

# The Moderating Role of Capital Intensity in the Nexus of Formal Training and Labor Productivity: The Case of Vietnam's Enterprises

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## Abstract

*Recent statistics have shown that the quality of Vietnamese labor was below that of many countries and not improving for faster economic growth. The research question is whether formal training for the workforce can enhance their skills, leading to a higher output rate. This study explores the impact of formal training on labor productivity in Vietnam's enterprises. The regression analysis results of a World Bank Enterprise Survey in 2023 show that for firms with a high level of capital intensity, investments in formal training have a positive effect on labor productivity. Formal training programs for production workers are not significant in the productivity model, but when firms purchase and use substantial physical capital, investments in human capital through training return positive sales per worker. The results suggest that investment in human capital should not be decoupled from investment in physical capital to gain productivity.*

**Keywords:** *Formal Training, Labor Productivity, Capital Intensity, Human Capital, Vietnam.*

## INTRODUCTION

### Research Problem

Training topics receive substantial attention from researchers, policymakers, and development agencies in the research domain of human capital (Mačiulytė-šniukienė & Matuzevičiūtė, 2018; Ramírez et al., 2020; Rukumnuaykit & Pholphirul, 2016; Sun, 2023). Economics theories, such as human capital theory, hold that education and training are crucial for increasing labor productivity at the national and firm levels (Becker, 1975; Black & Lynch, 1996). In business management, resource-based theories emphasize the competencies of human resources as a source of sustained competitive advantage for an organization (Barney, 1991; Porter, 1996). The United Nations Sustainable Development Goals include quality education and economic growth. The World Bank views formal training as critical to economic development and poverty reduction (Barney, 1991; Porter, 1996; The World Bank, 2024). Formal training programs are essential for building a skilled workforce and enhancing productivity and competitiveness in the global market.

In the digital age, the demand for training on new skills is increasing due to evolving information and communication technologies. In the digital era, some skills of manufacturing workers may be obsolete, and they need to develop new relevant skills to take advantage of digitalization using advanced technologies such as artificial intelligence, big data, and automation (Collings & McMackin, 2021). Despite the new skill requirements that require formal training, the impacts of formal education and training on labor productivity are mixed in the research results. For example, in a productivity study in Indonesia, tertiary education significantly negatively affected labor productivity (Baharin et al., 2020; Sun, 2023). The increase in on-the-job training demonstrates a recent concern that skills from schools and universities are not updated to meet new industry requirements and that graduates must be reskilled, not only upskilled.

### The Case of Vietnam

We are interested in the curious case of Vietnam for this research. To determine the factors that enhance Vietnam's firm productivity, not only for profitability but also for increasing national output are needed to avoid the mid-income trap (Calza et al., 2018; Trifkovic, 2024). Vietnam can potentially become a manufacturing hub in the current global supply chain. According to a 2021 World Bank report, Vietnam has a shortage of qualified workers (The World Bank, 2021). To become a global manufacturing powerhouse,

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Vietnam must prepare a skilled workforce to work with global partners. Unfortunately, the number of university graduates with relevant skills lags behind industry demand. With this pace, Vietnam needs up to 25 years to catch up with Thailand's current stock of qualified workforce (The World Bank, 2021). Domestic manufacturing firms must prioritize implementing training programs to upgrade their workers' skills to meet highly demanding tasks. Although most Vietnamese workers have graduated from high school (up to 90%, according to a UNESCO report), the labor market demands more skills than they learned from high school. In recent years, Vietnamese workers have been unable to meet the demand for new skills in the labor market (The World Bank, 2021).

