

A Study on Research Performance Incentives for Teachers at Local Universities

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Abstract: Set against the backdrop of China's modernization and the development of a science and technology powerhouse, this paper examines research performance incentives for university lecturers, a topic of both practical value and significance. The study employs incentive theory to analyse and outline the current state of research incentives in higher education institutions, as well as their existing shortcomings. The study finds that existing incentive models place excessive emphasis on material rewards, fail to address the diverse needs of academic staff, do not meet their psychological expectations, lack fairness in the system, and suffer from an imbalance between reward and disciplinary mechanisms. Consequently, optimization strategies are proposed across three dimensions: incentive content, implementation processes, and behavioral constraints. It is recommended that a diversified incentive system be established, balancing fairness with the coordination of rewards and disciplinary measures, which would effectively stimulate research vitality and contribute to the high-quality development of research in higher education institutions.

Keywords: University Teachers; Scientific Research Performance Incentives; Local Universities; Diversified Incentives; High-quality Development of Scientific Research.

1. Introduction

University research is vital to the professional development of academic staff, the very lifeblood of higher education institutions, and a key pillar of building a science and technology powerhouse. Science and technology form the foundation of a nation's prosperity. China attaches great importance to scientific and technological innovation, driving continuous

improvements in its capabilities year on year. China has systematically articulated the 'Five Pillars' of a science and technology powerhouse: robust capabilities in basic research and original innovation; the ability to tackle key core technologies; international influence and leadership; the capacity to cultivate and attract high-calibre scientific and technological talent; and a sound system and capacity for science and technology governance. These 'Five Strengths' constitute the core elements and aspirational goals of building a science and technology powerhouse. As key players in national scientific and technological innovation, universities should leverage their unique strengths to contribute to this endeavour. Scientific and technological talent is the most dynamic and critical factor within the innovation system, and university faculty members, as the mainstay of research, determine the breadth and depth of scientific and technological innovation through their innovative capabilities. The core of competition among major powers lies in the competition for talent. Reforms to China's talent-related institutional mechanisms have yielded results, yet gaps remain; it is necessary to advance the integrated reform of education, science and technology, and talent in a coordinated manner to establish platforms for cultivating high-level talent. However, university faculty currently lack sufficient motivation for scientific and technological innovation, their capabilities require strengthening, and their insufficient contributions constrain the high-quality development of scientific research. Improving incentive mechanisms is a crucial means of enhancing the research performance of university faculty. Therefore, as China transitions from a major science and technology nation to a leading one, exploring the enhancement of university faculty research performance through incentive theory holds significant practical significance.

1.1 Literature Review and Theoretical Framework

The evaluation of research performance among university lecturers can boost staff motivation and research output, thereby enhancing the competitiveness of higher education institutions; however, it faces challenges such as excessive frequency of assessments, low rates of research commercialization, and cumbersome reimbursement procedures. Traditional evaluation models overlook invisible labour, resulting in outdated evaluation philosophies, one-dimensional standards, and a lack of categorized assessment, which undermines their effectiveness [1].

The fundamental drivers of academic research performance are intrinsic interest and career planning, underpinned by individual capabilities and psychological resilience. As young academics are more likely to achieve breakthroughs and require categorized guidance, this study adopts a motivational perspective.

Motivation theories are categorized into content-based, process-based and behaviour-modification theories. Among content-based theories, Maslow's Hierarchy of Needs and McClelland's Theory of Achievement Motivation provide insights into differentiated incentives [2]. Within process-based theories, Expectancy Theory emphasizes the value of goals, the likelihood of achievement and the relevance of rewards, whilst Equity Theory focuses on the fairness of resource allocation. In behaviour-modification theories, Reinforcement Theory shapes behaviour through positive and negative reinforcement, and Attribution Theory analyses the attribution of success and failure.

Based on these theories, an analytical framework has been constructed: Maslow's and McClelland's theories are used to satisfy needs and stimulate motivation; Expectancy and Equity Theories are employed to optimize goal-setting and resource allocation to sustain engagement; and Reinforcement and Attribution Theories are utilized to reinforce the behavioral shaping cycle. The Two-Factor Theory is introduced to highlight the need for synergy between hygiene factors and motivational factors. This framework (Figure 1), combining theoretical explanatory power with teacher characteristics, provides solutions to address issues such as insufficient research motivation and rigid evaluation systems.

