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Research on Factors Affecting Financial Autonomy of Public Universities in Vietnam

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ABSTRACT

In recent years, public universities have been implementing regulations on financial autonomy according to Decree No. 60/2021/ND-CP "Regulating the financial autonomy mechanism of business units-public". By the end of 2025, higher education units under the Ministry of Education and Training simultaneously implemented a roadmap to increase the level of financial autonomy. Therefore, financial autonomy is an important issue, a measure of the management level of public universities, and improving the quality of university training in Vietnam. This study evaluated the impact of factors on the financial autonomy of public universities. It used the AMOS-SEM estimation method to assess the impact of these factors on the financial autonomy. The number of survey samples were 320 officials and lecturers at 32 public universities. The result showed that state policies and laws, the management capacity of the college, development strategy, teaching staff, facilities, and scientific research activities were factors that had a positive impact on financial autonomy. In contrast, the development of the labor market had no impact on the financial autonomy. The study's findings have implications for policymakers and public universities to have appropriate strategies and plans to implement financial autonomy in the coming time.

1. INTRODUCTION

Public universities in Vietnam today are a type of public higher education institution invested in by the State, ensuring operating conditions represent the owner. Specifically, a higher education institution is an educational institution belonging to the national education system, performing the functions of training at all levels of higher education, training high-quality human resources, scientific research, and serving the community. Public universities operate under the direction of the Ministry of Education and Training.

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Currently, the Ministry of Education and Training has 61 public service units, of which 3 units belong to the Ministry's organizational structure, 47 units belong to the Ministry, 4 units belong to the Ministry's office and 7 units belong to the Departments. In recent years, public universities have been implementing regulations on financial autonomy according to Decree No. 60/2021/ND-CP "Regulating the financial autonomy mechanism of public service unit", which is a step to continue innovation, creating conditions for universities to promote the implementation of financial autonomy. To date, only 11 higher education institutions under the Ministry of Education and Training continue to maintain the form of autonomous universities. According to the plan to arrange public service units under the Ministry of Education and Training, by the end of 2025, there will be 24 higher education institutions that need to implement a roadmap to increase the level of financial autonomy, from a guaranteed level. regular expenses or more. To operate effectively, public universities must accelerate financial autonomy, and the financial autonomy of public universities must be implemented well. However, according to the Association of Vietnam Universities and Colleges in 2023, many universities, including large universities that have piloted autonomy, are not ready to voluntarily switch to an autonomy mechanism; some public universities ineffectively use funding from the state budget. Therefore, granting financial autonomy to public universities will help allocate and use state budget resources for the right purpose, according to regulations, limit and prevent risks of loss, waste. In addition, financially autonomous public universities have a legal basis to mobilize social resources to serve the development of the university; improve training quality; income of ministries, lecturers, etc.

Many factors influence the effectiveness of financial autonomy. These factors have been mentioned by studies, such as Deng & Wang (1992), which identified the management supervision mechanism, organizational structure, and the diversity of financial revenue sources in the revenue structure as factors affecting the effectiveness of financial autonomy. In addition, the influence of the government through policies and legal regulations was also considered a factor affecting financial autonomy (Malaj et al., 2005). Research by Estermann & Bennetot Pruvot (2011) mentioned six factors affecting financial autonomy, including management mechanism, control and budget financing of the government, creative dynamism, organizational structure, legal form, ownership and accountability, and financial diversity of universities.

In Vietnam, studies on the influence of factors on financial autonomy have been mentioned, as Hoai (2022) had shown the guidelines and policies of the State, the perception of managers, lecturers and employees, organizational level and capacity of college administrators in mobilizing and using financial resources; the economic and social conditions of the locality where the university is located and serves affect the management of financial autonomy and social responsibility of universities, which are the factors affecting financial autonomy. According to Hien (2017), additional factors such as social requirements, integration of university education, and development strategies of universities were added: the college's trademark, dynamism of management leadership, and internal solidarity. In addition to those factors, the study (Van, 2018) added that facilities and equipment affect the financial autonomy of vocational education institutions. Thus, the studies in Vietnam have all mentioned the factors affecting the financial autonomy of vocational education institutions. However, these studies only used qualitative research and have yet to be studied specifically in public universities. Therefore, this study focussed on studying the factors affecting the financial autonomy of public universities in Vietnam.

2. LITERATURE REVIEW AND HYPOTHESIS

2.1. Theoretical Foundations

According to the Oxford English Dictionary (2004), autonomy relates to the quality status of an entity such as a state, local government, an organization, and an agency Kohtamäki (2009).