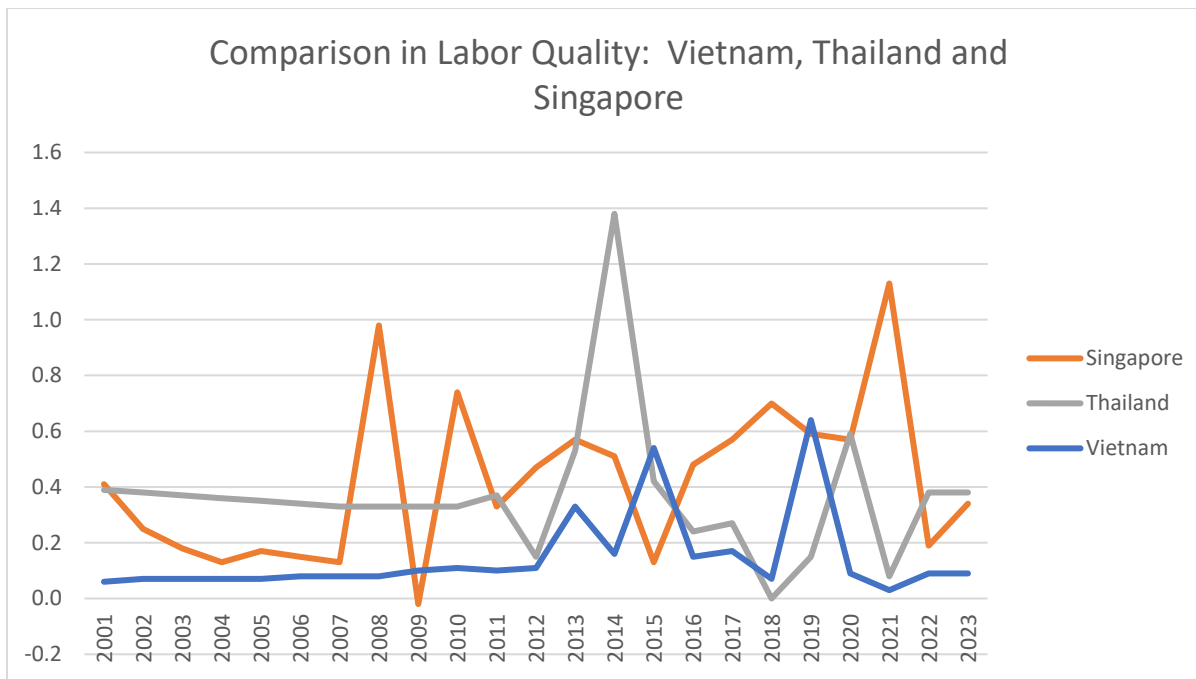


Figure 1 – A gap in labor quality between Vietnam and selected Southeast Asian countries.

Source: Total Economy Database - The Conference Board

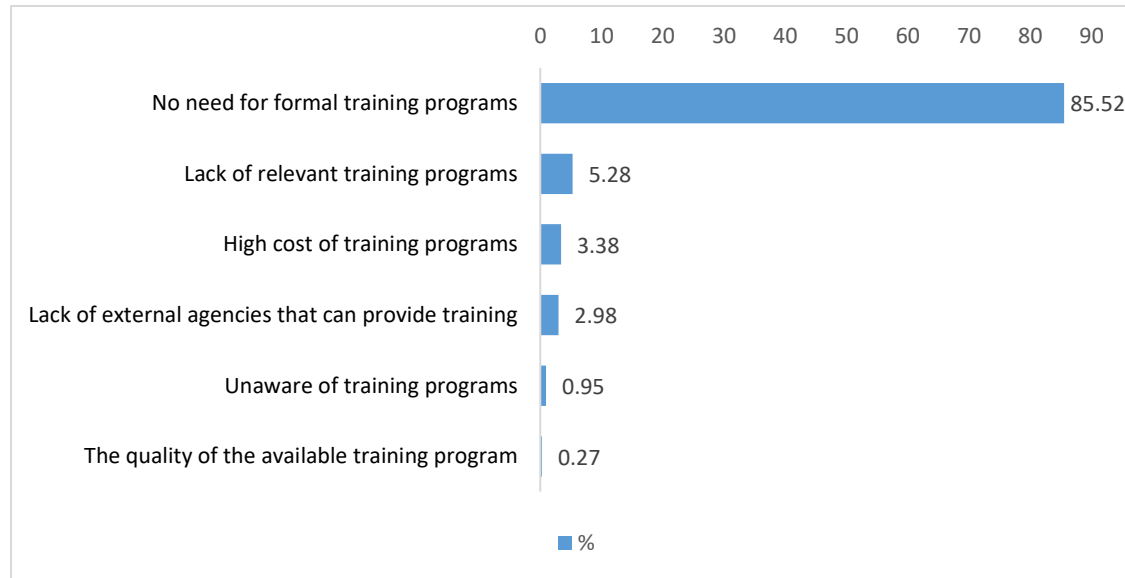
Figure 1 shows the contribution of quality labor to GDP growth thanks to improved employee skill levels. Compared with Singapore and Thailand, the two other Southeast Asian countries, Vietnam had the lowest labor quality from 2020 to 2023, which contributed to GDP growth (Figure 1). This increasing divergence in quality labor will jeopardize Vietnam’s efforts to narrow its per capita GDP compared with that of other high-income nations. To achieve better labor quality, Vietnam must find solutions to improve its citizens’ skills. At the firm level, training programs for production workers are a human resources policy. This research aims to answer the following questions about formal training and its effects.

