FACTORS AFFECTING INVESTMENT DECISIONS IN INDUSTRIAL ZONES IN BINH DINH PROVINCE, VIETNAM

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Abtract

In this article is going to analyze actual situation of attracting investment capital into industrial zones in Binh Dinh province through the secondary data from reports of the The Binh Dinh Economic Zone Management Board in the period from 2010 to June 2018 and analysis factors affecting the investment decision into industrial zones in Binh Dinh province. The research findings for the factors which has the most positive impact on the investment decision in the industrial zone, that is investing in the development of technical infrastructure followed by costs of infrastructure use and the scale of real investment capital. Management and support factors of local government have the opposite effect on investment decisions in industrial zones. This article also suggested recommendations about investment in development infrastructure of industrial zones and the cost of infrastructure use.

Keywords: *investment capital, investment decisions, industrial zones, Binh Dinh*

1. Introduction

Until June 2018 in Binh Dinh province, there are 4 industrial zones (Industrial zones) attracting investment including Phu Tai Industrial zone, Long My Industrial zone, Nhon Hoa Industrial zone and Hoa Hoi Industrial zone (excluding industrial zones in Nhon Hoi economic zone.) The total natural land area of the industrial zones is 1043.8 ha with a total area of 755.1 ha of industrial land for lease and the total area of industrial land leased is 445.6 ha. Business investment activities in industrial zone have contributed to increasing industrial production value, import-export turnover, contributing to the state budget, creating jobs for workers. Therefore, the province is always interested in promoting business investment in industrial zone in the province.The total natural land area of the industrial zones is 1043.8 ha with a total area of 755.1 ha of industrial land for lease and the total area of industrial land leased is 445.6 ha. Business investment activities in industrial zones have contributed to increasing industrial production value, import-export turnover, contributing to the state budget, creating jobs for workers. Therefore, the province is always interested in promoting business investment in industrial zones in the province.

However, with the fluctuations of the world economic situation, the attraction of investment capital into industrial zones of Vietnam in general and Binh Dinh in particular also faces many difficulties, such as the scale of attractive investment capital is small compared to its potential, capital growth rate over the years is low. The number of foreign investment projects is still low, the size of a project is not large (Until June 2018, there were 17 projects and 8 foreign investment partners). So, what factors influence the decision to invest in industrial zones and how to motivate investors to decide to invest in industrial zones in Binh Dinh province?

With the comments, this study goals to assess the current situation of attracting investment capital through the combination of identification and impact assessment of factors affecting the decision to invest in industrial zones in Binh Dinh province. Since then, the study will propose a number of specific solutions to promote investors to decide to invest in industrial zones, thereby promoting the attraction of investment capital in industrial zones in the province in the future.

2. Research Overview

Investment is using of property resource to increase the accumulation and capital concentration with the purpose is collecting long-term benefits in the future. Enterprises will building a cooperative relationshindustrial zones investing in a specific field or industrial zone when that decision is beneficial. Silindustrial zoneso's (2005) and Nguyen Phuc Nguyen (2011's) also confirm that investment benefits are a major factor affecting the investment intentions and investment decisions of a enterprises in a specific industry or industrial zones. The theoretical or empirical scholars agree that

investment benefits will indirectly influence investment decisions through investment intent (Fishbein and Ajzen (1975); Ajzen and Madden (1986); Nguyen. Phuc Nguyen (2011))....From other theories 'perspective, factors affecting investment decisions of investors may be subjective factors of investors and objective factors from the external environment. According to behavioral theories, the investment decision of the enterprise is essentially the decision of the investor so it is also influenced by individual factors. Studies conducted by Kahneman (1979), Waweru et al (2008) also show that investment decisions are influenced by psychological, emotional and behavioral factors. Specifically, the personal wishes, goals, prejudices and feelings of investors. Theories of financial behavior offer criteria such as diagnostics, bias, effects, sense of loss, risk aversion, ... affecting and changing investor decisions (Pavabutr, 2002). Local marketing theory also suggests that investment decisions are similar to purchasing behavior (Kotler, 2002). Investment decisions are also influenced by organizational factors such as the needs and potential of the company (Nelson, 2005).

