IMPACT OF FINANCIAL EXPENDITURE ON TRAINING OUTCOMES AT PUBLIC UNIVERSITIES IN VIETNAM

Vu Thi Lien, VNU University of Economics and Business, Vietnam National University
Nguyen Van Hieu, VNU University of Economics and Business, Vietnam National University

ABSTRACT

This study aims to evaluate how financial expenditure and expenditure structure affect training outcomes at public universities in Vietnam. The data used for this study is collected from statistics from the Ministry of Education and Training, the Ministry of Finance, and the State Treasury between 2013 and 2017. To analyze the data, the research employs the quantile regression analysis method. In this research, the training outcomes at public universities are evaluated using indicators such as graduates' income, the percentage of graduates who have jobs, and the level of satisfaction with labor use by enterprises. The study reveals that the financial expenditure and expenditure structure at public universities in Vietnam have an impact on training outcomes at various quantiles. Based on the findings, the study recommends policies to improve the financial expenditure effect and student training outcomes at Vietnam's public universities.

Keywords: Financial Expenditure, Training Outcome, Public University.

INTRODUCTION

Higher education is critical in providing high-quality human resources for each country's economic development and international integration. Higher education training outcomes are determined by the efficiency with which universities manage their financial expenditures. Financial management includes decisions about how to raise funds, how to manage financial resources through financial controls and allocation, and how to explain financial responsibilities (Munge et al., 2016). The budget of training institutions is utilized for the institutions' day-to-day operations and other activities. To enhance administration, many countries have decentralized financial resource management to universities (Crouch & Winker, 2008). The president and management board of universities are responsible for financial planning in order to achieve the university's objectives and improve financial management. The major goal of financial management is to ensure that available capital is utilised effectively to achieve the university's objectives (Ogbonnaya, 2000). Lack of procurement capacity, incomplete and infrequent audits, lack of documents and accounting records, and the inability to prepare year-end financial reports are some of the challenges that universities face in financial management (Magak, 2013).

Training outcome is an important indicator to quantify level of meeting goals at university institutions. There are a number of studies that establish standards and indicators to evaluate training outcomes, quality, and performance of university graduates around the world. The criteria for assessing the quality of student outcomes, according to Havery & Green (1993), include: (i) student academic performance; (ii) percentage of graduates finding suitable jobs; (iii) percentage of graduates can quickly integrate their job, be promoted, raised salary due to good job completion. Abel et al. (2014) believed that the

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

quality of graduates can also be assessed through the percentage of graduates who swifty approach and integrate with the job, get promoted and increase their income quickly. Furthermore, enterprises' satisfaction with graduates can be used to analyze training outcomes (Shah & Nair, 2011; Tudy, 2017). In addition, the grade point average (GPA) or cumulative grade point average (CGPA) are indicators used for evaluating student output quality (Rossi, 2017; Shehry & Youssif, 2017).

A number of studies have examined at the effect of management and financial expenditure on individual components of training outcomes in educational institutions, such as the percentage of students who graduate (Weber & Ehrenberg, 2010; Peerenboom, 2012), the quality of graduates, and their satisfaction (Malik et al., 2010; Nadiri et al., 2009; Mohamed et al., 2018). However, to the author's knowledge, there seems to be no research evaluating the effects of financial expenditure and expenditure structure on university training outcomes, particularly in the case of Vietnamese public universities.

In Vietnam, along with the process of renovating the financial management mechanism for higher education, the expenditure management mechanism has been adjusted to assist universities use their own funds more effectively and actively. The majority of public universities in Vietnam use the state budget to spend on their activities. According to Mankiw (2014), in order to address the question concerning the worth of money, it is necessary to first establish where and how the money that people contribute to universities is spent and what is accomplished. As a result, the goal of this study is to see how financial expenditure affects training outcomes at Vietnam's public universities. The quantile regression analysis method is employed in this study to examine the impacts of total expenditure and expenditure structure on student training outcomes using indicators such as income, employment, and enterprise satisfaction.

A LITERATURE REVIEW OF STUDIES ON THE IMPACT OF EXPENDITURE ON UNIVERSITY TRAINING OUTCOMES

The Influence of Expenditure on Training Outcomes

The literature review reveals that the impact of education expenditure on graduation quality differs by country and educational institution, featuring varied directions and levels of impact. Several studies show that the amount of financial expenditure has a positive effect on training outcomes (Massen, 2000; Paulsen & Smart, 2001; Weber & Ehrenberg, 2010). Accordingly, countries that invest more in education have higher quality graduates (or education quality) (Hanushek, 2013). Weber & Ehrenberg (2010) investigated the effect of expenditure on student graduation rate. The authors collected data from 1161 colleges and universities for the 2002-2003 and 2005-2006 academic years. The results of these studies indicate that the level of expenditure on teaching activities has a positive effect on the graduation rate and the dropout rate, while the level of expenditure on research activities has a negative effect on the graduation rate. Hanuschek (1989, 1997) showed a positive correlation between expenditure per student and their achievement. However, after controlling for household characteristic variables, the result is no longer statistically significant. Powell (2009) conducted a four-year study of the connection between university expenditure and training achievement in 1862 private universities. The study's findings indicate that some institutional characteristics, as well as certain categories of expenditure, have a beneficial impact on training effectiveness.

Furthermore, other studies find a negative link or no relationship between financial expenditure and school training outcomes after controlling for household and student characteristics (Coleman et al., 1966; Tumen, 2013). After controlling for student background

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

characteristics, Coleman et al. (1966) proposed that university expenditure had no effect on student achievement. Even after correcting for differences in institutional features, the research findings of James et al. (1989) showed that there is no significant association between university expenditure per student and students' academic success. Peerenboom (2012) used 22 regression equations to investigate the relatedness between financial expenditure structure and graduation rates at various types of universities. According to the findings of the study, both research expenditure and scholarships have a detrimental impact on graduation rate, particularly for master and PhD students.

The Influence of Wage Expenditure on Student Outcomes

The lecturers and administrative staffs, the team that directly provides educational services, play an important role in determining the outcomes of student. A sufficient number of these lecturers and administrative staffs with high professional qualifications and dedication are required to ensure good student outcomes. Through the wage and bonus system, financial management will have an impact on these lecturers and administrative staffs.

Several studies show that the quality of training and services given by faculty and administrative units (such as library services, faculty offices, dormitories, sports and service centers) has a beneficial influence on students' satisfaction and productivity (Malik et al., 2010; Nadiri et al., 2009). Overall students' satisfaction is strongly affected by excellence in teaching techniques, teaching quality, and the honest and unbiased treatment of non-academic staffs, according to Elliott & Shin (2002). As a result, a satisfactory, fair wage and bonus structure encourage administrative staffs to offer the best possible service to students, thus, enhancing student outcomes. According to Hauptman (2004), the expenditure on teaching staff, as well as education facilities and equipment, has an impact on the quality of student outcomes.