**Research Question 1:** What is the relationship between formal training and labor productivity in Vietnam’s enterprises?

**Research Question 2:** How does capital intensity moderate the impact of formal training on labor productivity in Vietnam’s enterprises?

The expected results of this study include the recognition of the importance of formal training in the particular context of Vietnam and a mechanism to transform training inputs into productive outputs. This will help enterprises rethink their previous perceptions of training failure. Specifically, a 2015 World Bank Enterprise Survey in Vietnam revealed that formal training focused primarily on technical skills (74%), interpersonal and communication skills (9%), managerial skills (8%), work ethics (4%), and IT skills (2%). Only approximately 25% of the surveyed establishments conducted formal training (<http://www.enterprisesurveys.org>). When asked why they did not conduct formal training, 86% of business owners responded that there was no need for

it (World Bank, 2015). Paradoxically, while the quality of Vietnamese labor is not high (Figure 1), enterprises do not need formal training programs that are supposed to increase labor skills. The 2015 World Bank Enterprise provided reasons for not receiving training (Figure 2).



**Figure 2:** Reasons for not conducting formal training as perceived by entrepreneurs.

**Source:** 2015 World Bank Enterprise Survey Vietnam.

These statistics surprisingly demonstrate entrepreneurs' viewpoints that discourage the established theories of human capital, which posit that formal training plays a critical role in improving business performance, including labor productivity. This implies a perception gap between theories and industry regarding training benefits.

This paper continues with theoretical frameworks for the training–productivity relationship in Section 2. In Section 3 for Methodology, we develop a conceptual model for estimating regression. Section 4 presents the regression results and further discussion. In Section 5, we summarize our findings and recommendations.

## LITERATURE REVIEW

### Formal Training

Training is the systematic acquisition of attitudes, concepts, knowledge, rules, or skills that should result in improved performance (Goldstein & Hough, 1991). Formal training is designed to develop specific skills and competencies required for particular job roles or tasks, typically over a shorter duration, and is often conducted in workplaces or formal educational institutions such as schools, colleges, universities, and training centers (Hager, 2012). Formal education aims to provide a broad foundation of knowledge across various subjects over a more extended period within schools, colleges, or universities. It follows a structured curriculum, includes standardized assessments, and leads to widely recognized degrees or diplomas essential for further education or professional fields. Formal education from secondary and postsecondary schools provides essential knowledge and skills for workers to work more productively than without formal education. However, school knowledge is foundational and needs to be more specialized for complex tasks. After graduation, employers need more practical skills from employees. As training for their workers, companies could provide retraining, reskilling, and recertification. Types of training for businesses can differ across sales, managerial, and technical job groupings (Morrow et al., 1997). In advanced manufacturing, job-relevant skills include cognitive, socioemotional, technical, and digital competencies (The World Bank, 2021).

## Impact Of Human Capital Investments Through Training on Labor Productivity

### Neoclassical Economic Growth Theories

According to neoclassical theories, the advantages of education and training encompass higher wage rates (Jones, 2001; Schonewille, 2001). In the growth accounting approach to production, education and training are critical in driving production growth (Becker, 1964). Furthermore, in addition to its economic benefits, education and training also yield a social rate of return. Educated individuals are more likely to secure employment, earn income, and enhance their living standards. As a result, unemployment rates are expected to decline. Nevertheless, some theorists argue that the growth accounting method fails to fully examine all effects of education. For example, schooling levels increase not only wages but also labor productivity (Schonewille, 2001). How to measure the quality of training is also critical for testing the true effects of training on business performance (Schonewille, 2001). It is important to decompose the human capital dimension into several indicators, such as on-the-job and off-the-job training.

