

Factors Affecting the Decision to Dropping Out of Full-Time Students in the Faculty of Economics – Engineering: Case Study of Hong Duc University*

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ABSTRACT

This article studies the factors affecting the decision to drop out of full-time students in the Faculty of Economics and Technology of Hong Duc University. The research results show that all four groups of factors including the Group of factors belonging to the social environment; the Group of factors belonging to the individual; the Group of factors belonging to the family and the Group of factors belonging to the social environment all have an impact on the decision to drop out of full-time students in the Faculty of Economics and Technology of Hong Duc University. Based on the level of influence of each factor, the author has proposed recommendations to limit the dropout rate of full-time students majoring in Economics and Engineering at Hong Duc University in the coming time.

Keywords: decision to drop out, student, economics and engineering, Hong Duc University

INTRODUCTION

In Vietnam, educational innovation at all levels, including university education, has created a strong and fundamental change in quality, contributing to training human resources to ensure meeting the needs of society. Hong Duc University has the mission of training multidisciplinary human resources, capable of adapting to changes in the labor market, conducting scientific research, and transferring technology to serve the socio-economic development of Thanh Hoa province and the whole country. The process of construction and development over the past 25 years has affirmed the position of the University - a quality and prestigious training institution for parents in the province, businesses and employers nationwide. However, in recent years, the rate of full-time students, including full-time students in the field of Economics - Engineering, is currently at a high dropout rate due to many different reasons. This is one of the issues of concern not only for the training faculties but also for the school's leadership. Therefore, it is necessary to identify factors affecting the decision to drop out of students in the Economics - Engineering sector to limit this situation, thereby contributing to the sustainable development of Hong Duc University.

LITERATURE REVIEW

Research at home and abroad on the issue of students dropping out of school has been conducted for a long time in order to find out the factors that affect the decision to drop out of school of students at vocational schools in general to overcome this situation at schools.

Direct research on the factors that affect the situation includes works such as: Rumberger and Lim (2008) reviewed 25 years of research on the situation of dropping out of school, the authors conducted an assessment based on 203 published studies and analyzed national, state and local data to determine the factors that have statistical significance on the rate of dropping out and graduating from high school. The results showed that the factors that predict whether students will drop out or graduate from high school can be divided into two

* This is a product of the basic level project of Hong Duc University, code: DT-14-2023

groups: factors related to the personal characteristics of students and factors related to the institutional characteristics of their families, schools and communities. Chen et al. (2012) in their study of the relationship between institutional characteristics and the risk of dropping out of university students, the results showed that institutional factors of educational institutions such as admission policies, organizational structure, teaching staff, financial resources and support policies have an impact on the decision to drop out of university students.

Tufi Machado Soares et al. (2015) based on a series of data from the National Household Sample Survey and a large survey conducted in Minas Gerais, Brazil, collected diverse information from 3,418 interviewees. The results of the study showed that several important factors were emphasized to explain the dropout situation such as: difficulty in studying the subject, desire to transfer to another school, awareness of employment opportunities and the importance of school choice. Almeida et al. (2018) conducted an analysis of the factors influencing students' decisions to stay or drop out of university by establishing specific student groups based on academic performance. The study was conducted with 2,970 first-year university students from Portugal. The results showed that forming student groups based on performance (high, medium and low performance) so that schools can have appropriate support policies will avoid the increasing number of students dropping out.

Aldowah et al. (2019) studied the factors affecting the dropout rate of students in online courses (MOOCs) at universities. This is a major concern of the higher education community and policy makers. The results showed that there are 6 core factors that directly affect the dropout rate of students in online courses: skills and learning ability, experience, course design, feedback, social presence and social support. Other factors such as: Interaction, difficulty and duration of the course, commitment, motivation and family/work circumstances are said to play a secondary role in the relationship with students' decision to drop out of MOOCs. The research results have provided insights for educational administrators to take appropriate measures to reduce student dropout rates. With the characteristics of the learning environment at vocational schools in Vietnam, many scientists have studied the reasons for students dropping out of schools with different regular and distance systems to overcome this situation.

