

## Factors Affecting the Satisfaction of Investors In Industrial Zones of Thai Nguyen Province

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### Abstract

In order to identify and analyze factors affecting the investor satisfaction in industrial zones of Thai Nguyen province, the study performed the survey, exploratory and analysis of the influencing factors. The data of the study were collected from 236 investors doing business in industrial zones of Thai Nguyen province. The results of the tests of the quality of the scale as well as the observed variables and the results of exploratory factor analysis and multiple regression analysis indicated the real factors affecting the investor satisfaction in the industrial zones of Thai Nguyen province. The affecting factors have directly proportional impacts to the investor satisfaction and their importance in order of from the highest to the lowest were: Service Ability, Tangibles and Responsiveness. Basing on the results of the analysis of affecting factors, the study suggested a number of recommendations focusing on improving the affecting factors in order to enhance the investor satisfaction in industrial zones of Thai Nguyen province.

**Keywords:** Factor; Satisfaction; Investor; Industrial zones; EFA; Multiple regression analysis

### Introduction

Thai Nguyen province is situated in Northern midland and mountainous region of Vietnam, considered as a major economic-and-social-center of Vietnam Northeast and of Northern midland and mountainous region. As of 2015, in Thai Nguyen province, there are 6 industrial zones which have been planned in details with the size of 1420 hectares of natural land. Such industrial zones have attracted 133 investment projects, of which 61 FDI projects have the amount of registered capital reaching nearly 7 billion USD, 72 domestic investment projects have the registered capital of 11,000 billion VND [1]. These achievements in the investor attraction have been largely due to the significant improvement of the investment environment of the province. In the 4 years from 2011 to 2014, Provincial Competitiveness Index (PCI) of Thai Nguyen province increased by 49 grade, from No. 57 to No. 8, shows the high appreciation of investors about the investment environment of the province.

The above statistical data have showed achievements in investment attraction, development of industrial zones in Thai Nguyen province. However, there are still many shortcomings exist in the investment attraction in the industrial zones. According to Mr. Le Huy Nhon, Vice-Director of Department of Industry and commerce of Thai Nguyen province, the attraction of investment in industrial zones infrastructure construction is limited, the project occupancy rate is low, many planned industrial zones have no capital for investment in infrastructure and have difficulties in attracting investors. While the people are lack in land for agricultural development, land for industries is excessive but ineffective. Therefore, the localities shall be responsible for reviewing and balancing the development requirements to appropriately plan.

According to Mai The Cuong [2], in order to solve these difficulties in investment attraction into industrial zones, the local authority should consider investors as customers, and must aware of need and requests of investors in order to satisfy their desires. The investor satisfaction with a locality is a competitive advantage that locality. If the locality is able to meet the requirements of investors, there will be an positive impact on their satisfaction leading to investment decisions into the locality.

For Thai Nguyen Province's industrial zones, in order to attract investment projects, satisfying needs of investors is very necessary and important. In order to be able to satisfy investors, industrial zones need to define what factors affecting investor satisfaction and their impact (positive or negative), then find out solutions for these factors, by which improve the satisfaction of investors, attracting investment into industrial zones of Thai Nguyen province.

There are some studies on investor satisfaction or factors affecting the investor satisfaction but these studies almost are papers published on journals such as: "Factors affecting foreign investor satisfaction in industrial zones – quantitative model and policy implications" [3]; "Investment environmental factor affecting investor satisfaction: case study in Phu Quoc distric, Kien Giang province" [4]; "Factors affecting investor satisfaction in Ben Tre province" [5], etc. The author found that although the above researches studied on the factors affecting the investor satisfaction but the theoretical and conceptual framework, scales and their observed variables in the researches in different regions probably are different. In addition, whether the explored factors in the above researches really influence on the satisfaction of investor in industrial zones of Thai Nguyen province or not. Thus, the author found that the research of factors affecting the satisfaction of investors in Industrial Zones of Thai Nguyen province is a knowledge gap that needs to be researched. This paper will focus on the main contents including identification and analysis of the factors affecting the satisfaction of foreign investors in Industrial Zones of Thai Nguyen province and suggestions on some policy recommendations in order to enhance the investor satisfaction in the industrial zones.

