovation. Psychological research also indicates that knowledge innovation depends on close interpersonal communication and cooperation among scholars. Stuart Crainer and Des Dearlove(2017) hold that enabling people with different knowledge backgrounds to communicate with each other and share ideas is a key element of innovation. In today's era, with information explosion and increasingly detailed academic division of labor, it is very difficult for scholars to achieve knowledge innovation by going it alone. Knowledge innovation can only be achieved on the basis of a rich knowledge reserve, which inevitably involves knowledge from different fields. Only by organically integrating the knowledge of numerous different disciplines can we find innovative breakthroughs for complex academic problems. It is obvious that a single scholar with limited time and energy cannot master different fields. This requires scholars from different fields to cooperate with each other in order to achieve complementary advantages. From the perspective of knowledge innovation, if the information among scholars is completely homogeneous, it will cause information redundancy, which is not conducive to innovation. Only heterogeneous information is beneficial to innovation. However, heterogeneous information among scholars alone is still insufficient. If each scholar in the research team only possesses knowledge in their own single field and neither communicates nor understands other

fields, there will be insufficient knowledge overlap among the individuals in the research team, making effective communication difficult and unfavorable for knowledge innovation. That is to say, to achieve knowledge innovation, it is necessary not only for scholars from different fields to form research teams but also for team members to communicate fully with each other. In conclusion, it is necessary to build a social network among scholars. Through the full exchange of personnel and information, potential collaborators can be sought and matched. Only in this way can scholars learn new skills more quickly, obtain new ideas better, and achieve knowledge innovation in the close interaction among scholars. However, in the environment where the administrative hierarchy barriers in colleges and universities are strict and teachers are at the bottom of the vertical bureaucracy and are managed, it is difficult to have the space to integrate the ideas of different scholars, which is not conducive to knowledge innovation. At the same time, under the high-pressure atmosphere of strict assessment standards in universities, the space for publishing papers is limited, the opportunities to obtain research projects are scarce, and the number of places for promotion is limited. In fact, there is a fierce competitive relationship among university teachers. In order to win in the competition and gain practical benefits, teachers often do not communicate sincerely with each other and unconsciously hide their information. They do not easily tell others their research plans, the progress of their papers, and the basic ideas in full. As a result, the original goodwill and the possibility of connection and cooperation among scholars are drained by strict assessment standards. The interpersonal networks among scholars are disrupted, diluted and eroded, reducing the probability of knowledge innovation.

A female Chinese mathematician felt somewhat "discouraged" when she was at a domestic university. However, when she joined the Ecole Nationale Superieure des Sciences in France, she felt that she could "freely, long-term and fully devote to research" in there, and eventually won the Fields Medal for her brilliant achievements in mathematics. Why did she choose to leave her hometown and work abroad? Why can she, being the same person, achieve such brilliant success abroad? This is worth deep consideration. When the phrase "discouraged" reached the domestic level, a large number of domestic scholars seemed to sense that some kind of collective trauma was awakened by it. Even those who are full of patriotic feelings believe that the decision made by this female mathematician is rational and fully understand her choice. Perhaps without the constraints of strict assessment standards and regulations, fully respecting the research pace of scholars is more in line with the laws of scientific research and more likely to achieve knowledge innovation.

4 Measurement of Knowledge Innovation Efficiency

The efficiency of knowledge innovation is measured by the DEA data enveloping model. Due to the multiple increase in human and financial input (see Tables 1 and 2), Therefore, the BBC model with variable returns to scale is chosen. The specific form of the BBC model is:

$$\begin{cases} Min\theta = V \\ S.t\sum_{j=1}^{n} X_j\lambda_j + s^- = \theta X_0 \\ \sum_{j=1}^{n} Y_j\lambda_j - s^+ = Y_0 \\ \sum_{j=1}^{n} \lambda_j = 1, \lambda_j \geq 0 \\ s^+ \geq 0, s^- \geq 0, j = 1,2,\cdots,n \end{cases}$$

In the above formula, X represents the input variable, Y is the output indicator variable, θ indicates the effectiveness of the utilization of input factors under the given output conditions, both S+ and S- are relaxation variables, λj represents the proportion of the j measurement unit in the composition. The basis for determination is (1) if θ=1, it indicates that the measurement unit is located at the production frontline and is already at the optimal efficiency. (2) If θ < 1, it indicates that the measurement unit is located below the production frontline and is inefficient. Θ takes values between 0 and 1, and the larger its value, the closer it is to the optimal efficiency.

