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Using Explore Factor Analysis (EFA) Method to Assess the Effects Impact on Mobilization of Investment Capital for Socio-economic Structure Development in Thai Nguyen Province, Vietnam

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Abstract:

Socio-economic infrastructure plays a very important role for socio-economic development. There are many factors influencing the mobilization of investment capital for socio-economic development. This article uses the exploratory factor analysis (EFA) method to evaluate the factors affecting the mobilization of investment capital sources for socio-economic infrastructure development in Thai Nguyen province, Vietnam.

Keywords: Explore factor analysis, mobilization, socio-economic structure development, Thai Nguyen province

1. Study on Evaluating the Factors Affect to the Mobilization of Investment Capital for Socio-Economic Development

Currently, there are many domestic and foreign research projects related to the topic of assessing the factors affecting the mobilization of investment capital for socio-economic development. Qualitative research projects using methods such as interviewing experts - to analyze. Quantitative studies use conventional regression models or probabilistic regression models to assess the correlation between factors affecting capital mobilization for socio-economic development. Specifically in the following studies:

1.1. Qualitative Research

According to Dunning (1977), an enterprise only implements foreign direct investment (FDI) when it meets all three conditions: (1) an enterprise must possess some advantages compared to other enterprises such as: technology, network marketing, access to low-interest capital or unique intangible assets; (2) localization: it is more beneficial to use these advantages within the company than to sell or lease to other firms; (3) lower cost of production in the host country and then export. Location advantage can be gained from natural resources, labor, trade barriers, investment incentive policies, and the external effects the location can have on business while operating.

The theory of investment behavior by Romer (1986) and Lucas (1988) shows that the factors affecting investment behavior are: (1) the change in demand; (2) interest rate; (3) the level of development of the financial system; (4) public investment; (5) the ability of human resources; (6) other investment projects in the same industry or in linked industries; (7) technology development, the ability to absorb and apply technology; (8) level of stability in the investment environment: including macroeconomic environment, law; (9) procedural regulations and (10) sufficiency of information, including information about markets, laws, procedures, and technological advances.

The local market theory has shown that the factors affecting investor satisfaction can be divided into three main groups, namely (1) investment infrastructure; (2) investment regimes and policies; (3) working and living environment.

1.2. Quantitative Research

KangningXu (2010) has researched on attracting foreign direct investment capital to developing countries: a case study of Mozambique. The author used a multivariate regression model for analysis. The author said that, in order to attract investors to invest in a developing country like Mozambique, the factors that affect the attraction of investment capital include: (1) Geographical location and investment level; (2) Size of the market; (3) National export policy; (4) National natural resources; (5) Satisfying labor resources; (6) The risk to the economic and political environment of a country.

Dinh Phi Ho showed that factors affecting investment attraction in industrial zones, Quantitative research method and practical research in development economy - agriculture. The author believed that the investor's decision is affected

by 08 factors: (i) investment infrastructure; (ii) investment policy regime; (iii) living and working environment; (iv) investment industry advantages; (v) quality of public service; (vi) local brand name; (vii) human resources; (viii) competitive input costs.

Ha Nam Khanh Giao et al. (2013) studied the factors affecting investment attraction in Quang Tri province, by surveying 109 existing investors and investors planning to invest in the province. The author used Cronbach's Alpha reliability analysis method, exploratory factor analysis (EFA). The results show that there are 9 groups of factors affecting the attraction of investment capital into Quang Tri province: (1) Decision making process related to investment procedures; (2) Policy support from management agencies related to investors; (3) Technical infrastructure; (4) Resources, (5) Infrastructure of industrial parks and economic zones; (6) Social infrastructure; (7) Market potential; (8) Cost advantage; (9) Productivity and labor discipline.

Nguyen Thi Thu Ha (2016) has been researched on investor satisfaction in BacNinh province. Based on the exploratory analysis model (EFA) for analysis, according to the author, there were 8 factors affecting to attract investors to Bac Ninhprovince, including: (1) Infrastructure; (2) Investment policy; (3) Habitat; (4) Investment advantages; (5) Quality of public service; (6) Local brands (7) Human resources and (8) Input cost competition.