The experimental studies also mention many factors affecting investors' investment decisions at different angles. The research of Yue - man et al (2009) has pointed out the factors affecting investment decisions in economic zones such as infrastructure, special preferential policies, and free institutions. These are also the factors that contribute to the success of the economic zones in China.

Mai Van Nam and Nguyen Thanh Vu (2010) believe that the three most important factors affecting the decision of an enterprise to an industrial zone include: i) technical infrastructure of the Industrial zones; (ii) Abundant labor resources, attractive labor quality and labor costs, and (iii) location and place of establishing Industrial zones convenient for production and business of the enterprises; which, the most important is the location and place of establishing Industrial zones convenient for production and business of the enterprises. Le Bao Lam and Le Van Huong (2012) analyze the influencing factors investment decision of enterprises with a data set from 904 enterprises in Tien Giang, Vietnam showing that the factors have a proportional relationshindustrial zones with investment decisions of the enterprise, including: labor size, total assets, profit before tax, owner's capital, the type of enterprise and the factors that are negatively related to the investment decision include: total revenue, ROA is also a very important factor influencing investment decisions

Nguyen Phuc Nguyen (2013) clarified the factors affecting an enterprise's decision to invest in an industrial zone , among the three major factors that change investment intentions, the expected benefits from investment decisions is a key factor influencing decision making. Moreover, this study also proved the effectiveness and impact of the policy on intentions and then the investment decision of enterprises in industrial zones.

Nguyen Minh Ha and Nguyen Duy Khuong (2015) explored the factors that influence investment decisions in industrial zones and industrial clusters by using the Binary logistic regression analysis method with data of 191 investment projects in industrial zones and Tien Giang industrial clusters Tien Giang industry. The research findings show that there are 5 factors that have a positive impact on enterprises' investment decisions in industrial zones and industrial clusters, including: investment industry, project land area, the status of the investor and the percentage of foreign workers.

3. Research Methodology

3.1. Research areas research datas

Research areas are investors inside and outside industrial zones in Binh Dinh province. The secondary data is collected from 2010 to June 2018. The author collected primary data from a survey of investors inside and outside the industrial zones in Binh Dinh province in 2016. By the end of December 2015, there were 185 investors with 219 investment projects in industrial zones in Binh Dinh province. To ensure the results of research, the author with the help of the Binh Dinh Economic Zone Management Board, sent a survey to all 185 investors in the Industrial zones. As a result, the author received 170 responses, reaching 91.89% of the total. After cleaning, remove the invalid responses (blank, incomplete) and 156 votes reached 84.32% of the overall. For the group of investors outside the industrial zones, the author sent the questionnaire to 150 enterprises investing outside the industrial zones, resulting in 132 responses, accounting for 88% of the number of votes issued.

After the cleaning process, there were 112 valid votes, accounting for 74.67% of the total number of votes issued. The author randomly selected 100 surveys of investors inside Industrial zones and 100 surveys of 100 investors outside Industrial zones to conduct this study. As such, the survey sample structure is statistically calculated according to the operating industry regulations as follows:

Table 3.1: Sample descrindustrial zonestive statistics by type of activity

Criteria	Number of enterprises	Percentage
Forest products and processing	50	25%
Paper material (shavings)	23	11,5 %
Granite processing	25	12,5%

Mechanical, construction materials	18	9%
Processing paper and packaging	15	7,5 %
Animal feed	19	9,5%
Agricultural processing	23	11,5%
Supporting industries	15	7,5%
Other professions	12	6 %

Source: Compiled from research findings by the author

3.2. The proposed research model and the scale

Proposed research model by the author as follows:

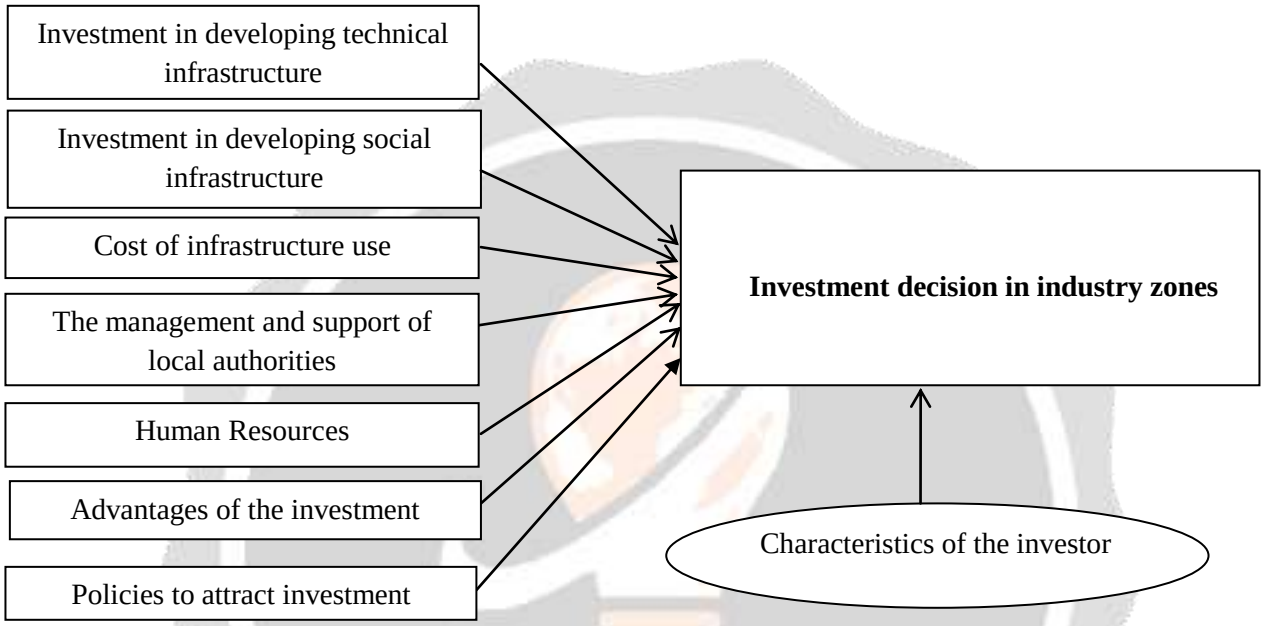

Figure 3.1: Evaluation model about influence of factors to investment decision in industrial zones

The research model and the scales that the author uses are based on the scales of the studies of Nguyen Dinh Tho (2009) and Dinh Phi Ho (2012). The criteria of the research model as follows:

Table 3.2: Criteria of the research model

	SCALES	Code
	I. Investment in developing technical infrastructure	**HTKT**
1	Convenient transportation infrastructure	HTKT1
2	Stable power supply system	HTKT2
3	Stable water supply and drainage system	HTKT3
4	The system of trees is well invested	HTKT4
5	Convenient communication system	HTKT5
6	Waste treatment system is well invested	HTKT6
	II. Investment in developing social infrastructure	**HTXH**
1	Investment in health infrastructure has met well demand	HTXH1
2	The school system is meet children's learning needs (childrens of employees and investors have in school age)	HTXH2
3	Entertainment service system meets the needs	HTXH3
4	Housing infrastructure meets the needs of workers	HTXH4

III.	Human Resources	**NNL**
1	The quality of labor meets the requirements of the investor	NNL1
2	Abundant labor source	NNL2
3	The cost of using labor is cheap	NNL3
4	Good ability to learn and apply technology of labor	NNL4
5	Easily recruit good local managers	NNL5
6	Highly disciplined labor	NNL6
IV.	**Investment policy**	CSDT
1	Preferential investment policies of locality is reasonable	CSDT1
2	Law documents were quickly deployed to investors	CSDT2
3	Clear tax system	CSDT3
5	Simple and quick administrative procedures	CSDT4
V.	**The management and support of local authorities**	**CQDP**
1	Local leaders are ready to assist investors	CQĐP1
2	The local government has a good support mechanism for investors	CQĐP2
3	Questions and reflections of the enterprises are always answered satisfactorily.	CQĐP3
4	Qualifications, skills and service attitude of managers were good	CQĐP4
VI.	**Advantages of the investment industry**	**LTDT**
1	Easy access to the inputs	LTĐT1
2	Supporting industry development	LTĐT2
3	Favorable consumption market	LTĐT3
4	Favorable geographical location	LTĐT4
VII.	**Cost of infrastructure use**	**CPHT**
1	Prices of communication services are reasonable	CPHT1
2	Reasonable price for electricity, water, and freight	CPHT2
3	Reasonable rent price	CPHT3
4	Waste disposal costs reasonable	CPHT4
VIII.	**Investment decision in industry zones**	**QD**
1	Do not invest in industrial zones	0
2	Invest in industrial zones	1