The measurement unit is the 9 provinces of China. Among them, 3 eastern provinces with relatively developed economies are selected, namely Jiangsu, Zhejiang and Shanghai. Four central provinces are selected, namely Hebei, Shanxi, Henan and Jiangxi. Select two economically underdeveloped provinces in the west, namely Guizhou and Inner Mongolia. Among the 9 provinces, 5 are southern provinces and 4 are northern provinces. Among the selected provinces, the eastern, central, western, southern and northern regions, as well as the economically developed and underdeveloped areas, are all covered, thus having high representativeness.

In the DEA model, two input variables are selected. The first input variable is the number of teaching and research personnel in higher education institutions in each province, with the unit being people. The second input variable is the investment in science and technology funds by higher education institutions in each province, with the unit being thousands of yuan. These two variables respectively measure the input of knowledge production from the aspects of human resources and financial resources.

Three output variables are selected. The first output variable is the number of awards won by each province in scientific and technological achievements of higher education institutions , which includes both provincial and national awards, with the unit being items. Of course, there are also some other statistical indicators such as the number of papers published and the word count of books published by higher education institutions in each province. This article does not take them as output variables. The reason is that whether it is the number of papers or the word count of books, they can only indicate the quantity of scientific and technological achievements, but it is difficult to show the quality of scientific and technological achievements. The reason for choosing the number of awards as the output variable is that since these scientific and techno-

logical achievements can win provincial or ministerial-level awards or above in the selection competition, it indicates that these scientific and technological achievements have a relatively high quality, and the degree of knowledge innovation is naturally high. The second output variable is the total amount of patent sales by higher education institutions in each province. Since the patent sales transaction can be concluded, it indicates that these scientific and technological achievements of the universities meet the demands of social enterprises and can solve the urgent problems faced by social enterprises in their operation. The patent fees paid by enterprises are regarded as costs for them. Since enterprises as rational individuals are willing to pay the patent fees, it indicates that the value created and profits brought by the patent for the enterprise are at least higher than the patent fees. Therefore, the total amount of patent sales can measure the extent to which scientific and technological achievements have broken through the existing predicament, which is in line with the measurement aspect of knowledge innovation. The third output variable is the number of technology transfer contracts of higher education institutions in each province. The number of contracts shows the cooperative and symbiotic relationship between universities and social enterprises. Stuart Crainer and Des Dearlove(2017) hold that the environment required for knowledge innovation should include co-creation conditions, that is, there is a symbiotic relationship between the providers of innovative knowledge and the users of innovative knowledge. This symbiotic relationship contributes to the generation of innovative knowledge and the creation of new value. The more contracts a university has, the broader its contact with social enterprises and the deeper its participation in industrial development through scientific research achievements. This variable measures the extent to which colleges and universities serve society with knowledge.

The efficiency of knowledge innovation was measured in 2016 and 2024 respectively, and a comparison was made before and after. In 2016, the gross enrollment rate of higher education in China exceeded 40% for the first time (42.7%), entering the mass education stage. The number of students has been increasing year by year since then, which means that the teaching workload of teachers has become increasingly heavy. In 2024, universities generally implement the method that teachers can be dismissed if they fail the assessment for two consecutive years, of course, the severity of the specific assessment standards varies from school to school, the survival pressure on teachers has further increased.

All the original data are sourced from the official website of the Ministry of Education of China.

As shown in Table 1 and Table 2, the average number of teaching and research personnel in each province was 26,026 in 2016. By 2024, the average number of teaching and research personnel in each province increased to 45,897, The average number in 2024 was 1.75 times than that of 2016. In 2016, the average investment in science and technology funds by universities in various provinces was 4,705,802 thousand yuan. By 2024, the average investment in science and technology funds by universities in various provinces is 12,561,890 thousand yuan, the average funds in 2024 is 2.66 times that of 2016 in comparison. Meanwhile, the standard deviation of the number of teaching and research personnel in each province in 2024 was 1.73 times that of 2016, and the standard deviation of the investment in science and technology

funds by universities in each province in 2024 was 2.3 times that of 2016. This indicates that although the input of human and financial resources by universities in each province is increasing, the gap in human and financial resources among different provinces is also expanding simultaneously. This might be the official release of the list of "Double First-Class" universities after 2016, with more human and financial resources flowing to provinces with more "Double First-Class" universities, thereby further widening the gap between provinces.