Ngo Van Thien (2017) reported on studying the factors affecting the situation of attracting investment capital for the socio-economic development of PhuQuoc Island, thereby proposing solutions to increase investment capital collection in the coming time. The model of discovery analysis (EFA) was used and surveyed 230 samples collected from domestic and foreign enterprises operating in PhuQuoc. The research results show that there are 6 factors affecting to attract investment capital for socio-economic development of PhuQuoc island, including: (1) Infrastructure and geographical location; (2) Investment policy; (3) The quality of human resources; (4) Habitat conditions; (5) Quality of public service; (6) Local trade promotion and marketing.

2. Propose Models and Assumptions about Factors Affecting the Mobilization of Investment Capital for Socio-Economic Infrastructure Development

There have been a number of works using qualitative analysis methods and quantitative analysis methods to determine the factors affecting the mobilization of investment capital for socio-economic development in some countries or localities. However, there is no research on qualitative and quantitative assessment of the factors affecting the mobilization of investment capital for the development of SEI (socio-economic infrastructure).

On the basis of inheriting the authors' research and empirical theory on assessment of factors affecting to mobilize investment capital for socio-economic development. Through the process of expert group discussions and initial survey of some enterprises related to the SEI investment field, the author has removed a number of factors that do not affect or have little effect to include the according to the suggestions of experts. Thereby, the dependent variable in the study is the mobilization of investment capital sources for the development of SEDP. The independent variables in the study included:

Factors	Variable Observed and Study Author	Signs
Ability to mobilize	1. The scale of capital mobilization is increasingly expanding	HDNV1
investment capital	2. Stable investment capital mobilization growth	HDNV2
sources for socio- economic	3. Structure of mobilizing investment capital is increasingly diversified	HDNV3
infrastructure development	4. The level of completion of the plan to mobilize investment capital has not met the set requirements	HDNV4
Natural conditions	1. The central position of the Northern Midlands and Mountains	DKTN1
	2. Favorable topographic conditions for investment in the construction of infrastructure projects	DKTN2
	3. Fresh climate, less polluted environment	DKTN3
	4. Beautiful natural landscape	DKTN4
	1. Thai Nguyen province's economy develops stably	QMTT1
Market size	2. Large population size	QMTT2
	3. High income per capita (GRDP)	QMTT3
	4. The level of competition in the market and international economic integration	QMTT4
Investment policy	1. A comprehensive, consistent, and consistent investment related legal system with the market mechanism	CSDT1
	2. Favorable compensation, site clearance and resettlement	CSDT2
	3. Good land lease incentives	CSDT3
	4. Good tax incentives	CSDT4

Factors	Variable Observed and Study Author	Signe
		Sigiis
The development	1. Operation network of credit institutions is increasingly expanded	TTTTC1
of the financial	Easy access to official capital for project investment	TTTC2
market	3. Legal framework for operations of credit institutions has been	TTTC3
	continuously improved	
	4. The interest rate policy is being gradually renewed, in line with the	TTTC4
	market mechanism	
	5. The modern and diversified forms and methods of providing payment	TTTC5
	services and banking services	
Quality of public	1. Administrative procedures are simple and fast, with proper processing	DVC1
service	time	
	2. The staff directly handling the work has a polite attitude, answering	DVC2
	and fully answering the opinions of the business	
	3. The management capacity and professional qualifications of good State	DVC3
	management officials	
	4. Local leaders are active in supporting businesses	DVC4
Human Resources	1. Availability of high-quality technical and managerial labor	NNL1
	2. Availability of unskilled labor	NNL2
	3. The attitude and discipline of a good employee	NNL3
	4. Educational and vocational training establishments that meet the	NNL4
	enterprise's requirements	
Natural resources	1. The cost of raw materials is cheap	TNTN1
	2. The availability of local material resources	TNTN2
	3. Rich and diverse resources	TNTN3

Table 1

Source: Authors' Compilation

- Investigated subject: Leaders of businesses operating on January 1, 2019 in Thai Nguyen province.
- Sample selection method:

The authors use a random sampling survey method. Among the commonly used random sampling methods, the author chooses a simple stratified and random sampling method.

Including the following steps:

- Step 1: Collecting documents on the number of businesses involved in infrastructure development and investment in Thai Nguyen province in 2018.
- Step 2: Divide the businesses into groups according to the criteria of the SEDP domain. For stratified sampling, the number of units selected in each group follows the proportion of the number of units that the group occupies in the population.
- Step 3: In each group, simply select randomly to select sample units.