According to the Vietnamese dictionary of the Institute of Linguistics (2010), "autonomy" is the act of self-managing and managing the financial work of an individual or an organization, without being controlled by other individuals or organizations.

“Autonomy by law” in the Vietnamese legal context often refers to the autonomy and self-responsibility mechanism of public universities. This means that these universities have the right to decide on their own operations within the legal framework, in accordance with the laws of the market economy and approaching international practices.

According to Clause 1, Article 3 of Decree 60/2021/NĐ-CP stipulating the financial autonomy mechanism of public service units, financial autonomy of public universities is the right to autonomy and self-responsibility in implementing regulations on the list of public services; prices, fees and roadmap for calculating prices of public service services; classification of levels of autonomy in using financial resources; autonomy in joint venture and association activities; and management and use of public assets and other relevant regulations.

Financial autonomy is a factor that affects the activities of public educational institutions. The higher the level of financial autonomy, the more autonomy the institution has in implementing its tasks, organizing its apparatus and personnel (Huong, 2017).

There have been many studies giving different concepts of autonomy and financial autonomy, depending on the characteristics of each country's level of development, the perception of each college that this concept is reflected and implemented differently. According to Berdahl (1991), the autonomy of educational institutions is divided into two types: first, autonomy is essentially the right to determine educational institutions' objectives and training programs; second, autonomy is the right to determine the means necessary to accomplish training programs and goals. Meanwhile, Anderson et al. (2007) argued that institutional autonomy is defined as the freedom of an educational institution to run its affairs without direction or influence from any level of government. Thus, the essence of autonomy is the division of power between the State and educational and training institutions. Accordingly, educational and training institutions have the right to labor and financial management autonomy. The responsibility of education and training institutions when exercising their autonomy is to be proactive in organizing and managing training scientific research and effectively using their resources to improve the quality of universities activities.

According to Sheehan (1997), autonomy is the ability to make financial decisions, independence from the government from funding boards, and especially the ability to generate public funding and allocate this funding independence. Financial autonomy is an element of the autonomy of educational and training institutions. Financial autonomy refers to the dependence of educational institutions on the state budget and alternative sources of income. According to Estermann et al. (2011), the financial autonomy of educational institutions is the level of funding provided by the State and the financial capacity of the educational institutions themselves, including the extent to which the educational institutions can accumulate financial

resources and profits; the ability to determine the level of tuition; ability to mobilize revenue sources; financial investment possibilities.

2.2. Concepts in The Research Model

Many studies have mentioned the factors affecting financial autonomy in educational institutions. According to Malaj et al. (2005), one factor affecting educational institutions' financial autonomy is the influence of the government through policies and provisions of the law. Oğuz (2014); Mitsopoulos & Pelagidis (2008) had said that the financial autonomy of education and training institutions is influenced by four factors: guidelines and policies, socio-economic development, leadership capacity, and endogenous capacity of universities. However, Enders et al. (2013); Kohtamäki & Lyytinen (2004) argued that financial autonomy is influenced by two factors: the possibility of government funding and the financial capacity of educational institutions. In this study, the authors proposed several factors affecting the financial autonomy of public universities based on inheriting some factors from previous studies. These factors included:

2.2.1 State Policies and Laws (CS)

The State has a macro-management role, so all the State' policies affect the operation of public non-business units Kumar et al. (2023); Kohtamäki & Lyytinen (2004). According to Huong (2017), state intervention in university operations is an indirect intervention through a system of policies and tools such as financial, investment, salary, income, spending, etc. Universities are financially autonomous. However, they must be within the framework of the law. They must be based on guiding documents (higher education law, vocational education law, management law, and use of public property), inspection, and supervision by the Ministry of Education and Training and the governing agencies. These policies must be consistent with the market mechanism and be competitive to promote public universities' financial autonomy. Therefore, the management method of the State and the governing agencies is also a factor affecting the financial autonomy of educational institutions (Privot & Estermann, 2017). In this study, the legal policy of the State was reflected by two contents, including the policies of the State (CS1) and the legal system of the State (CS2). The "State policies and laws" factored in this study was stated with the following hypothesis:

H1: State policies and laws will have a positive effect on financial autonomy.