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## Review of Literature

After studying the related researches, the author has chosen the study "Factors affecting the satisfaction of Foreign Investors in the industrial zones: Implications quantitative models and policy" [3] as the main research basic for this study. From this study, the author has learnt the application of the quantitative methods such as EFA and regression analysis, inherited some theories as Corin and Taylor, Dunning [6], Romer and Lucas, the Local Marketing theory and especially the theory of five dimensions in the service quality of Parasuraman et al. [7]. Dinh Phi Ho et al. [3]. has used the theory of Parasuraman et al. [7] as the the main theoretical framework for his study, expressed through his assumption about 5 factors affecting the satisfaction of foreign investors with the industrial zones, namely Tangibles, Responsiveness, Assurance, Reliability and Empathy. Although Dinh Phi Ho et al. [3]. applied the theories in the fields of the investment, the investment attraction and the Local Marketing to create 38 observed variables in the 5 factors but these variables in the study was not overarching enough to reflect the features of the investment environment as well as the industrial zones which influence the perspectives of investors because some items belonging to the investment environment which investors always interested in, still have not been placed into the 5 factors yet. These interested issues includes: The supports for investors of local leaders, the investment incentive policies, the legal document access of investors. In the study "Factors affecting the satisfaction of foreign investors in the industrial zones: quantitative models and policy implications" [8], basing on the results of quantitative analyses, Dinh Phi Ho indentified that the factor " Investment policies" has an impact on the investor satisfaction, in which including the items: "the legal document access of investors" and "the investment incentive policies", and he also identified the impact of the item "the local leader's supports for investors" on the investor satisfaction. Then, if these items are added in the factors affecting the investor satisfaction, the analysis framework of this study will be more scientific and comprehensive. In addition, Dinh Phi Ho [8] placed the variable " the convenient working time" in the factor "Tangibles", but this variable is not appropriate to this factor because the tangibles is reflected in terms of: appearance of physical facilities, equipment, personnel and written materials, not includes "the convenient working time", so this variable must be eliminated from this factor.

Therefore, in this study, in order to increase the overarching and coherent of the research, the author has inherited another study of Phi Dinh Ho [8] "Factors affecting Investment attraction in industrial zones - quantitative models and policy Implications" [8], in particular, inherited and add the variables "Local leaders are dynamic in supporting investors", "The investment incentive policies are attractive", and "Legal documents are rapidly deployed to the investors" into the factor "Responsiveness" because they are the important issues in the investment environment of localities which affect on the perception of investors about the localities or industrial zones. Besides, the author eliminated the variable "the convenient working time" because of its unsuitability. Thus, the author has inherited selectively the achievements, overcomed the limitations of the research framework of the main research basic and built a new research framework which is more scientific and perfect, including 5 affecting factors: Tangibles, Responsiveness, Assurance, Reliability, Empathy with 39 observed variables.

In addition, while the results of the research "Factors affecting the satisfaction of Foreign Investors in the industrial zones: quantitative models and policy Implications" Dinh Phi Ho et al. [3] found that the

3 factors that really affect the satisfaction of the foreign investors in Vietnam -Singapore Industrial Zones in Binh Duong province in order of importance are: Assurance, Empathy, Responsiveness, whether these factors also affect the satisfaction of investors in the industrial zones in Thai Nguyen province or not, and what factors be the most important [9-12]. This is one of knowledge gaps in scientific research that this research aim to overcome. The study not only be the first study on the issue of the factors affecting the satisfaction of investors in Thai Nguyen province, built the research framework in which 5 affecting factors reflecting the characteristics of the investment environment as well as the industrial zones of Thai Nguyen province but also found out the factors really affecting the satisfaction of investors in the industrial zones and the importance of them, and proposed the policy recommendations basing on the results of researching factors. Therefore, the study of factors affecting the satisfaction of investors in industrial zones of Thai Nguyen province is a new research with the high scientific and practical significant [13-15].

## Research Framework

Figure 1 explains about the Conceptual Framework of the study.

### Hypotheses of the study

The study has made some below hypotheses in order to determine whether or not there were an impact between the factors (including: Tangibles, Reliability, Responsiveness, Assurance; Empathy) and the satisfaction of investors investing in industrial zones of Thai Nguyen province [16-20].

H<sub>1</sub>: Level of investors' assessment about Tangibles of the industrial zones has influence on the investor satisfaction.

H<sub>2</sub>: Level of investors' assessment about Reliability of the industrial zones has influence on the investor satisfaction.

H<sub>3</sub>: Level of investors' assessment about Responsiveness of the industrial zones has influence on the investor satisfaction.

H<sub>4</sub>: Level of investors' assessment about Assurance of the industrial zones has influence on the investor satisfaction.

H<sub>5</sub>: Level of investors' assessment about Empathy of the industrial zones has influence on the investor satisfaction.