Sample size:

In the EFA, sample size is usually determined based on (1) the minimum size and (2) the number of measurement variables included in the analysis. Hair et al (2006) suggested that to use EFA, the minimum sample size should be 50, and preferably 100 and the observations / items ratio is 5: 1, meaning 1 The measurement variable should be at least 5 observations. Thus, the minimum number of samples for the author's research is 165 samples.

- The number of survey samples is calculated based on the Slovin formula: Ν

= 246 (enterprises)

 $1 + N \ge e^2$ n: Number of samples to be investigated Therein: N: Number of overall units e: Acceptable error is 5% Thus, the number of research samples 640

n =

1+ 640 x 0,05²

n =

No	Fields and Trades	Number of Enterprises	Percentage above Total Enterprises	Number of Samples in Each Group (n)
1	Producing and distributing electricity	27	4,2	10
2	Water supply, waste management and treatment activities, wastewater	20	3,1	8
3	Build	503	78,6	193
4	Information and communication	10	1,6	4
5	Financial operations, banking	6	0,9	2
6	Real estate business	23	3,6	9
7	Education and training	22	3,4	8
8	Health and social assistance activities	11	1,7	4
9	Art, entertainment, entertainment	6	0,9	2
10	Other activities	12	1,9	5
	Total	640	100	246

Table 2: Number of Enterprises Involved in Structural Development Investment Socio-Economic Infrastructure in Thai Nguyen Province in 2018 Source: Thai Nguyen Statistical Yearbook 2018

2.1. Scale Questionnaire

The author uses the 5-level Likert scale to conduct the research: The rating from 1 to 5 is sorted by the degree of increasing influence of factors affecting the mobilization of investment capital for socio-economic infrastructure development in Thai Nguyen province.

Scale	Range of Rating	Rating Level
5	4,21 - 5,0	Very good
4	3,41- 4,20	Good
3	2,61 - 3,40	medium
2	1,81 – 2,60	Least
1	1,00 - 1,80	Very poor

Table 3: Scale Questionnaire

2.2. Questionnaire Design Process

- Step 1: The author inherits the studies of previous authors when considering the factors affecting the mobilization of investment capital sources for socio-economic infrastructure development in Thai Nguyen province.
- Step 2: Consult experts, including 05 managers, scientists at the Department of Finance, Department of Planning and Investment, Thai Nguyen University of Economics and Business Administration, Academy of Finance, Dai National Economics. The authors use expert interviewing methods with this group of subjects. The author proceeds to collect data by going directly to the offices of the units to collect data and interviewing experts in about 30 minutes to 60 minutes.
- Step 3: The author used the questionnaire built to test 5 enterprises, including: Yen Binh Investment and Development Joint Stock Company, Thai Nguyen Clean Water Joint Stock Company, Thai Nguyen Telecommunication Company, Thang Long Mineral Joint Stock Company, Picenza Joint Stock Company. Based on the test results, the author adjusted unreasonable details to formulate a formal questionnaire and collect all data.
- Step 4: After completing step 3, the author edits and completes the content of the questionnaire accordingly and conducts the official survey. The content of the questionnaire includes 2 main parts: business information and interview questions about factors affecting the mobilization of investment capital sources for socio-economic infrastructure development of Thai Nguyen province.

During the process of survey, questionnaires were sent hard copies by post to all 246 enterprises.

2.3. Implementation Time

Research Form	Methods	Duration	Objects
Preliminary	Interview	5/2019-7/2019	Expert
	Direct investigation	07/2019	Enterprise
Official	Submit survey form	8/2019-9/2019	Enterprise

