

MECHANISMS OF LABOR PRODUCTIVITY IN HIGHER EDUCATION: A CASE STUDY OF INNOVATION AND MONETARY MOTIVATION AT HUTECH EDUCATION SYSTEM

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Abstract: Based on a survey of office employees of the HUTECH education system, the research team validated the proposed model and provided implications for enhancing workforce productivity. These improvements contribute to the overall efficiency of the education system and the quality of its services. The findings indicate that the labor force, materials and equipment, management, projects, and external factors all positively influence both labor productivity and innovation. Notably, innovation and income play a crucial role in enhancing office staff productivity.

• Keywords: HUTECH education system, innovation, office employees, productivity.

Date of receipt: 05th May, 2025

Date of delivery revision: 20th Jun., 2025

DOI: <https://doi.org/10.71374/jfar.v25.i5.14>

Date of receipt revision: 20th Aug, 2025

Date of approval: 10th Sep., 2025

1. Introduction

In recent years, Vietnam's labor productivity has increased steadily, contributing significantly to the country's socio-economic development. According to the General Statistics Office of Vietnam, labor productivity reached around 8,380 USD per worker in 2023, with an average annual growth rate of 5.29%. However, this level remains significantly lower than that of neighboring countries, highlighting ongoing challenges in narrowing the productivity gap. For the HUTECH Education System, which includes HUTECH University, UEF University, and Royal School, improving labor productivity is not just about staff efficiency; it also enhances student support and educational quality, helping students succeed in an increasingly competitive job market.

2. Theoretical overview

2.1. Theoretical foundation

2.1.1. Labor productivity

Labor productivity is influenced by various internal and external factors, including leadership policies, material availability, project characteristics, and external factors such as accidents and weather (Almamlook et al., 2020). Sauermann (2023) also highlights the link between productivity and human resource (HR) practices, showing that incentives, training, peer support, and working hours can positively affect employee performance. Building on these insights, this study examines both internal and external influences on labor productivity, with a focus on HR management.

Five independent variables are proposed: workforce and management (HR-related), projects, materials and equipment (internal), and external factors.

2.1.2. Innovation

Innovation includes new products, ideas, and processes, and is closely linked to organizational performance and productivity. Studies have shown that work motivation is related to employee innovation, which in turn positively impacts labor productivity (Kong et al., 2020). According to Zhu et al. (2021), innovation contributes to both inputs (R&D, technological infrastructure) and outputs (products, processes), serving as a bridge between organizational resources and productivity outcomes. As innovation is deeply embedded in business operations, it enhances production efficiency and employment practices, ultimately boosting firm-level labor productivity. Therefore, this study places innovation at the core of the research model, positioning it as a key linking factor between various internal mechanisms and labor productivity. Therefore, this study places innovation at the center of the research model as a linking factor between different mechanisms and labor productivity.

2.1.3. Efficiency wage theory

Efficiency wage theory explains labor productivity by suggesting that people act in their self-interest. To boost productivity, businesses should pay wages above the market average. When income increases, employee morale and motivation also improve, which in turn leads to higher productivity (Katz, 1986). This study applies efficiency wage theory to assess how

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financial incentives, through income, influence labor productivity.

2.2. Research hypotheses

2.2.1. The labor force

The labor force directly utilizes the company's tools and resources to produce goods and services. Characteristics of the labor force significantly influence work performance. The skills and experience of employees are among the most critical factors determining an organization's overall productivity, as they reflect the quality of the staff's performance (Almamlook et al., 2020).

H1: The labor force has a positive impact on the labor productivity of office employees (OE).

2.2.2. Materials and equipment

Materials and equipment are essential tools that employees rely on to complete tasks and produce outputs (Hamza et al., 2022). Therefore, materials and equipment are essential support tools that enable employees to work more effectively. If the necessary tools or supplies are missing, workers may be unable to perform their jobs properly, which will reduce productivity (Alabdullah et al., 2023). Outdated or unsuitable equipment is also a significant factor contributing to poor performance (Almamlook et al., 2020).

H2: Materials and equipment have a positive impact on the labor productivity of OE.

2.2.3. Management

The management factor in this study refers to the relationship between the staff system and the managers of an organization. Management is a crucial element that helps encourage employee motivation, which in turn enhances labor productivity. It is evident in the company's training and reward policies. Management also encompasses dimensions like supervision and leadership provided by managers to their staff (Almamlook et al., 2020). Furthermore, management also reflects how well tasks and resources are distributed across the staff system (Alabdullah et al., 2023).

H3: Management has a positive impact on the labor productivity of OE.