Studies on school dropout among students have pointed out many causes from both individual and institutional factors. Trinh Thi Viet Hong and Le Huy Tung (2016) noted that students at Thanh Hoa Industrial Vocational College dropped out the most in the first year, due to the impact of the school, students, family and society. Hoang Thi Diem Ngoc and Ho Xuan Ngoc (2019) emphasized the psychological, behavioral and personal cultural factors influenced by the individual, family, school and society. Le Thi Hong Hanh (2019) in An Phu, An Giang, identified the causes of school dropout as including parents' education level, family circumstances, local conditions and the students themselves. Huynh Linh Lan (2020) said that limiting school dropout is urgent, but schools have not paid due attention to early detection of risks, despite applying many solutions to improve quality. Dinh Ba Hung Anh et al. (2021) identified influencing factors including learning outcomes, social environment, motivation and educational institutions, with differences mainly based on household income. Nguyen Thieu Tuan Long (2022) divided the causes into two groups: individual (motivation, family circumstances) and institutional (relationship with training institutions and social systems), but the study only stopped at the experimental model.

RESEARCH METHODS

Qualitative Research Methods

Qualitative research includes in-depth interviews with experts who are staff, lecturers and typical student groups to determine the completeness of factors as well as the scale affecting the decision to drop out of full-time students, determine the suitability of factors in the model with the reality of students in the economic - technical sector of Hong Duc University, thereby standardizing the scales in the questionnaire.

An overview of previous research works from the perspective of many different researchers can summarize the factors affecting the decision to drop out of full-time students in the economic - technical sector at Hong Duc University including: (i) Personal factors such as students' learning motivation; GPA; Health; (ii) Family factors such as financial conditions, closeness and interest in their children's learning, parents' qualifications and parents' marital status; (iii) Factors related to the School such as facilities, training programs, teaching methods, teaching staff, Union and Association activities, support from departments and other parties; (iv) Factors related to the social environment such as job opportunities after graduation, many opportunities for part-time work. Regarding the results of interviews and group discussions with 10 typical students, they also agreed on 4 groups of factors that influence the decision to drop out of school, but added some scales to the group of factors, specifically:

- Personal factors: Add the scale "Students' relationships with friends around them are not good"

- Social environment factors: Add the scale "Unsafe living environment when going to school such as social evils, friends' invitations, other threats..."

From the results of the qualitative research method, the research model of factors influencing the decision to drop out of full-time students in the field of economics and engineering at Hong Duc University is as follows:

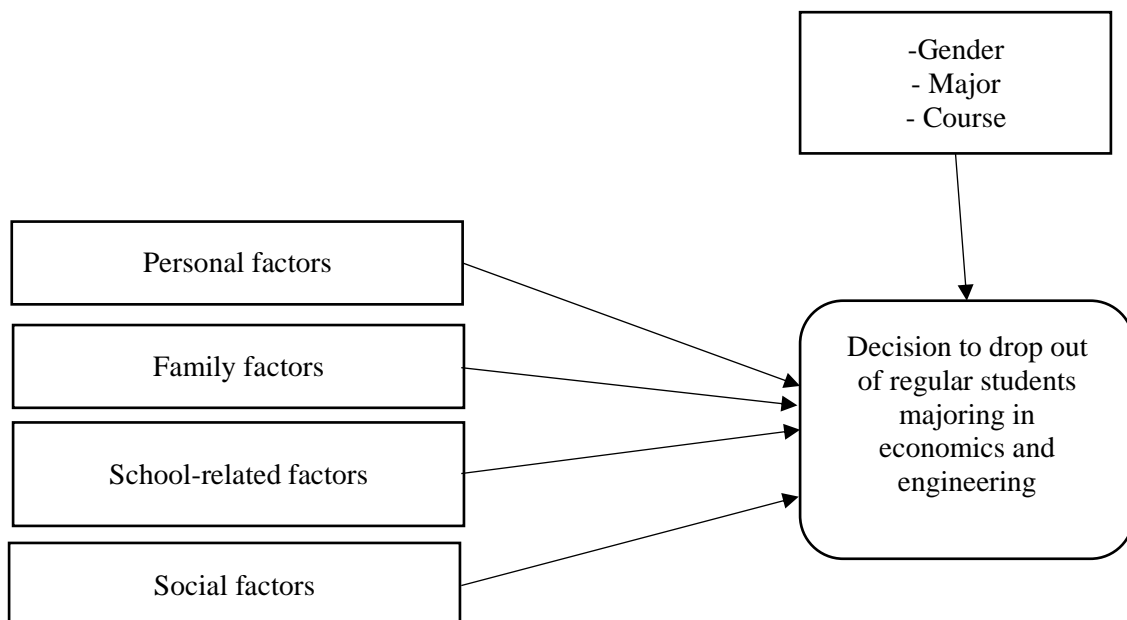


Figure 1. Model of factors affecting the decision to drop out of full-time students in the field of economics and engineering at Hong Duc University

Source: Proposed by the author

Hypothesis H1: Personal factors have positive influence on the decision to drop out of full-time students in the field of economics and engineering at Hong Duc University.

Hypothesis H2: Family factors have positive influence on the decision to drop out of full-time students in the field of economics and engineering

Hypothesis H3: School- related factors have positive influence on the decision to drop out of full-time students in the field of economics and engineering

Hypothesis H4: Social factors have a positive influence on the decision to drop out of full-time students in the field of economics and engineering.

In addition to testing the above hypotheses, in the research model, the author also considers the influence of the control variables: Gender; Major and Course of Study leading to the decision to drop out of full-time students in the field of economics and engineering at Hong Duc University.

Quantitative Research Method

Quantitative research is conducted through a survey method of sampling for full-time students of Economics - Engineering at Hong Duc University. The appropriate sample size for the study depends on the data processing method (Nguyen Dinh Tho, 2011). Hoang Trong and Chu Nguyen Mong Ngoc (2008) stated that when analyzing exploratory factor (EFA), at least 5 samples are needed for 1 observed variable. According to Tabachnick and Fidel (1996), for regression analysis, the minimum sample size is $n = 8m + 50$ with m being the number of independent factors. In the proposed model, there are 4 independent factors (17 observed variables) and 1 dependent variable (3 observed variables), for a total of 20 observed variables. If calculated according to Tabachnick and Fidel (1996) for regression analysis, the minimum sample size is $n = 82$. For exploratory factor analysis, the minimum sample size is $20 \times 5 \geq 100$. However, according to the rule of thumb, the larger the sample, the better; to achieve the above sample size, this study sent out 352 questionnaires via google form link.

Table 1. Study sample selection

No	Faculty	Number of students absent from school (SV)	Ratio (%)	Research sample (SV)
1	Faculty of Economics and Business Administration	345	61.39	214
2	Faculty of Engineering and Technology	73	12.99	46
3	Faculty of Information Technology and Communications	144	25.62	92
	Total	562	100,00	352

Source: Hong Duc University and author's calculations

RESEARCH RESULTS

Results of Testing the Reliability of the Scales Using the Cronbach's Alpha Coefficient

The assessment of the reliability and validity of the scales is carried out using the Cronbach's Alpha reliability coefficient method to screen and eliminate observed variables that do not meet the reliability standards. In which: The Cronbach's Alpha standard is recommended by many researchers that a Cronbach's Alpha coefficient of 0.6 or higher is acceptable in cases where the concept being studied is new or new to the respondents in the research context (Hoang Trong & Chu Nguyen Mong Ngoc, 2005).

Table 2. Results of testing the reliability of the scales using the Cronbach's Alpha coefficient

Code	Factors	Cronbach's Alpha
CN	Personal factors	0.848
GD	Family factors	0.919
NT	School-related factors	0.922
XH	Social factors	0.849
QD	Decision to drop out of regular students majoring in economics and engineering	0.925

Source: Data processing results

Results of Exploratory Factor Analysis

To analyze the EFA factor, the author used the principal components extraction method with Varimax rotation to analyze factors for independent variables (Gerbing and Anderson, 1988) with factor loading ≥ 0.5 to have practical significance (Hair et al., 1998). Conducted KMO and Bartlett's test to consider the hypothesis about the correlation between observed variables (Hoang Trong, 2008).