Table 4: Implementation Time

Descriptive Statistics									
	N	Minimum	Maximum	M	ean	Std. Deviation			
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic			
HDNV1	230	1	5	2.88	.049	.747			
HDNV2	230	1	5	2.89	.048	.721			
HDNV3	230	1	5	2.82	.048	.729			
HDNV4	230	1	5	2.84	.045	.677			
DKTN1	230	1	5	3.26	.058	.876			
DKTN2	230	1	5	3.22	.063	.951			
DKTN3	230	1	5	3.35	.062	.945			
DKTN4	230	1	5	3.40	.062	.933			
QMTT1	230	1	5	2.70	.057	.862			
QMTT2	230	1	5	2.69	.054	.823			
QMTT3	230	1	5	2.61	.053	.801			
QMTT4	230	1	5	2.61	.050	.761			
CSDT1	230	1	5	3.00	.063	.958			
CSDT2	230	1	5	3.03	.064	.975			
CSDT3	230	1	5	3.01	.061	.923			
CSDT4	230	1	5	3.04	.064	.973			
TTTC1	230	1	5	2.74	.061	.926			
TTTC2	230	1	5	2.80	.058	.885			
TTTC3	230	1	5	2.72	.056	.852			
TTTC4	230	1	5	2.82	.062	.945			
TTTC5	230	1	5	2.84	.056	.849			
TNTN1	230	1	5	2.90	.060	.908			
TNTN2	230	1	5	2.93	.059	.901			
TNTN3	230	1	5	2.87	.056	.857			
NNL1	230	1	5	2.89	.071	1.084			
NNL2	230	1	5	2.91	.071	1.076			
NNL3	230	1	5	2.73	.065	.991			
NNL4	230	1	5	2.78	.063	.956			
DVC1	230	1	5	3.27	.054	.813			
DVC2	230	1	5	3.17	.052	.789			
DVC3	230	1	5	3.15	.053	.808			
DVC4	230	1	5	3.25	.052	.791			
Valid N (listwise)	230								

2.4. Descriptive Statistical Results

Table 5: Descriptive Statistical Results Source: SPSS Analysis Results

2.5. Verify the Reliability of Survey Data

2.5.1. Test the Reliability of the Dependent Variable

Ability to Mobilize Investment Capital for Socio-economic Infrastructure Development: Cronbach's									
Alpha = .765									
	Scale Mean if Item	Scale Variance if	Corrected Item-	Cronbach's Alpha if					
	Deleted	Item Deleted	Total Correlation	Item Deleted					
HDNV1	8.55	2.616	.693	.634					
HDNV2	8.54	2.930	.567	.707					
HDNV3	8.61	3.078	.485	.751					
HDNV4	8.59	3.142	.520	.732					

Table 6: Test the Reliability of the Dependent Variable Source: SPSS Analysis Results

The results of testing the dependent variable show that the reliability of the scale is 0.765, and the correlation coefficients of the total variable are greater than 0.4 and the Cronbach's Alpha value if the variable is less than 0.765, this shows that the Correlation of the variables observed in the model is quite good. Therefore, all 4 variables are consistent with the total variable.

Natural conditions: Cronbach's Alpha = .886								
	Scale Mean if Item	Scale Variance if	Corrected Item-	Cronbach's Alpha if				
	Deleted	Item Deleted	Total Correlation	Item Deleted				
DKTN1	9.97	6.148	.767	.849				
DKTN2	10.01	6.074	.697	.875				
DKTN3	9.88	5.810	.778	.843				
DKTN4	9.83	5.900	.767	.848				
	Ма	rket size: Cronbach's A	lpha = .854	·				
QMTT1	7.91	3.970	.767	.783				
QMTT2	7.92	4.163	.747	.792				
QMTT3	8.00	4.638	.600	.853				
QMTT4	8.00	4.568	.676	.823				
	Invest	ment policy: Cronbach	i's Alpha = .838					
CSDT1	9.08	5.810	.679	.790				
CSDT2	9.05	5.858	.647	.805				
CSDT3	9.07	5.974	.673	.793				
CSDT4	9.04	5.750	.679	.790				
Financial market: Cronbach's Alpha = .903								
TTTC1	11.17	9.201	.759	.881				
TTTC2	11.12	9.563	.727	.888				
TTTC3	11.19	9.535	.772	.878				
TTTC4	11.10	9.109	.758	.881				
TTTC5	11.07	9.545	.774	.878				
	Natura	al resources: Cronbach	's Alpha = .802					
TNTN1	5.80	2.446	.641	.736				
TNTN2	5.77	2.388	.679	.695				
TNTN3	5.83	2.628	.623	.755				
	Humai	n Resources: Cronbach	's Alpha = .860					
NNL1	8.43	6.752	.709	.822				
NNL2	8.40	7.098	.639	.851				
NNL3	8.58	7.101	.727	.814				
NNL4	8.53	7.115	.763	.801				
	Publ	ic service: Cronbach's	Alpha = .880					
DVC1	9.57	4.350	.745	.844				
DVC2	9.67	4.378	.769	.835				
DVC3	9.69	4.302	.770	.835				
DVC4	9.59	4.610	.678	.870				