The Effect of Professional Expenditures on Student Outcomes

Purchasing textbooks, papers, office supplies, materials for experiments, organizing curriculum, coordinating exams, and other professional expenditures vary based on the demands of the universities. This expenditure is to cover the costs of instructional materials, which will assist lecturers in successfully imparting information.

Professional expenditure, according to some certain studies, has a direct influence on the quality of higher education as well as student outcomes (Hauptman, 2004; Gamage et al., 2008). According to Hauptman (2004), the quality of student outcomes is impacted not only by the total expenditure on faculty members but also by the investment made on teaching equipment during the training process at university. According to Heynerman (2001), university must boost investment in innovative instructional technologies and electronic information sources in order to improve their competitive advantage. In addition to the equipment factor, according to Mohamed et al. (2018), factors such as learning strategies, family-related characteristics and study habits have a positive impact with students' academic success and academic performance. Furthermore, the adequacy and quality of teaching materials has an impact on the output quality of university students. These materials contains textbooks, outlines, lectures, electronic lectures, and other learning materials, resources, and tools, as well as study and research materials such as dissertations, theses, books, scientific journals, and scientific conference proceedings. Learning resources offered by library and information centers will assist lecturers and students in having an extensive supply of learning materials for teaching, learning, and scientific research. As a result, library and information centers play a critical role in addressing the specific information and document

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

request of lectures and students, especially in light of the present demand for innovation in higher education institutions. Aside from conventional learning resources like books, textbooks, and papers in libraries, some universities use electronic learning tools in teaching practice and student learning. E-books, educational software, and databases are examples of electronic learning resources. This makes it simple for students to locate vast quantities of materials for their study and scientific research.

Equipment Procurement Expenditure and Upkeep Costs Have an Impact on Student Outcomes

Expenses for procurement and repair include expenses for equipment, repair and upgrading of schools, dormitory rooms, lecture halls, classrooms, tables and chairs, classroom equipment and materials to ensure safety facilities for teaching and learning. These essential components of any university, a factor that has a direct impact on the quality of higher education institutions and student outcomes, contributing to the improvement of higher education quality nationally and internationally (Gamage et al., 2008). Facilities for university training are diverse and each university, each training discipline has its own requirements. Facility factors are so diverse that universities need to pay attention to factors such as the school's premises, area per student, the system of laboratories, libraries, and classrooms. To achieve the most effective results, it is vital to establish the required conditions for lecturer education and student learning.

Mohamed et al. (2018) demonstrated that investing in facilities and equipment improves student outcomes. Weerasinghe & Fernando (2018) agreed with this conclusion, suggesting that factors such as classroom quality, library facilities, computer laboratories, social areas, dormitory amenities, and student cafeterias are main criteria in evaluating higher education quality and student satisfaction at universities in Sri Lankan. This association is all reaffirmed by (Carey et al., 2002; Karna & Julin, 2015; Hanssen & Solvoll, 2015).

MODEL SPECIFICATION AND DATA ANALYSIS METHODOLOGY

In this study, quantile regression method recommended by Koenker & Bassett (1978) was applied to assess the influence of financial expenditure and expenditure structure on the outcomes of university students. Using the quantile regression technique offers a couple of outstanding advantages over the regression analysis using the least squares method as follows:

Firstly, the use of quantile regression method allows to model in detail the relationship between a target (dependent variable) – the outcome of university students and a set of predictors (independent) variables related to the financial expenditure of the university on each of its specific percentile (quantile).

Secondly, in OLS regression, extreme values (outliers) are mostly removed from the sample to guarantee that the obtained OLS estimates are unbiased ones. Meanwhile, the quantile regression ensures the stability (robustness), unaffected by the presence of such outliers.

Thirdly, the regression parameter tests of the quantile regression method are performed without relying on normality or any assumptions about the probability distribution of random errors in the model.

Finally, the quantile regression technique is considered especially suitable when analyzing on a regression with the presence of heteroskedasticity or in case where the probability distribution of dependent variable in data sample is asymmetrical around the mean. Then, the results of quantile regression differ significantly on different percentiles,

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

indicating the different effects of the independent variable on dependent variable over percentiles.

The model to evaluate the impact of spending on training outcomes at public university is designed as follows:

$$Y_{it} = \beta_1 + \beta_2 * TE_{it-1} + \beta_3 * X_{it} + v_{it} \quad (1)$$

In which:

The subscript i reflects the i^{th} observation (university); t reflects the time; β_1, β_2, β_3 are regression coefficients and v_{it} represents the error terms.

Y_{it}: Dependent variable – Student's training outcomes, measured in turn by variables as presented in the theoretical model above, specifically including: Employment rate of graduates; Monthly income of graduates; Satisfaction level of the recruitment agency.

TE_{it}: The main explanatory variable, reflecting expenditure and expenditure structure. This variable is measured in turn by some variables in the theoretical model such as: Wage Expenditure; The proportion of wage expenditure; Professional expenditure; The proportion of professional expenditure; Equipment procurement expenditure and the proportion of equipment procurement expenditure.

X_{it}: control variables in regression model, often include factors such as the training scale (number of students), campus size and quality of faculty (measured by the ratio of lecturers/administrative staffs with doctoral degrees to total number of lecturers and staffs).

RESULTS OF ASSESSING THE IMPACT OF TOTAL EXPENDITURE AND EXPENDITURE STRUCTURE ON TRAINING OUTCOMES AT PUBLIC UNIVERSITIES IN VIETNAM

Descriptive Statistics of Research Data Sample

Table 1 below presents the mean value of the variables in the research model over the period 2013-2017.