2.2.2 The Development of The Labor Market (PTLD)

The labor market is the most objective place to evaluate training quality. It directly influences the development and existence of public universities. As the labor market develops, many new occupations are born, and the demand for occupations changes. According to (Can, 2012), the development of the labor market is constituted by three factors: the university's training products meet the needs of enterprises and organizations, social support, and the appropriateness of the college's training costs for learners (Toan, 2022). To meet the needs of society, universities need to build and diversify training programs based on the needs of society. At the same time, the university must determine the appropriate fee framework for each training program to attract learners and ensure funding for maintenance and development. Therefore, the development of the labor market is also a motivating factor for universities to realize financial autonomy if they want to survive and develop. This factor is expressed by three contents: training products of the university that meet the needs of enterprises (PT1), social support for the university's training field (PT2),

and the suitability of the university's training costs for learners (PT3). The research hypothesis of the factor "development of the labor market" is stated as follows:

H2: The development of the labor market will have a positive effect on financial autonomy

2.2.3 Development Strategy (CLPT)

The development strategy of each different college will affect financial management differently (Kumar et al., 2023); Kohtamäki & Lyytinen (2004). According to Hien (2017), the mission, goals, and development direction of public colleges in each specific period may directly affect the financial management at the university. The university's development strategy is expressed through several contents, including training scale, training fields, and the ability to connect between universities and businesses (Thuy, 2012). For public universities, the university's development strategy is reflected in each university's mission, goals, and development direction. The more specific and detailed the university's development strategy developed by the universities is at each stage, the more effective financial autonomy will be. This factor is reflected by contents such as annual task (CL1), training scale (CL2), and training field (CL3). The hypothesis about this factor was stated as follows:

H3: Development strategy will have a positive effect on financial autonomy.

2.2.4 Management Capacity of The University (NLLD)

The management capacity of public universities is reflected in the management level of the college's leaders, the organizational structure of the management apparatus, the qualifications of the management staff, serving teaching, and the views of the head of the university Kumar et al. (2023); Kohtamäki & Lyytinen (2004). When these capacities are limited, it makes it difficult for universities to diversify their sources of income, leading to a lack of readiness for financial autonomy (Huong, 2017). Therefore, the university's management capacity can be considered a factor that positively influences financial autonomy at public universities. This factor is expressed by the contents, including organizational structure (NL1), management qualifications of university leaders (NL2), qualifications of staff indirectly serving teaching (NL3), and the point of view of the head of the university (NL4). The research hypothesis about this factor was stated as follows:

H4: The management capacity of the university will have a positive effect on financial autonomy.

2.2.5 Teaching Staff (ĐNGV)

In order to effectively implement financial autonomy, universities must proactively ensure sufficient quantity and quality of teaching staff. Many studies have shown that the teaching staff influences the ability to expand the training career activities of the universities. Good quality lecturers will help universities compete well in expanding training scale and mobilizing capital from organizations in society. To implement good financial autonomy, universities need to have sufficient quantity and quality of teaching staff to ensure the student/permanent lecturers ratio to ensure the development of the university (Can, 2012). This factor is expressed by two contents, such as the ratio of permanent lecturers to students (GV1) and the skill level of lecturers (GV2). The research hypothesis about this factor was stated as follows:

H5: Teaching staff will have a positive effect on financial autonomy.

2.2.6 Scientific Research Activities (NCKH)

Scientific research activities of developed universities will create their position in the education and training system, labor market, and society. For education and training institutions, scientific research activities include such contents as the system of programs, curricula, and teaching materials that they have compiled to serve the training process, as well as the numerical results. Quantity and quality of programs and topics given to them by society (Can, 2012). These activities directly impact the quality of training, the brand, and the university's reputation. In some cases, scientific research activities are also one of the factors that generate revenue for universities. This has a significant influence on the financial autonomy management of the universities. This factor is expressed by three contents: the system of curricula, lectures, and reference materials for teaching (KH1), several scientific research works (KH2), and consulting and technology transfer activities (KH3). This research hypothesis was stated as follows:

H6: Scientific research activities will have a positive effect on financial autonomy.

2.2.7 Facilities (CSV)C

Facilities of universities include libraries, classrooms, teaching equipment, support works for training activities, and the university's area. These factors all affect the financial autonomy of public universities. According to Van (2018), the development and application of the financial management mechanism should be associated with the conditions of facilities and technological equipment that colleges are using, contributing to the effective management of the university's financial performance. According to the Ministry of Education and Training regulations, universities that are autonomous in terms of enrollment must ensure the minimum conditions in terms of facilities, such as the number of lecture halls, dormitories, teaching and learning aids, etc. This factor is reflected by the contents, including the library (VC1), classroom (VC2), equipment for teaching (VC3), and the area and size of the workshop (VC4). The research hypothesis of this factor was stated as follows:

H7: Facilities will have a positive effect on financial autonomy.