2.5.2. Test the reliability of the Independent Variable

Table 7: Test the reliability of the Independent Variable

The results of testing the independent variables show that all variables have Cronbach's Alpha coefficients of factors greater than 0.8. The total variable correlation coefficient of the observed variables in each factor are greater than 0.6; At the same time, all values of observed variables have Cronbach's Alpha coefficients if the variable type is smaller than Cronbach's Alpha's value of the total variable. This shows that the correlation between the observed variables with the factors themselves they represent is quite high. Thus, the Observations in each independent variable included in the survey completely guarantee the reliability and will be used for analysis for the next steps.

3. Factor Analysis

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In order to evaluate the results from the survey opinions of people related to the ability to mobilize investment capital sources for socio-economic infrastructure development in Thai Nguyen province, in this study, the author advanced 7-factor test practice as mentioned above. The inspection results are shown in the following tables:

Kaiser-Meyer-Olkin Measure of Sa	.786					
Bartlett's Test of Sphericity	Approx. Chi-Square	3403.530				
	df	378				
	Sig	.000				

Table 8: KMO Test and Bartlett's Test

Factor analysis results show that: KMO coefficient 0.786> 0.6 shows that the results of factor analysis are completely appropriate. Bartlett's test is 3403,530 with statistical significance sig = 0.000 < 0.05, showing that the observations included in the study are correlated with each other in the population and factor analysis completely ensures the statistical significance.

Image: series of the section of the se		Total Variance Explained								
U S	ponent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Com	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1	4.703	16.798	16.798	4.703	16.798	16.798	3.658	13.063	13.063
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2	3.363	12.012	28.809	3.363	12.012	28.809	3.034	10.835	23.899
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3	3.121	11.147	39.956	3.121	11.147	39.956	2.979	10.639	34.537
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4	3.077	10.990	50.946	3.077	10.990	50.946	2.932	10.471	45.008
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	5	2.611	9.326	60.272	2.611	9.326	60.272	2.806	10.023	55.031
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	6	1.798	6.421	66.693	1.798	6.421	66.693	2.698	9.636	64.666
8 .700 2.501 74.983 9 .577 2.062 77.045 10 .573 2.048 79.093 11 .511 1.824 80.917 12 .483 1.724 82.642 13 .461 1.647 84.288	7	1.621	5.788	72.481	1.621	5.788	72.481	2.188	7.815	72.481
9 $.577$ 2.062 77.045 Image: constraint of the state	8	.700	2.501	74.983						
10 $.573$ 2.048 79.093 11 11 $.511$ 1.824 80.917 11 $.511$ 1.824 80.917 11 11 112 $.483$ 1.724 82.642 113 12 $.483$ 1.724 82.642 116 11647 84.288 116 11647 14 $.430$ 1.534 85.822 116 116 116 116 15 $.395$ 1.410 87.232 116 116 16 $.383$ 1.368 88.600 116 117 16 $.383$ 1.368 88.600 117 1239 17 $.369$ 1.319 89.919 116 117 18 $.347$ 1.239 91.158 116 116 19 $.322$ 1.150 92.309 116 116 20 $.312$ 1.116 93.425 116 116 21 $.294$ 1.052 94.477 116 116 22 $.277$ $.991$ 95.467 116 116 23 256 $.914$ $.96.381$ 116 116	9	.577	2.062	77.045						
11 $.511$ 1.824 80.917 \hfill <td>10</td> <td>.573</td> <td>2.048</td> <td>79.093</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	10	.573	2.048	79.093						
12 $.483$ 1.724 82.642 13 $.461$ 1.647 84.288 14 $.430$ 1.534 85.822 15 $.395$ 1.410 87.232 16 $.383$ 1.368 88.600 17 $.369$ 1.319 89.919 18 $.347$ 1.239 91.158 19 $.322$ 1.150 92.309 20 $.312$ 1.116 93.425 21 $.294$ 1.052 94.477 22 $.277$ $.991$ 95.467	11	.511	1.824	80.917						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	12	.483	1.724	82.642						
14 .430 1.534 85.822 15 .395 1.410 87.232 16 .383 1.368 88.600	13	.461	1.647	84.288						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	14	.430	1.534	85.822						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	15	.395	1.410	87.232						
17 .369 1.319 89.919 Image: constraint of the state of th	16	.383	1.368	88.600						
18 .347 1.239 91.158 Image: constraint of the state of th	17	.369	1.319	89.919						
19 .322 1.150 92.309 <t< td=""><td>18</td><td>.347</td><td>1.239</td><td>91.158</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	18	.347	1.239	91.158						
20 .312 1.116 93.425	19	.322	1.150	92.309						
21 .294 1.052 94.477 22 .277 .991 95.467 23 .256 .914 .96.381	20	.312	1.116	93.425						
22 .277 .991 95.467 23 256 914 96.381	21	.294	1.052	94.477						
	22	.277	.991	95.467						
23 .230 .717 70.301	23	.256	.914	96.381						
24 .232 .829 97.210	24	.232	.829	97.210						
25 .217 .776 97.986	25	.217	.776	97.986						
26 .204 .728 98.714	26	.204	.728	98.714						
27 .199 .711 99.424	27	.199	.711	99.424						
28 .161 .576 100.000	28	.161	.576	100.000						