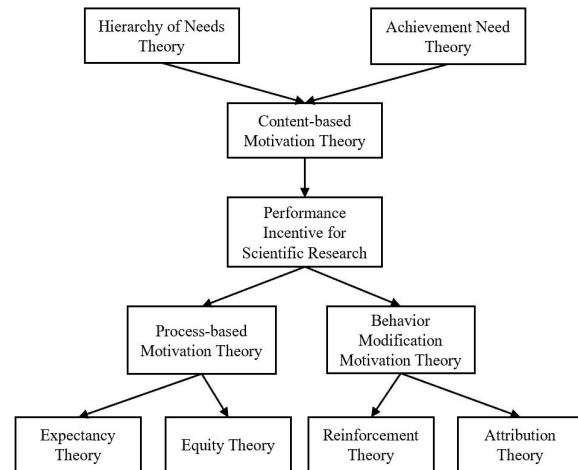


Figure 1. A Framework for Analyzing Research Performance Incentives for University Lecturers

2. The Urgency of Research Performance Incentives for University Lecturers

A sound incentive mechanism is a crucial component of modern governance in higher education. It is now widely recognized that appropriate incentive policies and measures are vital for improving performance; the state also attaches great importance to increasing rewards for research achievements and improving the working conditions of researchers. Similarly, research incentives have a significant impact on the research performance of university staff. This is manifested specifically as follows: firstly, at the micro level, a well-designed incentive system is an intrinsic requirement for improving research performance. Research and teaching are the two pillars of higher education; universities must not only impart knowledge but also generate it, thereby fulfilling their role as producers of knowledge. A well-designed incentive mechanism can stimulate the enthusiasm of university staff, improve their research environment, mobilize their research initiative, and enhance their sense of responsibility towards research. It enables staff to feel valued and respected in their research work, thereby strengthening their intrinsic motivation and driving a shift from a mindset of 'being told to conduct research' to one of 'wanting to conduct research'. Furthermore, it reinforces institutional safeguards for research, ensuring that research rewards are administered according to established guidelines, creating an environment conducive to research, and steering research rewards towards 'good governance', thereby generating more and better outstanding

achievements [3].

Secondly, at the meso-level, scientific incentives are an essential prerequisite for fostering campus harmony. A harmonious campus is an inherent characteristic of a modern Chinese university and a necessity for building a harmonious society. Performance-based remuneration has historically been a focal point of conflict within universities; managing this effectively reduces friction, promotes campus harmony, and enhances organizational cohesion and effectiveness [4]. The mechanism by which the distribution of research performance-related remuneration for university staff contributes to campus harmony lies in the fact that, through the formulation of scientific incentive policies, the interests of different stakeholders can be balanced and broader support secured. This helps maintain good relations between university administrators and staff, as well as among-staff members themselves, thereby fostering a harmonious, united, positive and upward-looking campus culture.

Thirdly, at the macro level, a scientific incentive mechanism is a strategic imperative for building a science and technology powerhouse. Universities are the cornerstones of national research; without the research support of universities, the vision of a science and technology powerhouse cannot be realized, and universities bear a significant research mission. Looking at the world's leading science and technology powers, they generally possess first-class university research systems and commendable research incentive policies. In fact, many of China's most influential scientific and technological achievements have been produced by university faculty, demonstrating that the development of a science and technology powerhouse is inseparable from the support of higher education institutions. Consequently, building a science and technology powerhouse also requires China to refine its research incentive systems for universities, ensuring that personnel are managed, affairs conducted, and efficiency enhanced in accordance with established regulations. Thus, a scientifically sound research incentive system for universities can contribute to the development of a science and technology powerhouse by generating more research outcomes and cultivating more research talent.

3. The Current State and Issues of Research

Performance Incentives for University Lecturers

3.1 Content-Based Incentives: These Incentives Place Too Much Emphasis on Material Rewards and Neglect Teachers' Diverse Needs

Content-based incentives, as a core mechanism for stimulating research output among university lecturers, have been shown to be effective by numerous empirical studies. A 2021 survey by the Ministry of Education revealed that 78.3% of university lecturers considered research rewards to be their primary motivation for engaging in research [5]. However, the current incentive mechanism suffers from significant structural imbalances: firstly, there is a pronounced shortage in the total volume of incentives. Data from the Chinese Academy of Educational Finance and Science in 2022 indicates that the annual budget for research rewards at local universities accounts for an average of only 3.2% of fiscal allocations, a 37% decrease from 5.1% in 2015 [6]. This downward trend stands in stark contrast to the output of research achievements—during the same period, the number of SCI-indexed papers published by universities nationwide increased by 212% [7]. A survey by a provincial Department of Education revealed that 41.86% of lecturers considered research incentives to be insufficient, with this proportion rising to as high as 67.3% among those holding associate senior professional titles [8].