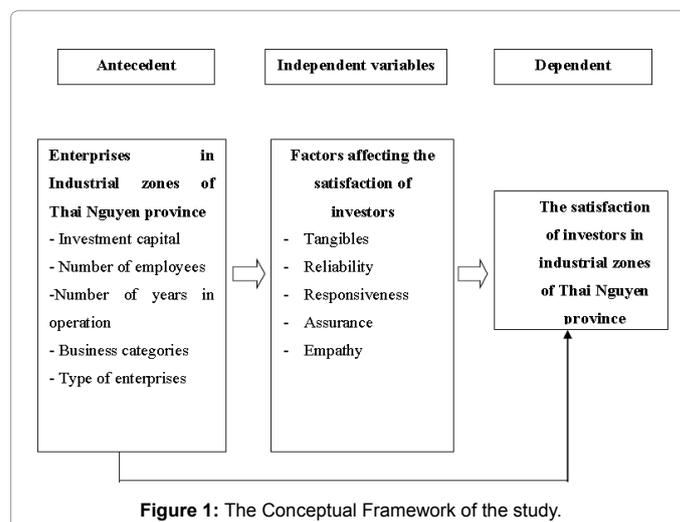


Figure 1: The Conceptual Framework of the study.

## Data Analysis and Results

### The statistics of the research sample

In order to collect some general information of enterprises operating in industrial zones in Thai Nguyen province and survey of investors' satisfaction in these enterprises for the industrial zones in the province, the author and her partners conducted the a survey to 82 enterprises operating in the industrial zones. The total collected valid questionnaires were 236. The Table 1 below gave the statistics about some general information of the research sample [21-25].

The subjects of survey were people who contribute capital to the investment project and holding management positions in enterprises. Among 236 respondents, the rate of male respondents and female respondents was respectively 96.61% and 3.39%. The survey team tried to delivery questionnaires to the top managers of the enterprises as Managers and Deputy Managers to obtain the most comprehensive information about their businesses as well as the assessment about the industrial zones. In the case too difficult to meet them, the surveyors can ask Head of Department who also has contributed the capital to the business. Of the total questionnaires, respondents hold positions as Manager (accounting for 25.42%), Deputy Manager (66.95%), and Head of Department (7.63%). According to the survey result, there were 21.19% of respondents has working experience less than 1 year, 35.17% of respondents has working experience from 1 to 3 years, 13.56% of respondents has working experience from 3 to 5 years, and 30.08% have more than 5 years of experience [26-30].

### The statistical and descriptive analysis of the scales of the research model

To implement the statistical and descriptive analysis of 6 scales of the model of research (TAN, REL, RES, ASS, EMP and SAT), including 42 observed variables (items), author put the collected survey data about the satisfaction of respondents according the 5-point Likert scale (from level 1 is strongly disagree to level 5 is strongly agree) into the SPSS 20.0 software [31-34]. After processing these data, the study has shown the average value of the evaluation of investors about each item and its standard deviation, specifically shown in Table 2.

According to the classification level of satisfaction and the average value of each item (observed variables), the study found that the level of satisfaction of investors about the items in the 5 scale (factors) were only at Neutral level or Satisfaction level. Specifically, the research has

No.	Indicators	Quantity (questionnaires)	Percentage (%)
1	Gender		
	Male	228	96.61
	Female	8	3.39
2	Position in the enterprise		
	Manager	60	25.42
	Deputy manager	158	66.95
	Head of department	18	7.63
3	Work experience in the IZ		
	Under 1 year	50	21.19
	1 – under 3 years	83	35.17
	3 – under 5 years	32	13.56
	5 years and above	71	30.08
	Total	236	100

Source: Compilation of the survey data (2016).

**Table 1:** General information of the research sample.

No	Observed variables	Mean value	Std. Deviation	No	Observed variables	Mean value	Std. Deviation
I	TAN			III.	RES		
1	TAN 1	3.85	0.798	19	RES 1	3.99	0.696
2	TAN 2	3.60	0.832	20	RES 2	3.86	0.718
3	TAN 3	3.43	0.788	21	RES 3	3.28	0.897
4	TAN 4	3.43	0.665	22	RES 4	3.84	0.788
5	TAN 5	3.27	0.703	23	RES 5	3.22	0.870
6	TAN 6	3.75	0.805	24	RES 6	3.26	0.845
7	TAN 7	3.95	0.773	25	RES 7	3.19	0.755
8	TAN 8	3.42	0.759	26	RES 8	3.44	0.773
9	TAN 9	3.43	1.103	27	RES 9	2.98	0.899
10	TAN 10	3.30	0.765	28	RES 10	2.81	0.845
11	TAN 11	3.93	0.693	29	RES 11	3.28	0.889
12	TAN 12	3.76	0.643	30	RES 12	3.69	0.830
13	TAN 13	3.37	0.711	31	RES 13	3.24	0.859
14	TAN 14	4.17	0.760	IV	ASS		
II	REL			32	ASS 1	3.81	0.712
15	REL 1	3.67	0.740	33	ASS 2	3.85	0.692
16	REL 2	3.92	0.722	34	ASS 3	3.60	0.774
17	REL 3	3.83	0.692	35	ASS 4	3.49	0.943
18	REL 4	3.83	0.694	V	EMP		
				36	EMP 1	3.74	0.623
				37	EMP 2	3.74	0.714
				38	EMP 3	3.81	0.681
				39	EMP 4	3.81	0.665
				VI	SAT		
				40	SAT 1	3.89	0.592
				41	SAT2	3.77	0.709
				42	SAT 3	3.72	0.812

Source: Ouput of the primary data analysis in SPSS (2016).

