FACTORS AFFECTING FOREIGN INVESTOR SATISFACTION WITH VIETNAMESE INDUSTRIAL PARKS: A QUANTITATIVE MODEL AND POLICY RECOMMENDATIONS

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Foreign direct investment (FDI) has accounted for a large share in Vietnam's gross investment and played an important role in its economic growth in recent years. Industrial parks (IPs) are considered as a key to sources of FDI. Up till now, there have been 254 IPs where investment realized by foreign-invested enterprises (FIEs) amounted to some US$17 billion providing jobs for 1.5 million direct workers and some 1.7 million indirect laborers.

To encourage stronger inflows of capital, incentives should be given to FIEs in IPs. To achieve this aim, it is necessary to grasp FIE estimation of services supplied by IPs. Policy makers and IP management boards should identify and quantify factors affecting their satisfaction.

Based on theories of economics and current conditions in Vietnam, we develop an exploratory factor analysis and regression analysis model to quantify influential factors. A direct survey of 175 FIEs in two Vietnam – Singapore IPs in Bình Dương was conducted to apply and test the model in practice. The research identified a system of scales for quantifying factors affecting investor satisfaction, including tangible, reliability, responsiveness, assurance, and empathy. The results show that three factors that affect investor satisfaction are reliability, empathy and assurance, in order of importance.

Keywords: Industrial park (IP), investor satisfaction, foreign direct investment (FDI), exploratory factor analysis (EFA).

1. Introduction

Foreign direct investment (FDI) has accounted for a large share in Vietnam's gross investment and played an important role in its economic growth in recent years. Industrial parts (IPs) are considered as a key to sources of FDI. Up to the present time, there have been 254 IPs where investment realized by foreign-invested enterprises (FIEs) amounted to some US$17 billion providing jobs for 1.5 million direct workers and some 1.7 million indirect laborers [5].

To grasp investor satisfaction with services supplied by IPs is a precondition for attracting more FDI to IPs. This is a challenge to policy makers and IP management boards. The paper focuses on three principal issues: theoretical framework for a quantitative model, results of a case study of Vietnam- Singapore IPs in Bình

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Dương, ones among the most attractive IPs in the eyes of foreign investors, and policy recommendations.

2. Theoretical basis and research model

a. Theoretical basis:

The Investment Law passed by the Vietnamese NA on Nov. 29, 2005 [10] defines IP as "a region specializing in producing manufactured goods and supplying services needed for industrial production within a definite geographical location established by Government's decision." The IP is also considered as a separate region for investors in industries endowed with encouragement and preferential treatment by the Government. In IPs, the host country provides investors with favorable tax incentives, national treatment of non-tariff restrictions, and right to remit profit to their home countries, in order to encourage them to import, and then transfer, new technologies. Thus, IPs can be seen as products of the service sector offered to investors in IPs.

According to Cronin & Taylor (1992) [1], service quality is a prerequisite for customer satisfaction which in its turn has a significant effect on purchase trend. Thus enterprises are ready to do their business in IPs when they are content with services supplied by the IPs.

As Dunning (1977) [3] put it, an enterprise only makes overseas direct investment under three conditions: (1) It enjoys certain advantages over other companies, such as size, technology, marketing network, accessibility to low-interest loans, or characteristic intangible assets; (2) Internalization, that is, intra-corporate use of advantages is more profitable than selling or leasing them; (3) Production cost of a similar commodity in a foreign country is lower than that in the home one plus export cost. Location advantage may be based on natural resources, cheap labor, trade barriers, investment encouraging policy and other externalities created by the location when the enterprise comes into operation.

Model of positive externalities developed by P. Romer (1985) and R. Lucas (1988) [9] shows that factors affecting investment behavior are: (1) change in market demand; (2) interest rate; (3) development level of financial system; (4) public investment; (5) potentials of human resources; (6) other investment projects in the same or related industries; (7) technological development, adaptation and application; (8) stability of investment climate, including macroeconomic and legal environment; (9) procedural regulations; (10) sufficiency of information on market, rules, procedures and technological advances.

Place marketing theories [7] point out that factors affecting investor satisfaction can be divided into three groups: (1) investment infrastructure; (2) investment policies; and (3) living and working conditions.

According to Parasuraman, Zeithaml & Berry (1985) [8], service quality depends on five dimensions: (1) Tangibles: Appearance of physical facilities, equipment, and communication materials; (2) Reliability: Ability to perform the promised service dependably and accurately; (3) Responsiveness: Willingness to help customers and provide prompt service; (4) Assurance: Knowledge and courtesy of employees and their ability to convey trust and confidence; and (5) Empathy: The firm provides care and individualized attention to its customers.

b. Quantitative model:

- Scales and observed variables:

To make use of existing theories and adapt them to conditions in Vietnam, authors consulted experts from IP Management Board and IP Infrastructure Company about scales (the five-level Likert scale was selected) and observed variables, as shown in Table 1, in order to identify main factors that affect investor satisfaction.