The positive effects of formal education and education levels on productivity are mixed in empirical studies. For example, Mincer (1974) found an association between the average level of schooling and income at the national level (Mincer, 1974). In another study, researchers found that the rates of return to schooling vary between OECD and non-OECD countries and even among different countries. For example, the average return to an additional year of education in OECD countries is 7 percent, which is lower than that in non-OECD Asian nations (10 percent). This rate is higher in sub-Saharan Africa (13 percent) than in Latin America and the Caribbean (12 percent) (Jones, 2001). Estimations with data from China's shoe manufacturing industry revealed that a one-standard-deviation increase in worker training expenditure intensity led to an approximately 5.6% decrease in firm labor productivity (Sun, 2023). This finding implies that the quality of higher education is also an important factor in productivity growth. Conversely, in a productivity study in Indonesia, tertiary education had a significant negative effect (Baharin et al., 2020).

### Human Capital Perspective

One of the most well-known theoretical frameworks is human capital theory (Becker, 1975; Black & Lynch, 1996; Jones, 2001). Organizational decisions about investing in human capital through training depend on many factors, such as strategic goals for competitive advantage and perceived benefits. The concept of human capital is too broad because it comprises many components, including labor quantity, educational levels, experience, and the stock of skills, as measured by Mincer's human capital earnings function (Mincer, 1974). These components are outputs from a transformation process of knowledge inputs, which include training investments.

A company can enhance its profits by investing in human capital through training. To arrive at this decision, the company needs to assess the cost of the training against the returns to determine the optimal level of training (Alba-Ramirez, 1994). The returns on training can be gauged by the average increase in employee productivity for each unit of training the employer provides. Nevertheless, the human capital concept at the firm level contains a bundle of human resources management practices, including training, wages, bonuses, job design, and talent management. For example, a study of product lines in US factories revealed that when training is included as a component in human resources management practices, this dimension has significant effects on labor productivity (Ichniowski et al., 1997).

At the firm level, workers with higher education had a higher learning rate than those with no formal education, which is usually presented as a learning curve in the operations management literature and is also known as the theory of learning by doing. Faster learners save time by digesting new productive techniques, meaning that they are more productive than uneducated workers (Bartel, 1989, 1994; Bartel & Lichtenberg, 1987). Workers skilled in mathematics or quantitative analysis would know how to analyze data and take actions (e.g., to fix technical problems) more accurately and quickly. Recent studies have shown that the impact of training in manufacturing facilities significantly increases labor productivity. Especially in developing nations, where global manufacturers locate their factories in global supply chains, training is critical for firm productivity when higher education inputs are not significant in boosting firm performance (Rukumnuaykit & Pholphirul, 2016). For

example, in Indonesia, a recent study showed that there is no significant relationship between higher education and labor productivity (Baharin et al., 2020). Moreover, Schonewille (2001) argued that policy must recognize a skill shortage as a market failure and that policymakers should discourage worker education and training as a remedy for market failure. Motivated by the mixed outputs of education and training on productivity, I propose Hypothesis 1:

**Hypothesis 1 (H1):** *More formal training for employees will increase a firm's labor productivity.*

### **Impact of Physical Capital Investments on Labor Productivity and Its Moderating Role**

According to neoclassical economic growth theory, accumulated physical capital, including land, buildings, plants, and equipment, increases output at both the economic and firm levels. Numerous studies have proven the positive impact of capital intensity, measured by physical capital per employee, on labor productivity (Datta et al., 2005). Firms with substantial investments in production machinery, for example, will have more production capacity, and as a result of the economy of scale, the production volume per labor will increase.