Table 1
DESCRIPTIVE STATISTICS ABOUT THE MEAN OF VARIABLES

Variable	2013	2014	2015	2016	2017
Student's monthly income after graduation (million VND)	5.17	5.43	6.09	6.56	6.63
Student employment rate after graduation (%)	67.18	66.76	61.78	64.22	71.43
Satisfaction level of recruiment agency (%)	41.23	41.04	43.88	47.01	50.08
Wage Expenditure (million VND)	21,684.7	81363.02	80314.71	82852.59	74683.23
Professional Expenditure (million VND)	36,618.78	83557.72	85609.92	82615.78	72898.77
Equipment Procurement Expenditure (million VND)	4,032.44	7,783.64	9,279.37	7,238.73	10,450.12
Wage Expenditure / Total expenditure	0.44	0.40	0.41	0.44	0.35
Professional Expenditure / Total expenditure	0.50	0.47	0.46	0.45	0.36
Equipment Procurement Expenditure / Total expenditure	0.06	0.05	0.06	0.05	0.17

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

Number of PhDs / Number of lecturers and staffs	0.14	0.15	0.16	0.17	0.19
Training Scale (Total number of bachelor's student, master's student and PhD student)	16,570.88	15,753.76	18,992.34	12,907.74	12,927.00
Campus size (m^2)	238,250.14	200,597.17	257,542.45	178,531.02	220,050.2
Number of observations (Universities)	34	38	47	53	43

The descriptive statistics show that group of variables reflecting training outcomes such as student's monthly income after graduation, the employment rate, and the satisfaction level of recruiment businesses tended to increase gradually over the period of five years. In particular, the average monthly income of student rose from 5.17 million VND in 2013 to 6.63 million VND in 2017; the rate of graduates who getting jobs within 6 months since graduation accounted for 71.43% (2017) while this rate in 2016 was 67.18%; the level of business satisfaction for students then witnessed an increase to reach a peak of more than 50% in 2017. Calculation results on the proportion of expenditure targets of public universities in the study show that expenditure on wage and professional activities accounted for the majority, nearly 90% of their total financial expenditure.

Correlation Analysis

Table 2 demonstrates the existence of a linear correlation relationship among the independent variables in the model (including the variable reflecting the expenditure level and the control variables), since all P-values are less than 10%. However, the degree of this relatedness among independent variables is loose, due to the low correlation coefficients (all less than 0.7).

Table 2
THE PAIRWISE CORRELATION MATRIX AMONG INDEPENDENT VARIABLES (VARIABLES REFLECTING EXPENDITURE AND CONTROL VARIABLES)

	Wage Expenditure	Professional Expenditure	Equipment Procurement Expenditure	Number of students (Training Scale)	Campus Size	Number of PhD lecturers/ Number of lecturers
Wage Expenditure	1.0000					
Professional Expenditure	0.370*	1.0000				
Equipment Procurement Expenditure	0.5880*	0.5573*	1.0000			
Training Scale	0.6021*	0.5994*	0.3800*	1.0000		
Campus Size	0.4596*	0.5042*	0.3263*	0.4979*	1.000	
Number of PhDs / Number of lecturers and staffs	0.1241*	0.1690*	0.4233*	0.1145*	-0.1767*	1.0000

Table 3, similarly, presents the linear correlation relationship between independent variables in the model, including variables reflecting expenditure ratio and control variables). The conclusion about the correlation relationship among variables is also similar to the outcome above, since all correlation coefficients are less than 0.6.

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

Table 3
THE PAIRWISE CORRELATION MATRIX AMONG INDEPENDENT VARIABLES (VARIABLES REFLECTING EXPENDITURE RATIO AND CONTROL VARIABLES)

	Wage Expenditure / Total expenditure	Professional Expenditure / Total expenditure	Equipment Procurement Expenditure / Total expenditure	Number of students (Training Scale)	Campus Size	Number of PhD lecturers / Number of lecturers
Wage Expenditure / Total expenditure	1.0000					
Professional Expenditure / Total expenditure	0.1347*	1.0000				
Equipment Procurement Expenditure / Total expenditure	-0.4163*	-0.5946*	1.0000			
Training Scale	0.1963*	0.1298*	-0.1515*	1.0000		
Campus Size	0.0445	-0.0912	0.0236	0.4979*	1.000	
Number of PhDs / Number of lecturers and staffs	-0.0792	0.3145*	-0.1022	0.1145*	-0.1767*	1.0000

(Source: Compiled by authors)

Analyzing the Impact of Total Expenditure and Expenditure Structure on Training Outcomes at Public Universities In Vietnam

In this section, the analysis results of the impact of total expenditure and expenditure structure on training outcomes at public universities in Vietnam are presented. In which, training outcomes of students are calculated through the following indicators: student's monthly income after graduation, student employment rate after graduation and satisfaction level of recruiment agencies.

Impact of Total Expenditure and Expenditure Structure on Student's Monthly Income After Graduating from Public Universities in Vietnam

Table 5 presents the analysis results of the impact of total expenditure on the monthly income of graduates. The quantile regression analysis outcomes of total expenditure variable show that, this impact is statistically significant at level 10% at the 10^{th} and 90^{th} percentiles, the remainings do not have statistical significance. Meanwhile, there is a negative or not statistically significant relationship between total expenditure and student's monthly income at the low percentiles (from the 10^{th} to the 50^{th} percentile), although this relationship observed to be positive at the higher percentiles (at the 70th and 90th percentiles). These results imply that at different points, the average approach has obscured the role of total expenditure on monthly income of graduates. The findings here suggest that total expenditure is actually more beneficial to well-qualified students. In addition, to produce a statistically significant change in the monthly income of graduates, the total expenditure of universities needs to reach a sufficient large amount.

For control variables, the quantile regression analysis outcomes show that the impact of training scale (number of students) on monthly income of graduates is only statistically significant at the low percentiles (the 25^{th} percentile), while the faculty quality shows the impact on graduates income at all percentiles. On the other hand, the "*campus size*" variable

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

creates negative and statisticall significant impact at the low percentile (the 25th percentile), but is positive and statistically significant at high level of percentile (the 75th percentile).

Table 5
THE EFFECT OF TOTAL EXPENDITURE ON MONTHLY INCOME OF GRADUATES

Explanatory Variable	lnthunhap	Panel quantile regression with grouped fixed effect				
	FE	q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
Total Expenditure	0.0042	-0.0070*	-0.0017	0.0044	0.0093+	0.0123*
	(0.013)	(0.003)	(0.003)	(0.003)	(0.005)	(0.006)
Training Scale	0.0132	0.0199	0.0190*	0.0050	0.0059	0.0065
	(0.050)	(0.017)	(0.009)	(0.008)	(0.011)	(0.020)
Campus Size	-0.0112	-0.0076	-0.0165*	-0.0085+	0.0059*	0.0134
	(0.035)	(0.014)	(0.007)	(0.005)	(0.009)	(0.013)
Number of PhDs / Number of lecturers and staffs	0.8108	0.7796**	0.8192**	0.8314**	0.8005**	0.8497**
	(0.603)	(0.134)	(0.079)	(0.057)	(0.077)	(0.217)
Constant	1.4664*	1.3227**	1.4048**	1.5482**	1.6636**	1.5582**
	(0.618)	(0.108)	(0.115)	(0.106)	(0.110)	(0.129)
No. of observations	180	180	180	180	180	180
R-squared	0.484					

Note: Standard error in brackets is Bootstrap with 200 replicates; *:statistically significant at the 10% level; **: statistically significant at the 5% level; ***: statistically significant at the 1% level.
The models also control for the time dummy variable.