Table 1: Influential factors and degrees of investor satisfaction

Scale	Symbol
1. Tangibles (TAN)	
Modern equipment and spacious office	TAN1
Good staff appearance	TAN2
Convenient working hours	TAN3
Timely availability of factory building	TAN4
Reasonable rental for land /factory	TAN5
Reliable supply of power	TAN6
Reliable supply of water	TAN7
Reasonable price of electricity	TAN8
Reasonable price of water	TAN9
Good drainage	TAN10
Convenient telecommunications	TAN11
Convenient communications	TAN12
Reasonable cost of waste treatment	TAN13
Good intra-IP road network and greenery	TAN14
Excellent street light in IP	TAN15
Good housing for workers	TAN16
2. Reliability (REL)	
VSIP Joint Venture carries out all commitments to investors.	REL1
VSIP customer service department provides exact and clear advices	REL2
VSIP Management Board provides clear and exact guidelines on administrative procedures	REL3
VSIP Management Board provides timely answers and results for paper works.	REL4
3. Responsiveness (RES)	
VSIP customer service department is ready to help investors	RES1
VSIP procedures are simple and quick	RES2
Customs formalities are simple and quick	RES3
Security and social order in VSIP is very good	RES4
Abundant source of labor	RES5
Labor quality meets our expectations	RES6
Labor cost is low	RES7
Banking and financial services are good	RES8
Restaurants, hotels and entertainment are good	RES9
Health care service is good	RES10
4. Assurance (ASS)	
VSIP staff expertise and performance is good	ASS1
VSIP Joint-Venture staff expertise and performance is good	ASS2
VSIP Management Board keeps its appointment with investors	ASS3
VSIP Joint Venture keeps its appointments with enterprises	ASS4
5. Empathy (EMP)	
VSIP Management Board and VSIP Joint Venture pay full attention to complaints from enterprises	EMP1
VSIP Management Board and VSIP Joint Venture try their best to deal with investors' complaints	EMP2
VSIP Management Board and VSIP Joint Venture hold regular meetings with enterprises	EMP3
VSIP Enterprises can easily meet and discuss any issues with leaders of VSIP Management Board and VSIP Joint Venture	EMP4
General satisfaction (SAT)	
Generally, we are content with our investment projects in VSIP	SAT1
VSIP meets our expectations	SAT2
In our opinion, VSIP is the best place for foreign investment in Vietnam today.	SAT3

Table 1 shows that there are five scales for independent factors (with 38 observed variables) and one scale for dependent factors (with three observed variables).

- Methodology and data analysis:

The research comprises two phases:

Phase 1: Carrying out a qualitative research to develop a system of concepts/scales and variables needed for a questionnaire.

Phase 2: Software SPSS for Window 16.0 is used for conducting a 2-step quantitative research:

+ ***Step 1:*** EFA is used for testing influential factors and identifying factors considered as suitable by investors. This step produces a system of scales for reliability of influential factors.

+ ***Step 2:*** Regression analysis is performed in order to identify factors with significant effects and role of each factor.

- Research scope and data collecting method:

To apply the model to practice, authors conducted a survey of 175 FIEs in VSIP 1 and VSIP 2 in Bình Dương. They are from Japan (38%), Taiwan (13%), the U.S. (7%), and many other countries. Most of them (96%) are industrial producers and 4% are services

suppliers. Regarding respondents, 87.5% of them are heads of department (personnel or administration) and members of the directorate, the rest are inspectors or workshop heads. The survey was conducted from February to March, 2011 [4].

Opinions were gathered through the questionnaire based on six scales (Table 1) and a 5-level Likert scale. A pilot survey of 10 FIEs of the target group was also conducted to modify scales and perfect the questionnaire before conducting the official survey.

3. Results

a. EFA:

Identifying the factors, scales and observed variables needed for the EFA was conducted and presented in Table 1 (with six scales and 41 observed variables). Factor analysis produced assured tests:

(1) Reliability of scales (Cronbach alpha varies between 0.79 and 0.87 > 0.6)

(2) Reliability of observed variables (factor loading > 0. 5)

(2) Model adequacy test (0.5 < KMO = 0.87 < 1)

(3) Bartlett test of relations of observed variables (Sig. = 0.000 < 0.05)

(4) Cumulative variance test (cumulative variance = 62.6% > 50%)

