

ANALYSIS THE IMPACT OF MACRO FACTORS AFFECT TO DEVELOPMENT OF HIGHLY QUALIFIED HUMAN RESOURCES IN NAM DINH

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Abstract

In fact, there are many different factors affect the development of highly qualified human resources in Nam Dinh province, including both micro and macro factors that have an influence. With the research approach to state management in human resource development, the influencing factors considered are macro factors. In this content, the authors study the macro factors affecting the province's highly qualified human resources development, including: State management of central high qualified human resources development; Education-training factor; Economic factors; Labor force; Science and technology; Socio-culture... to build a linear regression function to determine the degree of influence of quantitative factors on the development of highly qualified human resources of Nam Dinh province.

Key words: *Human resource, high quality human resource, industrialization and modernization, development, high quality human resource, Nam Dinh province.*

1. Introduction

In the context of the rapid development of science and technology revolution and the trend of economic globalization to promote the rapid spread of knowledge economy, Vietnam in general and Nam Dinh. Nam Dinh is a province in the Red River Delta with a natural area of 1,669.2 km² and has a population of about 2,200,000 people. Geographical position is located at the end of the Red River, on 1A Highway, and Nam Dinh province is about 90 km distance to the center of Hanoi city, which is very convenient for economic development. However, at present, the socio-economic development level of Nam Dinh is still poor due to the shortage of highly qualified human resources and the weakness in the organization to develop highly qualified human resources. Therefore, the quantitative analysis, building regression function, determining the influence of the factors affecting the development of highly qualified human resources in Nam Dinh is urgent and meaningful for research.

2. Methods

The paper is carried on basing on a combination of both qualitative and quantitative research methods closely in the research process with the desire to not only describe the theoretical picture of the impact of developing highly qualified human resources, but also quantify this impact through reliable statistics of Nam Dinh province. These methods include some steps as follows:

Collect primary documents at: Provincial Party Committee, Office of Provincial People's Committee, departments, departments, branches, some universities, colleges, hospitals and businesses, offices of People's Committees of districts, functional departments of People's Committees of districts in Nam Dinh province.

Determine the number of survey forms for this research: Based on the overall scale of the highly qualified human resources of Nam Dinh province available in 2019, which is 179,337 people, The expected confidence level when survey is 91.5%, error 8.5%: . Look up the normal distribution table with 91.5% confidence, get the variable value: $Z=2.58$. Ratio of random survey sample with probability $p = q = 0.5$. The expected number of survey samples to study the thesis topic is determined by the formula and must survey:

$$n = \frac{N \cdot Z^2 \cdot p \cdot q}{N \cdot \varepsilon^2 + Z^2 \cdot p \cdot q} = 230 \text{ (samples)} \quad (\text{Nguyen Thi Canh, 2016})$$

Data processing: Primary information and datas are collected through surveys, then (1) review and screen information, documents and data that are unclear, dishonest, and inaccurate, then collect and synthesize information, documents and raw data by manual method. (2) Edit and encrypt information, documents and data by computer and application software. (3) For primary data, after being cleaned, coded and analyzed, evaluated by scales, model tested and presented into an official research report on SPSS 21 software, AMOS software for quantitative analysis.

3. Results

In fact, there are many factors affecting the development of highly qualified human resources in Nam Dinh province, including groups of micro factors such as employment position, recruitment, training, personnel arrangement, working environment, salary, remuneration, remuneration policy in organizations, enterprises and group of macro factors as mentioned above. In the scope of research on state management on the development of highly qualified human resources, the authors focus on researching and measuring the impact of macro-environmental factors affecting the development of qualified human resources. Nam Dinh province consists of 6 factors: State management factors on human resource development at central level; Education and training factors; Economic factors; Labor force

factor; Scientific and technological factors; Cultural and social factors are the official factors used for quantitative analysis in this research.

3.1. Research scale and measure influencing factors

To evaluate the factors affect the development of highly qualified human resources (HQHRs) in Nam Dinh province, we first build a scale to measure them. These scales are built in the form of a 5-point Likert scale, specifically:

3.1.1. Research scale

*** Scale of developing HQHRs of Nam Dinh province (6 observed variables)**

| Encode | Content / Observable Variables |
|---------------|---|
| PTNNL1 | Developing HQHRs of Nam Dinh province in terms of scale |
| PTNNL2 | Developing HQHRs of Nam Dinh province in terms of quality |
| PTNNL3 | Developing HQHRs of Nam Dinh province in terms of structure |
| PTNNL4 | Program to develop HQHRs of Nam Dinh province |
| PTNNL5 | Planning for developing HQHRs of Nam Dinh province |
| PTNNL6 | Policy in developing HQHRs of Nam Dinh province |

*** Scale of economic variables (4 observed variables)**

| Encode | Content / Observable Variables |
|---------------|--|
| KT1 | The level of economic growth affects the development of HQHRs in terms of size, quality and structure of Nam Dinh province |
| KT2 | Economic activities of the agriculture, forestry and fishery sectors affect the development of HQHRs in Nam Dinh in terms of structure, scale and quality. |
| KT3 | Economic activities of industry and construction have an impact on the development of structure, scale and quality of HQHRs of Nam Dinh province. |
| KT4 | Economic activities of the service-commercial sector affect the development of structure, scale and quality of HQHRs in Nam Dinh province. |

