Factors Affecting the Decision to Choose an Industrial Park: Case Study Industrial Parks of Viet Yen District and Bac Giang Province

Than Duc Khanh Trinh, Dinh Thao Minh, Dinh Thi Hao, Phan Thanh Thuong, Tran Cuong*

Faculty of Business and Management, Hanoi University of Industry, Hanoi, Vietnam
Email: *trancuong2288@gmail.com

Abstract

The paper shows that the decision to choose an industrial park was influenced from seven factors: Living conditions (0.400), encouragement from family and friends (0.256), income and welfare (0.225), lack of non-agricultural employment opportunities (0.162), geographical location of industrial park (0.133), access to information (0.126) and industrial park size (0.074). Meanwhile, gender, age, education level did not have a significant impact of decision to choose an industrial park to work. This is a valuable finding in both theory and practice, and is the basis for making policies to attract workers to work in industrial parks in Viet Yen district and Bac Giang province.

Subject Areas

Business Management

Keywords

Decisions, Factors, Industrial Parks, Labor, Bac Giang, Vietnam

1. Introduction

By promoting supportive policies, attracting investment and improving infrastructure quality, Vietnam has quickly become an ideal destination for foreign investors. Industrial parks in Vietnam have gradually become production, assembly and export bases of electronic products, automobiles, textiles and many other fields, contributing to promoting the country's economic growth [1].

Among the provinces in Vietnam, Bac Giang province emerges as a bright spot in Vietnam's global economic picture (according to Bac Giang newspaper,

2023). With a favorable geographical location, there is National Highway 1A, National Highway 37, Hanoi-Lang Son Expressway, China-Vietnam Railway running through the district, connecting Viet Yen with the Hanoi Capital. In addition, with attractive investment incentive policies, Bac Giang has attracted a large amount of investment capital from domestic and foreign investors. On the other hand, industrial parks in Bac Giang not only focus on traditional industries but also expand into high technology, clean production and renewable energy, creating new opportunities for sustainable development of the province [2].

Currently, industrial parks in Viet Yen have attracted a large number of workers from the Northern region to work. According to statistical data from the Viet Yen District Labor Department in the period 2011-2019, industrial parks created new jobs for about 69,000 workers compared to 16,000 people in the period 2005-2010. Currently, Viet Yen district has a total of 4 industrial parks including Dinh Tram Industrial Park, Quang Chau Industrial Park, Van Trung Industrial Park and Viet Han Industrial Park, with a total area of 1.1 thousand hectares, accounting for 75.5% of the total planned industrial park land area across the province. According to a report by the Labor Management Department, Bac Giang Provincial Industrial Park Management Board, as of March 2023, the total number of workers working in industrial parks in the province is 159,024 people, of which about 15.4 thousands of people are local people, the rest are workers from neighboring provinces [3].

On the other hand, currently there is no research showing the reasons leading to the attraction of workers and the ability to attract many workers to work in industrial parks in Viet Yen district, Bac Giang province. Therefore, we conducted study: "Factors affecting the decision to choose an industrial park: Case study industrial parks of Viet Yen district and Bac Giang province" to clarify the reasons why many workers choose industrial parks in Viet Yen to work, thereby helping policy makers accurately determine the factors that influence the decision to choose to work in industrial parks of workers.

2. Methodology

The study aims to investigate laborers working in industrial parks in Viet Yen district, Bac Giang province, which are Quang Chau, Dinh Tram, Van Trung, and Viet Han. The majority of participants are from Quang Chau and Dinh Tram industrial parks. Data were collected from 335 respondents, the respondents are laborers with work experience ranging from less than one year to over four years in industrial parks. The survey took place from the beginning to the end of January 2024. This study used the convenience sampling method, which is a non-probability sampling method. This method is easy to access research subjects, helping to save time and costs. However, this method has the disadvantage of not being able to determine sampling error [4].

There have been many studies conducted by researchers and experts to find

the optimal sample size suitable for each expectation of analytical methods. For example, according to Hair, Anderson, Hair, Tatham and Black (1998) for reference the expected sample size is at least 5 times the total number of observed variables. In this study, with the number of observed variables being 59 variables, the minimum research sample size is $5 \times 59 = 295$ samples, however the author selected a sample size of 335, ensuring the sample size conditions according to Hair *et al.* (2020) [5] [6] [7].

Based on studies in Vietnam and abroad, we synthesize the most commonly observed variables and are mentioned by many models. Through the calculation process, this study proposes a research model of four Factor Groups: industrial park factor group, enterprises factor group, employees factor group, external factors group divided into 13 detailed variables as follows figure below (**Figure 1**).