Table 6 below gives information on the analysis results of the impact of different expenditure categories on monthy income of graduates. It could be concluded that different categories of university expenditure play different roles in influencing the monthly income of graduates through the results of quantile regression analysis. Specifically, professional expenditure shows a positive effect on the monthly income of graduates at both the 5% and 10% statistical significance levels at the 25th and 50th percentiles. In the remaining percentiles, the impact of this expenditure item was found to be not statistically significant. Meanwhile the spending on wage and on equipment purchases have negative impact on the monthly income of graduates at the 25th and the 75th percentiles, respectively.

Table 6
THE EFFECT OF EXPENDITURE CATEGORY ON MONTHLY INCOME OF GRADUATES

Explanatory Variable	lnthunhap	Panel quantile regression with grouped fixed effect				
	FE	q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
Wage Expenditure	-0.0001	-0.0005+	-0.0005**	-0.0001	-0.0000	-0.0000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Professional Expenditure	0.0003	0.0004+	0.0005**	0.0004*	0.0004	0.0004
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Equipment Procurement Expenditure	-0.0016	0.0001	0.0001	-0.0018+	-0.0027*	-0.0025
	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)	(0.003)
Training Scale	0.0303	0.0428*	0.0399**	0.0251*	0.0241+	0.0299
	(0.047)	(0.017)	(0.011)	(0.011)	(0.013)	(0.026)
Campus Size	-0.0121	-0.0043	-0.0209**	-0.0134+	-0.0105	-0.0269+
	(0.035)	(0.014)	(0.007)	(0.007)	(0.010)	(0.014)
Number of PhDs / Number of lecturers and staffs	0.7511	0.6761**	0.6718**	0.7281**	0.7732**	0.7111**
	(0.583)	(0.200)	(0.082)	(0.078)	(0.082)	(0.209)
Constant	1.3279*	0.9616**	1.2528**	1.4515**	1.4242**	1.6435**
	(0.606)	(0.185)	(0.109)	(0.122)	(0.167)	(0.286)

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

No. of observations	182	182	182	182	182	182
R-squared	0.513					

Note: Standard error in brackets is Bootstrap with 200 replicates; *:statistically significant at the 10% level; **: statistically significant at the 5% level; ***: statistically significant at the 1% level.
The models also control for the time dummy variable.

(Source: Compiled by authors)

The analysis results on how the spending structure of public universities affects the income level of students after graduation are presented in Table 7 below. From this result, it could be concluded that the ratio of wage expenditure to total expenditure has a negative impact on the income level of graduates at the 5% and 10% statistical significance levels at the low percentile while on the contrary has a positive effect but not statistically significant at the high percentile level. Meanwhile, the ratio of professional expenditure to total expenditure has a positive impact on the income of graduates at all percentiles at the 5% and 10% statistical significance levels; The effect of the ratio of equipment procurement expenditure to total expenditure on the income level of graduates is not statistically significant.

Table 7
IMPACT OF EXPENDITURE STRUCTURE ON THE MONTHLY INCOME OF GRADUATES

Explanatory Variable	**lnthunhap**	**Panel quantile regression with grouped fixed effect**				
	FE	**q10**	**q25**	**q50**	**q75**	**q90**
	(1)	(2)	(3)	(4)	(5)	(6)
Wage Expenditure / Total Expenditure	-0.1178	-0.2267**	-0.1479**	-0.1322*	-0.1087	0.0216
	(0.102)	(0.067)	(0.046)	(0.054)	(0.071)	(0.097)
Professional Expenditure / Total Expenditure	0.1806+	0.1588**	0.1568**	0.1916**	0.1677*	0.2503**
	(0.100)	(0.060)	(0.049)	(0.055)	(0.064)	(0.086)
Equipment Procurement Expenditure / Total Expenditure	-0.0144	-0.0244	-0.0259	0.0092	-0.0327	0.0303
	(0.098)	(0.028)	(0.030)	(0.044)	(0.054)	(0.074)
Training Scale	0.0156	0.0192	0.0230*	0.0170+	0.0148	0.0093
	(0.049)	(0.013)	(0.009)	(0.009)	(0.012)	(0.019)
Campus Size	-0.0194	-0.0188	-0.0320**	-0.0230**	-0.0217*	-0.0176
	(0.034)	(0.013)	(0.008)	(0.006)	(0.009)	(0.013)
Number of PhD lecturers/ Total lecturers	0.7822	0.7216**	0.7467**	0.7349**	0.8113**	0.7668**
	(0.593)	(0.147)	(0.079)	(0.069)	(0.086)	(0.150)
Constant	1.5566*	1.4161**	1.5644**	1.5996**	1.7023**	1.6130**
	(0.620)	(0.152)	(0.109)	(0.108)	(0.138)	(0.182)
No. of observations	179	179	179	179	179	179
R-squared	0.512					

Note: Standard error in brackets is Bootstrap with 200 replicates; *:statistically significant at the 10% level; **: statistically significant at the 5% level; ***: statistically significant at the 1% level.
The models also control for the time dummy variable.

(Source: Compiled by authors)

The regression model reflecting the impact of total expenditure and expenditure structure on the monthly income of graduates with fixed effect estimation (FE) method is shown as follows:

Total Expenditure Model

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

Monthly income of graduates = 1.832 – 0.064* (Wage Expenditure) + 0.048* (Professional Expenditure) + 0.003*(Equipment Procurement Expenditure) + 0.726*(Number of PhDs/Number of lecturers and staffs) + 0.015*(Training Scale) – 0.012*(Campus Size)

Expenditure Structure Model

Monthly income of graduates = 1.733 – 0.092*(Wage Expenditure /Total Expenditure) +0.163* (Professional Expenditure / Total Expenditure) + 0.012*(Equipment Procurement Expenditure / Total Expenditure) + 0.71*(Number of PhDs/Number of lecturers and staffs) + 0.011*(Training Scale) – 0.015*(Campus Size)

Analyzing the Impact of Total Expenditure and Expenditure Structure on the Employment Rate of Students After Graduation at Public Universities in Vietnam

Table 8 presents the analysis results of the effect of total expenditure on the ability of students to find a job after graduation by using the panel quantile regression method. Research results show a positive relationship between total expenditure and student employment rate at the 5% level of statistical significance at the middle and high percentiles. The control variables of training scale, quality of lecturers is also found to have a positive impact on the employment rate of students. Meanwhile, campus size creates the negative effect and this variable is statistically significant at all percentiles.

