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The Impact of Factors on Human Capital Quality: A Study of Economics Students in Vietnam

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Abstract
This research aims to investigate the suitable measurement method of human capital quality and its indicators including both extrinsic and intrinsic factors. Research data were collected randomly from more than 400 students per chosen university in different academic years at the current five most famous economic universities in Vietnam, with 1796 observations and 2100 questionnaires. By combining the use of qualitative and quantitative methods with the support of EVIEW 10 and STATA 22 software, the study was conducted evaluate the impact of four extrinsic factors (academic staffs, administration services, curriculum structure, and infrastructure) and seven intrinsic factors that reflect students' motivation (learning purpose, acquiring knowledge ability, learning method, hardworking, self-awareness, and relationship development) on human capital quality (expressed through knowledge, skills, and attitudes). The research results indicate that students' motivation is the most important factor promoting human capital quality whereas administration services and infrastructure has a negative impact on human capital quality. Furthermore, while academic staffs only influence slightly and positively on students' attitudes curriculum structure can impact both students' skills and attitudes.

Keywords: Economics students; Human capital quality; Personal development; Undergraduate indicators.

1. Introduction
Every year, labour market in Vietnam is accreted by hundreds of thousands of economic students who graduated, therefore enriching the human capital which boosts a nation's economic growth. The annual reports published by these universities indicate that more than 80% of the fresh graduate is awarded with "good or very good degrees"; nevertheless, the paradox is that the human resource quality of Vietnam is regarded as a lower level compared to that of other Southeast Asian countries. Precisely, according to statistics provided by the General Statistics Office of Vietnam. (2019): in 2018, Vietnamese labour productivity was solely USD 11.142, equal to 7.3% that of Singaporean. Furthermore, in comparison with the labour yield in Malaysia, Thailand and Indonesia, the gaps between the figure for Vietnam and that for these countries are significant with 19%, 37%, and 44.8% respectively. In addition, IMF (International Monetary Fund, 2019) also announced the unemployment rate in Vietnam is 1.1 times as high as that in Singapore and significantly exceeded that of Thailand, which accounted for 1.2% in the first quarter of 2019. Thus, it can be said that human capital quantity in Vietnam has risen, but its quality is inappropriate in terms of the business capability requirements; this consequently leads to the imperative necessity of human capital quality improvement. Furthermore, higher education always plays a vital role in building human capital and accelerating economic growth through knowledge, skills and social creativity (Bjorke, 2017). The interdependence between undergraduate education and human development is a crucial reason why the assessment of human capital quality should be executed in conjunction with considering undergraduate factors. In this research, we are going to tackle this problem.

Over time, many previous studies took concentration on evaluating human capital and enhancing the quality of human capital. The development of human resources is considered not only as a way to fulfill the individual potential but it also shows the efforts to promote economic growth (Adedeji and Campbell, 2014; Becker, 1992; Berg, 2001; Stanley, 1967). Likewise, it is also necessary to determine the right concept of "capital quality" and to classify factors affecting human capital quality. Many authors illustrated the quality definition in various ways without having an official notion, as typically demonstrated by Har93 Kemenade and Hardjono (2008) Robin (1992) Vroeijenstijn (1992). As a result, the human resource quality measurement is depended mostly on the author's views. However, since most of the previous studies focused on the connection between human capital and enterprises, very few studies clarified the impact of undergraduate indicators on the quality of educational output which is known as

human capital; additionally, these findings are mainly established in developed countries with a significant education gap comparing to Vietnam. Hence, the purpose of this study is to conduct a broader empirical test, using both quantitative and qualitative methodologies to assess the human capital quality educated by different economic universities in Vietnam and identify its main determinants.

In order to overcome some limitations mentioned above, this article will address these problems by examining the human capital quality in terms of all aspects of human competency formation, including Knowledge, Skills, and Attitude which is synthesized in the KSA competency model. This is entirely based on Gary Becker's human capital theory (Becker, 1992). Stefan C. Wolter and Ryan (Wolter and Ryan, 2011) also explained that "General human capital is defined as all skills that are identically useful to many firms"; therefore, considering only knowledge which is evaluated by GPA to represent what students accumulate in tertiary as some previous studies are not enough.

Research data were collected through the questionnaire from economic students in the most five famous economic universities in Vietnam. To ensure the representativeness, completeness, and reliability of the collected samples, data was collected based on the following criteria:

1.1. Research Time Period

The research period is from August to October 2019. This is the time period when students of economic universities in Vietnam after the end of the summer vacation, officially enter the study. Therefore, the spirit, attitude and sense of learning were stable; there is no situation of being lazy at first or tired at the end of the semester.

1.2. The Size of the Samples Collected

Because of in-depth research of economics students, we solely choose the specializing economic universities without selecting the multidisciplinary universities (consisting of economics, technology, medicine, biology, education, society). At the same time, we also focus on public universities rather than private universities and colleges which are seen as the minority part. According to statistics, the number of public universities specializing in economics is currently six universities in Vietnam and we chose five out of six those to carry out our research. The sample rate accounted for 83.33%.

1.3. The Research Data

Research data were collected from primary data provided by our questionnaire. This questionnaire was sent randomly to more than 400 students per chosen university, including: freshman, sophomore, junior, senior, and alumni. Furthermore, students participating in our survey also have to come from numerous faculties, institutes or majors in order to ensure reliability, transparency, and accuracy.

1.4. The Number of Observations

With 2100 questionnaires given out at five different universities, we conducted 1796 observations to get the best estimate. On that basis, we set up three regression models for analysis and verification with the help of specialized software such as EVIEW 10 and SPSS 22.