Source: Compiled from research findings by the author

3.3. Data analysis method

To achieve the research objectives, the author uses the the main methods as follow:

Analysis Methods and Descriptive Statistics: Primary and secondary data will be collected, aggregated and analyzed to achieve the purpose of research. This tool is used to describe an overview of the research area, the situation of attracting investment in industrial zones, descriptive statistics on the primary data obtained when surveying and analyzing the results of research.

Exploration factor analysis method (EFA): The author uses SPSS software to analysis explores factors. This tool aims to carry out the contents, including testing the quality of scales, and analyzing explore factors.

Multivariate Regression Analysis method: The author uses Binary Logistic Regression analysis to assess the impact of the factors on investment decisions in the industrial zone.

4. Research findings

4.1. Actual situation of attracting investment in industrial zones in Binh Dinh province in the period of 2010 - 2018

According to statistics, in the period of 2010 - 2018, the scale of investment capital and implementation capital attracted in industrial zones is shown in the following table.

Table 4.1: Total investment capital, implemented capital and registered investment capital in industrial zones in Binh Dinh province until June 2018

Unit: VND billion

Target / Year	2010	2011	2012	2013	2014	2015	2016	2017	06/2018
Realized capital	1.982,49	2.455	2.995	4.651,37	5.560,37	6.846	6.903	7.687	8.485
Registered capital	4.595,33	5.733,73	6.775,14	28.504	29.210,9	30.333	10.580	11.972	12.812
Realized capital / registered capital (%)	43,14	42,81	42,2	16,31	19,0	22,56	65,25	64,21	66,3

Source: Compiled from reports of Binh Dinh Economic Zone Administration

We can see that the total registered investment capital has many different changes over the years. In 2010, the registered investment capital in the industrial zones of the province was 4,595.33 billion VND. Until 2015, the registered investment capital in the industrial zones of the province was 30.333 billion VND. Over the past 6 years, the registered investment capital has increased more than 6 times. However, from 2016, the registered capital decreased compared to 2015 and increased continuously until June 2018. The scale of realized capital increased continuously during this period. By June 2018, realized investment capital increased more than four times compared to 2010. However, the rate of registered capital and realized capital in industrial zones in Binh Dinh province tends to decrease over the years in the period from 2010 to 2015. In 2010, this rate was 43.14% while in 2015 rate is only 22.56%. In the period of 2016 - 06/2018, this rate increased over the years, the ratio of realized capital to registered capital accounted for a high proportion (over 60%).

The proportion of registered capital and investment capital of the domestic and foreign regions as follows:

Table 4.2: Domestic and foreign investment capital until June 2018

Investment capital source	Registered capital	Realized capital	Rate realized capital / registered capital (%)
Domestic (VND billion)	9.551,79	4.635,59	48,53
Foreign (US $ million)	142,228	117,588	82,67

Source: Compiled from reports of Binh Dinh Economic Zone Administration

The table above shows that the amount of registered investment capital and realized investment capital of domestic capital dominates with foreign capital. However, the rate of realized capital / registered capital of foreign capital is much higher (82.67%) compared to this criterion of domestic capital (48.53%). Therefore, the management agencies need to take certain measures to increase the realized capital of domestic capital and promote the attraction of foreign investment....

4.2. Quantitative analysis results

4.2.1. Testing the quality of scales

The scales and observed variables can be used if satisfied: The Cronbach's Alpha coefficient of the overall scale is greater than or equal to 0.6 and the correlation coefficient of the total variables of the observed variables in the scale must be greater than or equal to 0.3.