**Table 2:** The mean value and the standard deviation of observed variables.

shown that investors satisfy with all of the observed variables (Items) of the scale of REL, ASS and EMP (meaning the scale of Reliability, Assurance and Empathy) [35-39]. About the scale of TAN (Tangibles) and RES (Responsiveness), investors just satisfied with the observed variables (items) including: TAN1, TAN2, TAN3, TAN4, TAN6, TAN7, TAN8, TAN9, TAN11, TAN12, TAN14 and RES1, RES2, RES4, RES8, RES12. As for the variables TAN5, TAN10, TAN13 and RES3, RES5, RES6, RES7, RES9, RES10, RES11, RES13, investors have assessed the satisfaction at the neutral level (neither satisfied nor dissatisfied).

### The quality test of scales

To evaluate the quality of the scales (factors), firstly, this study implemented the Cronbach's Alpha test. A scale will be assessed good quality if the overall Cronbach's Alpha coefficient is more than 0.6 and the "Corrected Item-Total Correlation" of the observed variables is greater than 0.3 [40-45].

Through the analysis of reliability coefficient (Cronbach's alpha test), the study found 6 scales and 37 observed variables of the research model satisfying the condition for use in the analysis of EFA, specifically listed in the Table 3 below.

### Exploratory factor analysis

#### Exploratory factor analysis for independent variables

**A. Tests of the exploratory factor analysis:** After using EFA for 5 independent variables with their 34 items, the result of first time of EFA showed that KMO coefficient was equal to 0.865 (satisfying the condition of 0.5 <KMO <1). The result of the Bartlett's Test of

No.	Scale (factor)	Observed variables	Cronbach's Alpha
1	TAN	TAN1, TAN2, TAN3, TAN4, TAN5, TAN6, TAN7, TAN8, TAN9, TAN10, TAN11, TAN12, TAN13, TAN14	0.820
2	REL	REL1,REL2,REL3,REL4	0.788
3	RES	RES3, RES5, RES6, RES7, RES8, RES9, RES10	0.77
4	ASS	ASS1, ASS2, ASS3, ASS4	0.748
5	EMP	EMP1,EMP2,EMP3,EMP4,	0.769
6	SAT	SAT1, SAT2, SAT3	0.814

Source: Compilation from the result of data analysis in SPSS (2016).

**Table 3:** Scales of good quality and their observed variables.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.831	
Bartlett's Test of Sphericity	Approx. Chi-Square	1874.127
	df	231
	Sig.	0.000

Source: Ouput of the EFA in SPSS (2016).

**Table 4:** KMO and Bartlett's Test.

Sphericity showed that the statistical significant level was equal to 0.000 (smaller than 0.05), meaning that the exploratory factor analysis was appropriate for this research data and the observed variables were correlated linearly with their representative factors (scales). This result also showed that 8 elements were extracted at Eigenvalue of 1.048 and the Cumulative of Rotation Sums of Squared Loadings of 60.891%. However, the results table of Rotated Component Matrix showed that the items EMP1, EMP4, RES7, RES3, RES10, RES9, TAN6, TAN10, ASS4 had the Factor loading smaller than 0.55, in which, EMP4 had Factor Loading of 0.387 (smaller than 0.55 and smallest ) so it was removed.

The study continued to conduct the EFA for the 2<sup>nd</sup> time, checked the factor loading coefficients of items, removed the RES9 variable with the Factor Loading of 0.444 (smaller than 0.55 and smallest). The EFA for the 3<sup>rd</sup> time was conducted. The results showed that TAN6 had the Factor Loading of 0.431 (smaller than 0.55 and smallest) so it was removed [46-49].

The study continuously implemented similar EFA until the results of Rotated Component Matrix table shows all the items with factor loading was greater than 0.55. After eliminating items not meeting the requirements, the EFA results of the last time (Table 4) showed that KMO coefficient was equal to 0.831 (satisfying the condition  $0.5 < KMO < 1$ ). The result of the Bartlett's Test of Sphericity showed that the statistical significant level was equal to 0.000 (less than 0.05), meaning that the exploratory factor analysis was appropriate for this research data and the observed variables were correlated linearly with their representative factors (scales).

The results of the exploratory factor analysis also showed 6 factors that were extracted at Eigenvalue of 1.076. Eigenvalue of the 6 factors have values greater than 1, so the number of factors was determined to be 6. In addition, the total variance extracted was 62.722% (greater than 50%). This meant that 62.722% of the change of the factors was explained by the observed variables (items) [50-52].