Figure-1. Human capital quality
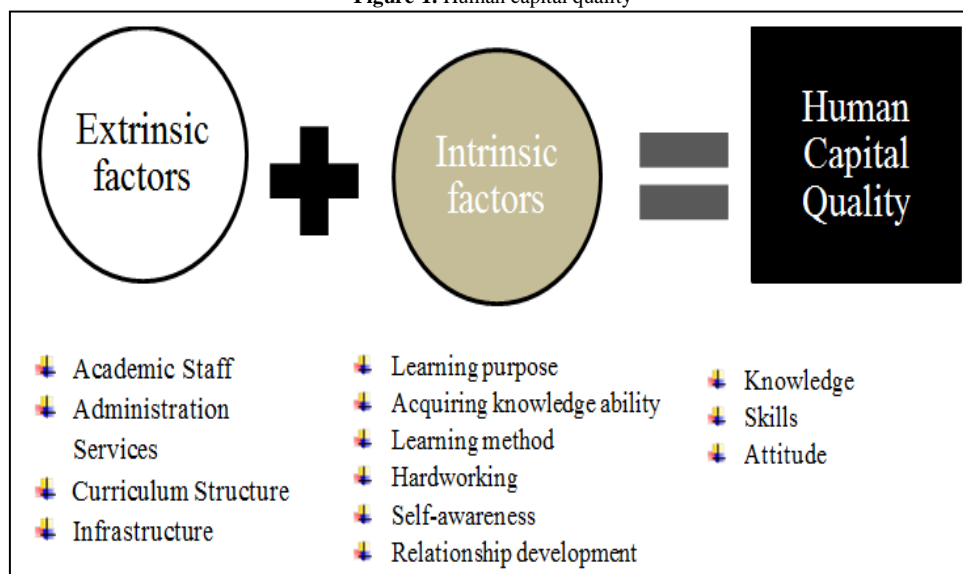
Source: Compiled by the authors based on research results

2. Literature Review

Most studies define the quality of human capital from many different angles. This would mean that two different approaches, which are direct method and indirect method, are found and accepted to define as well as evaluate the quality of human capital. On the one hand, the direct method is originated in 2002 when Cho and Gary (2004) introduced the concept of national human resources, and it emphasized that the quality of national human resources

depends on many different factors such as economy, education, culture and society. This method is supported by many researchers such as Tan et al. (2006); Tran and Mai (2008) since they believed that the quality of human resources is a combination of many factors such as intelligence, qualifications, knowledge, ethics, skills, health of human resources, and is the key to sustainable growth and competitiveness. Indirect approach, on is another hand, illustrates that the quality of human resources is based on age and education (Denison, 1962), adult literacy rates and education enrolment rates (Azariadis and Drazen, 1990; Romer, 1990), average school year' in adults (Barro and Martin, 1995; Benhabib and Spiegen, 1994), education, nutrition, finance (Daguma and Slottje, 2000).

Most of the research authors have accepted that human capital quality is reflected in the factors affecting the competency of human capital. Specifically, competencies are allocated into two different aspects: technical competencies (knowledge and skills) and behavioural competencies (attitudes) (Armstrong, 2006). This would mean that human capital quality should be evaluated through three different factors, which are skills, knowledge, and attitude in order to ensure competency and completeness. For instance, Beach (2009)) believed that the capacity of human being is knowledge and skills embedded in an individual while Garavan et al. (2001); Youndt et al. (2004); Rastogi (2002) defined the human capital as 'knowledge, competency, attitude and behaviour embedded'.

To sum up, Knowledge, Skills and Attitudes are combined in a fundamental model (KSAs) to recruit a new workforce and measure the human capital quality, therefore, it aims to identify the employees' competency in the labour workforce. However, in this research, we take concentration on finding variables affecting knowledge, skills, and attitudes which are most appropriate to evaluate the human capital quality of Vietnamese students. Particularly, we decided that knowledge is recognized upon academic achievement levels such as GPA - one of the important criteria for recruiting candidates by most universities, companies, and organizations in Vietnam. In employers' point of view, a high-score candidate can study on their own, withstand pressure and have the desire to succeed. Secondly, skills are defined as the ability to perform the tasks given using existing knowledge including English and Information Technology - the two most essential and necessary skills of human resources. Finally, attitude variables are depended on the commitment, integrity and enthusiasm level of students, thus, influencing directly to the students' capital ability.

There are numerous empirical studies investigating the determinants of human capital quality. These studies also classified the different factors affecting the human capital quality into two major groups: (1) external factors including economic situation, religion, the relationship between educational institutions and the industry, education and training (Becker, 1992; Grisez et al., 1987); (2) internal factors (self-motivation factors): personality, favourable attitude, high confidence, learning purpose, acquiring knowledge ability, learning method, hardworking, self-awareness, self-instructions and self-monitoring, relationship development (Ames et al., 1977; Ames and Ames, 1984; Ames and Archer, 1988; Corno and Mandinach, 1983; Covington, 1984; Hong et al., 1999; McKeachie et al., 1985; Nguyen, 2018; Weinstein and Mayer, 1986).

Regarding external indicators, many papers illustrated that education and economy have a strong relationship with human capital. This is because the accumulation of one's human capital on education and training investment largely affects the growth of an individual's wage, productivity, and national economy (Denison, 1962; Olugbenga and Omalara, 2013; Sakamoto and Powers, 1995; Schultz, 1961). Furthermore, education and training are definitely necessary for the human capital improvement (Griliches and Regev, 1995; Rosen and Kirkman, 1999; Tsinidou et al., 2010). Improving human resources means providing higher quality for Academic staff, Administration services, Library services, Curriculum structure, Location, Infrastructure, Carrier prospects. More specifically, recent studies of teacher effects at the classroom level using the Tennessee Value-Added Assessment System have found that differential teacher effectiveness is an important signal of transformation in student learning, far outweighing the effects of class size and heterogeneity changes (Mendro, 1997; Sanders and Rivers, 1996; Sanders et al., 1997). Choudhry et al. (2008), also indicated that the administration services exist to address needs or problems which students may have in order to allow them to concentrate more on their studies. And Iputo and Kwizera (2005) found the dropout rates to be significantly higher in the universities using a traditional curriculum which most Vietnamese universities are applying.

University facilities are also an important factor to support student learning and activities so that students can develop in the most comprehensive way. In schools, well-planned structures, clean, quiet, safe, comfortable and healthy environments are central components of successful teaching and learning methods.