Extraction Method: Principal Component Analysis.

Table 9: Total Variance Explained

Source: SPSS Analysis Results

The results from the above data table show that the total value of variance extracted = 72.481%> 0.5 and the value of Eigenvalues = 1.621> 1 ensures statistical requirements. Thus, this shows the appropriateness of the hypotheses from the theoretical research model mentioned earlier.

Independent variables	Observed	Components						
	Variables	1	2	3	4	5	6	7
The development of the	TTTC5	.859						
financial market	TTTC3	.852						
	TTTC1	.838						
	TTTC4	.835						
	TTTC2	.830						
Natural condition	DKTN3		.879					
	DKTN4		.875					
	DKTN1		.873					
	DKTN2		.820					
Public service	DVC2			.874				
	DVC3			.872				
	DVC1			.865				
	DVC4			.811				
Human Resources	NNL3				.843			
	NNL4				.838			
	NNL1				.828			
	NNL2				.768			
Market size	QMTT1					.870		
	QMTT2					.846		
	QMTT4					.817		
	QMTT3					.769		
Investment policy	CSDT4						.845	
	CSDT1						.824	
	CSDT3						.771	
	CSDT2						.721	
Natural resources	TNTN2							.866
	TNTN1							.826
	TNTN3							.817

Table 10: Rotation Matrix When Factor Analysis Source: SPSS Analysis Results

The results from the SPSS software show that the factor load coefficients of the observed variables in each given factor have a high value (greater than 0.7), which again confirms the observed variables. All have a great influence on the factor they represent.

The rotation matrix table when analyzing the factors shows that all 7 independent variables are given from the analysis, which affects the ability to mobilize investment capital for socio-economic infrastructure development in Thai Nguyen province.

Stemming from the tests performed above, to assess the significance as well as the influence of groups of factors on the ability to mobilize investment capital for socio-economic infrastructure development. In Thai Nguyen province, the author conducts regression analysis with the dependent variable being the ability to mobilize investment capital for socio-economic infrastructure development in Thai Nguyen province and the independent variables, including: 1) Natural conditions; 2) Market size; 3) Investment policy; 4) The development of the financial market; 5) Quality of public service; 6) Human resources; 7) Natural Resources.

4. Regression Analysis

From the assessment of the influence of each factor on the ability to mobilize investment capital for socioeconomic infrastructure development in Thai Nguyen province. In addition, there are more grounds to contribute to proposing appropriate solutions to improve the ability to mobilize investment capital for socio-economic infrastructure development in Thai Nguyen province during the period. Next time, the author conducts regression based on the following theoretical model:

 $\mathbf{y} = \beta_0 \beta_0 + \beta_1 \beta_{1X_1 +} \beta_2 \beta_{2X_2 +} \beta_3 \beta_{3X_2 +} \beta_4 \beta_{4X_4 +} \beta_5 \beta_{5X_5 +} \beta_6 \beta_{6X_4 +} \beta_7 \beta_{7X_7 +} \varepsilon_i \varepsilon_i$