Table 8
IMPACT OF TOTAL EXPENDITURE ON EMPLOYMENT RATE OF STUDENTS

Explanatory Variable	vl12t	Panel quantile regression with grouped fixed effect				
	FE	q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
Total Expenditure	0.8455	0.5731	0.6566*	0.7970**	0.8097**	1.2761**
	(1.560)	(0.480)	(0.297)	(0.258)	(0.292)	(0.483)
Training Scale	3.5056	5.0885**	3.6620**	3.0031**	3.2639**	2.9016*
	(5.529)	(1.556)	(0.558)	(0.474)	(0.603)	(1.143)
Campus Size	-4.5615	-5.4489**	3.6620**	-4.2241**	-4.1718**	-4.3455**
	(3.583)	(0.841)	(0.461)	(0.387)	(0.554)	(1.237)
Number of PhD lecturers/Number of lecturers	57.1187	36.0763**	53.2055**	58.6324**	59.2422**	56.3433**
	(87.627)	(9.998)	(4.724)	(4.291)	(4.740)	(10.512)
Constant	87.4307	42.9864*	88.2615**	91.6115**	90.6483**	105.5735**
	(67.278)	(20.938)	(17.419)	(6.062)	(10.151)	(16.795)
No. of observations	196	196	196	196	196	196
R-squared	0.126					

Note: Standard error in brackets is Bootstrap with 200 replicates; *:statistically significant at the 10% level; **: statistically significant at the 5% level; ***: statistically significant at the 1% level.
The models also control for the time dummy variable.

The analysis results of the impact of expenditure items on the monthly income level of students after graduation are presented in Table 9. Professional expenditure plays an important role in explaining the employment rate of students with 95% confidence. Meanwhile, other categories of spending such as spending on equipment purchases, spending on research activities are found to be not statistically significant.

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

Table 9
INFLUENCE OF EXPENDITURE CATEGORIES ON EMPLOYMENT RATE OF STUDENTS

Explanatory Variable	vl12t	Panel quantile regression with grouped fixed effect				
	FE	q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
Wage Expenditure	-0.0131	-0.0023	-0.0033	-0.0034	-0.0134	-0.0399
	(0.029)	(0.028)	(0.014)	(0.012)	(0.017)	(0.040)
Professional Expenditure	0.0821*	0.0472	0.0591**	0.0670**	0.0760**	0.1424**
	(0.032)	(0.030)	(0.014)	(0.015)	(0.025)	(0.041)
Equipment Procurement Expenditure	0.0612	0.0393	-0.0182	0.0343	0.1455	-0.0036
	(0.290)	(0.181)	(0.130)	(0.101)	(0.103)	(0.190)
Training Scale	4.5758	5.4903**	5.0477**	4.4560**	4.7631**	3.2732*
	(5.248)	(1.833)	(0.983)	(0.673)	(0.667)	(1.550)
Campus Size	-5.1642	-5.9034**	-5.2761**	-4.7270**	-4.7462**	-3.3449**
	(3.518)	(0.677)	(0.420)	(0.316)	(0.366)	(0.950)
Number of PhD lecturers/ Number of lecturers	53.9971	43.4578**	55.1791**	54.7324**	53.7527**	63.7391**
	(82.693)	(11.976)	(8.260)	(4.694)	(5.464)	(12.017)
Constant	93.7092	93.4414**	89.1924**	90.6516**	91.6238**	90.6069**
	(64.337)	(21.616)	(10.119)	(5.933)	(7.062)	(15.499)
No. of observations	196	196	196	196	196	196
R-squared	0.146					

Note: Standard error in brackets is Bootstrap with 200 replicates; *: statistically significant at the 10% level; **: statistically significant at the 5% level; ***: statistically significant at the 1% level.
The models also control for the time dummy variable.

The following Table 10 shows how the expenditure structure of public universities affects the monthly income of graduates. According to the results of the quantile regression analysis, the wage expenditure/total expenditure ratio has a negative impact on the income level of graduates but is not statistically significant at all percentiles. Meanwhile, the ratio of professional expenditure to total expenditure has a positive impact on the income of graduates at the high percentiles at the 5% and 10% statistical significance levels; The effect of the ratio of equipment procurement expenditure/total expenditure on the income level of graduates, on the contrary, is not statistically significant.

Table 10
IMPACT OF EXPENDITURE STRUCTURE ON MONTHLY INCOME OF GRADUATES

Explanatory Variable	vl12t	q10	q25	q50	q75	q90
		Panel quantile regression with grouped fixed effect				
	FE	q10	q25	q50	q75	q90
	(1)	(2)	(3)	(4)	(5)	(6)
Wage Expenditure/ Total Expenditure	-5.7945	-4.0184	-6.6577	-5.3078	-1.3414	-1.0242
	(10.987)	(11.192)	(5.453)	(3.256)	(4.234)	(11.047)
Professional Expenditure / Total Expenditure	16.4026	11.4651	10.5297+	9.3281**	13.8606**	36.2755**
	(10.641)	(11.642)	(5.388)	(2.677)	(4.511)	(13.191)
Equipment Procurement Expenditure/ Total Expenditure	0.5322	1.1303	-1.9304	-3.1314	0.2358	7.5904
	(11.033)	(9.797)	(4.575)	(2.590)	(2.769)	(8.397)

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

Training Scale	3.6358	4.8701**	4.1049**	3.1519**	3.1842**	2.9409*
	(5.628)	(1.252)	(0.786)	(0.495)	(0.537)	(1.149)
Campus Size	-5.2494	-6.0988**	-5.6776**	-5.0908**	-4.6554**	-3.0430**
	(3.628)	(0.821)	(0.485)	(0.432)	(0.433)	(1.080)
Number of PhD lecturers/ Number of lecturers	44.4622	32.4839**	38.2677**	49.6865**	45.9254**	42.8021**
	(89.382)	(11.634)	(6.869)	(4.069)	(5.221)	(11.936)
Constant	101.1543	61.8148**	101.5167**	108.2569**	103.1460**	89.2058**
	(69.019)	(19.926)	(13.836)	(9.903)	(10.243)	(19.405)
No. of observations	193	193	193	193	193	193
R-squared	0.118					

Note: Standard error in brackets is Bootstrap with 200 replicates; *:statistically significant at the 10% level; **: statistically significant at the 5% level; ***: statistically significant at the 1% level.
The models also control for the time dummy variable.

Studying the Influence of Total Expenditure and Expenditure Structure of Public Universities in Vietnam on the Satisfaction Level of Recruiment Agencies

The effect of total expenditure on the satisfaction of recruitment businesses is analyzed using the panel quantile regression method. The analysis results are presented in Table 11. According to this result, total financial expenditure has a negative effect on recruiment business's satisfaction at the 5% and 10% statistical significance levels at the 25th and 50th percentiles; meanwhile, the positive effect is found at the 75th and 90th percentiles, however, this effect is not statistically significant. The analysis results also show that the variables of area and quality of faculty have positive and negative effects on business satisfaction, respectively. The effect of training scale on business satisfaction is only statistically significant at the 50th percentile.