Secondly, there is a serious issue of one-dimensional incentives. The Report on the Career Development of Chinese University Teachers (2023) indicates that 91.2% of universities employ a single form of monetary reward, whilst only 8.8% of 'Double First-Class' universities have established non-monetary incentive systems, including academic leave (34%) and opportunities for international collaboration (27%) [9]. It is worth noting that a survey by the Institute of Education at Tsinghua University revealed that 56.7% of faculty members believe that 'enhancing academic reputation' is a more effective motivator than material rewards [10].

Finally, there is a lack of strategic guidance. Statistics from the National Natural Science Foundation of China show that between 2018 and 2022, inter-university collaborative projects accounted for only 12.3% of the total number of

approved projects, far below the 38.7% recorded by the US National Science Foundation (NSF) [11]. This situation is closely linked to the current incentive mechanisms—the reward policy of a certain ‘985 Project’ university stipulates that principal investigators may receive 90% of the performance-based allocation, leading to a decline in the enthusiasm of young faculty members to participate in major projects.

3.2 Process-Based Incentives: A Significant Gap between the Level of Incentives and Teachers’ Expectations, Coupled With Shortcomings in the Fairness of the System Design

A 2023 survey by the Chinese Association of Higher Education revealed that university teachers’ satisfaction with research incentives stood at only 58.3 points (out of 100), with teachers at local institutions scoring as low as 43.7 points [12]. This manifests specifically as follows: (1) Empirical research at a provincial university indicates that when the intensity of research rewards falls below 70% of expected levels, the time faculty members devote to research decreases by 42%; conversely, when rewards reach 120% of expectations, output efficiency increases by 63% [13]. However, at present, the intensity of rewards at most universities only covers 55–80% of faculty expectations. (2) Data on talent mobility from the Ministry of Education indicates that, among key research staff from western universities who moved to eastern regions between 2018 and 2022, 64.2% cited ‘unfair performance-based remuneration’ as the primary reason. (3) An

analysis of the remuneration system at a ‘Double First-Class’ university revealed that the ratio of implicit income between administrative staff and research staff stood at 1:0.83, creating an inverse relationship with their actual contributions.

3.3 Incentives for Behavioral Reform: Incentives are Primarily Focused on Positive Reinforcement, Whilst There is Insufficient Regulation of Negative Behaviour among Teaching Staff

This imbalance in behavioral incentive mechanisms has already led to serious consequences. A 2022 survey by *Nature* revealed that the average processing time for academic misconduct cases in Chinese universities was 14.2 months, significantly longer than the international average of 8.3 months. Data from the Ministry of Education indicates that, of the 159 problematic papers retracted in 2021, only 23% of those responsible received substantive penalties. A 2023 survey by the China Association for Science and Technology revealed that 72.4% of research administrators lack systematic training in causal analysis, leading to a misjudgment rate of up to 38.6% regarding academic staff’s research motivations. A case study from a leading university showed that attributing 65% of research negligence simply to ‘individual attitude issues’ whilst overlooking systemic factors resulted in improvement measures having an effectiveness rate of less than 20%.