*** Scale of state management variables on human resource development at central level (5 observed variables)**

| Encode | Content / Observable Variables |
|---------------|--|
| QL1 | The central level human resource development strategy affects the planning, plans and policies in developing HQHRs of Nam Dinh province. |
| QL2 | The central human resource development plan affects the planning, plans and policies for the development of HQHRs in Nam Dinh province. |
| QL3 | The central planning of human resource development affects the planning, plans and policies in developing HQHRs of Nam Dinh province |
| QL4 | The central-level human resource development policy affects the planning, policies and programs for the development of HQHRs in Nam Dinh province. |
| QL5 | The central-level human resource development program affects the master plans, plans and policies in developing HQHRs of Nam Dinh province |

*** Scale of labor force variables of Nam Dinh province (4 observed variables)**

| Encode | Content / Observable Variables |
|---------------|--|
| LD1 | Abundant labor force affects the development of HQHRs in terms of scale and structure of Nam Dinh province |
| LD2 | The labor force participation rate affects the structure of HQHRs development in Nam Dinh province |
| LD3 | Human resource HDI affects the development of HQHRs in Nam Dinh province |
| LD4 | The qualified level of labor force affects the development of HQHRs in Nam Dinh |

*** Scale of education and training variables of Nam Dinh (5 observed variables)**

| Encode | Content / Observable Variables |
|---------------|---|
| GD1 | The system of colleges and universities affects the development of scale, quality and structure of HQHRs in Nam Dinh province. |
| GD2 | The training professions of colleges and universities affect the development of the structure of HQHRs in Nam Dinh province. |
| GD3 | Training programs of colleges and universities in the province affect the development of the quality of HQHRs in Nam Dinh province. |

| | |
|-----|--|
| GD4 | Training methods and forms of colleges and universities affect the development of the quality of HQHRs in Nam Dinh province. |
| GD5 | The teaching staff of colleges and universities have an impact on the quality development and structure of HQHRs in Nam Dinh province. |

*** Scale of science and technology variables of Nam Dinh (4 observed variables)**

| Encode | Content / Observable Variables |
|--------|--|
| CN1 | The level of investment in science and technology of the province affects the development of scale and quality of HQHRs of Nam Dinh province. |
| CN2 | The level of scientific and technological development for the agriculture, forestry and fishery sectors affects the development of scale, quality of HQHRs of Nam Dinh |
| CN3 | The level of scientific and technological development for industry and construction affects the development of scale and structure of HQHRs of Nam Dinh. |
| CN4 | The level of scientific and technological development for the service and trade sectors affects the development of the scale and structure of HQHRs of Nam Dinh. |

*** Cultural and social scale of Nam Dinh province (5 observed variables)**

| Encode | Content / Observable Variables |
|--------|--|
| VH1 | Regional culture affects the development of HQHRs in Nam Dinh province in terms of quality and structure. |
| VH2 | Humanistic culture affects the development of HQHRs in Nam Dinh in terms of quality. |
| VH3 | Behavioral culture of human resources affects the development of HQHRs in the province in terms of quality. |
| VH4 | Social background affects the development of HQHRs in Nam Dinh province in terms of quality and structure. |
| VH5 | Cultural and social characteristics affecting the development of HQHRs in Nam Dinh in terms of quality and professional quality. |

3.1.2. Measure influencing factors

To measure the factors affecting the development of HQHRs in Nam Dinh as a basis for testing the validity and reliability of the research scales, the authors conducted a practical survey at 60 agencies and enterprises in Nam Dinh, with the number of survey votes is 300. The purpose is to survey the level of impact of factors affecting the development of

renewable energy in Nam Dinh with 33 observed variables. Using survey results to test the validity and reliability of 7 scales by exploratory factor analysis (EFA) and Cronbach coefficient α . Considering the relationship between 33 observed variables in the population by KMO and Bartlett's test with the support of the statistical software SPSS, it shows that there is a correlation between the variables (significance level sig. = 0.000 < 0.05, KMO coefficient = 0.676 (0.5 < KMO < 1.0), proving that EFA analysis for grouping these observed variables together is appropriate:

a. Preliminary check the reliability of 7 scales with 118 questionnaires, the survey was put into use, ran the data and obtained the following results:

1. Education and training scale (GD)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|--|------------|
| .801 | 5 |
| The reliability of the education and training (GD) factor shows that the variables in the scale have Cronbach's Alpha coefficient = 0.801 > 0.6 to ensure reliability. | |

[Source: Analytical results from SPSS 21]

2. Science and technology scale (CN)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|---|------------|
| .786 | 4 |
| The reliability of the science and technology (CN) factor shows that the variables in the scale have Cronbach's Alpha coefficient = 0.786 > 0.6, which ensures reliability. | |

[Source: Analytical results from SPSS 21]

3. Labor force scale (LD)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|--|------------|
| .732 | 4 |
| The reliability of the labor force factor shows that the variables in the scale have Cronbach's Alpha coefficient = 0.732 > 0.6 to ensure reliability. | |

[Source: Analytical results from SPSS 21]

4. Socio-cultural scale (VH)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .597 | 5 |

The reliability of cultural and social factors shows that the variables in the scale have Cronbach's Alpha coefficient = 0.597 < 0.6 (not guaranteed). Removed variable VH.