Nevertheless, new machinery requires the adoption of new production processes and technologies. Moreover, its operators must have sufficient and updated skills to use these new technologies. For example, computer-aided manufacturing equipment requires that its operators have computer skills, data management abilities, data interpretation abilities, and even statistics. This logic leads to Hypothesis 2:

**Hypothesis 2 (H2):** *A higher level of capital intensity will increase a firm's labor productivity.*

The new feature of our study is the examination of the moderating role of capital intensity on the impact of training on labor productivity. The mixed results of testing the training–productivity relationship make us curious to investigate whether different levels of capital investments in a firm affect the productivity impact of training. We generate this idea because we assume that training without practice does not create learning outcomes. If a firm organizes a formal training activity for production workers, one of the training learning outcomes should be increased output per worker. In a firm with high capital intensity, production machinery is available for trainees to practice on the job; hence, the learning outcome is most likely to occur. This argument is consistent with the theory of learning by doing and the learning curve effect, which posits that more repetitions on a daily job reduce the time per repetition (Andress, 1954; Argote & Epple, 1990).

Conversely, in a firm with limited or no available machinery, trainees cannot practice their learned skills on a real machine on the spot. Their knowledge and skills may gradually fade due to a lack of practice. Motivated by this counterargument, Hypothesis 3 is proposed:

**Hypothesis 3 (H3):** *Formal training positively affects labor productivity in a firm with high capital intensity (i.e., capital intensity moderates the relationship between formal training and labor productivity).*

## **METHODOLOGY**

### **Model Specification**

We begin with the Cobb–Douglas production.

$$Y = AK^\alpha L^\beta \quad (1)$$

where Y, K and L are the output, capital and labor, respectively. A is the technology factor.  $\alpha$  and  $\beta$  are the elasticities of output with respect to capital and labor, respectively.

We consider “effective labor”, a measure that combines trained  $N^T$  and untrained  $N^U$  workers.

$$Y = A[N^U + \gamma N^T]^\alpha K^\beta \quad (2)$$

We use the above model with a training ratio modified from Dearden et al(2006).

$$Y = A \left[ 1 + (\gamma - 1) \frac{N^T}{N} \right]^\alpha N^\alpha K^\beta \quad (3)$$

where  $N^T$  is the number of workers trained and  $N$  is the total number of workers.  $\frac{N^T}{N}$  is the ratio of trained workers to untrained workers. In our study model, it is the proportion of production workers trained. The parameter  $\gamma$  denotes the productivity of trained workers. If  $\gamma$  is greater than 1, trained workers are more productive than untrained workers.

Dividing both sides of equation (3) by  $N$  and assuming constant returns to scale ( $\alpha+\beta=1$ ), we obtain the following equation:

$$\frac{Y}{N} = A \left[ 1 + (\gamma - 1) \frac{N^T}{N} \right]^\alpha \left( \frac{K}{N} \right)^\beta \tag{4}$$

Taking the log of both sides of equation (4), we obtain:

$$\log \left( \frac{Y}{N} \right) = \log(A) + \alpha(\gamma - 1) \frac{N^T}{N} + \beta \log \left( \frac{K}{N} \right) \tag{5}$$

where  $\log \left( \frac{Y}{N} \right)$  denotes the natural logarithm of labor productivity, measured by the ratio of sales to the total number of employees;  $\frac{N^T}{N}$  is the proportion of trained workers to workers; and  $\left( \frac{K}{N} \right)$  is the capital intensity, measured by the ratio of fixed assets to the total number of employees. Factor  $A$  can be technology or management (Bloom et al., 2010). Because our model is focused on human resource management, we chose labor costs. This variable reflects a firm’s investment in human capital, which includes wages, bonuses, and insurance.

With the above equation, we develop the following model.

Model 1: 
$$LaborProductivity = \beta_0 + \beta_1(CapitalIntensity) + \beta_2(TrainingRatio) + \beta_3(LaborCost) + \varepsilon$$

Where the dependent variable *LaborProductivity* is measured by the ratio of sales to the total number of employees, *CapitalIntensity* is measured by the ratio of fixed assets to the total number of employees, *TrainingRatio* is proportion of trained workers to workers, *LaborCost* is labor costs including wages, bonuses, insurance per worker. We selected the variable Labor cost because it represents human capital investments.  $\varepsilon$  is the error term.