On the other side, internal factors play a vital role in developing high-quality human capital. Numerous studies divided internal factors into these different aspects: learning purpose, acquiring knowledge ability, learning method, hardworking, self-awareness, relationship development (Ewell and Jones, 1996; Terenzini and Wright, 1987; Tsinidou et al., 2010). Specific goals would result in differential patterns of cognition and performance (Ames et al., 1977; Covington, 1984; Covington and Omelich, 1984). McKeachie et al. (1985), indicated that learning strategies serve to regulate and monitor time, concentration, effort, and comprehension. Hence, appropriate learning methods can help students study and develop themselves more effectively. Maina (2018), concluded that students will be able to dedicate themselves wholeheartedly towards learning and generate the desired academic outcomes by a positive attitude. Meanwhile, self-monitoring enhances students' academic achievement and classroom performance (Harris, 1986; Malone and Mastropieri, 1992; Schunk and Mastropieri, 1983). There also have been some studies about the link between students' relationship development and their achievement. Gergen (2009), states that the individual student is an imminent part of relational contexts on a variety of levels: from relationships with teachers, classmates, student groups, other local communities, and further on to larger cultural and societal communities. The analysis of Hattie (2009) shows the importance of education being communicated between teacher and student, and it defines teachers' relational competence as a key factor behind student performance.

In Vietnam, the number of researches investigating the determinants of human capital quality is very small. According to Vu (2014), the international integration trend, education and training polity, nutrition and health policy, competitors, labour market, corporate culture, human resource policy, compensation policy can influence the human capital quality of businesses considerably. Research by Pham (2017) concluded that the factors affecting the human capital quality of tourism companies in Vung Tau city, Vietnam include rights of employees, vocational training, work environment, recruitment of labour, human resources department role, tourism training institution protagonist, corporate culture, and international integration.

In conclusion, the literature review above hasfound that most researchers both national and international focus dominantly on evaluating and measuring the human capital quality through knowledge or IQ test, and they try to find some specific determinants correlating directly to improving knowledge rather than all aspects of human capital (knowledge – skills – attitudes). Consequently, factors affecting human capital quality, especially undergraduate indicators, have not been fully and comprehensively analyzed yet. Furthermore, most theoretical and empirical researches are conducted in developed countries which with a tremendous gap comparing to the Vietnamese education system, leading to misappropriation in applying the concept. Thus, this study will solve the contraries in previous researches by evaluating the impact of undergraduate indicators on the human capital quality of Vietnam with KSAs model, external factors and internal factors collected in the most five famous economic universities in Vietnam.

3. Hypothesis, Empirical Model and Research Methods
3.1. Hypothesis

To assess and evaluate the impact of the extrinsic and intrinsic factors on the human capital quality, the paper focuses on building 5 research hypotheses below, corresponding to 5 different independent variables presented in the models.

H_1: Academic staffs havea positive impact on human capital quality.

Pavelka (2016); Birch and Ladd (1997); Sherman *et al.* (2008); Werner (1989); Tucker and Stronge (2005) point out that teachers have a tremendous impact on human development, thereby having a great interaction with human capital quality in terms of understanding, skills and attitudes of students. Because the teacher is not only a person who communicates and guides students to practice and supplement their individual competencies through classroom lectures, but also a person who works directly with them daily, helping them with the characteristic formation and awareness enhancement, thereby forming human personality. Education in general, and higher education in Vietnam in particular always take learners as the center of learning, so teachers' communicating skills, experience, and qualifications are the key factors directly influencing on student development.

H_2: Administration services havea positive impact on the human capital quality.

Misra *et al.* (2018); Bhindi and Shanahan (2004); Keegan (1984) all carry out various studies on educational quality assessments and realize that improving management information systems and using online management applications are necessary method to support students before giving them an adequate and comfortable learning environment. This is because improving administration services means developing students care services, enhancing students' productivities as well as satisfaction, therefore, encouraging students to achieve better learning outcomes.

H_3: Curriculum structure has a positive impact on human capital quality.

The research results of Tsinidou *et al.* (2010) illustrate that curriculum structure is one of the focal points (along with seven other groups of factors) in the higher education development of students, whose output is the perfection of both personality, capacity and skills. Similarly, Katula and Threnhauser (1999), showed that the structure of the curriculum, along with its suitability and reliability as well as the rationality of timetable for students are not only a task but also an opportunity for universities to improve for strengthening the quality of human resources output. Thus, improving the effectiveness of the curriculum structure is expected to have a positive relationship with human capital quality.

H_4: Infrastructure has a positive impact on human capital quality.

Tsinidou *et al.* (2010), indicated that school infrastructure in general and facilities of in particular have a prerequisite role in the higher education outcome, thereby they have a great correlation with the students' capacity and awareness in the university. Specifically, research results demonstrated that school infrastructure including classrooms and laboratories has the strongest impact on the higher education training quality of students whose main output is measured by "the transformation of individuals in their knowledge, their characteristics, and their behavior " (Bandura, 1999). In fact, perspective on the positive impact of infrastructure on human capital quality was built in 1991 in the theory called SERVQUAL conducted by Berry and Zeithaml (1991). Particularly, the results of SERVQUAL model indicate that infrastructure is one of five factors (tangibles, reliability, responsiveness, assurance and empathy) directly and positively correlating to higher education improvement which affects students' development.

H_5: Self-motivation has a positive impact on human capital quality.

Taylor (1999) developed points based on previous work of Rogers (1996), to show that self-motivation (an intrinsic factors) plays a vital role in promoting personal development. This is because self-motivation includes hardworking, self-awareness, and future purpose which are called "greatest block" to help students build personal reflection, thereby serving students to find direction in learning and researching before achieving personal development goals. Having the same viewpoint with Taylor, Snadden and Thomas (1998), and Ryan (2018) suggested that the initiative in seeking information from teachers, friends as well as the openness in communication

is also the key helping students with ability improvement and individual skill development. Therefore, all factors related to self-motivation are expected to have a positive relationship with human capital quality.