Table 2: Tested scales

	Influential factors (independent variable)
F1	Ability (ABI): Competence and performance of IP Management Board and IP Infrastructure
Observed variables	VSIP Joint Venture carries out all commitments to investors (REL1)
	VSIP customer service department provide exact and clear advices (REL2)
	VSIP Management Board provides clear and exact guidelines on administrative procedures (REL3)
	VSIP Management Board provides timely answers and results for paper works (REL4)
	VSIP customer service department is ready to help investors (RES1)
	VSIP procedures are simple and quick (RES2)
	VSIP staff expertise and performance is good (ASS1)
	VSIP Joint-Venture staff expertise and performance is good (ASS2)
	VSIP Management Board keeps its appointment with investors (ASS3)
	VSIP Management Board and VSIP Joint Venture try their best to deal with investors' complaints
F2	Tangibles (TAN): Office, equipment, staff appearance, restaurant, hotel and entertainment
Observed variables	Modern equipment and spacious office (TAN1)
	Good staff appearance (TAN2)
	Restaurant, hotel and entertainment are good (RES9)
F3	Responsiveness (RES): Labor
Observed variables	Abundant source of labor (RES5)
	Labor quality meets our expectations (RES6)
	Labor cost is low (RES7)
F4	Assurance (ASS): IP infrastructure
Observed variables	Reliable supply of water (TAN7)
	Convenient telecommunications (TAN11)
	Good intra-IP road network and greenery (TAN14)
	Excellent street light in IP (TAN15)

F5	Understanding (UND): Availability of factory building, empty space, rental and sewer
Observed variables	Timely availability of factory building (TAN4)
	Reasonable rental for land /factory (TAN5)
	Good drainage (TAN10)
F6	Creditability (CRE): Electricity and waste treatment cost
Observed variables	Reasonable price of electricity (TAN8)
	Reasonable cost of waste treatment (TAN13)
F7	Empathy (EMP): Empathy and companionship
Observed variables	VSIP Management Board and VSIP Joint Venture hold regular meetings with enterprises
	VSIP Enterprises can easily meet and discuss any issues with leaders of VSIP Management
SAT	Investor satisfaction (Dependent variable)
Observed variables	Generally, we are content with our investment projects in VSIP
	VSIP meets our expectations
	In our opinion, VSIP is the best place for foreign investment in Vietnam today

As presented in Table 2, the EFA showed that there were seven new scales which represented factors affecting the investor satisfaction including 27 observed variables (theoretical model comprises 38 observed variables) and the SAT scale comprises three observed variables.

b. Regression analysis:

The modified general regression model after conducting the EFA is as follows:

SAT = f (F1, F2, F3, F4, F5, F6, F7)

Determining which factors, from F1 to F7, directly affect the general satisfaction was conducted using the linear regression equation:

$SAT = b_0 + b_1F1 + b_2F2 + b_3F3 + b_4F4 + b_5F5 + b_6F6 + b_7F7 + e_i$

where factors to be included in the regression analysis is determined by calculating their factor score.

The factor score i is determined by:

$F_i = W_{i1}X_1 + W_{i2}X_2 + .. + W_{ik}X_k$

Wik: Component score coefficient presented in the component score coefficient matrix

Xi: Observed variable in the factor score i.

Parameters are estimated by OLS method using SPSS software in the following steps:

Step 1: Performing the linear regression for all variables selected for the model to produce initial results.

Step 2: Assessing fit of the model (by adjusted R^2 and ANOVA) and taking the step 3 if it is fit.

Step 3: Checking violation of necessary assumptions in linear regression.

- Testing for multicollinearity (by VIF and Pearson correlation matrix): If multicollinearity does exist, variable is removed one by one until the model is free from multicollinearity.

- Testing for heteroskedasticity (by Spearman rank correlation test): Any variable where heteroskedasticity exists is removed from the model before the regression is performed again. The step 2 is taken again until the heteroskedasticity is not found in any variable.

Table 3 shows that three variables (F1, F4, F7) are statistically significant with a reliability greater than 99% (Significance < 0.01). Performance of tests for fit of the model, multicollinearity, correlation and stability of variance of residual reveals that no violation exists.

The adjusted R^2 of 0.55 implies that 55% of investor satisfaction can be explained by independent variables.

Meaning of regression coefficients:

- Unstandardized correlative coefficient of ABI (Competence and performance of IP Management Board and IP Infrastructure Company) or F1 is

Table 3: Regression results

	Unstandardized Coefficient		Standardized Coefficient	t-value	Sig.	Collinearity Statistics	
	B	Standard error	Beta			Tolerance	VIF
(Constant)	0.122	0.280		0.435	0.664		
F1	**0.399**	**0.088**	**0.333**	**4.539**	**0.000**	**0.477**	**2.098**
F2	0.088	0.087	0.086	1.018	0.310	0.358	2.793
F3	0.025	0.056	0.027	0.441	0.660	0.686	1.457
F4	**0.219**	**0.071**	**0.215**	**3.092**	**0.002**	**0.531**	**1.884**
F5	0.089	0.071	0.091	1.250	0.213	0.478	2.091
F6	0.015	0.520	0.017	0.283	0.777	0.722	1.384
F7	**0.269**	**0.071**	**0.246**	**3.763**	**0.000**	**0.598**	**1.674**
Adjusted R^2: 0.55 Durbin Watson:1.78	ANOVA: F: 32; Sig. 0.000		Significant level of Spearman rank correlation coefficient varies from 0.68 to 0.93				