*** KMO and Bartlett's test**

According to Hoang Trong and Chu Nguyen Mong Ngoc (2005), the Sig. of the Bartlett's test is less than 0.05, allowing the rejection of the Ho hypothesis "The correlation level of observed variables is 0" and the KMO coefficient has a value from 0.5 to 1, which is sufficient to perform factor analysis.

Table 3. Results of KMO and Bartlett's test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.871
Bartlett's Test of Sphericity	Approx. Chi-Square	5435.918
	df	190
	Sig.	.000

Source: Data processing results

The analysis results in Table 3 show that: KMO coefficient is 0.871 (satisfying the condition $0.5 < KMO < 1$); Bartlett's test on the correlation of observed variables is statistically significant (sig. = $0.000 < 0.05$), proving that the variables are closely related to each other.

Table 4. Total variance extracted from the factor scale

Comp onent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulati ve %
1	8.432	42.158	42.158	8.432	42.158	42.158	4.413	22.067	22.067
2	2.690	13.448	55.607	2.690	13.448	55.607	3.334	16.671	38.738
3	1.863	9.313	64.920	1.863	9.313	64.920	2.846	14.228	52.966
4	1.525	7.625	72.544	1.525	7.625	72.544	2.522	12.610	65.576
5	1.001	5.003	77.547	1.001	5.003	77.547	2.394	11.972	77.547
6	.600	3.001	80.549						
7	.505	2.523	83.072						

8	.473	2.363	85.435						
9	.399	1.997	87.432						
10	.374	1.872	89.304						
11	.327	1.634	90.938						
12	.319	1.593	92.531						
13	.278	1.390	93.921						
14	.244	1.222	95.143						
15	.233	1.165	96.309						
16	.214	1.068	97.377						
17	.164	.820	98.197						
18	.141	.703	98.900						
19	.122	.609	99.509						
20	.098	.491	100.000						

Extraction Method: Principal Component Analysis.

Source: Data processing results

Table 5. Factor analysis for independent variables

	Factor				
	1	2	3	4	5
NT6	.859				
NT5	.837				
NT1	.799				
NT3	.794				
NT2	.791				
NT4	.753				
CN3		.875			
CN1		.864			
CN2		.822			
CN4		.789			
GD4			.849		
GD3			.798		
GD2			.735		
GD1			.634		
XH3				.870	
XH2				.852	
XH1				.820	
QD3					.820
QD1					.771
QD2					.760

Source: Data processing results

The results of factor analysis for independent variables in Table 4 and Table 5 show that: The total variance extracted is 77.547% (>50%) which meets the requirements and indicates that the factors explain 77.547% of the variation in the data. This shows that the EFA analysis results are completely appropriate. At the same time, all variables have factor loading coefficients greater than 0.5 and there is no disturbance between the observed variables in the factors according to the proposed model, so the author still keeps the names of the factors and variables in the model.

Multivariate Linear Regression Analysis

To assess the level of influence of each factor on the decision to drop out of full-time students of Economics - Engineering at Hong Duc University, the author uses a multivariate regression model. After processing the data on SPSS software, the results are as follows:

Table 6. Model fit testing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.735 ^a	.541	.535	.67497	.541	102.089	4	347	.000	2.033

Source: Data processing results

Through Table 6, we see that the coefficient of determination R² is 0.541 and the adjusted R² is 0.535, which means that the independent variables explain 53.5% of the variation in the dependent variable that determines the student's decision to drop out of school. The Durbin-Watson coefficient = 2.033 (satisfies the condition 1 < Durbin-Watson coefficient < 3) indicating that there is no autocorrelation between the variables. The adjusted R² only shows the suitability of the regression model to the data set, but it is still not possible to know whether the newly built regression model is suitable for the whole population or not. Therefore, it is necessary to test F through the ANOVA analysis table to check the suitability of the newly built regression model to the whole population of the study.