**B. The results of the exploratory factor analysis:** The Table 5 below showed that the items (observed variables) had Factor Loading greater than 0.55. There were 6 factors representing issues that had impacts on the investor satisfaction. The observed variables of these factors were arranged differing from the original research model (consisting of 5 factors).

The new six aggregated factors and the items belonging to these factors were listed in the table below (Table 6):

	Component					
	1	2	3	4	5	6
REL3	0.788					
ASS1	0.725					
REL1	0.703					
REL2	0.692					
REL4	0.676					
ASS2	0.650					
EMP2	0.588					
TAN11		0.800				
TAN14		0.727				
TAN12		0.692				
TAN7		0.600				
RES5			0.843			
RES6			0.722			
RES7			0.596			
RES10			0.551			
TAN8				0.828		
TAN13				0.740		
TAN5				0.676		
RES8					0.704	
EMP3					0.679	
TAN3						0.762
TAN2						0.603

Source: Ouput of the EFA in SPSS (2016).

**Table 5:** Rotated component matrix.

**Test of exploratory factor analysis for the dependent variable:**

The results of the exploratory factors analysis of the dependent variable (SAT) showed that KMO was equal to 0.712 satisfying the conditions of  $0.5 < KMO < 1$  and the statistical significant level was equal to 0.000 (less than 0.05), meaning that the model of exploratory factor analysis was appropriate to the actual data and the observed variables were correlated linearly with the representative factors. The table of Total Variance Explained showed that the results of the exploratory factor analysis of the SAT scale have shown one factor extracted at Eigenvalue of 2.225 with the total variance extracted 74.152% (greater than 50%). This meant that 74.152% of the the change of the SAT scale was explained by observed variables (items) of this scale [53-55].

The results of the analysis also showed that the Factor Loading of the observed variables of the factor SAT satisfy the condition (greater than 0.55) and the number of factors which were established after the exploratory factor analysis was one, no observed variables was eliminated. The new established factor included 3 observed variables (SAT1, SAT2 and SAT3). This new factor was named F\_SAT.

Thus, through the quality tests of scales and the test of EFA models, the study identified the 6 scale representing the factors affecting the investor satisfaction (independent variables) and one scale representing the investor satisfaction (the dependent variable) with 25 observed variables (items). The findings were shown in the table following (Table 7).

No	Factor	Items
1	F_ABI: Service ability	REL1: Management Authority of industrial zones complies with commitments with investors; REL2: Management Authority of industrial zones has a clear, accurate consultation; REL3: Management Authority of industrial zones guides administrative procedures clearly and consistently; REL 4: Management Authority of industrial zones punctually sends its feedback about administrative procedures; ASS1: Qualification and serving attitude of staffs of State investment management organizations of Thai Nguyen province are good; ASS2: Qualification and serving attitude of staffs of Management Authority of industrial zones are good; EMP2: Management Authority of industrial zones takes interest in and solves recommendations and requirements of enterprises
2	F_TAN: Tangibles	TAN7: Reasonable electricity price; TAN11: Good internal transport system and green space; TAN12: Convenient communication system; TAN14: Good internal lighting system
3	F_RES: Responsiveness	RES5 : The investment incentive policies are attractive; RES6 : Legal documents are rapidly deployed to the investors; RES7 : Security and order in industrial zones are good; RES10 : Labor qualification meets our needs
4	F_UND: Understanding	TAN5: Stable electricity; TAN8:Reasonable water price; TAN13: Good drainage system
5	F_EMP: Empathy	RES8: Abundant labor; EMP3: Management Authority of industrial zones often organize conferences to meet and talk with enterprises
6	F_CRE: Credibility	TAN2: Dress of staff of management Authority of industrial zones is elegant, neat; TAN3: Premises and workshops are arranged promptly

Source: Author's compilation (2016).

Table 6: Adapting the SERVQUAL.

No.	Scale	Items (observed variables)	Explanation of scale
1	F_ABI	REL1,REL2,REL3,REL4, ASS1,ASS2,EMP2	Service ability
2	F_TAN	TAN7,TAN11,TAN12,TAN14	Tangibles
3	F_RES	RES5,RES6,RES7,RES10	Responsiveness
4	F_UND	TAN5,TAN8,TAN13	Understanding
5	F_EMP	RES8,EMP3	Empathy
6	F_CRE	TAN2,TAN3	Credibility
7	F_SAT	SAT1,SAT2,SAT3	Investor Satisfaction
Total	7	25	

Source: Author's compilation (2016).

Table 7: The adjusted model after the Cronbach's Alpha test and the EFA.

The value of the new scales (factors) aggregated was calculated by the average value of their observed variables. The research model of factors affecting the investor satisfaction in the industrial zones of Thai Nguyen province has changed comparing to the original research model [56-60]. The new research model was shown as below (Figure 2).