**The Moderating Role of Capital Intensity in the Relationship between Formal Training and Labor Productivity**

Although literature reviews have examined the impact of training on labor productivity, little is known about the interaction between formal training and capital intensity, measured by the ratio of physical assets to total employment, and how this connection affects labor productivity. The results of past studies on the influence of training and education on per-worker productivity are mixed. While most classical economics and business studies have confirmed the role of training in labor productivity, a few studies have revealed that training disrupts routine work and that skill shortages should be remedied as a market failure at the macro level instead of at the firm level. Schonewille (2001) suggested from his findings that policymakers should discourage firm-level training because this intervention in resolving skill deficiency distorts the market. To challenge this position, we hypothesize that at the firm level, formal training, moderated by capital intensity, has a significant effect on labor productivity (Model 2).

Model 2: 
$$LaborProductivity = \beta_0 + \beta_1(CapitalIntensity) + \beta_2(TrainingRatio) + \beta_3(CapitalIntensity * TrainingRatio) + \beta_4(LaborCost) + \varepsilon$$

where the dependent variable *LaborProductivity* is measured by the ratio of sales to the total number of employees, *CapitalIntensity* is the firm intensity of capital, measured by the ratio of fixed assets to the total number of employees, *TrainingRatio* is the proportion of trained workers to workers, *CapitalIntensity \* TrainingRatio* is the interaction term between two variables, capital intensity and training ratio, and

*LaborCost* is labor costs, including wages, bonuses, and insurance per worker. We select the variable Labor cost because it represents human capital investments.  $\varepsilon$  is the error term.

**Data**

For the empirical study, the author employs secondary panel data from the Vietnam Enterprise Survey (ES) in 2023 (<http://www.enterprisesurveys.org>). This dataset is the most recent after several waves of data collection. The study population is the population of nonagricultural production enterprises in Vietnam. The sample was selected following stratified random sampling. A stratified random sample is obtained by separating the population elements into strata and selecting a simple random sample from each stratum. Three levels of stratification for sampling were used in this country: industry, establishment size, and region. Industry stratification was based on five manufacturing industries. The size was stratified as small (5 to 19 employees), medium (20 to 99 employees), or large (100 or more employees). The regional strata included four regions: the Red River Delta, North Central Area and Central Coastal Area, South East, and Mekong River Delta.

**Analysis**

To explore how much the independent variables influence the dependent variable, we employ the ordinary least squares (OLS) estimation approach. Before regression, we standardized the variable standardization following the suggestion in the OLS models with a moderator by Dawson (2014). This means that all model continuous variables will be mean-centered, and their new means will be zero. The benefits of this variable standardization include the satisfaction of normally and independently distributed residuals (Dawson, 2014). We found no serious collinearity problem because the variance inflation factors (VIFs) were under three.

**RESULTS AND DISCUSSION**

**RESULTS**

**Table 2 – Descriptive Statistics of Model Variables**

Variable	Measurement	Mean	Sd	Min	Max
Labor productivity	Natural log of sales per employee	20.54252	1.471318	13.99491	25.76256
Capital intensity	Natural log of the value of all equipment per employee	18.95723	1.65812	5.78934	22.96248
Training ratio	Proportion of production workers trained	7.722763	25.24247	0	100
Labor cost	Natural log of total labor costs per employee	18.38097	.8105602	14.15198	21.01641
	Observations	1028			

Table 2 provides the descriptive statistics for our model variables. The training ratio is 7.7, meaning that only 7.7% of the production workers received formal training on average. This figure is meager, given the evolving technologies needed for today’s manufacturing processes. The formal training for them is primarily technical. Other trained skills include interpersonal and communication skills and managerial skills.

Figure 3 shows the density estimates of the natural logarithm of labor productivity, measured by sales per employee for the training and nontraining groups. The average level of labor productivity in the training group (Training = 1) is greater than that in the no-training group (Training = 0), and more enterprises with no training have lower labor productivity than the group with training. The descriptive statistics indicate that only 16% of the surveyed enterprises had conducted formal training.