Therein: Y is the dependent variable

X₁, X₂, X₃, X₄, X₅, X₆,X₇ are independent variables

 β_i : Regression parameters (with i=1, 2, 3, 4, 5, 6, 7)

Model Summary ^b									
Model	R	R Square	Adjusted R Square	Std. Error of the	Durbin-Watson				
				Estimate					
1	.789ª	.623	.611	.34316	1.809				

Table 11: Model Summary^b a. Predictors: (Constant), DVC, QMTT, TTTC, DKTN, NNL, TNTN, CSDT b. Dependent Variable: HDNV Source: SPSS Analysis Results

The regression results in the above table show that the multiple correlation coefficient R = 0.789 shows that there is a quite close correlation between the independent variables and the dependent variable, the adjusted R coefficient is 0.611, which means that the variation of The independent variables included in the study in this model explain 61.1% of the change in the dependent variable. The Durbin-Watson coefficient in the analysis is 1.809 (du = 1.735 < 1.809 < 4-du = 2.265), which shows that there is no autocorrelation between the independent variables included in the research model.

ANOVAª												
Model		Sum of Squares	df	Mean Square	F	Sig.						
1	Regression	43.257	7	6.180	52.477	.000b						
	Residual	26.142	222	.118								
	Total	69.399	229									

Table 12: ANOVAa a. Dependent Variable: HDNV b. Predictors: (Constant), DVC, QMTT, TTTC, DKTN, NNL, TNTN, CSDT Source: SPSS Analysis Results

The value Sig = 0.000 in ANOVA analysis shows that the regression analysis ensures the statistical significance; The VIF values of the factors all accept relatively small values (less than 2), so no multicollinearity phenomenon occurs.

	Coefficients ^a												
Model		Unstandardized		Standardized	t	Sig.	Collinearity Statistics						
		Coefficients		Coefficients									
		В	Std. Error	Beta			Tolerance	VIF					
1	(Constant)	041	.211		195	.846							
Ī	DKTN	.121	.029	.176	4.249	.000	.987	1.013					
	QMTT	.523	.035	.644	15.027	.000	.923	1.083					
	CSDT	.152	.032	.216	4.696	.000	.799	1.251					
	TTTC	.090	.031	.123	2.890	.004	.935	1.069					
	TNTN	027	.031	037	860	.391	.934	1.070					
	NNL	.092	.029	.144	3.164	.002	.815	1.228					
	DVC	.069	.033	.085	2.060	.041	.986	1.014					

Table13: Coefficients^a a. Dependent Variable: HDNV Source: SPSS analysis results)

The regression results from the Coefficients table above show the significance of the natural resource factor is 0.391> 0.05, so this factor does not guarantee statistical significance and is removed from the model. Meanwhile, all other independent variables included in the analysis have a significance level (sig) less than 0.05, so these independent variables are significant for the dependent variable.

Thus, from the above regression results, the standardized regression equation is expressed as follows:

Ability to mobilize investment capital for socio-economic infrastructure development = 0.176 * Natural conditions + 0.644 * Market size + 0.216 * Investment policy + 0.123 * Financial market + 0.14 * Human resources + 0.085 * Public service quality.

From the above regression equation can be seen in the groups of factors affecting the ability to mobilize investment capital for socio-economic infrastructure development in Thai Nguyen province, the group of factors of market size have the biggest influence on the ability to mobilize this capital, followed in turn are the factors of Investment Policy; Natural conditions; Human Resources. Meanwhile, two factors, the quality of public services and the financial market, have the least impact on mobilizing investment capital for socio-economic infrastructure development in Thai Nguyen province.

From the above regression results show that in order to contribute to improving the capacity to mobilize investment capital for socio-economic infrastructure development in Thai Nguyen province in the coming time, first of all, Thai Nguyen province needs to practice to ensure and continue to develop more market size, followed by the investment policy improvement. In addition to focusing on these two factors, Thai Nguyen province also needs to make good use of the advantages of the natural conditions, and continue to focus on the development of the quality of human resources in the province. Besides, the province also needs to continue research to evaluate the financial market as well as the quality of public services of the province in the coming years.

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