Table 7. ANNOVA analysis ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	186.041	4	46.510	102.089	.000 ^b
	Residual	158.087	347	.456		
	Total	344.128	351			

Source: Data processing results

The results in Table 7 show that the significance level Sig. is very small (Sig. = 0.000 < 0.05), which means that the proposed multiple linear regression model is suitable for the population. The results of the multiple regression analysis are as follows:

Table 8. Results of the multiple regression analysis Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.390	.200		-1.949	.052		
	XH	.319	.049	.255	6.571	.000	.880	1.136
	CN	.337	.045	.334	7.567	.000	.678	1.475
	NT	.202	.050	.177	4.046	.000	.695	1.439
	GD	.206	.035	.254	5.868	.000	.704	1.420

Source: Data processing results

Through the results in Table 8, we can see that all independent variables have Sig. less

than 0.05, which means that all independent factors have an impact on the decision to drop out of full-time students in the Economics - Engineering major at Hong Duc University. The importance of each factor depends on the standardized Beta coefficient (considering the absolute value of the coefficient) or which factor has a large standardized Beta coefficient, the impact is strong on the decision to drop out of full-time students in the Economics - Engineering major at Hong Duc University. In addition, the results also show that the Sig. values of the factors are all very small (<0.05). Therefore, these values are all statistically significant. At the same time, the VIF magnification factor <2 shows that there is no multicollinearity between the independent variables, which is consistent with the assumption that this study is that the predictor variables are independent of each other. At the same time, we have the following standardized regression equation:

$$QD = 0.049XH + 0.045CN + 0.254GD + 0.177NT$$

In which:

- QD: Is the student's decision to drop out of school
- XH: is a factor belonging to the social environment
- CN: is a factor belonging to the individual
- GD: is a factor belonging to the family
- NT: is a factor belonging to the school

Testing the Difference in the Decision to Drop Out of Full-Time Students in the Economics and Engineering Major at Hong Duc University according to Control Variables

During the study process at universities, dropping out midway is a phenomenon that can greatly affect the quality and reputation of training programs as well as the personal development orientation of students. In order to better understand the factors affecting the decision to drop out, this study focuses on testing the difference in the decision to drop out of full-time students in the Economics and Engineering major at Hong Duc University. The study will conduct analysis according to three main control variables, including: gender, major and course. Each of these variables can make a difference in the learning process and decision making of students, affecting the possibility of dropping out midway. To test whether the above factors have a significant impact on the decision to drop out of students, the author uses the One-Way ANOVA method. This method will help compare the average value of the decision to drop out of school between groups of students with different characteristics, thereby drawing statistically significant conclusions.

Testing the difference by gender

Pair of research hypotheses

H0: There is no difference in the decision to drop out of school between male and female students

H1: There is a difference in the decision to drop out of school between male and female students

Table 9. Testing the difference in the decision to drop out of school of students by gender ANOVA

QD	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.175	1	.175	.178	.674
Within Groups	343.954	350	.983		
Total	344.128	351			

Source: Data processing results

The results in Table 9 show that there is no statistically significant difference in the decision to drop out between male and female students ($F = 0.178, p = 0.674 > 0.05$). This suggests that gender does not influence the decision to drop out, but may be influenced by other factors such as the learning environment, major, or personal and social factors. This conclusion is important, suggesting that support policies to reduce the dropout rate may not need to be gender-specific but should focus on other factors that have a stronger impact.

Testing differences by major

Pair of research hypotheses

H0: There is no difference in the decision to drop out between majors

H1: There is a difference in the decision to drop out between majors

Table 10. Testing differences in the decision to drop out of students by major ANOVA

QD

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25.300	2	12.650	13.847	.000
Within Groups	318.829	349	.914		
Total	344.128	351			

Source: Data processing results

The analysis results in Table 10 show that there is a statistically significant difference in the decision to drop out among students of different majors ($F = 13.847, p = 0.00 < 0.05$). This shows that majors influence the decision to drop out. The data processing results show that the major group of the Faculty of Technology and Economics has an average decision to drop out of 2.5435; while the major groups of the Faculty of Economics and Business Administration and the Faculty of Information Technology and Communications have an average of 3.0623 and 3.4420, respectively. This conclusion highlights the importance of considering the characteristics of each major when proposing solutions to reduce the dropout rate. Support policies need to be designed to suit each major, focusing on addressing specific challenges and providing the necessary resources for students to pursue long-term and successful studies. Thanks to that, Hong Duc University can better maintain students' attachment to training programs and ensure the quality of education in each major.