3.2. Empirical Model

To consider and justify the effects of 5 different independent variables on personal development, earlier researches usually followed the method of quantitative research into the correlation and regression model with the assistance from software. Therefore, in this research, the authors will follow the method of quantitative research into regression models with the independent variable: academic staff, administration services, curriculum structure, infrastructure, and self-motivation, with the assistance of IBM - SPSS 22 version 22.0.0.0.

Three different models with three different dependent variables is built as the following:

Model 1: $KNO = \alpha + \beta_1 * STA + \beta_2 * SER + \beta_3 * STR + \beta_4 * INF + \beta_5 * MOT + \varepsilon$

Model 1: $SKI = \alpha + \beta_1 * STA + \beta_2 * SER + \beta_3 * STR + \beta_4 * INF + \beta_5 * MOT + \varepsilon$

Model 1: $ATT = \alpha + \beta_1 * STA + \beta_2 * SER + \beta_3 * STR + \beta_4 * INF + \beta_5 * MOT + \varepsilon$

Where: α, β_1, β_2, β_3, β_4, and β_5 are coefficients

ε is error

The meaning and role of different variables are as follow:

Table-1. List of dependents and independent variables of the regression models

Variable	Meaning	Determined by	Role	Model
KNO	Knowledge	GPA	Dependent variable	Y1
SKI	Skills	English	Dependent variable	SKI1
		IT	Dependent variable	SKI2
ATT	Attitude	Commitment level	Dependent variable	ATT1
		Integrality level	Dependent variable	ATT2
		Enthusiasm level	Dependent variable	ATT3
STA	Academic staffs	Academic qualification	Independent variable	STA1
		Communication skills	Independent variable	STA2
		Approachability	Independent variable	STA3
		Evaluation fairness	Independent variable	STA4
SER	Administration services	Rapid services	Independent variable	SER1
		Friendliness	Independent variable	SER2
		Information availability	Independent variable	SER3
		Clear guidelines	Independent variable	SER4
		Online management systems	Independent variable	SER5
STR	Curriculum structure	Attractive module content	Independent variable	STR1
		Qualitied educational material	Independent variable	STR2
		Efficient structure of modules	Independent variable	STR3
		Information availability	Independent variable	STR4
		Effective module variety	Independent variable	STR5
		Suitable timetable	Independent variable	STR6
INF	Infrastructure	Quality infrastructure	Independent variable	INF1
		Catering services	Independent variable	INF2
		Comfortable campus	Independent variable	INF3
		Sport facilities	Independent variable	INF4
		Convenient library	Independent variable	INF5
MOT	Self-motivation	Learning purpose	Independent variable	MOT1
		Acquiring knowledge ability	Independent variable	MOT2
		Learning method	Independent variable	MOT3
		Sense of discipline	Independent variable	MOT4
		Hardworking	Independent variable	MOT5
		Self-awareness	Independent variable	MOT6
		Relationship development	Independent variable	MOT7

Source: Compiled by the authors based on research results

3.3. Research Method

Sample collection and processing process:

3.3.1. Implementing a Selection of the Research Objects and Scopes

We have selected the top 5 economics universities in Vietnam according to the Webometrics Ranking of World Universities on July 2019 (Consejo Superior de Investigaciones Científicas-CSIC, 2019), including: (1) Foreign Trade University (FTU), (2) National Economics University (NEU), (3) Academy of Finance (AOF), (4) Banking Academy (BA) and, (5) Thuong Mai University (TMU). From there, we proceeded to select randomly from each

university and conduct interviews with 400 students including: freshman, sophomore, senior, and graduate. The selected students must belong to different disciplines, under the management of different institutes and faculties.

3.3.2. Collecting Research Data

To collect research data, we conducted a questionnaire design a questionnaire with a large set of big questionnaires, including: Personal information questions, university-specific feature questions and personal ability questions. Next, we passed questions directly to the selected students and instructed them to fill out the questionnaire before collecting student answers, including those that you didn't answer.

3.3.3. Data Processing

The data after being collected through the questionnaires we entered into Microsoft Excel. Next, we recalculated the students' responds based on a Likert scale with a graded score of 1-5 corresponding to the levels of agreement from full disagree, disagree, normal, agree, and totally agree. At the same time, we eliminated all incomplete answer forms and inconsistent answers.

After this step, remaining observations for each industry are presented as table 2.

Table-2. Research samples

University	Type	No. of students	Total	Percent
National Economics University (NEU)	Graduated	34	346	10%
	Freshman	119		34%
	Junior	81		23%
	Sophomore	58		17%
	Senior	54		16%
Foreign Trade University (FTU)	Graduated	34	348	10%
	Freshman	8		2%
	Junior	138		40%
	Sophomore	100		29%
	Senior	68		20%
Thuong Mai University (TMU)	Graduated	87	400	22%
	Freshman	38		10%
	Junior	51		13%
	Sophomore	130		33%
	Senior	94		24%
Banking Academy (BA)	Graduated	161	338	48%
	Freshman	5		1%
	Junior	36		11%
	Sophomore	44		13%
	Senior	92		27%
Academy of Finance (AOF)	Graduated	104	364	29%
	Freshman	2		1%
	Junior	98		27%
	Sophomore	66		18%
	Senior	94		26%
Grand Total		1796	1796	100%

Source: Compiled by the authors based on research results

Data collected and processed are analyzed by the methods as: Descriptive statistics analysis to describe basic quantitative characteristics of data; Correlation and regression analysis to measure linear correlations between variables in regression models through the following steps: (1)Test the quality of the measurement by Cronbach's Alpha, (2) Exploratory Factor Analysis (EFA) to separate all the variables into the exclusive element to support the following steps, (3) Parse and analyze the empirical models by using SPSS 22 and (4) Test the results from the empirical models.

4. Results
4.1. Descriptive Analysis

Descriptive statistical results in table 3 illustrate that there are three different dependent variables (KNO, SKI, and ATT) and five different independent variables (STA, SER, STR, INF, PER) with their mean, median, skewness, kurtosis, the minimum and maximum value calculated from 1796 respondents. Overall, while the mean of SKI is 3.10718, that of KNO and ATT is much higher with 3.75501 and 3.91611 respectively. This indicates that most economics students in Vietnam have sufficient knowledge and positive attitudes, but they lack some professional skills or do not be confident with their interpersonal skills including English and Information Technology. For the independent variable, the results show that STA has the highest level of the mean (3.8576) among other independent variables while SER has the lowest one, equaling to 3.44677. This would mean that the staff quality is recognized as

the most favorable of students' choices while administration services supplied by economic universities in Vietnam are on the reverse pattern.