2.2.4. Projects

Another factor examined in this study is the project variable, which refers to the nature and characteristics of tasks assigned to individuals or teams within a specific timeframe. Projects typically come with deadlines and may require varying levels of work intensity, depending on their complexity and timing (Hamza et al., 2022). For example, during peak demand periods, employees often need to work more intensively, which can lead to

higher productivity (Kong et al., 2020). Additionally, the location or setting where tasks are carried out can influence employee productivity (Hamza et al., 2020).

H4: Projects have a positive impact on the labor productivity of OE.

2.2.5. External factors

External factors refer to the conditions outside an organization that influence its operations and internal structure. Studies on construction and outdoor projects show that weather and climate can affect labor productivity (Alabdullah et al., 2023). Additionally, macroeconomic and social conditions have a significant impact on productivity, particularly in project-based businesses. Unexpected risks or incidents, such as accidents, can also reduce employee performance (Hamza et al., 2022).

H5: External factors have a positive impact on the labor productivity of OE.

2.2.6. Innovation

Innovation often originates from a company's culture and is nurtured through each employee's commitment to solving business problems (Kong et al., 2020). Positive changes in the workforce, such as increased motivation or improved skills, can help spread innovation across teams and departments. Additionally, the quality of materials and equipment plays a crucial role in supporting innovation. Since innovation involves real actions rather than just ideas, a lack of tools may hinder the implementation of ideas (Chakravarty, 2022). Moreover, management practices and training programs also influence employee innovation. Supportive managers who create an open and empowering environment encourage employees to think creatively and share new ideas (Karatepe et al., 2020). Besides, working on collaborative projects that require employees to share and discuss solutions helps promote innovation within the organization (Bhatti et al., 2021). Corporate culture, as an external factor, also significantly affects innovative behavior (Fuad et al., 2022). Ultimately, a creative and collaborative work environment fosters innovation, which in turn enhances employee productivity (Nasifoglu et al., 2020).

H6a: The workforce has a positive impact on the innovation of OE.

H6b: Materials and equipment have a positive impact on the innovation of OE.

H6c: Management has a positive impact on the innovation of OE.

H6d: Projects have a positive impact on the innovation of OE.

H6e: External factors have a positive impact on the innovation of OE.

H6f: Innovation has a positive impact on the productivity of OE.

2.2.7. Income

In this study, the income factor refers to the salary and financial benefits provided by the company. Income is considered a key element affecting employee performance and productivity (Hamza et al., 2022). Employees who receive higher-than-average pay often show better productivity. Income can influence productivity during different work periods. For example, when demand increases, and employees need to work overtime or at a faster pace, companies usually offer additional pay as motivation (Kong et al., 2020).

H7: Income has a positive impact and controls the variation in the productivity of OE.

3. Research method

The quantitative study involved three steps: (i) designing a structured questionnaire, (ii) conducting a pilot test with ten respondents to ensure clarity, and (iii) distributing an online survey. Each questionnaire item aligned with a specific concept in the model. A total of 298 office employees from the HUTECH Education system participated in the final survey.

4. Results

The study evaluated the measurement model using SmartPLS 4.0. Results showed that all items had outer loadings above 0.7, so no indicators were removed. Cronbach's Alpha values ranged from 0.834 to 0.881, exceeding the acceptable threshold of 0.7. Composite reliability (ρ_c) values ranged from 0.882 to 0.913, while AVE values ranged from 0.599 to 0.677, all of which exceeded the required levels, confirming the model's convergent validity.

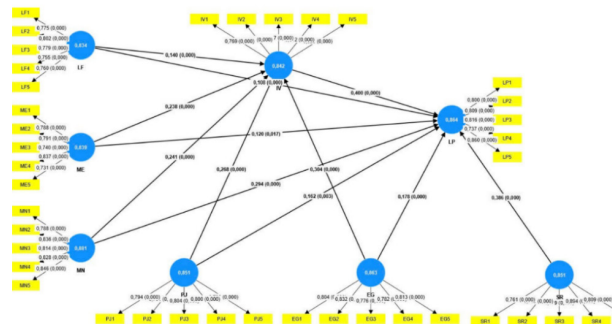
The structural model results revealed that the variables EG, LF, ME, MN, and PJ had small to moderate effects on IV and moderate effects on LP. Notably, IV had a strong effect on LP ($f^2 = 0.940$), while SR had a moderate effect ($f^2 = 0.268$). All path coefficients (Original Sample - O) were positive, and all P-values were ≤ 0.05 , indicating statistically significant and positively directed relationships. Among these, EG had the most substantial impact on IV, and IV significantly influenced LP with a coefficient of 0.400, highlighting its key role. SR was the most influential factor on LP, while LF had the weakest effect. The adjusted R^2 value for IV was 0.599, meaning that EG, LF, ME, MN, and PJ explained 59.9% of its variance. Similarly, the adjusted R^2 for LP was 0.573, indicating that IV explained 57.3% of its variance. All VIF values were below 3, suggesting no multicollinearity. Additionally, the Q^2 value for the IV-related model was 0.543, showing high predictive accuracy, while the Q^2

value for LP was 0.378, indicating moderate predictive accuracy.