[Source: Analytical results from SPSS 21]

5. State management scale on human resource development at central level (QL)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .798 | 5 |

The reliability of the state management factor on human resource development at the central level shows that most of the variables in the scale have Cronbach's Alpha coefficient = 0.798 > 0.6, ensuring reliability.

[Source: Analytical results from SPSS 21]

6. Economics scale (KT)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .750 | 4 |

The reliability of economic factors shows that most of the variables in the scale have Cronbach's Alpha coefficient = 0.750 > 0.6 to ensure reliability.

[Source: Analytical results from SPSS 21]

7. Scale of development of highly qualified human resources of Nam Dinh (PTNNL)

Reliability Statistics

| | |
|--|------------|
| Cronbach's Alpha | N of Items |
| .803 | 6 |
| The reliability of the HQHRs development factor of Nam Dinh shows that most of the variables in the scale have Cronbach's Alpha coefficient = 0.803 > 0.6, which ensures high reliability. | |

[Source: Analytical results from SPSS 21]

Below is a summary table of Cronbach's Alpha coefficient and the preliminary total correlation coefficient of the scales of 118 questionnaires.

Bảng 3.32. Cronbach's Alpha coefficient and the preliminary total variable correlation of the scales

| Factors | Number of variables | Cronbach's Alpha | Coefficient of correlation of total variables (min & max value) | Number of variables removed |
|---------|---------------------|------------------|---|-----------------------------|
| GD | 5 | 0,801 | 0,395; 0,523 | 0 |
| CN | 4 | 0,786 | 0,398; 0,541 | 0 |
| LD | 4 | 0,732 | 0,452; 0,573 | 0 |
| VH | 5 | 0,579 | 0,286; 0,427 | 1 |
| QL | 5 | 0,798 | 0,390; 0,568 | 0 |
| KT | 4 | 0,750 | 0,429; 0,595 | 0 |
| PTNNL | 6 | 0,803 | 0,335; 0,561 | 0 |

[Source: Analytical results from SPSS 21]

b. Evaluation of the reliability of the official scales with the number of questionnaires put into use is 566 questionnaires and surveys

1. Education and training scale (GD)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|---|------------|
| .819 | 5 |
| Total correlation coefficient (corrected item-total correlation with 5 observed variables: GD1, GD2, GD3, GD4, GD5), the lowest at 0.547, is higher than 0.3, showing that all observed variables are used for analysis. exploratory factor analysis EFA. | |

[Source: Analytical results from SPSS 21]

2. Science and technology scale (CN)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|---|------------|
| .782 | 4 |
| Total correlation coefficient (corrected item-total correlation with 4 observed variables: CN1, CN2, CN3, CN4), the lowest reached 0.442, all higher than 0.3, showing that all observed variables are used for multivariable analysis. EFA discovery factor. | |

[Source: Analytical results from SPSS 21]

3. Labor force scale (LD)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|---|------------|
| .775 | 4 |
| Total correlation coefficient (corrected item-total correlation with 4 observed variables: LD1, LD2, LD3, LD4) was 0.553, all > 0.3, showing that all observed variables were used for factor analysis. Discover EFA. | |

[Source: Analytical results from SPSS 21]

4. State management scale on human resource development at central level (QL)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|---|------------|
| 0.801 | 5 |
| Total correlation coefficient (corrected item-total correlation with 4 observed variables: QL1, QL3, QL4, QL5), the lowest was 0.345, all higher than 0.3, showing that all observed variables were used for multivariable analysis. EFA discovery factor. However, removeing variable QL2 (Cronbach's Alpha coefficient = 0.806 > 0.801) | |

[Source: Analytical results from SPSS 21]

5. Economics scale (KT)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|---|------------|
| .768 | 4 |
| The lowest item-total correlation coefficient (corrected item-total correlation with 3 observed variables KT1, KT2, KT4) is 0.532, all higher than 0.3, showing that all observed variables are used for exploratory factor analysis. EFA. However, removing variable KT3 (Cronbach's Alpha coefficient = 0.797 > 0.768). | |

[Source: Analytical results from SPSS 21]

6. Scale of development of highly qualified human resources of Nam Dinh (PTNNL)

Reliability Statistics

| Cronbach's Alpha | N of Items |
|--|------------|
| .803 | 6 |
| Total correlation coefficient (corrected item-total correlation with 6 observed variables: PTNNL1, PTNNL2, PTNNL3, PTNNL4, PTNNL5, PTNNL6), the lowest reached 0.444, all higher than 0.3, showing that all observed variables were used. for exploratory factor analysis EFA. | |

[Source: Analytical results from SPSS 21]

3.1.3. Exploratory factor analysis (EFA)

The first EFA analysis for the groups of factors, the results show that $KMO = 0.855 > 0.5$, the Sig of Bartlett's test = $0.000 < 0.05$ is satisfied. However, the observed variable

QL5, PTNNL4 in the Pattern Matrix^a table is not satisfied with the factor loading factor >0.5. Therefore, these variables are in turn excluded from the model.