The hypotheses of this research model included:

H1': Level of investors' assessment about Service ability of the industrial zones has influence on the investor satisfaction

H2': Level of investors' assessment about Tangibles of the industrial zones has influence on the investor satisfaction

H3': Level of investors' assessment about Responsiveness of the industrial zones has influence on the investor satisfaction

H4': Level of investors' assessment about Understanding of the industrial zones has influence on the investor satisfaction

H5': Level of investors' assessment about Empathy of the industrial zones has influence on the investor satisfaction

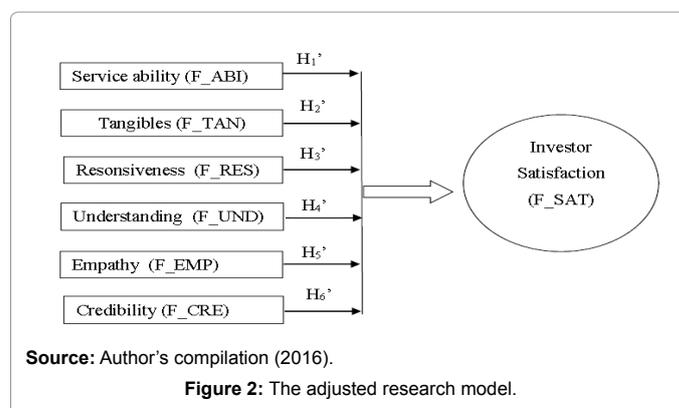
H6': Level of investors' assessment about Credibility of the industrial zones has influence on the investor satisfaction

The scales was put into linear regression analysis in which the dependent variable was F\_SAT and independent variables including: F\_ABI, F\_TAN, F\_RES, F\_UND, F\_EMP, F\_CRE.

### Multiple regression analysis

To identify factors affecting the investors satisfaction in industrial zones of Thai Nguyen province, the overall correlation model was formed as below:

$$F\_SAT=f(F\_ABI, F\_TAN, F\_RES, F\_UND, F\_CRE, F\_EMP)$$



In which: F\_SAT: Dependent variable

F\_ABI, F\_TAN, F\_RES, F\_UND, F\_EMP, F\_CRE: Independent variables

The identification of the factors really affecting the investor satisfaction in industrial zones of Thai Nguyen province, in the factors being the independent variables, was implemented through the linear regression equation following:

$$F\_SAT=b_0 + b_1 F\_ABI+ b_2 F\_TAN + b_3 F\_RES + b_4 F\_UND + b_5 F\_CRE + b_6 F\_EMP + e_i$$

**Test of the suitability of the model:** The study used SPSS 20.0 software to analyse the multivariable regression models, in which, the dependent variable was F\_SAT, the independent variables were F\_ABI, F\_TAN, F\_RES, F\_UND, F\_EMP, F\_CRE. The results of the test of the suitability of the model were shown in the tables below (Table 8).

In the Table 8, Adjusted R Square=0.524. Thus, 52.4% of the change of the investor satisfaction was explained by the independent variables of the model [61-63].

The Table 9 showed that the statistical significant level was equal to 0.000 (less than 0.01), so we can conclude that the model was suitable to the actual data. In other words, the independent variables were correlated linearly with the dependent variable and the confidence level is 99%.

**Test of the multicollinearity:** The result of regression analysis was also shown in the Table 10 below (Table 10):

The above table showed that the values of VIF were less than 2.0, which meant there was no multicollinearity phenomenon in this model.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.732	0.536	0.524	0.41852	1.823

Source: Ouput of the MRA in SPSS (2016).

Table 8: Model Summary.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	46.323	6	7.721	44.077	0.000
Residual	40.112	229	0.175		
Total	86.435	235			

Source: Ouput of the MRA in SPSS (2016).

Table 9: ANOVA.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.013	0.261		0.049	0.961		
F_ABI	0.648	0.066	0.562	9.761	0.000	0.612	1.634
F_TAN	0.262	0.060	0.235	4.398	0.000	0.709	1.410
F_RES	0.089	0.051	0.089	1.735	0.084	0.771	1.297
F_UND	0.058	0.053	0.056	1.093	0.276	0.774	1.291
F_EMP	-0.048	0.055	-0.047	-0.885	0.377	0.721	1.387
F_CRE	-0.005	0.047	-0.005	-0.098	0.922	0.773	1.293

Source: Ouput of the MRA in SPSS (2016).

Table 10: Coefficients.

Factors	Standardized Coefficients (Beta)	Proportion in variation of investor satisfaction explained by factors (%)
F_ABI (Service Ability)	0.562	63.43
F_TAN (Tangibles)	0.235	26.52
F_RES (Responsiveness)	0.089	10.05
Total	0.886	100

Source: Compilation of MRA results (2016).