Testing differences by course

Pair of research hypotheses

H0: There is no difference in the decision to drop out of school between courses

H1: There is a difference in the decision to drop out between courses

Table 11. Testing the difference in the decision to drop out of students by course ANOVA

QD

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.144	4	3.786	3.993	.004
Within Groups	328.985	347	.948		
Total	344.128	351			

Source: Data processing results

The analysis results in Table 11 show that there is a statistically significant difference in the decision to drop out among students of different courses ($F = 3.993, p = 0.004 < 0.05$). This indicates that the course influences the decision to drop out. The data processing results

also show that the average decision to drop out of first-year students is 2.1250, second-year students is 3.1343, third-year students, fourth-year students, and over 4-year students are 2.9453; 3.5287; 3.0000, respectively. This conclusion emphasizes the importance of understanding the characteristics and individual needs of students of each course. Student retention support measures can be adjusted to suit each specific course, ensuring that students receive the necessary support at each stage of their studies.

DISCUSSION OF RESEARCH RESULTS AND RECOMMENDATIONS

Discussion of Research Results

The study has identified the factors and the level of influence of the factors on the decision to drop out of full-time students in the Economics - Engineering major at Hong Duc University. The research results show that there are 4 groups of factors influencing the decision to drop out of full-time students in the Economics - Engineering major at Hong Duc University, including: Group of factors belonging to the social environment; Group of factors belonging to the individual; Group of factors belonging to the family and Group of factors belonging to the social environment. In which: Factors belonging to the social environment are the factors that have a strong impact in the same direction on the decision to drop out of students, followed by factors belonging to the individual, factors belonging to the family and finally factors belonging to the school. All four factors have a positive impact on the decision to drop out of full-time students in the Economics - Engineering major at Hong Duc University.

At the same time, the study also tested the difference in the decision to drop out of full-time students in the Economics - Engineering major at Hong Duc University according to control variables. The results showed that there were differences in the decision to drop out of full-time students by major and course, but there was no difference by gender.

Recommendations

From the research results, the author believes that in order to limit the dropout rate of students majoring in Economics and Engineering, Hong Duc University needs to implement the following solutions:

First, combining schools, families and social organizations in managing and caring for students' lives. This is a measure that plays a decisive role in preventing students from dropping out. Because the main reason for the recent dropout rate is the lack of good coordination between entities in student management; the management work of schools, families and society is not good. Combining schools, families and society to take care of students' lives both materially and spiritually is one of the important factors for students to have enough conditions and feel secure in studying and practicing in school, reducing the dropout rate.

Second, raise students' awareness of responsibility for studying at school. Awareness is always the basis of action, correct awareness is the basis of correct action and vice versa. One of the reasons why students of Hong Duc University have recently dropped out of school is because their awareness is not complete. Therefore, in the coming time, it is necessary to carry out specialized activities well, thereby clarifying the rights and obligations of students and educational forces in the school, organizing better and more effectively the activities and studying of the student citizen week to educate students about political ideology, duties and obligations of students towards their families, schools and society, and at the same time, finding measures to motivate students to study

Third, improve factors related to the school to limit students dropping out of school. The school needs to review all facilities in the lecture halls and working areas of staff and

lecturers, make statistics on the status of equipment in terms of both quantity and quality, receive requests and feedback from students and lecturers to promptly repair, upgrade, and supplement, quickly responding to teaching and learning activities. Implement training program innovation in the direction of improving practicality. In addition, focus on innovating teaching methods in a positive and effective direction, increasing practice and internship. Promote the role of the Youth Union - Student Association in guiding and improving training quality.

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