4. Policy Recommendations

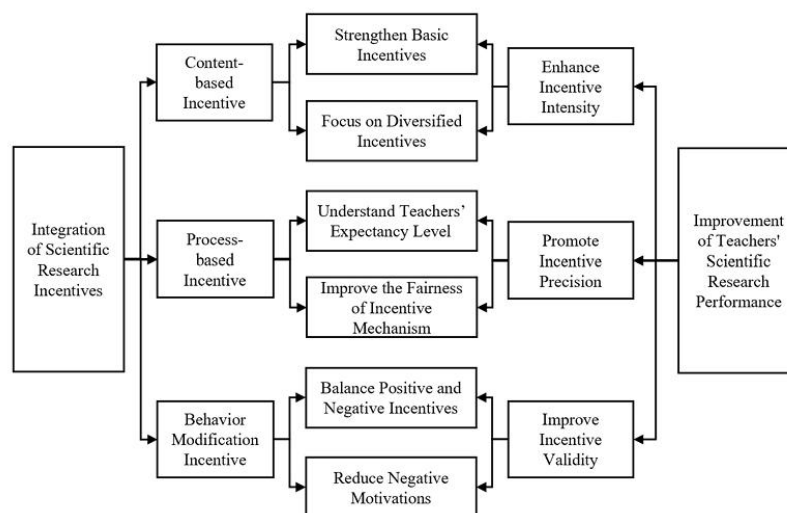


Figure 2. Incentive Mechanisms for Research Performance among University Lecturers
Over the years, Chinese universities have placed increasing emphasis on research, successively

establishing comprehensive and distinctive research performance incentive policies that have played an indispensable role in enhancing research performance. Looking ahead, China must continue to modernize the research incentive systems and governance capabilities of universities, with a view to strengthening substantive incentives, refining the precision of process-based incentives, and enhancing the effectiveness of behavioral change incentives, thereby striving to resolve the existing issues in university performance incentives (Figure 2).

4.1 Content-Based Incentives: Establishing a Diversified Incentive System to Strengthen Strategic Guidance

4.1.1 Establishing a comprehensive incentive model

Drawing on the academic reputation incentive mechanism proposed by the Institute of Education at Tsinghua University, new honors such as the ‘Academic Influence Award’ and the ‘Interdisciplinary Collaboration Contribution Award’ should be introduced. These should be combined with policies such as academic sabbaticals (already implemented by 34% of ‘Double First-Class’ universities) and funding for international conferences (27%) [14]. Promote an “academic influence points system”, incorporating academic presentations, commercialization of research outcomes and community service into the points framework, with points redeemable for resource support (such as priority access to laboratories).

Following the guidance provided by the National Natural Science Foundation of China for inter-university collaborative projects, reform the performance allocation mechanism by increasing the weighting for team collaboration contributions to 30–40% (e.g. reducing the proportion of performance allocated solely to the principal investigator from 90%) and establish a “Major Strategic Special Project Award Fund” to prioritize support for research projects aligned with national science and technology strategic directions (such as artificial intelligence and carbon neutrality) [15].

4.1.2 Optimizing the structure of funding provision and allocation

Expand funding sources through university-industry collaboration; for example, local universities could establish ‘joint applied research funds’ with enterprises, increasing the proportion of social capital to 20% of the

research incentive budget. At the same time, a ‘tiered incentive mechanism’ should be established, extending the incentive cycle for basic research outcomes (e.g. to 3–5 years) to avoid a short-term focus [16].

4.2 Process-Based Incentives: Dynamically Aligning with Staff Expectations and Reshaping Fairness Mechanisms

4.2.1 Introduction of a dynamic adjustment model

Based on empirical research data from a provincial university, a ‘dynamic algorithm for expected reward intensity’ has been established. When a teacher’s research input exceeds a benchmark value, a mechanism for increasing rewards is automatically triggered (for example, an additional 30% performance bonus is awarded when 120% of the target is achieved) [17]. Concurrently, a ‘research progress visualization platform’ has been implemented to provide real-time feedback on the alignment between project progress and rewards, thereby enhancing process transparency.

4.2.2 Establishing a ‘multidimensional equity assessment system’

A ‘contribution quantification model’ is adopted, whereby the economic benefits (e.g. revenue from commercialization), academic impact (e.g. citation rates) and social value (e.g. policy adoption) of research outputs are weighted in a 4:3:3 ratio to calculate performance. A ‘Performance Arbitration Committee’, comprising faculty representatives, external experts and industry professionals, is established to conduct third-party reviews of disputed allocation proposals [18].

4.3 Incentives for Behavioral Reform: Strengthening Negative Constraints and Improving Accountability Management

4.3.1 Establishing a ‘Dual-Track’ framework for behavioral regulation

Positive Reinforcement: Implementing ‘long-term rewards’ for high-calibre achievements; for example, faculty members who publish papers in top-tier journals for three consecutive years are awarded a ‘lifetime academic allowance’ (an additional 10% of their annual salary) [19]. **Negative Constraints:** Following the recommendations of *Nature* magazine, shorten the processing period for academic misconduct cases to within six months and implement a “tiered accountability system”:

a first offence results in a 50% deduction from annual performance bonuses, whilst a second offence leads to a suspension of research eligibility for one to three years. Establish a “research integrity record” directly linked to professional title evaluations and project applications [20].