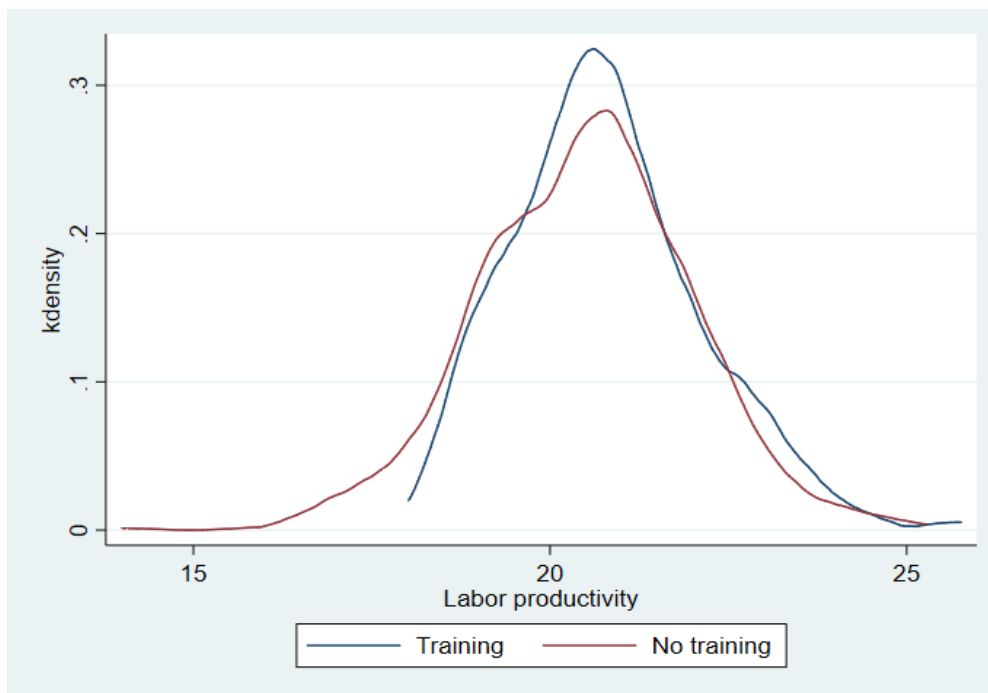


Figure 3: Density estimates of labor productivity between the training and no training groups

Table 3 – Pairwise Correlation

Variables	(1)	(2)	(3)	(4)
(1) Labor productivity	1.000			
(2) Capital intensity	0.498 (0.000)	1.000		
(3) Training ratio	0.013 (0.675)	0.163 (0.001)	1.000	
(4) Labor cost	0.447 (0.000)	0.191 (0.000)	0.087 (0.006)	1.000

Table 4 – Pairwise Correlation

Dependent Variable: Labor Productivity

VARIABLES	(1) Model 1	(2) Model 2
Capital intensity	0.381*** (0.0349)	0.374*** (0.0349)
Training ratio	-0.0100 (0.0255)	-0.0301 (0.0271)
(Capital intensity) x(Training)		0.0663** (0.0306)
Labor cost	0.384*** (0.0375)	0.376*** (0.0376)
Constant	-0.157*** (0.0349)	-0.165*** (0.0349)
Observations	429	429
R-squared	0.395	0.402

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



Table 3 and Table 4 show the results of the variable correlations and regression, respectively. In Table 3, labor productivity, capital intensity and labor cost are significantly correlated ( $p < 0.05$ ).

In Table 4, Model 2 shows that the coefficient for Capital intensity is 0.374, indicating that an increase of 1 percentage point in Capital intensity is associated with an increase of 0.374 percentage points in labor productivity at the 1% level, holding other variables constant. A one-percent increase in labor cost is associated with an increase of 0.376 percentage points in labor productivity at the 1% level, holding other variables constant.

The coefficient for the interaction term is 0.0663, indicating that the effect of the training ratio on labor productivity changes by 0.0663 units for a percentage-point increase.

## **DISCUSSION**

Models 1 and 2 (Table 4) show that capital intensity and labor cost significantly positively affect labor productivity, whereas the training ratio does not. The results show that both physical and human capital are critical, which is consistent with related studies (Datta et al., 2005; Lannelongue et al., 2017). In our study, human capital is measured as employees' total investment costs (including wages, bonuses, and insurance).