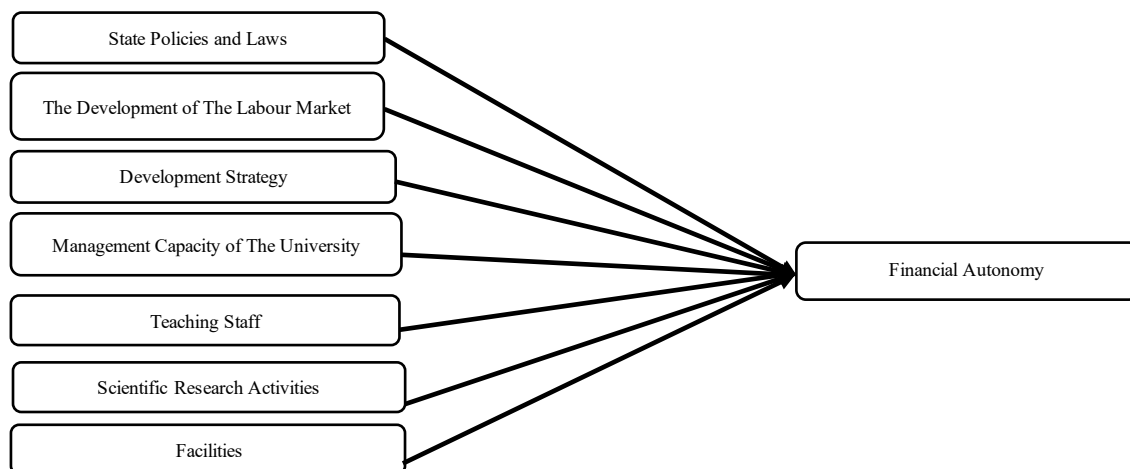


Figure 1. Proposed Research Model of Factors Affecting Financial Autonomy

In the above model, the financial autonomy of public universities, including autonomy in mobilizing

revenue sources (KQ1), autonomy in the distribution and use of financial resources (KQ2), autonomy in planning and organizing the implementation of the plan (KQ3), and autonomy in inspecting and controlling financial activities (KQ4).

Based on the theoretical basis, the overview of the research situation related to the topic and the specificity of the actual context of financial autonomy of public universities in Vietnam, the author proposed the above research model. This research model has similarities with the studies of Malaj et al. (2005); Oğuz (2014); Mitsopoulos & Pelagidis (2008); Enders et al. (2013); and Kohtamäki & Lyytinen (2004). In addition, the difference of this research model compared to previous studies is that the research model has proposed the following factors: The Development of The Labor Market (PTLĐ); The Development of The Labor Market (PTLĐ); Teaching Staff (ĐNGV); Scientific Research Activities (NCKH); and Facilities (CSVC).

3. DATA RESEARCH AND METHODOLOGY

3.1. Data Research

The study surveyed all 32 public universities to collect information on financial autonomy. The study used a Likert scale with five levels to measure factors' impact on public universities' financial autonomy. The number of observed variables used for the above question groups was 25 observed variables. According to Hair et al. (1998), the minimum number of samples that can be analyzed for questionnaires using the Likert scale is $5 * m$ (m is the number of observed variables). Therefore, this study's minimum sample size was $5 * 25 = 125$ samples. Based on the characteristics of universities, the research team conducted interviews with 320 people (10 people for each university). Interviewees were leaders, officials, and lecturers of public universities. Interviews were conducted from October 2023 to December 2023

3.2. Methodology

Information collected and processed through AMOS 20 and SPSS 20 software. Preliminary research was conducted by sending survey questionnaires to 50 leaders, officials, and lecturers of 32 public universities. After collecting 50 valid answer sheets, the author conducted coding and data analysis using SPSS 20 application to test Cronbach's Alpha reliability. After that, the author began to do formal quantitative research. The author analyzed descriptive statistics of the variables and tested Cronbach's Alpha to evaluate the reliability of the scale; confirmatory factor analysis (CFA) method to measure the reliability and convergence of factors; and this study used the AMOS-SEM estimation method to assess factors' impact on public universities' financial autonomy.