Testing result qualitative scales of the research satisfy the above conditions as follows:

Table 4.1: Testing the quality of scales

Group of factors	Cronbach's Alpha coefficient
Investment in developing technical infrastructure	0, 815

Investment in developing social infrastructure	0,737
Advantages of the investment industry	0,6632
Management and support factors of local governments	0,842
Cost of infrastructure use	0,710
Investment policy	0,733
Human Resources	0,807

Source: Compiled from research findings by the author

4.2.2. Exploratory factor analysis

After testing the scale quality, the author has removed the scale, observed variables do not meet the conditions and continues to analyze the explore factors. The EFA analysis considered suitable when the following conditions are met: Multiplier Factor Loading> 0.55; 0.5 ≤ KMO ≤ 1; Bartlett's test has Sig statistical significance. <0.05; Extract variance (Cumulative% of variance)> 50%

The results of factor explore analysis are as follows:

Table 4.2: Exploratory factor analysis

Rotated Component Matrix[a]								
	Component							
	1	2	3	4	5	6	7	8
NNL1	,888							
NNL4	,829							
NNL2	,777							
NNL3	,753							
CQDP1		,875						
CQDP3		,871						
CQDP4		,809						
HTKT2			,865					
HTKT1			,809					
HTKT6			,757					
HTKT3			,735					
HTXH2				,844				
HTXH1				,832				
HTXH4				,725				
HTXH3				,591				
CSDT3					,939			
CSDT4					,860			
CSDT2								
CPHT4						,800		
CPHT2						,781		
CPHT3						,740		
NNL5							,898	
NNL6							,866	
LTDT2								,859
LTDT4								,679
LTDT3								,560

Source: Compiled from research findings by the author

After performing exploratory factor analysis, the condition-satisfying factors used for regression analysis are as follows:

Firstly, factors of investment in developing technical infrastructure include observed variables: HTKT1, HTKT 2, HTKT3, HTKT6; symbols by: DTHTKT

Secondly, factors of investment in developing social infrastructure include observation variables HTXH1, HTXH2, HTXH3, HTXH4, symbols as DTHTXH

As mentioned above, in order to Logistic Regression, the author investigates both investors inside and outside the industrial zone. The scales of the investment in developing internal and external infrastructures are compatible with each other; therefore, to match the author's model, we use the variable name of investment in development of technical infrastructure and investment in development of social infrastructure.

Thirdly, the factor of cost of infrastructure use includes observed variables: CPHT2, CPHT3, CPHT4; symbols by CPHT

Fourth, factors of management and support of local authorities include 3 observed variables CQDP1, CQDP3, CQDP4; symbols by CQDP

Fifth, factors of investment advantage with 3 observed variables LTDT2, LTDT 3, LTDT4; symbols LTDT

Sixthly, factors of investment policy have 2 observed variables: CSDT3, CSDT4; symbols as CSDT

Seventh, the human resource factor group that has a rotation matrix of these factors has two drawn factors including:

Group of observed variables: NNL1, NNL2, NNL3, NNL4 the author named unskilled labor because these scales relate to the unskilled labor force with the symbol NNLA

Group of observed variables: NNL5, NNL6 the author named labor managed by these scales related to the unskilled labor force with the symbol of NNLB

The analytical results have KMO = 0.653; Bartlett test has statistically significant Sig. = 0.000 <0.05 indicates that the observations are correlated in the whole with 99% significance level and the extract variance is 73,435 indicating 73,435% of the variation of observed variables is explained by 8 factors be drawn.

It can be concluded that the EFA analysis is suitable.

Referring to previous studies, the author uses the Logistic model to analyze the factors affecting the decision to invest in the industrial zone.

This model uses the dependent variable, the binary variable (QD): investment decision in industrial zones.