Table 11: The importance of the affecting factors to the investor satisfaction.

**Test of the autocorrelation:** This study used the d test of Durbin - Watson to test the phenomenon of the autocorrelation of residuals.

The Table 8 showed that  $d=1.823$

The number of observation (n) was 236

$K=7$  (K included the intercept)

Critical values for Durbin - Watson test : 1% Significance level

Seeking in the statistical table Durbin - Watson, we found that  $d_L=1.64265$  and  $d_U=1.74880$ .

Because  $d=1.823 > d_U=1.74880$ , so there was no statistical evidence that the error terms were positively autocorrelated.

And because  $(4 - d=4 - 1.823=2.177) > d_U=1.74880$ , so there was no statistical evidence that the error terms were negatively autocorrelated.

Thus, there was no Autocorrelation between the residuals in the model, and the model was significant.

**Test of the partial correlation of the regression coefficients:** In the Table 10, the column Sig. shows that the variables F\_ABI and F\_TAN had the statistical significant level equal to 0.000 (less than 0.01), and the variable F\_RES had statistical significant level equal to 0.084 (less than 0.1), meanwhile the variables F\_UND, F\_EMP, F\_CRE had

statistical significant level greater than 0.1. Thus, the variables F\_ABI and F\_TAN had a significant correlation with F\_SAT with the 99% confidence level, the variable F\_RES was correlated significantly with F\_SAT with the 90% confidence level. Meanwhile F\_UND, F\_EMP, F\_CRE had no significant correlation with F\_SAT with the 90% confidence level [64,65]. Through this test, the research also found the result of the hypotheses tests. Specifically, the hypotheses H1' and H2 ' were accepted at the 1% significance level, the hypothesis H3' is accepted with the statistical significance level at 10% , which meant that the factors including Service ability, Tangibles, Responsiveness had impacts on the level of investor satisfaction in the industrial zones of Thai Nguyen province. Meanwhile, the hypotheses H4', H5' and H6 ' were rejected at the 10% significance level.

**Discussion on the results of Multiple Regression Analysis:**

Table 10 showed the unstandardized regression coefficients (B) of the independent variables (the affecting factors): F\_ABI, F\_TAN, F\_RES respectively were 0.648, 0.262, 0.089 (all greater than 0). This proved that independent variables (affecting factors) have a directly proportional relationship with the dependent variable (the satisfaction of investors).

As this result, the multiple regression model was:

$$\widehat{F\_SAT} = 0.013 + 0.648 \widehat{F\_ABI} + 0.262 \widehat{F\_TAN} + 0.089 \widehat{F\_RES}$$

Meanwhile, the standardized regression coefficient (Beta) was used to determine the importance of the influence of the independent variables. The standardized regression coefficients could be converted into the percentages as follows (Table 11).

Table 11 showed that F\_ABI (Service Ability) accounted for 63.43%, F\_TAN (Tangibles) accounted for 26.52% and F\_RES (Responsiveness) accounted for 10.05% in change of satisfaction of investors [66,67].

In conclusion: Through the tests, the study concluded that the affecting factors on the satisfaction of investors in Thai Nguyen industrial zones in order of importance of highest to lowest were: F\_ABI (Service Ability), F\_TAN (Tangibles) and F\_RES (Responsiveness).

Specifically, the issues affecting positively (proportional impact) on the satisfaction of investors in Thai Nguyen industrial zones included:

- Compliance of commitments with investor of the Industrial Zone Management Authority;
- The clear and accurate consultation of the Industrial Zones Management Authority;
- The clear and consistent guides of administrative procedures by the Industrial Zones Management Authority;
- Sending the feedback punctually about administrative procedures of the Industrial Zones Management Authority;
- The good qualification and attitude of service of staffs of State investment management organizations of Thai Nguyen province;
- The good qualification and attitude of service of staffs of the Industrial Zones Management Authority;
- The interest in solving of recommendations and requirements of enterprises by the Industrial Zones Management authority;
- The reasonability of electricity price;
- Good internal transport system and green space;

- The convenience of communication system;
- Good internal lighting system;
- The attraction of investment incentive policies;
- The rapid deployment of legal documents to the investors;
- The good assurance of security and order in industrial zones;
- The qualification of labors in enterprises.