4. RESULTS AND ANALYSIS

4.1. Measure the Reliability of the Scale

To assess the fit of the model with the actual data, testing convergence value, unidirectionality, discriminant value, reliability of the scales, seven independent variables and one dependent variable were used in this research model, including State policies and laws (CS), the development of the labor market

(PTLD), development strategy (CLPT), management capacity of the university (NLLĐ), teaching staff (ĐNGV), scientific research activities (NCKH), facilities (CSVN), and financial autonomy (TCTC).

Table 1. Model Fit Test

Index	Result	Acceptable level
Chi-square	567.238	-
Degree of freedom	247	-
Chi-square/ Degree of freedom	2.297	< 5.0
NFI	0.884	> 0.8
IFI	0.931	> 0.9
RFI	0.858	> 0.8
TLI	0.915	> 0.9
RMSEA	0.066	< 0.08
CFI	0.930	> 0.9

After performing CFA, the factors affecting the financial autonomy of public universities, the results as shown in Table 1, the model had 247 degrees of freedom with Chi-square= 567.238 and p-value=0.000; Tucker & Lewis index TLI = 0.915; Comparative appropriate index CFI = 0.930; RMSEA index = 0.066. Therefore, the model fit the research data because the NFI index was ≥ 0.8 (Baumgartner & Homburg, 1996); (Doll et al., 1994); TLI, CFI ≥ 0.9 (Bentler & Bonett, 1980); CMIN/df ≤ 3 (EG, 1981); RMSEA ≤ 0.08 (Steiger, 1990).

4.2. Measure the Convergence of Factors

Table 2. Convergence Value Test

	Factor		Factor Loading
KQ1	<---	TCTC	0.886
KQ4	<---	TCTC	0.801
KQ3	<---	TCTC	0.802
KQ2	<---	TCTC	0.753
NL2	<---	NLLĐ	0.950
NL3	<---	NLLĐ	0.840

	Factor		Factor Loading
NL1	<---	NLLĐ	0.825
VC4	<---	CSVC	0.830
VC2	<---	CSVC	0.831
VC1	<---	CSVC	0.757
VC3	<---	CSVC	0.732
PT3	<---	PTLĐ	0.908
PT2	<---	PTLĐ	0.852
PT1	<---	PTLĐ	0.785
CL1	<---	CLPT	0.877
CL2	<---	CLPT	0.817
CL3	<---	CLPT	0.768
KH2	<---	NCKH	0.953
KH3	<---	NCKH	0.790
KH1	<---	NCKH	0.659
GV2	<---	ĐNGV	0.937
GV1	<---	ĐNGV	0.973
NL4	<---	ĐNGV	0.552
CS1	<---	CS	0.901
CS2	<---	CS	0.894

According to the analysis results, the convergence value of the latent variables is evaluated based on the factor loading index and the average variance extracted (AVE). If the external factor loading of a variable > 0.7 is considered ideal, a range between 0.4 and 0.7 should be considered before deletion (Henseler et al., 2009). The results as shown in Table 2 showed that all factor loading weights had factor loading coefficients greater than 0.7, except for one exception, NL4 (factor loading coefficient is 0.552). However, the author realized this variable was essential in the questionnaire and decided to keep it.

Table 3. Tests of The Composite Reliability, Unidirectionality, and Discriminant Testing of The Model

Variable	CR	AVE	MSV	SQR (AVE)	TCTC	NLLD	CSVC	PTLD	CLPT	NC KH	ĐN GV	CS
TCTC	0.886	0.659	0.165	0.812	1							
NLLD	0.878	0.648	0.150	0.805	0.239***	1						
CSVC	0.869	0.621	0.235	0.789	0.330***	0.387***	1					
PTLD	0.886	0.721	0.236	0.851	0.253***	0.246***	0.485***	1				
CLPT	0.863	0.675	0.019	0.822	0.138*	-0.124†	0.011	-0.132*	1			
NCKH	0.848	0.657	0.034	0.810	0.184**	0.001	-0.052	-0.111†	-0.038	1		
ĐNGV	0.953	0.912	0.020	0.954	0.141*	0.045	0.047	0.024	0.029	-0.090	1	
CS	0.892	0.805	0.164	0.898	0.406	0.131	0.209	0.202	**	0.059	0.034	1

Note: *, **, and *** are significant at 10%, 5%, and 1% level respectively.