The measurement tool for quantitative variables in the research topic is a 5-level Likert scale (with levels ranging from 1 Completely disagree to 5 Completely agree) [7] [8]. This type of scale is quite commonly used in sociological behavioral studies.

3. Result

3.1. Evaluate the Reliability of the Scale

Cronbach's alpha results show that the Cronbach's alpha coefficient of the scales is greater than 0.6 and less than 1. In which the Brand and reputation factor scale of the enterprise has the highest Cronbach's alpha coefficient of 0.973 and the lowest is Industrial park scale of 0.846. The total Cronbach's alpha coefficient of each variable is greater than 0.3. The Cronbach's Alpha coefficient if each type
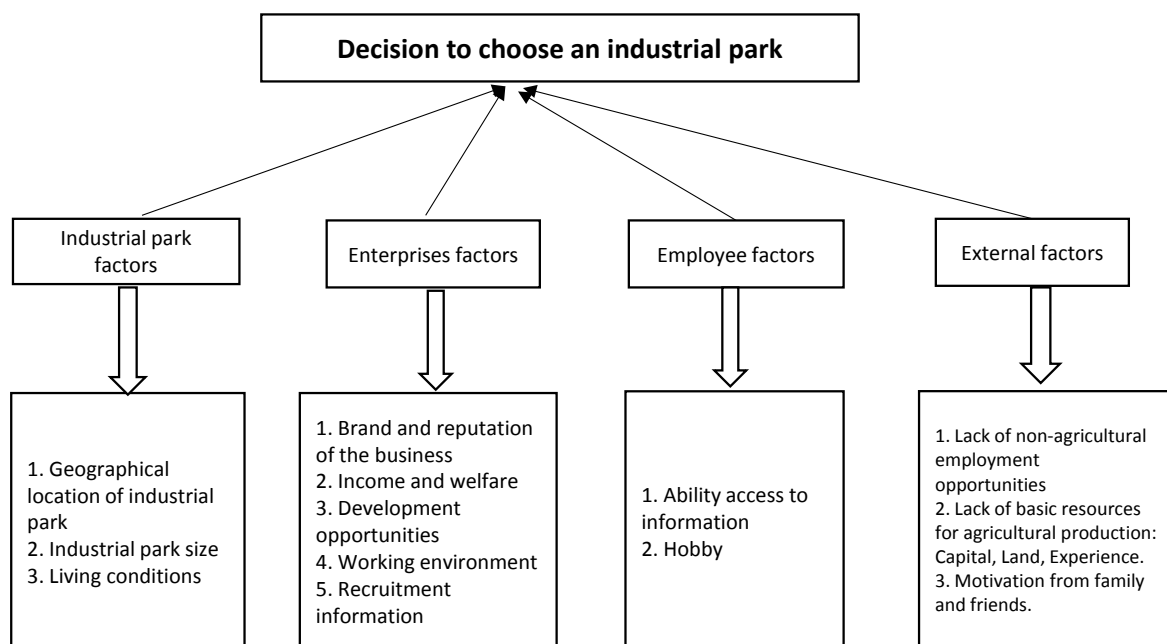

Figure 1. Proposed research model.

of variable is smaller than the Cronbach's Alpha of the variable group. The results of reliability analysis show that the scales ensure the conditions for performing analysis in the next steps.

3.2. Exploratory Factor Analysis

For independent variables, KMO coefficient = 0.835 > 0.5, satisfactory, factor analysis is appropriate. Sig. Bartlett's Test = 0.000 < 0.05, Bartlett's test is 17007.943 with statistical significance is Sig. (Bartlett Test) = 0.000 proves that the observed variables are correlated with each other in the factor. Thus, the observed variables in the population are correlated with each other and EFA factor analysis is appropriate.

Eigenvalue coefficient = 1.049 > 1, at this time the scale is accepted when the total variance extracted is equal to 85.748% > 50%, the model is appropriate. This shows that the 11 groups of factors extracted in EFA explain 85.748% of the variation of all included observed variables.

From the results of EFA analysis of independent variables, of the 49 observed variables included in the analysis, there are 43 observed variables with Factor Loading coefficients greater than 0.5, accordance with the requirements of the analysis. The resulting rotated matrix has converged the observed variables to each factor that they represent with standard loading factors. This shows that observed variables and factors are closely related to each other.