KMO and Bartlett's Test

| | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .855 |
| | Approx. Chi-Square | 5193.628 |
| Bartlett's Test of Sphericity | df | 351 |
| | Sig. | .000 |

Pattern Matrix^a

| | Factor | | | | | |
|--------|--------|------|------|------|------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| GD5 | .732 | | | | | |
| GD4 | .721 | | | | | |
| GD1 | .718 | | | | | |
| GD2 | .670 | | | | | |
| GD3 | .616 | | | | | |
| KT1 | | .879 | | | | |
| KT2 | | .761 | | | | |
| KT4 | | .681 | | | | |
| LD3 | | | .751 | | | |
| LD2 | | | .664 | | | |
| LD4 | | | .655 | | | |
| LD1 | | | .652 | | | |
| PTNNL1 | | | | .739 | | |
| PTNNL2 | | | | .666 | | |
| PTNNL6 | | | | .555 | | |
| PTNNL3 | | | | .511 | | |
| PTNNL5 | | | | | | |
| QL4 | | | | | .712 | |
| QL3 | | | | | .676 | |
| QL1 | | | | | .592 | |
| QL5 | | | | | .471 | |

| | | | | | | |
|--------|--|--|--|--|--|------|
| CN3 | | | | | | .653 |
| CN4 | | | | | | .632 |
| CN1 | | | | | | .611 |
| CN2 | | | | | | .509 |
| PTNNL4 | | | | | | .423 |

Thus, the data is suitable for EFA factor analysis, the significance level is $\text{sig} < 0.05$, so it can be concluded that the observed variables are correlated with each other. Through the table, we see that the proposed factors explain $56,198\% > 50\%$ of the variables with the stopping point used reaching $2,680 > 1$, satisfying the requirements.

Pattern Matrix^a

| | Factor | | | | | |
|--------|--------|------|------|------|------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| GD5 | .740 | | | | | |
| GD1 | .739 | | | | | |
| GD4 | .722 | | | | | |
| GD2 | .655 | | | | | |
| GD3 | .620 | | | | | |
| LD3 | | .740 | | | | |
| LD2 | | .673 | | | | |
| LD1 | | .656 | | | | |
| LD4 | | .655 | | | | |
| PTNNL1 | | | .752 | | | |
| PTNNL2 | | | .655 | | | |
| PTNNL6 | | | .596 | | | |
| PTNNL3 | | | .506 | | | |
| PTNNL5 | | | | | | |
| KT1 | | | | .890 | | |
| KT2 | | | | .775 | | |
| KT4 | | | | .678 | | |
| CN3 | | | | | .678 | |
| CN4 | | | | | .636 | |

| | | | | | | | |
|-----|--|--|--|--|--|------|------|
| CN1 | | | | | | .543 | |
| CN2 | | | | | | .515 | |
| QL4 | | | | | | | .716 |
| QL3 | | | | | | | .690 |
| QL1 | | | | | | | .581 |

Extraction Method: Principal Axis Factoring.

[Source: Analytical results from SPSS 21]

Thus, through testing the reliability of the scale, analyzing factors, factors and the remaining 24 observed variables, 6 factors were obtained, of which 5 factors are independent variables affecting development. The HQHRs of Nam Dinh province are as follows:

Factor 1: GD5, GD1, GD4, GD2, GD3 ; Factor 2: LD3, LD2, LD1, LD4

Dependent factor 3: PTNNL1, PTNNL2, PTNNL6, PTNNL3, PTNNL5

Factor 4: KT1, KT2, KT4; Factor 5: CN3, CN4, CN1, CN2

Factor 6: QL4, QL3, QL1

3.2. Research hypothesis and proposed research model

The research hypotheses (H) include: (H1): Education and training have a positive impact on the development of HQHRs in Nam Dinh province; (H2): The characteristics of the labor force have a positive impact on the development of HQHRs in Nam Dinh province; (H3): The economy has a positive impact on the development of HQHRs in Nam Dinh province; (H4): Science and technology have a positive impact on the development of HQHRs in Nam Dinh province; (H5): State management of HRs development at the central level has a positive impact on the development of HQHRs in Nam Dinh province.

- Proposed research model:

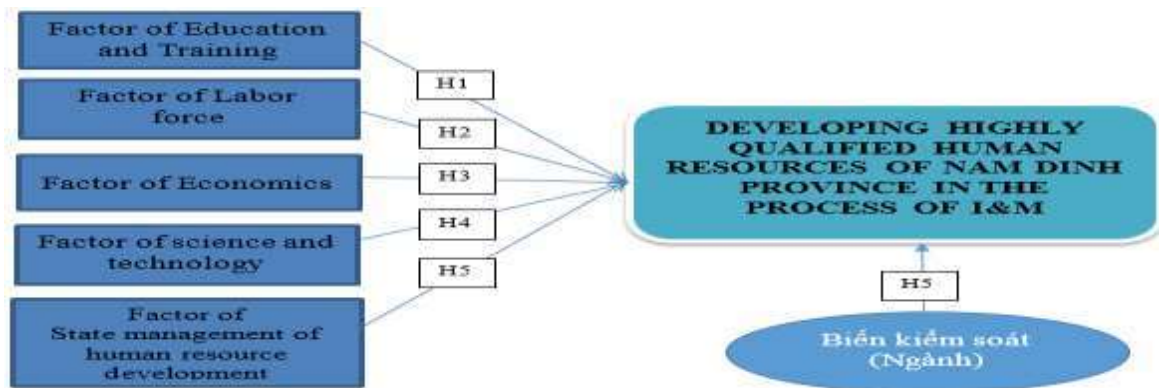


Diagram No1. Proposed research model

With the above model structure, studying the factors affecting the development of highly qualified human resources in Nam Dinh province has the form of a linear regression function:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + U_i \quad ;$$