Table-3. Variables summary

	STA	SER	STR	INF	MOT	KNO	SKI	ATT
Mean	3.8576	3.44677	3.66964	3.5216	3.65711	3.75501	3.10718	3.91611
Median	4	3.4	3.66667	3.6	3.66667	4	3	4
Maximum	5	5	5	5	5	5	5	5
Minimum	1	1	1	1	1.5	1	1	1
Std. Dev.	0.66598	0.79553	0.72623	0.88342	0.62044	0.85435	0.82209	0.68725
Skewness	-0.7342	-0.2503	-0.4174	-0.3829	-0.1438	-1.6323	-0.0954	-0.4629
Kurtosis	5.0563	3.29268	3.71949	2.93206	2.89089	6.56791	2.94894	3.1818
Jarque-Bera	477.786	25.1583	90.8802	44.2211	7.08128	1750.16	2.92205	66.6184
Probability	0	3E-06	0	0	0.029	0	0.232	0
Sum	6928.25	6190.4	6590.67	6324.8	6568.17	6744	5580.5	7033.33
Sum Sq.De	796.144	1135.99	946.706	1400.88	690.975	1310.21	1213.12	847.805

Figure 2 illustrates five different undergraduate indicators including STA (staff quality), SER (administration services), STR (curriculum structure), INF (infrastructure), and MOT (self-motivation) from the most five famous economic universities in Vietnam (National Economics University – NEU, Foreign Trade University – FTU, Academy of Finance – AOF, Thuong Mai University – TMU, and Banking Academy – BA). Overall, BA has the highest level of quality of staffs, students' motivation as well as curriculum structure, which is replaced by NEU in administration services but FTU in infrastructure while AOF is on the reverse pattern with the lowest level of STA, INF, and MOT.

With regards to the academic staff level at 5 chosen universities, it accounted for 4.03 for BA and 3.97 for NEU, showing slightly higher than the figures for the other universities. Similarly, administration service is ranked at 3.7 for NEU, which is appropriately 0.2 lower than the figure for BA but 0.2 higher than that for both FTU and AOF. By contrast, NEU, TMU have more positive feedbacks than negative feedbacks in administration services (3.62 and 3.63 respectively) and infrastructure (3.72 and 3.97 respectively) in comparison with that of FTU, BA and AOF (3.31, 3.26 and 3.37 respectively for the former and 3.36, 3.65 and 2.88 respectively for the latter). The differences between BA, which had the highest point of 3.76, and other universities, on the other hand, in terms of self-motivation of students are mostly insignificant.

Figure-2. Undergraduate indicators
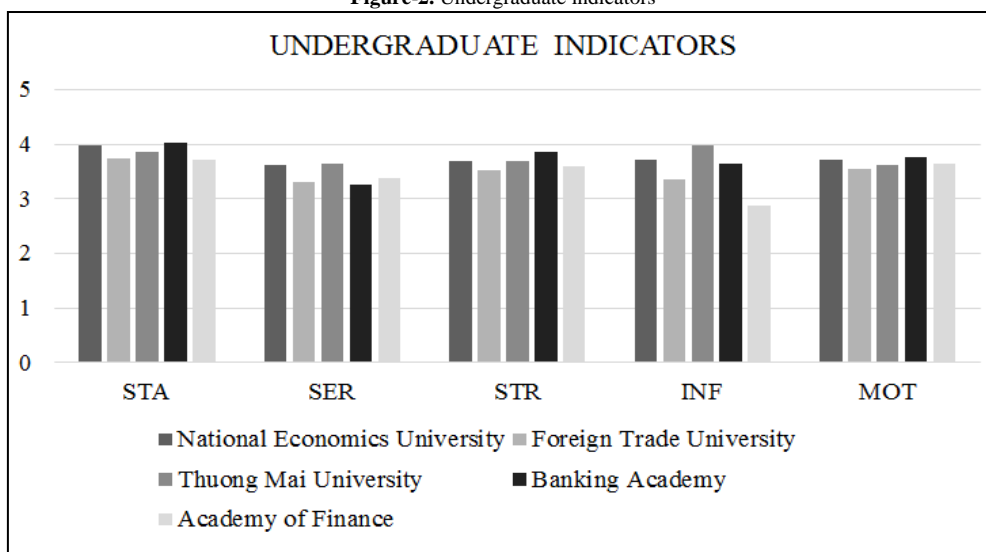
Source: Compiled by the authors based on research results

In the criterion of human capital quality, all respondents evaluated their attitude and knowledge much better than professional skills. Specifically, the findings show that AOF students had the most optimistic attitude with the mean is about 4 out of 5, as against the lowest level of attitude (3.806) recorded in FTU. On the other hand, all surveyed students except for FTU students rank their attitude higher than their knowledge. To put it another way, the highest-ranking of knowledge belonged to FTU, while that of NEU came next and Banking Academy came third, as opposed to the least figure seen for TMU (3.473). Finally, the variation between BA and NEU, FTU, TMU, AOF when it comes to professional skills was remarkable with about 0.36, 0.1, 0.09, 0.31 more points of BA respectively.

4.2. Correlation Analysis
4.2.1. Correlation Analysis with EVIEW 10.0

The table indicates the correlation among variables which is based on EVIEW's results in 5 chosen universities including the Academy of Finance, Banking Academy, Thuong Mai University, National Economics University and

Foreign Trade University in Vietnam in 2019. What stands out from the table is that all independent variables have a high level of correlation with each other except for MOT and the remaining ones (0.38461 for STA, 0.28575 for SER, 0.37408 for STR, 0.24094 for INF). From this result, it is predicted that the multi-collinear phenomenon would occur among four different independent variables. Furthermore, while only motivation and staff have a positive impact on all three dependent variables, services, structure and infrastructure impact either positively or negatively on knowledge, skills and attitude.