4.3.2 Implementation of the “attribution diagnosis training programme”

In response to the issue that 72.4% of research administrators lack attribution analysis capabilities, an “Attribution Analysis Toolkit” (including a motivation scale and a template for diagnosing institutional barriers) has been developed. Administrators are required to submit attribution reports on faculty research behaviour each semester, with these reports incorporated into their management performance appraisals

5. Conclusion

Science and technology form the foundation of a nation’s strength; without scientific and technological progress, there can be no national development. In this new stage of development, scientific and technological innovation forms the bedrock of national competition. It occupies a pivotal and leading position, and its impact on the nation’s comprehensive national strength will become increasingly prominent. During this crucial historical period of building a technologically advanced nation within the framework of Chinese-style modernization, the role of university research performance in national and social development is growing ever more significant. Greater emphasis must be placed on the prominent position of universities within the national scientific and technological innovation system. However, the enhancement of university research performance cannot be achieved without the support of sound institutional frameworks, with incentive mechanisms playing a particularly vital role. It has become imperative to enhance the research performance of university staff through incentives. Consequently, it is essential to treat incentives as a key means of improving research performance in higher education institutions. We must keep pace with the reforms of the national education governance system and the modernization of governance, accelerate the formulation of a more robust research incentive system, and adopt more effective research incentive measures to stimulate the endogenous driving force of university research, thereby

contributing more significantly to the construction of a science and technology powerhouse and the realization of high-level self-reliance and self-strengthening in science and technology.

The limitations of this study lie in the following aspects: Firstly, there is a certain tension between the integrative nature of theoretical analysis and the applicability of practical validation. Although a framework for analyzing research performance incentives for university staff has been constructed based on incentive theory, the complexity of university research activities may limit the explanatory power of the theoretical model in real-world contexts. Secondly, there are limitations regarding the depth and breadth of the empirical data. The study relies primarily on literature analysis and theoretical deduction, lacking large-scale empirical surveys across universities of different regions and tiers. Consequently, it is difficult to fully reflect the disparity in the implementation effects of incentive mechanisms between ‘Double First-Class’ universities and local institutions, nor does it delve into the moderating role of individual faculty characteristics (such as professional title, age, and disciplinary background) on the perception of incentives. Thirdly, there is a lack of a dynamic evolutionary perspective. Current research focuses on the construction of static incentive mechanisms, but the dynamic impact of changes in the external environment—such as the iteration of science and technology policies and reforms to academic evaluation systems—has not yet been incorporated into the analysis. In particular, following the implementation of the ‘breaking the five exclusives’ policy, the tension between traditional quantitative indicators and the emerging representative work system may reshape the logic underpinning faculty members’ research behaviour; such dynamic factors require further clarification through long-term follow-up studies.

Future research could be deepened and expanded in the following directions: Firstly, strengthening the interdisciplinary integration of incentive theory by incorporating psychological contract theory from organizational behaviour and field theory from sociology into the analytical framework, in order to more accurately capture the multiple social embeddedness of university faculty members’ research motivations. Secondly, differentiated incentive models should

be developed across disciplines and levels. For different types of research—such as basic research, applied research and technology transfer—evaluation criteria and incentive pathways tailored to disciplinary characteristics should be designed. For instance, in the field of basic research, long-term funding mechanisms that ‘tolerate failure’ could be explored, whilst applied research requires strengthened incentives for industry-academia-research collaboration. Thirdly, we will introduce big data and artificial intelligence technologies to build a dynamic incentive effectiveness assessment system by tracking research behaviour data. This will enable real-time monitoring of the marginal effects of incentive policies on research output, thereby providing data-driven support for institutional optimization. Finally, expand the scope to include international comparative research, systematically analyzing the experiences of universities in Europe and the United States regarding tenure systems, the distribution of revenue from technology transfer, and the safeguarding of academic autonomy. By combining these insights with the objectives of modernizing China’s education governance, we can explore potential pathways for innovating localized incentive mechanisms. Such in-depth research will not only help refine the theoretical framework for university research incentives but also provide decision-making references for optimizing science and technology policy at the national level and revitalizing the innovation ecosystem.

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