## Conclusions and Recommendations

### Conclusions

After more than 15 years of establishment and development, the industrial zones in Thai Nguyen province has made great success and contributed significantly to the socio-economic development of Thai Nguyen province. The significant progress in attracting investment in the province from 2012 to now is mainly due to the good improved investment environment of the province as well as the increase in competitiveness of the province to appeal the investors. However, the industrial zones in Thai Nguyen province has fully untapped all potential, and do not have enough good conditions to really attract investors [68], especially foreign investors. This is reflected in the low occupancy rate of the industrial zones. Therefore, in order to be able to find the cause of the less attractiveness to investors as well as their satisfaction in the industrial zones in Thai Nguyen province, the implementation of survey, analysis, evaluation and exploration of the factors affecting the satisfaction of investors in the industrial zones of the province are necessary. The study surveyed 82 enterprises operating in the industrial zones by interviewing 236 investors. After collecting the primary information from enterprises, the author has processed and analyzed the data by using SPSS 20.0 software. The results of the tests of the quality of the scale as well as the observed variables and the results of exploratory factor analysis and multiple regression analysis showed the real factors affecting the investor satisfaction in the industrial zones of Thai Nguyen province [69]. The affecting factors have directly proportional impacts to the investor satisfaction and their importance in order of from high to low were : F\_ABI (Service Ability), F\_TAN (Tangibles) and F\_RES ( Responsiveness).

### Policy recommendations

The policy recommendations would focus on improving the factors affecting satisfaction of the investors, since according to the result of quantitative research in multivariate regression models, if the factors of Service Ability, Tangibles and Responsiveness of industrial zones are improved, the satisfaction of investors will increase. Therefore, the study proposed some following recommendations:

- The Industrial Zone Management Authority, People's Committee and relevant departments and agencies should continue to consistently implement its commitments to investors. Besides, the commitment of investment incentives promulgated by Thai Nguyen People's committee to the projects invested in the industrial zones will be sure to implement rightly.

- The Industrial Zone Management Authority, People's Committee and relevant departments and agencies should continue to promote the reform of administrative procedures.

- The Industrial Zone Management Authority, People's Committee and relevant departments and agencies should thoroughly grasp the officers and staff at these offices with the perspective "considering

businesses as partners and customers", so they need to try to serve these customers or businesses in the best way.

- Industrial Zone Management Authority in Thai Nguyen should promote and more regularly make dialogues with enterprises, be in close coordination with the relevant authorities in the province and the central ministries to solve the problems and difficulties of enterprises in the industrial zones.

- In order to continue to improve technical infrastructure and make investors more satisfied, the Industrial Zone Management Authority should have effective solutions, such as: Continuing and enhancing the urge and request to investors to deploy to build and develop the infrastructure system synchronously in industrial zones; Focusing all resources that can be mobilized as capital support mobilization with target from central budget, loans from the Ministry of Finance, provincial capital budget, capital advanced by the construction contractor and capital advanced by secondary investors, in order to invest in the construction of infrastructure in the industrial zones synchronously with social infrastructure outside the industrial zone which is invested to be more modern; Doing well the work of the compensation for ground clearance in the industrial zones to create many empty land areas attracting investors; and timely resolving any questions and proposals of the enterprises on the economic and technical infrastructure in the industrial zones to create the best conditions for production and business activities of these enterprises, etc.

- The Industrial Zone Management Authority should collaborate with People's Committee and Department of Planning and Investment of the province in organizing seminars for investors or making surveys to gather opinions and assessments of the investors on these policies. On the basis of the gathered information, the authorities will study in conjunction with the current provisions of the investment preferential policies of the Government and the actual socio-economic situation of the locality to conduct reviewing, developing and completing the mechanisms and investment preferential policies of Thai Nguyen province, as well as investment preferential policies in the industrial zones in the province.

- Although the situation of security and order in industrial zones are pretty good, sometimes there are still a number of incidents such as theft, robbery, violation of the declaration and business registration procedures work, not making commitments on ensuring security and order in the areas around the industrial zones. Therefore the Industrial Zone Management Authority and the police force of the province and the locality need to have effective measures to ensure a better security and order in industrial zones, such as: To coordinate with the provincial police in directing enterprises in the industrial zones to deploy the work of launching a mass movement of national security in order to make propaganda of educating staff and employees of enterprises in the industrial zones to raise sense of vigilance to all plots and quackery of enemies, and all types of crime; To direct enterprises in the industrial zones to plan initiative safety protection of persons and property, state secrets, fire prevention, environmental protection, etc.

- The Industrial Zones Management Authority and State management agencies should implement some solutions to improve the qualification of labour in the industrial zones of the province, specifically: encouraging the formation and development of professional educational institutions, vocational training centers and upgrading existing vocational schools in the province based on the model "Schools in enterprises"; Completing policies to attract workers

with good technical capacity to work in enterprises in industrial zones in Thai Nguyen after being trained in vocational schools, or universities, or college; etc.

- The Industrial Zone Management Authority needs to update, publish the current legal documents with the content of supporting investors and business in the work of studying the investment environment of Thai Nguyen as well as of industrial zones in Thai Nguyen, and in the work of production and business, exporting and importing, etc. on its website. In addition, the Industrial Zone Management Authority needs to create an English language version of the website of the management authority in order to serve foreign people, especially for foreign investors who are interested the industrial zones in the province.

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