Table-4. Variables correlation with EVIEW 10.0

Variables	STA	SER	STR	INF	MOT	KNO	SKI	ATT
STA	1	0.63539	0.73221	0.55398	0.38461	0.02041	0.00805	0.18071
SER	0.63539	1	0.68929	0.62578	0.28575	-0.0644	-0.0785	0.14257
STR	0.73221	0.68929	1	0.61443	0.37408	-0.0216	0.06098	0.23645
INF	0.55398	0.62578	0.61443	1	0.24094	-0.0653	-0.0055	0.09511
MOT	0.38461	0.28575	0.37408	0.24094	1	0.26656	0.21491	0.38405
KNO	0.02041	-0.0644	-0.0216	-0.0653	0.26656	1	0.19446	0.04942
SKI	0.00805	-0.0785	0.06098	-0.0055	0.21491	0.19446	1	0.40755
ATT	0.18071	0.14257	0.23645	0.09511	0.38405	0.04942	0.40755	1

4.2.2. Correlation Analysis with SPSS 22

Table-5. Pearson correlation

Correlations		KNO	SKI	ATT	STA	STR	SER	INF	MOT
KNO	Pearson Correlation	1	.194**	.049*	.020	-.008	-.068**	-.072**	.257**
	Sig. (2-tailed)		.000	.036	**.387**	**.746**	.004	.002	.000
	N	1796	1796	1796	1796	1796	1796	1796	1796
SKI	Pearson Correlation	.194**	1	.408**	.008	.068**	-.096**	.001	.285**
	Sig. (2-tailed)	.000		.000	**.733**	.004	.000	**.970**	.000
	N	1796	1796	1796	1796	1796	1796	1796	1796
ATT	Pearson Correlation	.049*	.408**	1	.181**	.213**	.123**	.095**	.414**
	Sig. (2-tailed)	.036	.000		.000	.000	.000	.000	.000
	N	1796	1796	1796	1796	1796	1796	1796	1796
STA	Pearson Correlation	.020	.008	.181**	1	.701**	.631**	.533**	.386**
	Sig. (2-tailed)	.387	.733	.000		.000	.000	.000	.000
	N	1796	1796	1796	1796	1796	1796	1796	1796
STR	Pearson Correlation	-.008	.068**	.213**	.701**	1	.614**	.533**	.361**
	Sig. (2-tailed)	.746	.004	.000	.000		.000	.000	.000
	N	1796	1796	1796	1796	1796	1796	1796	1796
SER	Pearson Correlation	-.068**	-.096**	.123**	.631**	.614**	1	.599**	.278**
	Sig. (2-tailed)	.004	.000	.000	.000	.000		.000	.000
	N	1796	1796	1796	1796	1796	1796	1796	1796
INF	Pearson Correlation	-.072**	.001	.095**	.533**	.533**	.599**	1	.235**
	Sig. (2-tailed)	.002	.970	.000	.000	.000	.000		.000
	N	1796	1796	1796	1796	1796	1796	1796	1796
MOT	Pearson Correlation	.257**	.285**	.414**	.386**	.361**	.278**	.235**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	N	1796	1796	1796	1796	1796	1796	1796	1796
**. Correlation is significant at the 0.01 level (2-tailed).									
*. Correlation is significant at the 0.05 level (2-tailed).									

The table 5 indicates the correlation among variables which is based on SPSS's results in 5 chosen universities including Academy of Finance, Banking Academy, Thuong Mai University, National Economics University and Foreign Trade University in Vietnam in 2019. It can be seen from the given table that while all dependent variables have a very low level of correlation with each other, all independent variables are on the reversed pattern apart from MOT and STA, STR, SER, INF with 0.386, 0.361, 0.278, 0.235 respectively. This would mean that it would be likely to arise the multi-collinear phenomenon among four different independent variables. At the next steps, we will examine whether or not to have this phenomenon. Additionally, the table shows that no linear relationship is recorded among groups: KNO with STA and STR, SKI with STA and INF; whereas, ATT is affected by all independent variables. In particular, the impacts of six various independent variables on KNO, SKI and ATT are

divided into three respective groups: SER and INF but MOT has negative influences on KNO; STR and MOT but SER impacts positively on SKI and all independent variables have positive impacts on ATT.

4.3. Regression Models
4.3.1. Measuring Reliability by a Factor Cronbach's Alpha

For STA variables, the test results show that the observed STA variables have an appropriate total correlation coefficient (≥ 0.3). Cronbach's Alpha coefficient = 0.820 ≥ 0.8 so the variables STA1, STA2, STA3, and STA4 meet the requirements of reliability and are a very good measuring scale representing the variable STA. For SER variables, the test results illustrate that the observed variables SER have an appropriate correlation coefficient of total variables (≥ 0.3). Cronbach's Alpha coefficient = 0.860 ≥ 0.8, so variables SER1, SER2, SER3, SER4, and SER5 meet reliability requirements and are a very good measurement scale representing the variable SER. For STR variables, the test results indicate that the STR observed variables have an appropriate total correlation coefficient (≥ 0.3). Cronbach's Alpha coefficient = 0.867 ≥ 0.8, so the variables STR1, STR2, STR3, STR4, STR5, and STR6 meet the requirements of reliability and are a very good measurement scale representing the STR variable. And for INF variables, the test results show that the INF observed variables all have appropriate correlation coefficients (≥ 0.3). Cronbach's Alpha coefficient = 0.863 ≥ 0.5 so the variables INF1, INF2, INF3, INF4, and INF5 are very good scales for INF.