Logistic model has the form:

$$p_i = \frac{e^X}{1+e^X}$$

With $X = \beta_0 + \beta_1 DTT + \beta_2 LD + \beta_3 VTH + \beta_4 DTHTKT + \beta_5 NNLA + \beta_6 NNLB + \beta_7 CSDT + \beta_8 CPHT + \beta_9 CQDP + \beta_{10} LTDT + \beta_{11} DTHTXH + e$ (*)

Which: $\beta_1, \beta_2, \ldots, \beta_{11}$ are the regressions parameters of the model need to estimate;

- Pi is the probability of investing in industrial zones
- Dependent variable: QD variable: investment decision in industrial zones

QD = 1 if the investor decides to invest in the industrial zones

QD = 0 if the investor decides not to invest in the industrial zones

Beside 8 factors are included in the model after EFA analysis, the control variables that the author uses are: Labor scale (LD), land lease area (DTT) and realized capital (VTH)

Performing Logistic regression with QD variable under 8 independent variables and the above 3 control variables obtained the regression result table as below.

Table 4.3: Regression results of Logistic model

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	DTT	0,016	0,026	0,380	1	0,538	1,016
	LD	0,002	0,002	1,039	1	0,308	1,002
	VTH	0,050	0,016	9,381	1	0,002	1,051
	DTHTKT	2.233	0,383	34,024	1	0,000	9,328
	NNLA	-0,018	0,313	0,003	1	0,953	0,982

	NNLB	-0,250	0,339	0,545	1	0,460	0,779
	CSDT	-0,359	0,259	1,915	1	0,166	0,699
	CPHT	1,176	0,243	23,332	1	0,000	3,240
	CQDP	-0,576	0,225	6,581	1	0,010	0,562
	LTDT	-0,323	0,371	0,758	1	0,384	0,724
	DTHTXH	-0,398	0,354	1,262	1	0,261	0,672
	Constant	-6,420	2,391	7,212	1	0,007	0,002
a. Variable(s) entered on step 1: DTHTKT, DTHTXH, NNL, NNLB, CSDT, CPHT, CQDP, LD, DTT, VTH							

Source: Compiled from research findings by the author

According to the results, we see, factors that have a positive impact on the investment decision in the industrial zone include the scale of realized investment capital, investment in development of technical infrastructure, cost of infrastructure use with β coefficient 0.050, respectively; 2,233; 1,176.

Factors of the management and support of local authorities have a negative impact on the investment decision in the industrial zone with the coefficient β = -0.576.

Forecast accuracy level of the model

Table 4.4: Degree of accuracy forecast

Classification Table[a]					
Observed			Predicted		
			KCN = 1, ngoài KCN = 0		Percentage Correct
			0	1	
Step 1	KCN = 1, ngoài KCN = 0	0	85	15	85,0
		1	19	81	81,0
	Overall Percentage				83,0

Source: Compiled from research findings by the author

In the table above, with 100 investors not investing in industrial zone, the model correctly predict 85 investors, so the correctly rate prediction is 85%. There are still 100 investors investing in industrial zone, the model correctly predict 81 cases, the correctly rate prediction is 81%. Therefore, the correctly rates forecast for the whole model is 83%.

5. Conclusion and Policy Implications

The research has clarified the factors affecting the investment decision to industrial zones with survey data from investors inside Industrial zones and investors outside Industrial zones in Binh Dinh province. The research findings show that the most positive impact factor in the decision to invest in industrial zones is investment in developing the technical infrastructure, the next is costs of infrastructure use and implementation capital. Factors of management and support of the local government have the opposite effect to the decision to invest in the industrial zone. Based on research findings, the author suggest some policy implications follow:

Firstly, improving the quality of investment and development activities in infrastructure of industrial zone to create a synchronous infrastructure system, modern and satisfying the demand of investors is very important. Besides, after the project is operation, the operation management should also need to be done closely so that the infrastructure system can promote the maximum capacity and best serve for investment and business activities of the investors. Due to the above problems, it is necessary to focus on all phases of investment activities from prepare for investment to operate the results of the investment and development activities of industrial zone infrastructure

Secondly, the cost of infrastructure use is a factor that directly affects the costs of investors. In addition, with the policy of the cost of infrastructure use reasonable to create conditions for investors, it is also necessary to balance the costs and performance of the industrial zone. The local authorities should not abuse the low cost of using the infrastructure in lobbying the investors.

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