Independent variables (X1): GD5, GD1, GD4, GD2, GD3

Independent variables (Y): LD3, LD2, LD1, LD4

Dependent factor 3: PTNNL1, PTNNL2, PTNNL6, PTNNL3, PTNNL5

Independent variables (X3): KT1, KT2, KT4;

Independent variables (X4): CN3, CN4, CN1, CN2

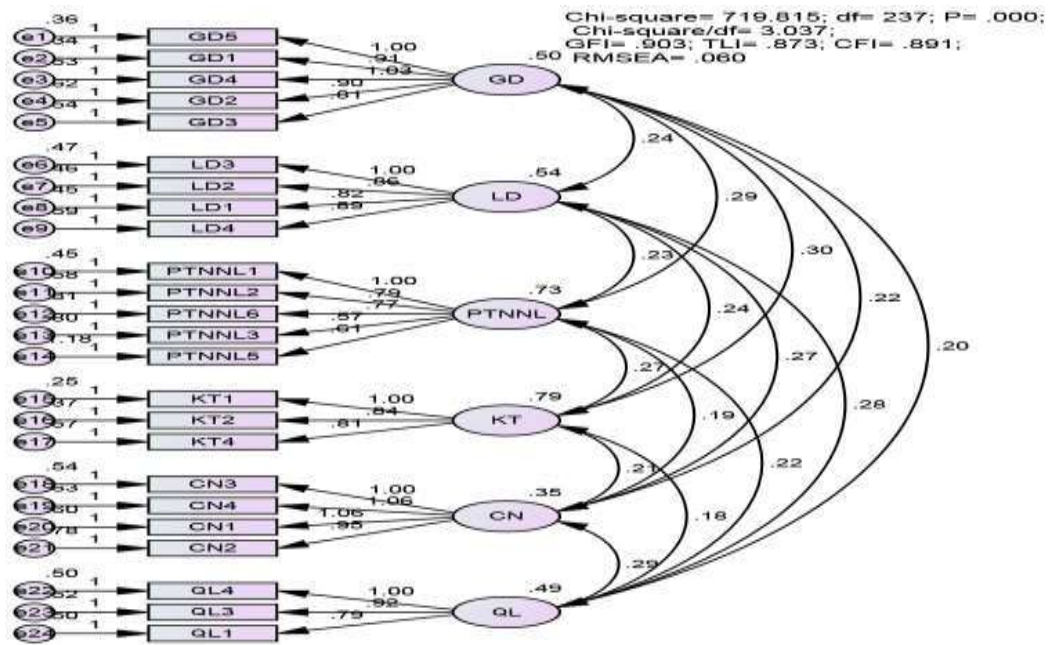
Independent variables (X5): QL4, QL3, QL1

Control variable (Ui): In the research model, the control variable is the industry for the development of highly qualified human resources in Nam Dinh province.

3.3. Confirmatory factor analysis results CFA

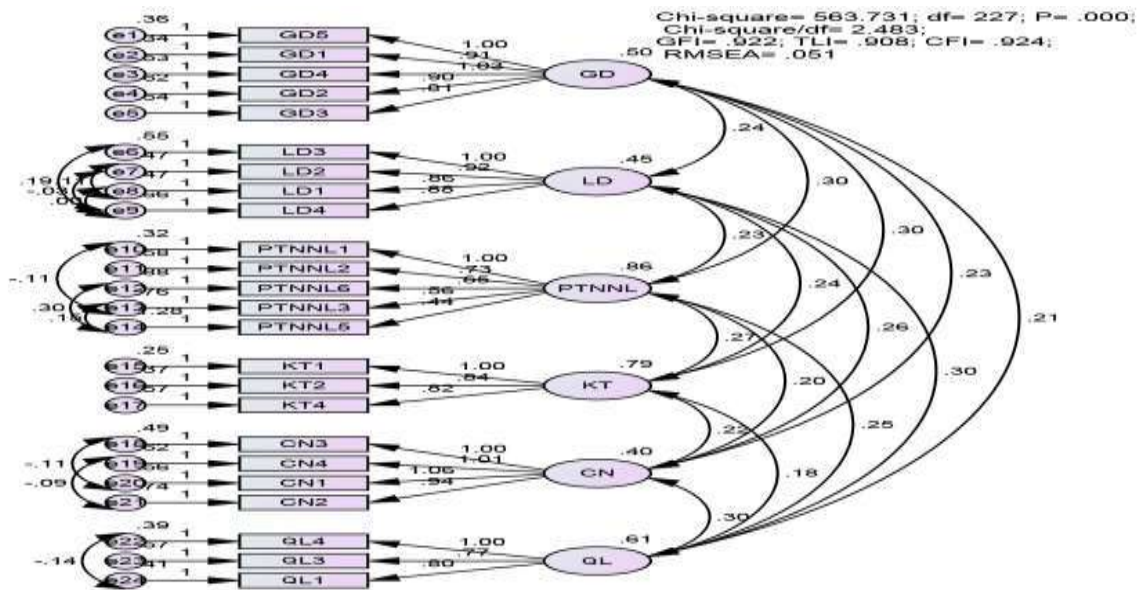
To measure the fit of the scale with the collected data, confirmatory factor analysis (CFA) method was used through AMOS software version 21.