Table 11
THE INFLUENCE OF TOTAL EXPENDITURE ON THE SATISFACTION LEVEL OF RECRUIMENT BUSINESSES

Explanatory Variable	**tlhailong**	**Panel quantile regression with grouped fixed effect**				
	FE	**q10**	**q25**	**q50**	**q75**	**q90**
lntongchi	-0.9544	-3.7228+	-1.2640*	-0.7527**	0.2391	2.3921+
	(3.389)	(1.955)	(0.556)	(0.238)	(0.665)	(1.427)
lnquymo	2.1118	10.2278	1.4788	1.7214*	-2.1452	-1.8639
	(11.541)	(7.018)	(2.533)	(0.695)	(3.073)	(3.336)
lndientich	-6.2684	-7.7755+	-6.2769**	-6.1468**	-4.2808*	-6.5320*
	(8.131)	(4.234)	(1.297)	(0.632)	(2.150)	(3.083)
Number of PhDs / Number of lecturers and staffs	194.7509	111.3441*	196.6785**	198.8413**	209.4902**	238.1010**
	(184.186)	(53.722)	(39.497)	(7.071)	(27.156)	(32.928)
Constant	90.8965	40.8468	82.8336**	98.4130**	108.6195**	123.3213**
	(145.622)	(50.120)	(26.464)	(12.054)	(19.902)	(31.401)
No. of observations	172	172	172	172	172	172
R-squared	0.153					

Note: Standard error in brackets is Bootstrap with 200 replicates; *:statistically significant at the 10% level; **: statistically significant at the 5% level; ***: statistically significant at the 1% level.
The models also control for the time dummy variable.

Table 12 summarizes the analysis results of the impact of different spending items on the satisfaction of recruitment businesses by the method of panel quantile regression.

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

Spending on professional activities and spending on purchasing equipment are concluded to have a positive impact on business satisfaction with statistical significance at 5% in most percentiles. Meanwhile, wage expenditure has a negative impact on business satisfaction at all percentiles, but this effect is not statistically significant.

Table 12
IMPACT OF DIFFERENT EXPENDITURE CATEGORIES ON SATISFACTION LEVEL OF RECRUIMENT BUSINESSES

Explanatory Variable	tlhailong	Panel quantile regression with grouped fixed effect				
	FE	q10	q25	q50	q75	q90
Wage Expenditure	-0.0167	-0.0285	-0.0182	-0.0109	-0.0191	-0.0332
	(0.021)	(0.021)	(0.015)	(0.011)	(0.016)	(0.030)
Professional Expenditure	0.0677*	0.0803**	0.0606**	0.0626**	0.0724**	0.0756+
	(0.029)	(0.029)	(0.015)	(0.013)	(0.018)	(0.041)
Equipment Procurement Expenditure	0.3755	0.3886*	0.4061**	0.3785**	0.3977**	0.5645**
	(0.287)	(0.151)	(0.132)	(0.126)	(0.122)	(0.180)
lnquymo	3.8770	5.0371**	3.6637**	3.6099**	3.6499**	4.1013**
	(3.247)	(1.347)	(0.966)	(0.585)	(0.809)	(1.405)
lndientich	0.3279	-0.9570	0.7359	0.3322	0.3131	0.4441
	(2.590)	(0.913)	(0.575)	(0.371)	(0.533)	(0.891)
Number of PhDs / Number of lecturers and staffs	33.0711	28.5832*	30.9573**	36.0564**	41.9457**	22.3928
	(54.439)	(11.993)	(9.704)	(6.698)	(9.303)	(16.790)
Constant	31.8628	32.4159**	25.0606**	34.6498**	36.4475**	34.7811*
	(43.021)	(11.787)	(7.177)	(5.995)	(8.964)	(14.295)
No. of observations	148	148	148	148	148	148
R-squared	0.201					

Note: Standard error in brackets is Bootstrap with 200 replicates; *:statistically significant at the 10% level; **: statistically significant at the 5% level; ***: statistically significant at the 1% level.
The models also control for the time dummy variable.

The analysis results of the impact of the financial expenditure structure of public universities on the satisfaction of businesses are presented in Table 13. The analysis results show that the impact of financial spending structure (including: wage expenditure/total expenditure, professional expenditure/total expenditure, equipment procurement expenditure/total expenditure) on recruiters satisfaction is not statistically significant. Meanwhile, the variable campus size has a positive impact at the 25^{th} and 50^{th} percentiles; The variable of faculty quality (ratio of number of PhDs /number of lecturers and staffs) has a positive impact at statistical significance level of 5% at most percentiles.

Table 13
IMPACT OF EXPENDITURE STRUCTURE ON THE SATISFACTION LEVEL OF RECRUITERS

Explanatory Variable	(1)	(2)	(3)	(4)	(5)	(6)
	tlhailong	q10	q25	q50	q75	q90
Wage Expenditure / Total Expenditure	4.1097	29.5852	10.2747	0.9164	-6.6492	7.9563
	(25.565)	(50.512)	(13.793)	(3.845)	(14.966)	(58.689)
Professional Expenditure / Total Expenditure	-3.2316	-50.0800	-6.0374	-5.5528	18.4708	23.3979
	(24.261)	(54.072)	(14.123)	(6.623)	(13.482)	(57.780)
Equipment	7.1270	16.0336	10.6121	3.3097	4.7374	5.9739

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

Procurement Expenditure / Total Expenditure	(27.087)	(44.544)	(10.204)	(3.221)	(11.616)	(55.090)
Training Scale	2.1404	7.7798	1.0139	2.2868+	-1.7717	0.7013
	(11.775)	(6.073)	(2.389)	(1.201)	(2.458)	(3.760)
lndientich	-6.2310	-6.1166	-5.5961**	-6.3041**	-4.0548+	-6.9834+
	(8.227)	(4.429)	(1.551)	(0.754)	(2.112)	(3.547)
Number of PhDs / Number of lecturers and staffs	202.2234	174.5300**	195.7200**	205.2656**	215.7863**	240.0106**
	(187.627)	(56.842)	(38.337)	(12.344)	(31.915)	(40.149)
Constant	78.6211	18.1985	63.6059*	87.5728**	99.1440**	118.1714+
	(150.025)	(64.936)	(27.301)	(17.462)	(22.181)	(62.782)
No. of observations	172	172	172	172	172	172
R-squared	0.153					
Note: Standard error in brackets is Bootstrap with 200 replicates; *:statistically significant at the 10% level; **: statistically significant at the 5% level; ***: statistically significant at the 1% level. The models also control for the time dummy variable.						

CONCLUSION, DISCUSSION AND SOME POLICY IMPLICATIONS

Using percentile regression analysis method to examine the impact of total expenditures and expenditure structure on income, student employment, and satisfaction of enterprise, the following primary findings were obtained:

First, consider the influence of total expenditure and expenditure structure on graduation income.