Table 1. Input-output Variables of Knowledge Innovation in Colleges and Universities in 2016

Province	Output variable Y1 (Science and Technology Achievement Award of Higher Education Institutions) (Provincial Science and Technology Progress Award + National Award, unit item)	Output variable Y2 (Total amount of patent sales for scientific and technological achievements of higher education institutions, unit: thousand yuan)	Output variable Y3 (number of technology transfer contracts of higher education institutions，unit item)	Input variable X1 (scientific and technological human resources of higher education institutions, unit people)	Input variable X2 (science and technology funds for higher education institutions, in units of thousand yuan)
Hebei	135	11610	338	34309	1954365
Shanxi	59	4277	338	16432	1145673
Shanghai	220	67561	473	16734	12838865
Jiangsu	167	148790	1432	53040	14498580
Zhejiang	136	95707	409	33243	7468798
Henan	133	17985	226	32559	1964154
Guizhou	47	4200	6	13192	553214
InnerMongolia	39	900	16	12357	386751
Jiangxi	53	14662	139	23993	1541820
Mean	109.88	40632.44	375.22	26206.55	4705802
S.D.	63.28	52098.22	429.19	13355.28	5515318

Table 2. Input-output Variables of Knowledge Innovation in Colleges and Universities in 2024

Province	Output variable Y1 (Science and Technology Achievement Award of Higher Education Institutions) (Provincial Science and Technology Progress Award + National Award, unit item)	Output variable Y2 (Total amount of patent sales for scientific and technological achievements of higher education institutions, unit: thousand yuan)	Output variable Y3 (number of technology transfer contracts of higher education institutions，unit item)	Input variable X1 (scientific and technological human resources of higher education institutions, unit people)	Input variable X2 (science and technology funds for higher education institutions, in units of thousand yuan)
Hebei	126	73694	1231	56416	5185060
Shanxi	111	187277	716	29930	3519307
Shanghai	244	3281301	1053	23075	28644046
Jiangsu	209	1017366	8018	81731	35002784
Zhejiang	294	470458	2828	56101	22796198
Henan	341	257804	1531	76481	8141485
Guizhou	73	79372	220	22856	2167240
InnerMongolia	95	7888	79	21944	1692359
Jiangxi	129	27584	370	44492	5908532
Mean	180.22	600304.9	1782.88	45891.77	12561890
S.D.	95.39	1054401	2483.69	23228.81	12713964

Tables 3 and 4 present the measurement results of knowledge innovation efficiency measured by DEA. When conducting the calculation, to avoid possible interference caused by different measurement units, the original data was processed by taking the natural logarithm, and the calculation method oriented towards the output of innovative knowledge was selected. As can be seen from Table 3, the efficiency of knowledge innovation in relatively developed eastern coastal provinces such as Shanghai and Jiangsu is relatively high, while that in central and western regions such as Shanxi and Inner Mongolia is relatively low. The average comprehensive efficiency of knowledge innovation of each province in 2016 was 0.957.

As can be seen from Table 4, in 2024, the basic pattern that the knowledge innovation efficiency of the economically developed eastern provinces was relatively high while that of the central and western provinces was relatively low still unchanged. However, it is worth noting that the knowledge innovation efficiency of Hebei, Guizhou and Jiangxi in 2024 were lower than that in 2016. The average comprehensive knowledge innovation efficiency of each province in 2024 is 0.949, which is also lower than the average level of 0.957 in 2016.

Table 3. Results of Knowledge Innovation Efficiency in Colleges and Universities in 2016

	crste	vrste	scale
Hebei	1.000	1.000	1.000
Shanxi	0.947	1.000	0.947
Shanghai	1.000	1.000	1.000
Jiangsu	1.000	1.000	1.000
Zhejiang	1.000	1.000	1.000
Henan	1.000	1.000	1.000
Guizhou	0.900	1.000	0.900
InnerMongolia	0.841	1.000	0.841
Jiangxi	0.929	1.000	0.929
Mean	**0.957**	**1.000**	**0.957**

Table 4. Results of Knowledge Innovation Efficiency in Colleges and Universities in 2024

	crste	vrste	scale
Hebei	0.936	1.000	0.936
Shanxi	0.966	1.000	0.966
Shanghai	1.000	1.000	1.000
Jiangsu	1.000	1.000	1.000
Zhejiang	1.000	1.000	1.000
Henan	1.000	1.000	1.000
Guizhou	0.899	1.000	0.899
InnerMongolia	0.875	1.000	0.875
Jiangxi	0.869	0.907	0.958
Mean	**0.949**	**0.990**	**0.958**

A comprehensive technical efficiency less than 1 indicates insufficient output. The average comprehensive efficiency of knowledge innovation in 2024 is lower than that

in 2016, suggesting that the degree of insufficient innovation knowledge output was further intensify in 2024. The DEA calculation results show that under the condition of increasingly strict assessment standards, the efficiency of knowledge innovation has actually declined. This fully demonstrates that strict assessment standards are not conducive to knowledge innovation.