After testing the scale and analyzing the EFA exploratory factor, the authors conducted a confirmatory factor analysis CFA with 6 factors including 24 observed variables. These factors create groups of scales and are included in the CFA analysis to consider the fit of the model to market data. The evaluation criteria include: unidirectionality, convergent value, discriminant value and theoretical correlation value. Criteria from 1 to 3 are evaluated in the critical scale model, while the theoretical correlation value is evaluated in the theoretical model.



[Source: Analytical results from SPSS 21]

The first CFA results of the scale model are presented in Fig. This model has 237 degrees of freedom. The figure above shows the value of the Chi-squared index = 719,815 with $p = .000$. Other indicators: Chi-squared/df = 3.037, GFI = 0.903 higher than 0.9 (Bentler & Bonett, 1980), RMSEA = 0.060 < 0.08 (Steiger, 1990). However, TLI = 0.873, CFI = 0.891 do not satisfy the condition. So to improve the model in Covariances concatenate the following observations: e22-e24; e19-e21; e18-e20; e13-e14; e12-e14; e10-e13; e8-e9; e7-e9; e7-e8; e6-e9.

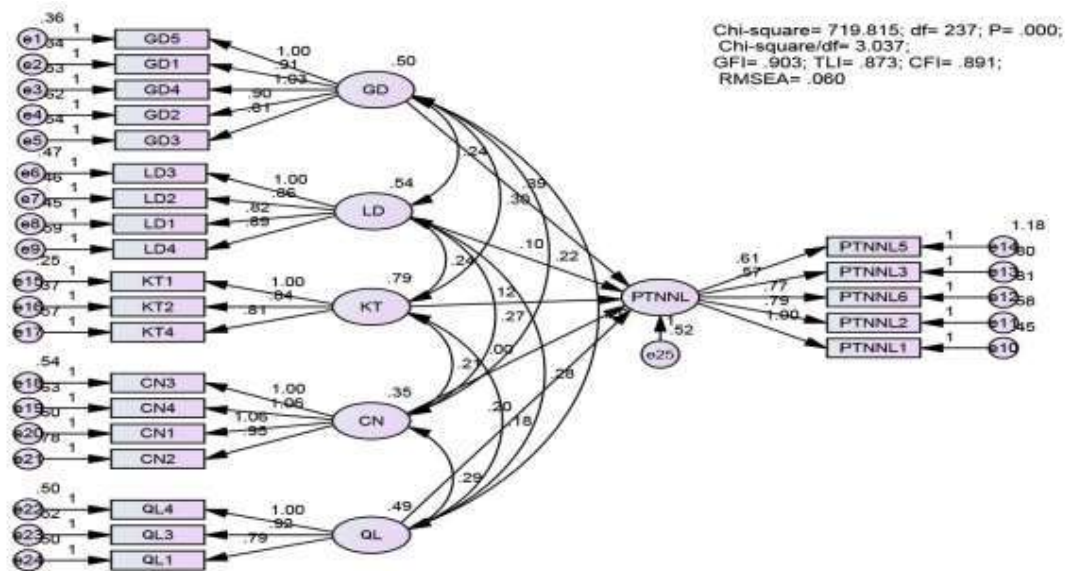


[Source: Analytical results from SPSS 21]

The results of the CFA confirmatory factor analysis of the scale model are presented in the figure above. This model has 227 degrees of freedom. The figure above shows the value of the Chi-squared index = 563,731 with $p=000$. Other indicators: Chi-squared/df = 2.483, GFI = 0.922, TLI = 0.908, CFI = 0.924 are all higher than 0.9, RMSEA = 0.051 < 0.08. This can infer that the model is considered suitable for the market data because it ensures unidirectionality, convergent validity and discriminant validity.

3.4. Analysis of the linear structural model SEM

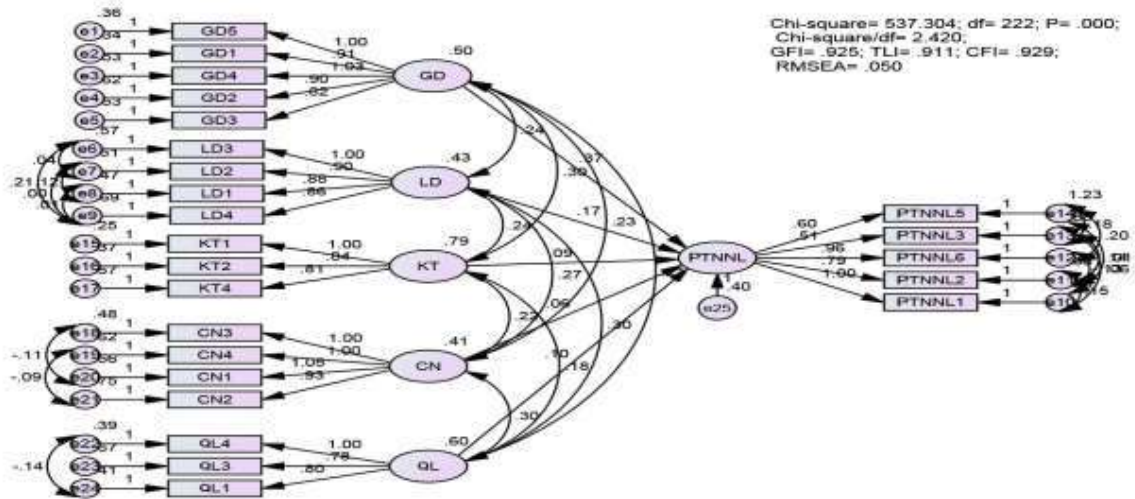
After running on the software, we obtain the SEM model for analysis below:



[Source: Analytical results from SPSS 21]

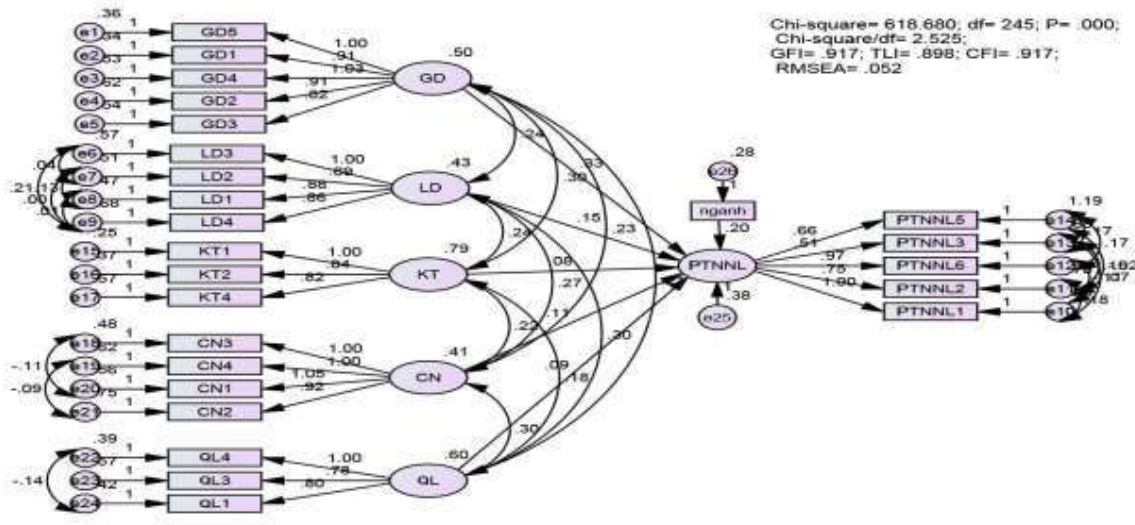
The results of running the 1st SEM model of the scale model are presented in the figure. This model has 237 degrees of freedom. I see the value of the Chi-squared index = 719,815 with $p=000$. Other indicators: Chi-squared/df = 3.037, GFI = 0.903 higher than 0.9 (Bentler & Bonett, 1980), RMSEA = 0.060 < 0.08. However, TLI = 0.873, CFI = 0.891 do not satisfy the condition. So to improve the model in Covariances concatenate the following observations: e22-e24; e19-e21; e18-e20; e13-e14; e12-e14; e11-e14; e11-e13; e11-e12; e10-e14; e10-e13; e10-e11; e8-e9; e7-e9; e7-e8; e6-e9.

The results of running the 2nd SEM model of the scale model are presented in the figure below. This model has 222 degrees of freedom. The figure above shows the value of the Chi-squared index = 537,304 with a value of $p=000$. Other indicators: Chi-squared/df = 2.420, GFI = 0.903, TLI= 0.911, CFI=0.929 all higher than 0.9 (Bentler & Bonett, 1980), RMSEA = 0.050 < 0.08 (Steiger, 1990). Thus, this research model achieves compatibility with market data.



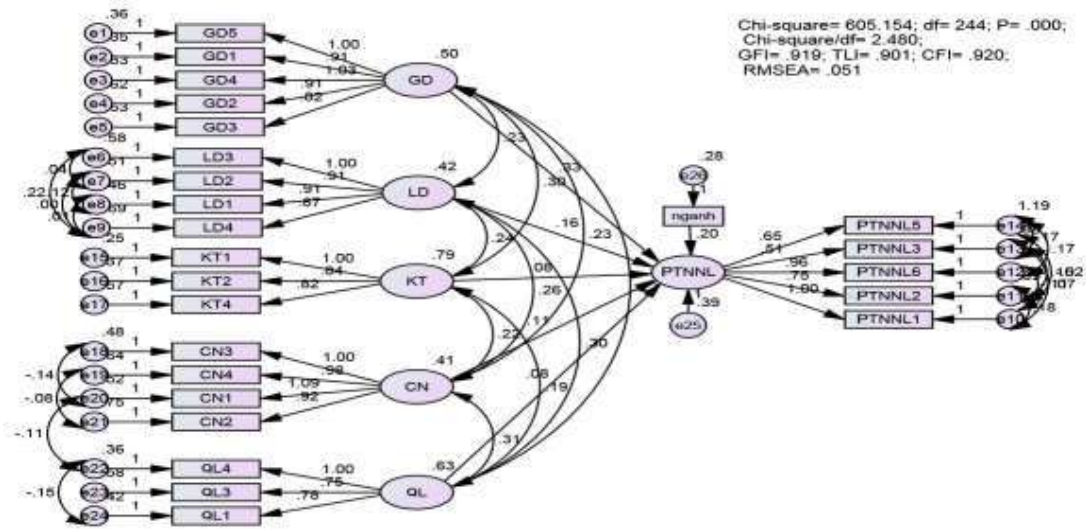
[Source: Analytical results from SPSS 21]