1. Total expenditure has a negative effect on student income at the low percentiles (10th and 25th percentiles) but a positive effect at the high percentiles (70th and 90th percentile). At the 10th and 90th percentiles, this effect is statistically significant, but not at the other percentiles. These findings indicate that the level of expenditure must be high enough for the change in the student's income to be statistically significant.
2. The expenditure on professional services has a positive effect on graduate income at the 5% and 10% significance levels at the 25th and 50th percentiles, but not at the other percentiles. Meanwhile, wage and equipment expenditures have a negative impact on the income level of graduates in the 25th and 75th percentiles, respectively. This is consistent with the vast of previous studies in developing countries (Hanushek, 2013). In general, university expenditure significantly contributes to improving the teaching and learning environment through major channels such as: encouraging lecturers through remuneration; improving professional programs such as coaching for lecturers, strengthening affiliate programs; and improving research and teaching equipment (projectors, internet systems). This is especially useful in developing countries when most teaching and learning facilities are inadequate. In other words, the marginal benefit per unit of investment is high while the marginal cost is low. This also implies that greater university expenditure will continue to provide benefits and improve output efficiency in the future; the question is how to attract and mobilize investment capital. Wage increment, on the other hand, appear to have a negative impact on student income. This may represent insufficiency in increasing the wage regime at public sector institutions based on the scale, which has not caught up with reality and the rise is still a formality. As a result, the student's income also suffers.
3. The wage expenditure to total expenditure ratio has a negative effect on graduate's income at the 5% and 10% significance levels at the lower percentile, and a positive but non-statistically significant effect in the high percentile. Meanwhile, at the 5% and 10% significance levels, the ratio of professional expenditures to total expenditure has a positive impact on graduate's income at all percentiles; the effect of the ratio of expenditure on equipment purchase to total expenditure on graduate income is not statistically significant. The findings show that increasing the proportion of expenditure on professional activities in total expenditure, such as paying for training and improving the qualifications of teaching staff, strengthening the affiliate program, etc., as well as improving research and teaching equipment, plays an important role. As a result of these types of expenditures,

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

students can gain access to up-to-date information, improve their qualifications, and track the market better, thereby, increase their income.

Second, consider the influence of total expenditure and expenditure structure on graduation employment.

1. With statistical significance level of 5% at the middle and high percentiles, total expenditure has a positive impact on student employment.
2. At the 5% significance level, expenditure on professional skills has a significant impact on student employment. In which, the majority of activities linked to quality improvement, education, teaching, connection, and learning of lecturers and students are included in the expenditures for professional services, such as: enhance lecturer training through programs aimed at improving pedagogical and professional qualifications; promote the connection of international curriculum and academic exchanges; enhancing activities that improve learning and teaching materials (for example, building a research material base through an online library...); enhancing quality control and adjustment actions in the classroom... As a result, these activities have a direct impact on the outcomes of students.

Other types of expenditure, such as equipment expenditures and research activities expenditure, have no statistically significant impact on student outcomes. Existing empirical studies in developing countries also have ample evidence of expenditure effects in this direction. Theoretically, the marginal cost is greater than or equal to the marginal benefit (output). In particularly, expenditure on research staff is the sum of expenditures on professional and administrative staff. Some theories suggest that increasing wage for specialists will encourage faculty to engage in teaching and research activities, thus improving student outcomes. However, in Vietnam, the actual wage of lecturers, doctoral level, is very low (around 8-15 million VND) compared to the international level of about 3000-4000 USD, so the increase in wage for lecturers still has many formalities and is insufficient to encourage lecturers to focus on research and teaching activities.

Expertise is essential in research expenditure, because research activities have a positive externality effect, it is frequently evaluated not just in terms of the direct benefit to the beneficiaries (students), but also in terms of the influence on the whole society. For example, researching for solutions to adapt to global climate change or deploying alternative energy sources to help the environment, etc. As a result, investing in research activities will continue to be one of the most crucial tasks, with financial resources primarily coming from the national budget. Equipment expenditures have an indirect effect on student outcomes. This is dependent on the circumstances at each university. In terms of statistics, however, investing in equipment is not the best way to boost student outcomes.

Although the wage to total expenditure ratio has a negative impact on graduates' income, it is statistically insignificant at all percentiles. Meanwhile, at the 5 percent and 10% significance levels, the ratio of professional expenditure to total expenditure has a positive impact on graduate income at the high percentiles; the effect of the ratio of equipment expenditure to total expenditure on graduates' income is not statistically significant.

The source of expenditure that can affect student outcomes is another topic that researchers are interested in. Decentralization is a term used by researchers all around the world to describe this issue. Controlling government expenditure is also a great way to save money. However, research on higher education autonomy is needed because revenue expenditure has a lower coefficient of impact on student outcomes than government investment. Actually, this method began in 2005 with the HERA approach, but its effectiveness has been deemed insufficient. As a result, if university autonomy is strengthened, spending efficiency will improve because universities will be able to make financial decisions that are more in accordance with the development plan and based on the economic balance of costs and benefits.

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

Third, the effect of overall expenditure on enterprises' satisfaction with fresh graduates from the university.

Students, businesses, employers, management, and financial agencies… are all customers of universities. The university's status and reputation will grow day by day as the quality of training improves, graduates find jobs easily, and employers are satisfied with the university's training to meet social demands... In the field of scientific research and technology transfer, the quality of scientific research is improving, and the technologies conveyed by the university have a beneficial impact on the employer, making customers happy with the university's scientific research and technology transfer results. The university's growing reputation in scientific research and technology transfer will attract new customers, allowing it to grow revenue and expand its scientific research and technology transfer activities. The following are the results of analyzing the impact of total expenditure on business satisfaction with new graduates: At statistical significance levels of 5% and 10% at the 25th and 50th percentiles, total financial expenditure has a negative impact on enterprise's satisfaction; At the 75th and 90th percentiles, overall financial expenditure has a positive effect on enterprise's satisfaction, but it is not statistically significant. Professional services and equipment expenditures have a favorable impact on enterprise satisfaction, with statistical significance levels of 5% in the most percentiles. Meanwhile, wage expenditure has a negative impact on enterprise satisfaction at all percentiles and the impact is not statistically significant. It could due to the fact that teaching salaries are currently low and have not caught up with market demand, therefore, teachers are not assured of working with the wage regime according to the standards with current scale.