5 Conclusion

In conclusion, strict assessment standards neither conform to the principle of justice nor conducive to knowledge innovation. Teachers and researchers, under strict assessment standards, not only have to bear tremendous psychological pressure but also often remain in a state of fear and anxiety, at the same time, in order to meet the assessment standards and maintain a basic livelihood, they have to be constantly overworked and in a sub-healthy state for a long time. The price they pay is that their physical health is severely damaged and they may even die prematurely. In 2024 alone, there were 39 deaths of young and middle-aged scholars reported publicly, among whom 20 died in their thirties and forties, with the oldest being only 62 years old.

The premature death of a scholar means the loss of a precious life for himself and the loss of a loved one and the main source of income for his family. For society, the losses are equally huge. Generally, at least a doctoral degree is required to entering high education institutions for employment, which means that university teachers first already go through a very long period of time of study. During this long stage of learning, the scholars themselves, their families, and society all invest a great deal of resources. The initial age(start earning a salary age) of teachers for engaging in teaching and research work is generally in the early thirties. If a scholar passes away prematurely, from a social perspective, it means that the scholar has not yet had the chance to create more value for society, and at the same time, the resources previously invested by society also become sunk costs.

The losses are far from over, if the information⁄signals that the survival predicament of university teachers spread throughout the all society - degree of predicament to the extent that the early deaths of teachers and researchers occur frequently - high academic qualifications and university teaching positions will no longer have any social appeal. Social elites will surely switch to other industries, and the higher education sector will push out the top social elites from the fields of teaching and knowledge innovation. At that time, those engaged in teaching and research could only be second-rate or even third-rate elites in society. The direct impact was that second-rate people were less conducive to knowledge innovation, and the indirect impact was that students also found it difficult to acquire knowledge from second-rate people. The interaction between the two formed a vicious circle, and the ultimate result was that it was not conducive to the sustainable development of education.

The Ministry of Education is also aware of these drawbacks. To avoid them, the Ministry of Education issued a special document in 2025 to correct the drawbacks of strict assessment. Among them, it is required to "avoid excessive assessment" and

"avoid short-term, high-intensity and quantified pressure". How effective this will be remains to be further observed in future.

According to Latour's actor-Network Theory (ANT), teachers and researchers, administrative bureaucrats, students, assessment systems, innovative knowledge, etc. all belong to broad meaning action elements or actant. It is precisely in the interconnections and interactions among these actors that the existing network is gradually constructed. However, in the existing network, it is the administrative bureaucrats who dominate the Translation, and they dominate the discourse power. For their own interests, such as prominent political achievements and promotion, administrative bureaucrats reinterpret other actors, making them act in a direction that is in line with the interests of the administrative bureaucrats. In the process of such interpretation and evaluation, it is inevitable that the interests of other actors, such as teachers, the efficiency of knowledge innovation, and the sustainable development of education, will be distorted and deformed. To change this existing network, the key lies in which actor should carry out the Translation. From the perspective of facilitating knowledge imparting and knowledge innovation, it should be the actual actors of knowledge imparting and knowledge innovation - teachers and researchers - to carry out the translation. "Rome wasn't built in a day." Given that the existing network has a persistent inertia, if its structure is to be changed and reorganized, it will inevitably take some time. To shorten this period of time, external actors can be drawn into the network, such as parents of students. Some mathematicians believe that if the evaluation power of assessment is handed over to administrative bureaucrats, it will inevitably lead to rent-seeking of power. In fact, in China, it is the parents who pay for their children's college education. Whether children can receive a good education and develop well in colleges， should be judged by the parents of the students. Therefore, parents of students should have more say in the assessment.

The administrative bureaucrats who hold the actual power of colleges and universities and control their daily operations should do the most to let go, thereby creating a relaxed environment. The punishment of not letting go is an atmosphere of austerity and teachers who wither increasingly in such an atmosphere. Austerity will not promote knowledge innovation, and without knowledge innovation, it is difficult to have a brilliant future. However, despite this, as the ancient Chinese saying goes, "Once power is in hand, orders are issued." The act of "letting go" is inherently contrary to the "orders" held by administrative bureaucrats. —This is a antinomy.

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