To test the influence of the industry control variable on the development of highly qualified human resources in Nam Dinh province, we run the 3rd SEM model with the following results:



[Source: Analytical results from SPSS 21]

The results of running the 3rd SEM model of the model with industry as the control variable in the figure. This model has 245 degrees of freedom. The figure above shows the value of the Chi-squared index = 618,680 with a p=000 value. Other indicators: Chi-squared/df = 2.525, GFI = 0.917, CFI = 0.917 higher than 0.9, RMSEA = 0.052 < 0.08 (Steiger, 1990). However, TLI= 0.898 < 0.09 is not satisfied. Therefore, to improve the model, we proceed to join e in Covariances' suggestion that is e20-e22 concatenation.



The results of the last SEM model run of the model with industry as the control variable are presented in the figure. This model has 244 degrees of freedom. The figure above shows the value of the Chi-squared index = 605,154 with p=000. Other indicators: Chi-squared/df = 2.480, GFI = 0.919, TLI= 0.901, CFI=0.920 all higher than 0.9 (Bentler & Bonett, 1980), RMSEA = 0.051 < 0.08 (Steiger, 1990). Thus, this research model achieves compatibility with market data.

3.5. Research hypothesis test results

Regression Weights: (Group number 1 - Default model)

| | | | Estimate | S.E. | C.R. | P | Label |
|-------|------|-------|----------|------|-------|------|-------|
| PTNNL | <--- | GD | .428 | .177 | 4.251 | *** | |
| PTNNL | <--- | LD | .363 | .112 | 3.673 | *** | |
| PTNNL | <--- | KT | .252 | .152 | 3.535 | *** | |
| PTNNL | <--- | CN | .210 | .107 | 2.034 | *** | |
| PTNNL | <--- | QL | .185 | .075 | 1.576 | *** | |
| PTNNL | <--- | nganh | .127 | .062 | 1.101 | .006 | |

[Source: Analytical results from SPSS 21]

The results of SEM analysis show that there are 6 factors in the model that have an impact on the development of highly qualified human resources in Nam Dinh province, including factors of education-training, labor force, economy, science and technology, and state management of human resource development. central and sectoral levels. All 6 factors are at 10% significance level due to P-value < 0.1. The above regression weights all have positive

signs, showing that the above factors have a positive influence on the development of highly qualified human resources in Nam Dinh province.

Table of Hypothesis test results

| <i>Hypotheses</i> | <i>Result</i> |
|--|------------------------|
| (H1): Education and training have a positive impact on the development of HQHRs in Nam Dinh province. | Accept |
| (H2): The characteristics of the labor force have a positive impact on the development of HQHRs in Nam Dinh province. | Accept |
| (H3): The economy has a positive impact on the development of HQHRs in Nam Dinh province. | Accept |
| (H4): Science and technology have a positive impact on the development of HQHRs in Nam Dinh province. | Accept |
| (H5): State management of HRs development at the central level has a positive impact on the development of HQHRs in Nam Dinh province. | Accept |
| With the industry control variable included in the analysis, and the sector factor also has a positive impact on the development of resettlement human resources of Nam Dinh province. | Have a positive impact |

We see that all five hypotheses are initially accepted, the factors of Education and training, Labor force, Economics, Science and technology, State management on human resource development at central level and one more factor is considered as a control variable. Industry” also has a positive and positive impact on the development of highly qualified human resources in Nam Dinh province with the results of quantitative research with linear regression equations as follows:

$$PTNNL = 0,428.GD + 0,363.LD + 0,252.KT + 0,210. CN + 0,185. QL + 0,127.nganh$$

3.6. Discuss research results

Thus, through the results of quantitative research, it shows that the development of highly qualified human resources in Nam Dinh province is influenced by the following factors: Education and training factor contributes 0.428 points; the labor force factor of Nam Dinh province contributed 0.363 points, the economic factor contributed 0.252 points; science and technology factor contributed 0.210 points; State management factor on human resource development at the central level contributed 0.185 points and lastly, the sectoral factor

contributed 0.127 points to the development of highly qualified human resources in Nam Dinh province. Thus, the theoretical model tested in Diagram No1 is the only and official model used and explains the factors affecting the development of highly qualified human resources in Nam Dinh province.

4. Conclusion

Theoretical and practical research shows the important role of HQHRs in socio-economic development at provincial level. In order to ensure that there is enough scale, structure and quality of HQHRs for the realization of the I&M goals, the work of developing HQHRs has a fundamental position and is an important basis for promoting I&M promote socio-economic development at provincial level in the direction of industry and modernity. In this paper, we focus on researching the macro factors affect to the development of HQHRs of Nam Dinh province to caculate the degree of each factor which contributes into developing HQHRs for socio-economic development in Nam Dinh.

5. References

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