This study suggests a number of remedies based on the findings to increase revenue, enhance financial expenditure efficiency, and improve student training achievements at public universities in Vietnam. The following are some of the solutions: (1) The government should give public universities more revenue autonomy, particularly in terms of collecting tuition and fees; (2) The government should apply the method of allocating state budget to public universities based on output results; (3) Public universities should expand non-state budget revenue sources; (4) Public universities should innovate the use of financial management tools; (5) Completing the organizational structure and increasing the capacity of the public universities' financial management staff; (6) Paying close attention to investments in lecturers, education and training administrators; (7) Increase the amount of expenditure invested in facilities for the education system.

REFERENCES

Carey, K., Cambiano, R.L., & De Vore, J.B. (2002). Student to faculty satisfaction at a Midwestern university in the United States. In *The 25th HERSDA annual conference*.

Coleman, J.S., Campbell, E.Q., Hobson, C.J., McPartland, J., Mood, A.M., Weinfeld, F.D., & York, R.L. (1966). *Equality of Educational Opportunity*, U.S. Government Printing Office, Washington, D.C.

Crouch, L., & Winkler, D. (2008). Governance, Management and Financing of Education for All: Basic Frameworks and Case Studies. Paris: UNESCO.

Elliott, K., & Shin, D. (2002). Student satisfaction: an alternative approach to assessing this Important Concept. *Journal of Higher Education Policy and Management*, 97-109.

Gamage, D.T. (2008). How did School-Based Management Lead to Distributed Leadership, Partnerships and Improved Student Learning? Chutou Kyouiku Kenkyu Senta Kiyou, *Journal of the Centre for Research in Secondary Schools, 7,* 27-41.

Hauptman, A. (2004). Using institutional incentives to improve student performance. In R. Kazis, J. Vargas, and N. Hoffman (eds), Double the numbers: Increasing postsecondary credentials for underrepresented youth. Cambridge: Harvard Education Press.

Harvey, L., & Green, D. (1993). Defining Quality. *Assessment & Evaluation in Higher Education, 18*(1), 9-34.

Hanushek, E.A. (2013). Economic growth in developing countries: The role of human capital. *Economics of Education Review, 37*, 204–212.

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.

Hanuschek, E.A. (1989). The impact of differential expenditures on school performance. *Educational Researcher, 18*(4), 45-51.

Hanuschek, E.A. (1997). Assessing the effects of school resources on student performance: An update. *Educational Evaluation and Policy Analysis, 19*, 141-164.

Jaison R.A., Richard, D., & Yaqin, S. (2014). Are Recent College Graduates Finding Good Jobs? *Current Issues in Economics and Finance, 20*(1), 1-8.

James, E., Alsalam, N., Conaty, J.C., & To, D. (1989). College quality and future earnings: Where Should You Send Your Child to College? The American Economic Review Vol. 79, No. 2, Papers and Proceedings of the Hundred and First Annual Meeting of the American Economic Association (May, 1989), pp. 247-252 (6 pages) Published By: American Economic Association.

Karna, S., & Julin, P. (2015). A framework for measuring student and staff satisfaction with university campus facilities. *Quality Assurance in Education*, 47-61.

Hanssen, T.E.S., & Solvoll, G. (2015). The importance of university facilities for student satisfaction at a Norwegian University. *Facilities*, 744-759.

Magak, E.O. (2013). Challenges facing head teachers in financial management in public secondary schools: A case of Kisumu East District Kenya. Unpublished MEAP project, University of Nairobi, Kenya.

Mohamed, A.A., Dahie, A.M., Warsame, A.A. (2018). Factors affecting student academic performance: Case study from University of Somalia in Mogadishu-Somalia. *IOSR Journal of Humanities and Social Science, 23*(3), 73-80.

Mankiw, N.G. (2014). Principles of economics. Cengage Learning.

Malik M.E. (2010). The Impact of Service Quality on Students' Satisfaction in Higher Education Institutes of Punjab, University of the Punjab, Pakistan; *Rizwan Qaiser Danish*.

Massen, P. (2000), Models of Financing Higher Education in Europe, Center for Higher Education Policy Studies (CHEPS) University of Twente.

Munge, M.N., Kimani, Elijah, M., Ngugi, D.G (2016). Factors influencing Financial Management in Public Secondary Schools in Nakuru County, Kenya. *International Journal of Economics, 4*(9), 91-114.

Nadiri, H., Kandampully, J., Hussain, K. (2009). Students' perceptions of service quality in higher education. *Total Quality Management, 20*(5), 523-535.

Ogbonnaya, N.O. (2000). Foundation of Education Finance (2nd ed.). Onitsha: Cape Publisher International Ltd.

Paulsen, M.B., Smart, J.C. (2001), The financial of higher education: Theory, Research, Policy & Practice, Agathon Press, New York.

Peerenboom, J. (2012). What matters? exploring links among institutional expenditure patterns, undergraduate graduation rates, and time-to-degree at public, four-year colleges and universities. (Order No. 3539601, The Florida State University). ProQuest Dissertations and Theses, 100. Retrieved July 14, 2013 from: http://search.proquest.com/docview/1095535058?accountid=8421. (1095535058).

Powell, B. (2009). Expenditures, efficiency, and effectiveness in U.S. undergraduate higher education: A national benchmark model. (Order No. 3373417, University of Arkansas at Little Rock). ProQuest Dissertations and Theses, 165. Retrieved July 14, 2013 from: http://search.proquest.com/docview/305149731?accountid=8421. (305149731).

Randy, A.T. (2017). Employers' Satisfaction on the Performance of New College Graduates. *Slongan, 3*, 49-63.

Rossi, M. (2017). Factors Affecting Academic Performance of University Evening Students. *Journal of Education and Human Development, 6*(1), 96-102

Roger, K., & Gilbert, B.Jr. (1978). Regression Quantiles, *Econometrica, 46*(1), 33-50.

Shah, M., & Nair, C.S. (2011). Trends in the quality of the student experience: an international perspective based on studies in three universities. Proceedings of the IETEC 2011 Conference, Kuala Lumpur.

Shehry, A.A., Youssif, S.M.A. (2017). Factors affecting academic performance of undergraduate students at Najran preparatory year for girls- Najran University 2015-2016. *International Journal of Asian Social Science, 7*(1), 1-18.

Tumen, S. (2013). The impact of school resourcing and financial management on educational attainment and achievement. A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Education. The University of Auckland.

Weerasinghe, I.M.S., Lalitha R., Fernando, S. (2018). University facilities and student satisfaction in Sri Lanka. *International Journal of Educational Management, 32*(5), 866-880.

Weber, D., & Ehrenberg, R. (2010). Do expenditures other than instructional expenditures affect graduation and persistence rates in American higher education? *Economics of Education Review, 29*, 947-958.

Citation Information: Lien, V.T., & Hieu, N.V. (2022). Impact of financial expenditure on training outcomes at public universities in vietnam. *Academy of Accounting and Financial Studies Journal, 26*(S1), 1-17.