0.399. This implies that the satisfaction increases 0.339 point when the score given by investors increases 1 point.

- Unstandardized correlative coefficient of IP infrastructure (F4) is 0.219. This implies that the satisfaction increases 0.219 point when the score given by investors increases 1 point.

- Unstandardized correlative coefficient of Empathy and companionship (F7) is 0.269. This implies that the satisfaction increases 0.269 point when the score given by investors increases 1 point.

Results of regression analysis show that only three factors really affect the investor satisfaction. They are Ability, Empathy and Assurance, in order of importance.

4. Policy recommendations

a. Results of the research on VSIP show that more attention should be paid to the following policies to attract more foreign investment to IPs in Bình Dương, especially the ones with low occupancy rate.

Firstly, the foremost concern of investors is ability of IP management board and infrastructure company. This ability reflects in the following aspects: (1) carrying out commitments to investors; (2) providing clear and exact guidelines on administrative procedures; providing clear and exact advices; (4) providing timely answers and being ready to support investors; and (5) Trying their best to deal with demand and suggestions from investors. To perform well such tasks, more attention should be paid to:

+ Applying IT to administration of the IP: An IP website should be established to provide exact information about procedures, required documents, and handling time, etc. Detailed information about the IP, new policies and regulations, decrees and circulars of the government or ministries should be updated to help enterprises and investors in their decision making process. Transactions between enterprises and management board can be carried out online.

+ Administrative procedures should be simplified and unnecessary requirements should be removed. Clear guidelines on necessary procedures, along with required time for handling paper works, should be available to help investors prepare necessary documents.

+ Enterprises should be treated as partners and customers instead of entities subject to the

state control. IP management board and infrastructure company should help their employees enhance their expertise and skills, carry out regular assessment of employee performance to make timely adjustment, and develop values of corporate culture.

+ There should be a mechanism for cooperation between IP management board and provincial authorities (such as departments of labor, customs, tax, public health, and environment, etc.) to strengthen the state control over IP enterprises and supply of public goods. Plan to inspect for corporate compliance should be made on an annual basis and enterprises should be informed about this plan thereby limiting inspections by different authorities that cause trouble for enterprises. The role of IP management board should be enhanced to make the board the only governmental body responsible for the state control over IP enterprises. This can be seen as a way to realize the "one-stop, on-the-spot" mechanism as required by the administrative reform.

Secondly, attention to investors is also an IP enterprises' demand, and it is evident in efforts by provincial authorities and IP management board to meet and discuss difficulties and obstacles with investors on a regular basis, thereby adopting timely solutions. By holding annual workshops, conferences, and meetings, IP enterprises can discuss various problems with leaders of the provincial government and departments.

Thirdly, conditions needed for economic activities inside and outside the IP, such as telecommunication, communications, water supply, intra-IP road network, street lighting, and greenery are also matters of concern to investors. Therefore, the infrastructure should be enhanced continuously.

IP infrastructure could be divided into two classes: (1) technical infrastructure, including intra-IP road network, greenery, power supply, water supply and drainage, and sewerage; and (2) social infrastructure, including urban functional works, trading centers, hospitals, schools, recreation grounds, restaurants, hotels, and housing for workers, etc. Development of IP infrastructure (both technical and social one) should be carried out according to original design and planning approved by relevant authorities. Proper measures should be taken to prevent investors and IP infrastructure company from avoiding construction of functional works as approved plan because of their profit motive or limited source of finance,which may harm the sustainable development of IPs.

The building of infrastructure, however, cannot be totally assigned to investors and infrastructure company without supervision and support from authorities. Priority should be given to major projects that may produce positive effects on provincial socioeconomic and IP growth. Incentives in terms of tax, land rental, and loans could be given to social works, such as housing for low-income earners.

b. Authors identified a system of scales for measuring investor satisfaction with their businesses in IPs including eight scales and 30 observed variables (Table 2). The scale system could be used for assessing successful IPs in Vietnam. With a larger number of samples gathered from all provinces in Vietnam, the scale system, supported by EFA and regression analysis, can help identify more exactly the factors affecting flows of foreign investment to Vietnam, and to IPs in particular. Research results provide policy makers and IP managers with a scientific basis for preparing new policies to attract more FIEs to IPs in all provinces■

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