According to the analysis results, the composite reliability (CR) and the AVE of the scale model of factors affecting the financial autonomy as presented in Table 3 all met the requirements. Specifically, the CR values ran from 0.863 (corresponding to the 3rd factor - CSVC) to 0.953 (corresponding to the 7th factor – ĐNGV). Besides, the data table also provides information about the AVE of the groups of factors. As can be seen, the corresponding AVE values ran from 0.621 (corresponding to the 3rd factor - CSVC) to 0.912 (corresponding to the 7th factor – ĐNGV). All these values ensured that the required threshold was more significant than 0.5. From the above results, it was concluded that the convergent validity and unidirectionality of the scales in this study satisfied the requirements (Steenkamp & Van Trijp, 1991).

Results as in Table 3 showed that the square root of the average variance extracted (SQRAVE) of each group of factors was larger than the correlation coefficients between the corresponding variables. Therefore, the scales achieved discriminant validity (Fornell & Larcker, 1981).

Thus, the CFA results showed that the scale model of factors affecting the financial autonomy is compatible with unidirectional, convergent, discriminant market data and ensured high reliability. The study then proceeded to the next step, testing the suitability between the theoretical model and the proposed hypotheses by SEM.

4.3. Test the Research Hypotheses and Evaluate The Impact of The Factors

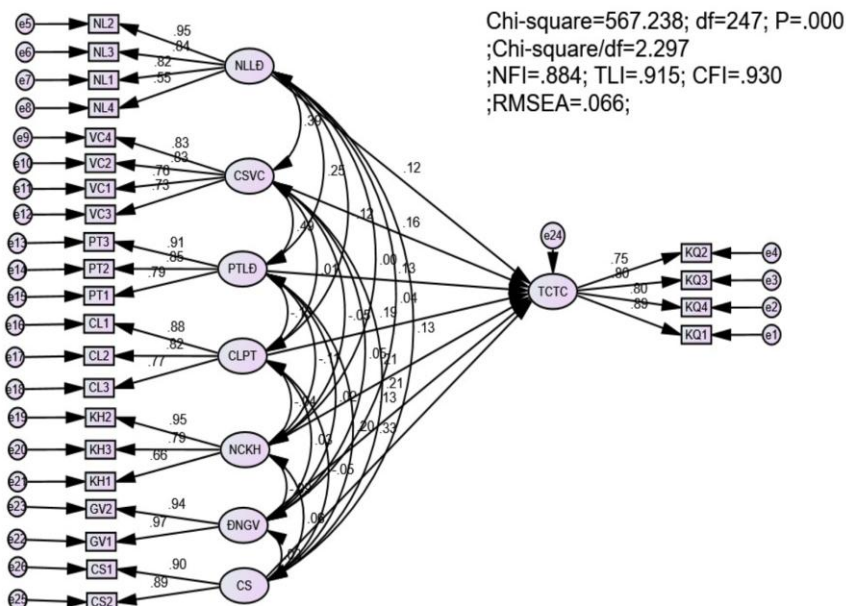


Figure 2. Results of SEM Analysis on Factors Affecting Financial Autonomy

The results of SEM analysis as in Figure 2 showed that Chi-square/df = 2.297; CFI = 0.930; NFI = 0.884; TLI = 0.915; and RMSEA = 0.066 (< 0.08). This result showed that all the indicators suitable for the model were met, and it can be concluded that the model was compatible with the research data.

Table 4. Results of Testing the Research Hypothesis and Measuring the Impact of The Factors

Hypothesis	Relations			Unstandardized Coefficients	Standardized Coefficients	S.E.	C.R.	P
H1	TCTC	<---	CS	0.285	0.324	0.053	5.372	0.000
H2	TCTC	<---	PTLĐ	0.113	0.125	0.061	1.868	0.063
H3	TCTC	<---	CLPT	0.232	0.188	0.072	3.235	0.001
H4	TCTC	<---	NLLĐ	0.095	0.124	0.047	2.022	0.042
H5	TCTC	<---	ĐNGV	0.093	0.126	0.041	2.287	0.022
H6	TCTC	<---	NCKH	0.232	0.207	0.063	3.643	0.000
H7	TCTC	<---	CSVc	0.184	0.157	0.085	2.158	0.032

Note: S.E: Std. Error; C.R.: Critical value; P: p-value.

Chi-square/df = 2.297 (< 0.3); NFI = 0.884 (> 0.8); TLI = 0.915 (> 0.9); CFI = 0.930 (> 0.9); and RMSEA = 0.066 (< 0.08).

According to the research results, the factors CS, CLPT, NLLD, ĐNGV, NCKH, and CSVN had a test significance level of less than 0.05, and the signs of the regression coefficients were positive (+), reflecting that these factors affected the financial autonomy. Thus, the research hypotheses H1, H3, H4, H5, H6, and H7 mentioned in this study were all accepted. The test significance level of the regression coefficient of the factor "the development of the labor market" (PTLD) was equal to 0.063, reflecting that this factor had no impact on the financial autonomy.