For MOT variables, the test results show that Cronbach's Alpha coefficient if Item deleted of MOT4 and MOT5 variables is greater than Cronbach's Alpha coefficient = 0.423 and Corrected Item of both variables is less than 0.3, so if removing these two variables from the model, The Cronbach's Alpha reliability coefficient of the MOT variable will increase. Therefore, we need to remove MOT4 and MOT5 variables from the MOT variable to increase the reliability of the scale. Continuing to perform the reliability test of variables MOT1, MOT2, MOT3, MOT6, and MOT7 using the Cronbach's Alpha scale, show that all remaining MOT variables appropriate correlation coefficients (≥ 0.3). Cronbach's Alpha coefficient = 0.863 ≥ 0.5 so the variables MOT1, MOT2, MOT3, MOT6, and MOT7 are very good measurement scales for MOT.

4.3.2. Analysis of discovery factors EFA

The analysis of the EFA discovering factors shows that: Because 0.5 <KMO coefficient = 0.943 <1,000, the analysis of the factors is consistent with the research data set. In addition, Bartlett's Test of Sphericity has shown that the observed variables in the same factor are correlated with each other due to Sig (Bartlett's Test) = 0 <0.05.

Table- 6. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.041	40.165	40.165	10.041	40.165	40.165	5.178	20.711	20.711
2	2.719	10.875	51.039	2.719	10.875	51.039	3.543	14.172	34.884
3	1.502	6.006	57.046	1.502	6.006	57.046	3.448	13.792	48.676
4	1.138	4.550	61.596	1.138	4.550	61.596	3.230	12.920	61.596
5	.932	3.726	65.322						
6	.759	3.035	68.357						
7	.659	2.636	70.993						
8	.623	2.493	73.486						
9	.587	2.350	75.836						
10	.553	2.213	78.050						
11	.535	2.139	80.188						
12	.489	1.955	82.143						
13	.469	1.875	84.019						
14	.423	1.692	85.711						
15	.399	1.597	87.308						
16	.390	1.559	88.867						
17	.387	1.549	90.416						
18	.353	1.413	91.829						
19	.347	1.387	93.216						
20	.329	1.315	94.531						
21	.324	1.295	95.826						
22	.282	1.130	96.955						
23	.276	1.103	98.059						
24	.243	.974	99.032						
25	.242	.968	100.000						

From the analysis of the independent variables included in the model, we find that there are four factors extracted at Eigenvalue: 1,138. If the model uses one more factor (the fifth factor), the Eigenvalue is now 0.932 <1. Therefore, if we rely on Eigenvalue criteria 1 or more, we stop at the fourth factor. In addition, because total

variance explained = 61.596%> 50% shows the EFA model is suitable. Thus, the 4 extracted factors will explain 61.596% of the variability of the observations.

From the Rotated Component Matrix results, variables STR1, STR5, INF5, and SER3 will be excluded from the model because:

- The variables STR5, and INF5 upload in both Component 1 and Component 2, while the STR1 variables uploaded in Component 1 and Component 4 violate the discrimination in rotation matrix with the difference in a load factor of less than 0.3.
- Variable SER 3 uploads in all three components Component 1, 2, and 4, violating the discriminatory nature in the rotation matrix with the difference of the load coefficient less than 0.3.

After making the reliability measurement of the independent variables using Cronbach's Alpha test and EFA discovery factor analysis, the remaining variables in the models are as follows:

Table-7. Remaining variables in the models

No.	Variables	Remaining variables	Meaning
1	STA	STA1, STA2, STA3, and STA4	Independent variable
2	STR	STR2, STR3, STR4, and STR6	Independent variable
3	SER	SER1, SER2, SER4, and SER5	Independent variable
4	INF	INF1, INF2, INF3, and INF4	Independent variable
5	MOT	MOT1, MOT2, MOT3, MOT6, and MOT7	Independent variable
6	KNO	GPA	Dependent variable
7	SKI	English, and Computer	Dependent variable
8	ATT	Commitment, Integrity, and Enthusiasm	Dependent variable

Source: Compiled by the authors based on research results

4.3.3. Regression Models
4.3.3.1. KNO Model

Because after conducting Pearson correlation analysis (Table 5), independent variables STA and STR were not correlated to KNO, so these two independent variables were excluded from the model before performing regression model analysis.

Table-8. Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.302[a]	.091	.090	.8152	1.804
a. Predictors: (Constant), MOT, INF, SER					
b. Dependent Variable: KNO					

Source: Compiled by the authors based on research results

Table 8 illustrates that the Durbin - Watson value is 1.804, greater than 1.5 and less than 2.5. This means that there is no autocorrelation in the sample.

Table-9. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	119.373	3	39.791	59.879	.000[b]
	Residual	1190.832	1792	.665		
	Total	1310.205	1795			
a. Dependent Variable: KNO						
b. Predictors: (Constant), MOT, INF, SER						

Source: Compiled by the authors based on research results

Table 9 shows that the p-value for the F-test is 0.000, less than 0.05. Therefore, it can be said that KNO model is reliable.

Table-10. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.002	.119		25.257	.000		
	SER	-.107	.030	-.103	-3.609	.000	.621	1.609
	INF	-.075	.026	-.082	-2.911	.004	.636	1.572
	MOT	.377	.029	.305	12.941	.000	.916	1.092
a. Dependent Variable: KNO								

Source: Compiled by the authors based on research results

In Table 10, because the P-values (t-test) of the independent variables in the KNO model are all less than 0.05, all these variables are statistically significant. Furthermore, the variance inflation factor (VIF) of the independent variables is less than 2, so there is no multicollinearity in the model.

Thus, KNO Model can be written as:

KNO = 3.002 – 0.107* SER - 0.075 * INF + 0.377 * MOT + u

4.3.3.2. SKI Model

Similar to KNO, after conducting Pearson correlation analysis (Table 5), STA and INF variables have no correlation with SKI, so these two variables will be removed from the SKI model before performing regression model analysis. Because the Durbin - Watson value is 1.932, greater than 1.5 and less than 2.5. This means that there is no autocorrelation in the sample. ANOVA analysis results show that the p-value for the F-test is 0.000, less than 0.05. Therefore, it can be said that the SKI model is reliable.