5. Conclusion

The findings of this study support previous research. The workforce, materials and equipment, management, projects, and external factors all positively affect labor productivity, as shown in studies by Almamlook et al. (2020), Alabdullah et al. (2023), Hamza et al. (2022), and Kong et al. (2020). These factors also contribute to innovation, which has a strong influence on productivity, consistent with research by Kong et al. (2020) and Chakravarty (2022). However, the mediating role of innovation is not statistically confirmed, suggesting the need for strategies that support both innovation and related factors. Ultimately, income has the most significant impact on productivity, underscoring the crucial role of financial incentives.

Figure 1. Structural model assessment



5.1 Theoretical implications: This study examines key factors that influence labor productivity among office employees at HUTECH, thereby helping to fill existing research gaps. It confirms the strong link between productivity and HR practices (Sauermann, 2023) and also relates to areas like project management and risk assessment (Hamza et al., 2022). New variables such as innovation and income are introduced. While innovation is not a confirmed mediator, it may serve as a connecting factor for future studies (Zhu et al., 2021). The study also applies the Efficiency Wage Theory to examine the effect of income on wages. Focusing on office staff complements earlier research in other sectors (Almamlook et al., 2020; Chakravarty, 2022).

5.2. Managerial implications: In the educational environment, the labor productivity and innovation of office staff play an important role. An effective learning environment, combined with a productive team of staff, ensures that students receive proper support, enabling them to actively study and develop skills that meet the increasing demands of both domestic and international labor markets. To minimize the productivity gap among office employees at HUTECH, UEF, and ROYAL, as well as among staff with different income levels, the

leadership of the HUTECH education system should implement appropriate policies and plans that match the specific nature of work in each unit, based on the following suggestions.

External factors have the most substantial impact on both innovation and labor productivity, requiring close attention from leadership. To support creativity and efficiency, internal communication channels should be improved to keep staff informed about economic changes and global trends. Regular inspections of facilities and equipment are also crucial to ensure a safe and healthy working environment. Maintenance and upgrades should be well-planned and communicated to avoid disruptions and reduce risks.

The project factor is the second strongest influence on innovation and a key driver of labor productivity. To maximize the benefits, the institution should invest in projects that enhance staff skills and efficiency. Leadership can boost innovation by enhancing work processes and encouraging staff to propose workflow improvements. Organizing brainstorming sessions and workshops also supports creativity. After each project, conducting evaluations and sharing results helps draw lessons and promote continuous improvement.

In addition to management capabilities, setting and evaluating job performance is key to improving productivity. A practical approach is to apply a KPI (Key Performance Indicator) system based on the Balanced Scorecard (BSC) model, which considers financial, customer, internal process, and learning perspectives. Breaking down KPIs for each employee allows for accurate performance assessment. Using KPI and BSC helps managers track progress and also motivates employees to improve and be more creative.

Although materials and equipment have only a modest impact on labor productivity and innovation, their influence is still positive. Therefore, HUTECH does not need to invest heavily in this area but should ensure that resources are sufficient and appropriate for staff needs. Management should provide tools, equipment, and stable Internet access in a timely and consistent manner to prevent disruptions that could affect productivity.

To develop the skills and potential of office staff, leadership should provide training programs that cover both professional and soft skills. Internal sharing sessions are also useful for encouraging idea exchange, creativity, and process improvement. At HUTECH, using tools like the MBTI (Myers-Briggs Type Indicator) can help assess personality fit with the organization and guide appropriate career development for new employees.

Research findings indicate that income and innovation are the most significant factors influencing labor productivity, with higher income being associated with improved performance. To enhance productivity, leadership should offer fair and competitive salary, bonus, and benefits policies. A basic income must reflect an employee's abilities and remain competitive in the market. Additional support, such as transport allowances, lunch subsidies, and clear overtime pay, should be provided. Regular employee satisfaction surveys on compensation can also help gather feedback and guide necessary adjustments.

To enhance innovation among office staff, the leadership should focus on promoting digitalization and increasing the application of information technology in work processes. This aims to improve operational efficiency and enhance competitiveness in the context of digital transformation becoming a global trend. The adoption of modern technological tools and software not only improves work performance but also brings practical benefits, such as minimizing errors in processes and automating repetitive tasks, thereby saving significant time and organizational resources.

5.4. Limitations

This study has three main limitations: it focused only on direct relationships, used a limited set of variables, and surveyed only HUTECH employees. It did not consider mediating or moderating factors like innovation or income, limiting the generalizability and comprehensiveness of the findings.

Acknowledgment: This research was fully funded by HUTECH University under grant number 2025.22.QTKD.

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