5. FINDINGS

Research results found that "State Policies and Laws" factor had a positive impact on financial autonomy ($\beta_1 = 0.324, p = 0.000$). Therefore, hypothesis H1 was accepted. This result is similar to the studies of Kumar et al. (2023) and Huong (2017). This showed that the state's policies and guidelines were consistent with the market mechanism and the state's legal system clearly shown in Decree No. 60/2021/ND-CP dated June 21, 2021 regulating determining the autonomy mechanism of public service units in recent times. In fact, from 2020, only 11 public universities had financial autonomy. By 2024, there will be 24 universities out of 61 public universities that have achieved partial or guaranteed financial autonomy part of operating costs. This showed that state policies and laws were consistent with market mechanisms and competitiveness promoted the financial autonomy of public universities faster.

On the other hand, "The Development of The Labor Market" factor did not impact financial autonomy ($\beta_2 = 0.125, p = 0.063$). Therefore, hypothesis H2 was not accepted. This result was different from the study of Can (2012). This difference can be considered based on different contexts and audiences. Reality showed that currently, public universities have not yet achieved complete financial autonomy, part of their operating costs still depended on the state budget. This reduced the motivation of public universities to implement complete financial autonomy, such as developing training programs and opening new training occupations to meet the development needs of the labor market in some universities.

The "Development Strategy" factor also had a positive impact on financial autonomy ($\beta_3 = 0.188, p = 0.001$). Therefore, hypothesis H3 was accepted. This result was similar to the studies of Kumar et al. (2023), Hien (2017), and Thuy (2012). Reality shows that in recent years, public universities were increasingly developing, in which the scale of student training increased every year and developed and opened new training majors and majors. Therefore, the more specific and detailed the university's development strategy was built and deployed synchronously at each stage, it will make financial autonomy more effective.

In addition, "Management Capacity of The University" factor has a positive impact on financial autonomy ($\beta_4 = 0.124, p = 0.042$). Therefore, hypothesis H4 is accepted. This result is similar to previous studies by (Kumar et al., 2023) and (Huong, 2017). Reality also shows that financially autonomous universities have a more streamlined and effective organizational structure and the management level of leaders, department staff, and university lecturers is increasingly improving. Therefore, good management capacity of the university will help universities diversify their revenue sources, leading to better financial autonomy.

Similarly, "Teaching Staff" factor had a positive impact on financial autonomy ($\beta_5 = 0.126, p = 0.022$). Therefore, hypothesis H5 was accepted. This result is similar to the studies of Can (2012) and Huong (2017). In recent years, universities operating with financial autonomy have had a high ratio of full-time

lecturers to students and a high level of lecturers' skills, demonstrated through the quality of training for students participating in majors competition and many prizes. This showed that good quality public university teaching staff will help universities compete well in expanding training scale and mobilizing capital sources from domestic organizations, which will promote the financial autonomy of public universities faster.

Research results also showed that “Scientific Research Activities” factor had a positive impact on financial autonomy activities ($\beta_6 = 0.207, p = 0.000$). Therefore, hypothesis H6 was accepted. This result was similar to the studies of Can (2012). Reality also showed that public universities with financial autonomy had increased the number of scientific research projects, consulting activities and technology transfer over the years. Therefore, good scientific research had a direct impact on the quality of training, brand, reputation and generates revenue for universities. This helped universities operate with better financial autonomy.

Finally, “Facilities” factor also had a positive impact on financial autonomy ($\beta_7 = 0.157, p = 0.032$). Therefore, hypothesis H7 was accepted. This result was similar to the studies of Van (2018). In recent years, financially independent universities have invested in modern facilities such as libraries, classrooms, teaching equipment, practice workshops, etc to help lecturers and students participate. Scientific research and many awards. Therefore, good facilities had a direct impact on the quality of training, contributed to effective management of university financial activities, and promoted universities to operate with financial autonomy effectively.

6. CONCLUSION

The study addressed the research objectives on factors affecting financial autonomy of public universities in Vietnam. The results of this research were a scientific basis to help local authorities, policy makers, and public universities have appropriate strategies and plans to best implement financial autonomy in the coming time. The research found six factors affecting financial autonomy of public universities in order of influence from high to low: State Policies and Laws, Scientific Research Activities, Development Strategy, Facilities, Teaching Staff, and Management Capacity of the University.