The results of the coefficient analysis show that: Because the P-values (t-test) of the independent variables in the SKI model are all less than 0.05, all these variables are statistically significant. Furthermore, the variance inflation factor (VIF) of the independent variables is less than 2, so there is no multicollinearity in the model. Thus, SKI Model can be written as:

SKI = 2.156 – 0.249* SER + 0.376 * MOT + 0.115 * STR + u

4.3.3.3. ATT Model

As well as analysis results of KNO and SKI models, after conducting Pearson correlation analysis (Table 5), all independent variables have an impact on ATT, we continue to study regression model for this dependent variable. The results of the Adjusted R Square is 0.176. This means that the changes in ATT are 17.6% related to the changes in the independent variables, including MOT, INF, STR, SER, and STA. Furthermore, the Durbin - Watson value is 2.038, greater than 1.5 and less than 2.5. This means that there is no autocorrelation in the sample. ANOVA analysis also shows that the p-value for the F-test is 0.000, less than 0.05. Therefore, it can be said that ATT model is reliable. The results of the coefficient analysis show that, because the P-values (t-test) of the SER and INF in the ATT model are more than 0.05, both these variables be eliminated from ATT model.

Thus, ATT Model can be written as:

ATT = 2.324 + 0.021* STA + 0.107 * STR + 0.393 * MOT + u

5. Conclusion and Recommendation
5.1. Conclusion

From the research results mentioned above, it can be said that no academic staffs' parameter is related to the knowledge and skills of students. Nevertheless, lecturers could enhance the positive attitude of students, leading to a better performance of the labour workforce. Administrative services, on the other hand, impacts negatively on knowledge and skills although it does not any relationship with students' attitudes. Curriculum structure, on the other hand, is an indicator with positive effect in both skills and attitude but it does not affect students' knowledge. Finally, while the infrastructure of these universities has a slightly negative influence on knowledge and no impact on skills or attitude, motivation accounts for the most significant positive impact on all three different aspects (knowledge, skills, and attitude) of students.

The results of the research can be summarized through the following table 11:

Table-11. Research results

	STA	SER	STR	INF	MOT
KNO	0	-	0	-	+, very strong
SKI	0	-, strong	+	0	+, very strong
ATT	+	0	+	0	+, very strong
Where: '+': positive impact '–': negative impact					

Source: Compiled by the authors based on research results

5.2. Limitations

The study is focused on collecting and analyzing cross-sectional data so that there are some shortcomings about data and timing. Firstly, receiving a non-response when conducting a cross-sectional study can result in bias and inaccuracy when outcomes are being measured. Moreover, the survey is conducted from only five economic universities in Vietnam, then the risk of error increases in the results because of the sample size. Secondly, cross-sectional data does not show the data over a period of time and compare the past with the future, which reduces the validity of the study conclusions.

Furthermore, there is a lack of prior research papers on the impact of undergraduate indicators on human capital quality in Vietnam. Consequently, there are limitations to make verification and comparison between this study with other previous empirical studies, especially in Vietnam. Therefore, this research is currently stopping at evaluating and analyzing the impact of different undergraduate indicators on the human capital quality from 1796 Vietnamese students and graduates.

Finally, this study has not considered the impact of macro factors such as economic conditions, social and political factors, culture, policy as well as some other intrinsic factors including household income, health, and personality of economic students and graduates in Vietnam. Therefore, this research does not take into account some risks of changing in the macro-environment, which directly affects the education environment of Vietnamese students.

5.3. Recommendation
5.3.1. For the State

Generally, the State plays a significant role in developing high-quality human capital for the Vietnamese labour workforce, especially in the education aspect. Previous studies have shown that the high-quality human resources trained by the higher education system are an important part in national economic development; hence, the State should take concentration on investment in the quality of human capital output as well as education and training facilities. Although the authorities have had to deal with many troubles in making Education Policy Reforms, appropriate changes in education still need to be done to enhance the quality of human resources. From the author's point of view, the first step in reforming the quality of education should be establishing the Instituting reliable school accountability system for schools, which is widely publicized. Thus, the higher responsibility in training is, the better the outcomes will be.

In addition, the State should encourage cooperation between public and private partnerships to reduce the financial burden on the national budget for education. Specifically, the State could offer positive conditions as well as minimize the process of partnership without irresponsibility and superficial management. On the other hand, being the one who provides directions, the Government should take more proactive actions instead of receiving responses and complaints.

5.3.2. For Vietnamese Economic Universities

Vietnamese economics universities should focus on improving and developing:

- *Professional qualifications and pedagogical skills of lecturers*: Improving teacher recruitment standards and evaluating teaching quality regularly. In addition, economics universities should also focus on the communication and interaction skills of academic staffs especially in the recruitment process (besides professional aspects such as expertise and research experience). On that basis, enhancing students' positive attitude and effective interaction between lecturers - students.
- *Quality of facilities*: Investing in the development of facilities for lecture halls, sports and culture as well as hygienic food and drink catering services for students to increase the students' interest in learning and acquiring knowledge.
- *Learning materials*: Providing high-quality learning materials, suitable curriculum structure with an appropriate course schedule and available information. In addition, when changing the curriculum, the school should take concentration on the improvement of students' strengths.
- *Personal development of students*: Encouraging students' awareness about learning as well as proposing useful extracurricular activities so that students can improve their personal development in the most suitable way.

5.3.3. For Vietnamese Economic Students

Self-motivation does not only show the most powerful impact on the quality of human resources after four years of higher education but also has a great influence on the development and improvement of each individual. Therefore, economics students need to focus on improving their weaknesses as well as enhancing the potential capabilities. Thus, well-prepared individuals will contribute a great part in improving the quality of the nation's human capital.

Therefore, students should take the following advice to become a better version of themselves:

- *Self-study*: Students should spend time on self-study instead of relying on teachers in school. Hence, students could understand knowledge more thoroughly as well as improve the ability to acquire knowledge in the classroom.
- *Personal interests*: Students should also actively explore and foster their strengths and hobbies, especially interests related to the major of study. With a passion for the study as well as their future career, students will have more motivation to try and achieve better performance.
- *Extracurricular activities*: University life of students should also consider extracurricular activities. Clubs can foster professional expertise, improve soft skills as well as connect social relationships for students. Therefore, students can improve themselves to be valuable candidates in the labour workforce.

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