Interestingly, the study results show that the proportion of production workers trained is not significant in improving sales per employee. Indeed, a few previous studies have indicated that only basic levels of education positively affect labor productivity (Baharin et al., 2020; Schonewille, 2001). The reasons for this lack of significance in training contributions are articulated in previous World Bank Enterprise Survey waves. For example, in 2015, business owners found no need for formal training (86%), no relevant training content (5%), high costs (4%), and even poor training quality (1%) (Figure 2). This means that enterprises do not need quality labor. This implies that they acquire quality labor from sources other than training. Instead of spending too much on training new skills, they may employ talented people who have already acquired those skills from their educational and professional backgrounds.

Nevertheless, the new contribution of this study is the importance of capital intensity as a variable that influences the effect of formal training on labor productivity. In Model 2, with the interaction term (capital intensity  $\times$  training), we find that formal training has a significant positive effect on sales per employee, meaning that formal training is effective only for enterprises with a high level of capital intensity. Because the effect of formal training on labor productivity depends on the level of investment in physical capital, managers should pay attention to the intensity of physical capital when they conduct formal training for their staff.

## **CONCLUSION**

This study analyzed the impact of formal training on labor productivity. Capital intensity, as a predictor of sales per employee, is a moderator that significantly impacts the relationship between formal training and sales per employee. These results provide some insights for managers, policymakers and researchers as follows.

### **Aligning Physical Capital Investment with Formal Training**

Managers should not ignore the physical assets or capital of their firm when making investment decisions regarding formal employee training. A firm with more machinery will experience a greater impact of formal training on labor productivity. If the manager ignores capital intensity, that is, if he decides to invest in costly training regardless of poor machinery, the effectiveness of the training will be insignificant.

Training alone cannot help company growth. Training is only part of a bundle of human resources practices that help labor productivity. This study shows that labor costs, a proxy variable for human capital investments, are always significant. This implication aligns with the works of human capital investments (Bloom & Reenen, 2010). In the meantime, training only works in combination with substantial investments in physical assets.

Firms should not invest in expensive equipment and advanced technologies without investing in human resources to use them effectively. Training should focus on skill categories designed for using new equipment and technologies. This means that obsolete skills need to be eliminated from the training curriculum.

## Labor Quality

Economy-level economic reports have recently indicated the low level of Vietnam's labor quality compared to some Southeast Asian countries, such as Thailand and Singapore (Figure 1). Formal training can be one of solutions for the labor-quality problem. This firm-level research explores how firms can maximize the positive economic outcome of formal training. It proves that combined with a high level of physical capital, firm with more formal training for their production personnel will increase their labor productivity.

Nevertheless, high-quality labor can be acquired through training or recruitment. The fact that only 16% of surveyed enterprises conducted suggested that they prefer recruitment to training. Job market may have a pool of workers whose skills suit a firm's job demand. Therefore, connecting firms with talented people in the job market is one of the options for obtaining quality labor. Rather than sticking to the necessity for formal training, policymakers, for the sake of the whole knowledge economy, should plan and implement training strategies to prepare a pool of skilled people for the whole economy. Formal training agencies should collaborate with firms to develop suitable training strategies. The extant theories hold that collaboration between universities and industry in providing formal training contributes to innovation (Caraça et al., 2009). According to the "interactive, innovative model," a firm needs to learn from three knowledge pools: science and technology, organizational knowledge, and marketing knowledge (Caraça et al., 2009). A firm will acquire and absorb knowledge from this partnership to generate innovative outputs, diversify products and increases sales.

As a limitation, the study results are limited by the linear impact of training on economic outcomes. The effect of training depends on many other factors. For example, behavioral elements can explain business participation in training. Some can organize training for themselves. Others may rely on government agencies to hold them. Even in some contexts, individuals decide to pay for themselves in skill-enhancing courses, partially because they fear that their lack of new knowledge poses them at risk of losing jobs. Therefore, training or not training is a self-selection problem that researchers must consider in future research.

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