7. IMPLICATIONS

Firstly, the State policies and laws is the factor that has the most substantial impact on financial autonomy. When implementing financial autonomy, public universities are affected by the policies and laws of the State: the State and the governing ministry guide and direct public universities to implement financial autonomy. The determination of the roadmap, time for implementing autonomy, and the mode of autonomy of each university will be based on the actual situation and capabilities of each university. According to Decree 60/2021/NĐ-CP stipulated the financial autonomy mechanism of public non-business units, universities can choose the form of financial autonomy, the complete autonomy of recurrent and investment expenditures, full autonomy of recurrent expenditures, or partial autonomy of recurrent expenditures.

Secondly, scientific research activities were the second most influential factor on the financial autonomy of public universities. Currently, public universities' scientific research activities were not high. Consulting

and technology transfer activities mainly focussed on the fields of social sciences, humanities, and agriculture for organizations and businesses. Meanwhile, technical training activities: mechanics, information technology, and electronics were not strengths. Therefore, to increase revenue as well as improve the quality of scientific research activities, universities need to actively expand research activities in the above fields but associated with consulting and technology transfer activities. At the same time, the state prioritized investment and assigned scientific research tasks with state budget to public universities with high international rankings.

Thirdly, the public university's development strategy was the third factor affecting the financial autonomy of public universities. This factor played an important role when public universities carried out financial autonomy activities. Based on the university development strategy, public universities will develop detailed and specific plans for financial autonomy in the short and long term. In addition, the state supports public universities in establishing development investment funds to lend for long-term development investment to help universities proactively build school development strategies.

Fourthly, facilities were the fourth factor affecting the financial autonomy of public universities. To effectively implement financial autonomy, universities need to be fully equipped with equipment, classrooms, and libraries to meet the needs of learners and workers working at the university through preferential credit sources from the State or interest rate subsidies for infrastructure investment projects using loans from credit institutions according to regulations; at the same time, public universities mobilize funding sources, joint ventures, and partnerships from domestic and foreign organizations and individuals according to the provisions of law and governing agencies to invest in development and expanding university facilities to be more modern. This is one of the factors that attracts learners and university human resources to participate in better training activities, and is also a factor that contributes to increasing revenue for the university.

Fifthly, teaching staff was the fifth factor with a low impact on the financial autonomy of public universities. Most lecturers at public universities were not motivated to improve their professional qualifications and scientific research activities. Therefore, universities need to have incentive mechanisms to motivate lecturers to improve their qualifications: financial support and time support for lecturers in learning and scientific research. At the same time, for lecturers, it is necessary to proactively study to improve their qualifications and actively contact businesses to go on field trips and intern at businesses to improve practical knowledge.

Sixthly, the management capacity of the university was the final factor with the lowest impact on the financial autonomy of public universities. Most public universities had just transitioned to financial autonomy, so leaders of public universities do not have much experience in managing training activities when transitioning to financial autonomy. Therefore, leaders of public universities need to refer to the experiences of universities that have implemented financial autonomy to apply to the management of their universities. At the same time, university leaders need to be proactive in managing financial autonomy to expand revenue sources, effectively manage expenses, and avoid relying on financial support from State management agencies; universities develop detailed internal spending regulations, ensuring openness, democracy and fairness; build a system of criteria to evaluate the performance of each employee. In

particular, we focus on the solution of paying income according to the quality and efficiency of work to encourage and attract the most capable and qualified people to contribute the most to the university.

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9. ETHICS STATEMENT

Review and/or approval by an ethics committee was not necessary for this study because it was based on a proprietary database, and no personal information of the participants was used and participants voluntarily provide information without pressure or risk; it does not require ethical approval.

10. CONFLICT OF INTEREST STATEMENT

The authors declare that they have no competing interests.

11. FUNDING

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12. AUTHORS' CONTRIBUTIONS

Pham Ngoc Khanh and Ngo Anh Cuong: Conceptualization, methodology, investigation, statistical analysis, and writing the original draft; **Pham Ngoc Khanh:** Analysis improvement, review and editing, supervision; **Pham Ngoc Khanh and Ngo Anh Cuong:** Redesigning the experiments/collecting important additional data to strengthen the results, software, statistical analysis, contributed to discussing the conclusions; **Pham Ngoc Khanh:** Reviewing the literature and improving the linguistic style of the draft. All authors have read and approved the final manuscript.

13. DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

14. DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

AI not used.

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