EFA exploratory factor analysis for the dependent variable shows that the coefficient KMO = 0.731 > 0.5, so the factor analysis is appropriate for the research data. The result of Bartlett's test with a Chi-square index of 535.406 has a statistical significance of Sig. (Bartlett Test) = 0.000 proves that the observed variables are correlated within the factor. This proves that the data used for factor analysis is completely appropriate. Eigenvalue reached 2.414 > 1. The variance extracted is 80.467% > 50%, showing that the selection decision factor explains 80.467% of the variation in the data.

3.3. Multivariate Regression Model

With Tolerance greater than 0.1 and the variance magnification factor VIF of the variables less than 10, the regression model does not have multicollinearity. Multivariate linear regression adjusted R-squared coefficient is 0.571, meaning the independent factors explain 57.1% of the variation of the dependent variable with 95% confidence. About 42.9% of the variation in the dependent variable is explained by factors not included in the model. Thus, the built regression model is highly significant and accepted (See Table 1).

When testing the significance of the regression coefficients, we see that the independent variables are (1) Brand and reputation of the business (BR), (3) Development opportunities (PO), (4) Working environment (WE), (6) Recruitment information (RI) is not statistically significant. Thus, fours independent variables have no impact on the dependent variable. Meanwhile, Independent

Table 1. Regression analysis results.

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constant)	−0.073	0.253		−0.287	0.774		
1	BR	0.053	0.034	0.065	1.582	0.115^{NS}	0.758	1.319
2	LC	0.418	0.050	0.400	8.295	0.000***	0.553	1.810
3	DO	0.017	0.028	0.023	0.611	0.542^{NS}	0.881	1.135
4	WE	−0.027	0.032	−0.035	−0.826	0.410^{NS}	0.718	1.393
5	IC	0.227	0.067	0.225	3.390	0.001**	0.756	1.323
6	RI	0.060	0.043	0.057	1.402	0.162^{NS}	0.769	1.300
7	GL	0.155	0.052	0.133	3.003	0.003**	0.651	1.537
8	AI	0.085	0.030	0.126	2.835	0.005*	0.647	1.547
9	PF	0.209	0.035	0.256	5.918	0.000***	0.685	1.460
10	LNA	0.123	0.034	0.162	3.609	0.000***	0.640	1.563
11	IS	0.068	0.036	0.074	1.920	0.056*	0.865	1.156
				Dependent Variable: Decision				

Source: Caculation by author. Note: *P < 0.1; ** P < 0.05; *** P < 0.01; NS No significant statistical.

variables as: (2) Living conditions (LC), (5) Income and welfare (IC), (7) Geographical location of the industrial park (GL), (8) Ability to access to information (AI), (9) Promotion from family and friends (PF), (10) Lack of non-agricultural job opportunities (LNA), and (11) Industrial park size (IS) have a reliability of over 90%, consistent with the requirements for the significance of the regression coefficient. Thus, sevens independent variables have an impact on the dependent variable.

According to the above tests, we could conclude that the regression analysis results are reliable. The final standardized regression model was established with seven independent variables as follows:

$$Decision = 0.4*LC + 0.256*PF + 0.225*IC + 0.162*LNA + 0.133*GL$$
$$+ 0.126*AI + 0.074*IS + \varepsilon$$

In the model above, all of the coefficients are positive. Therefore, the increase of these factors has positive impacts on the decision to choose an industrial park to work for workers in Viet Yen district, Bac Giang province.

Specifically, the factor with the largest impact is the living conditions in the industrial park (0.4), and the smallest is the factor of industrial park size (0.074). These analysis results are consistent with the hypotheses developed when building the study model.

3.4. ANOVA Analysis

Testing the influence of gender on the decision to choose an industrial park

shows that the result of the Levene test gives the value Sig. = 0.307 (greater than 5%). Therefore, the hypothesis H_0, which states that the variance of sex groups is homogeneous, is accepted and the data set is suitable for ANOVA testing (See Table 2).

The results show the Sig. value in Levene's test is greater than 0.05 (Sig. Levene's Test = 0.307 > 0.05), this result proves that there is no difference in variance between male and female choice decisions. We use the Sig. value of the t-test assuming equal variances. Sig. value of the t-test is greater than 0.05 (Sig. T-Test = 0.2 > 0.05), this result proves that there is no difference in the selection decisions of workers of different genders. Thus, it can be concluded that the decision to choose an industrial park between men and women is the same, hypothesis H_1 is rejected, hypothesis H_0 is accepted (See Table 3).

The results show the Sig. value of Levene's test is greater than 0.05 (Sig. Levene's Test = 0.433), proving that the variance of the value groups is homogeneous. Therefore, we consider Sig. of the ANOVA test is greater than 0.05 (Sig. F = 0.898 > 0.05), this demonstrate that there is no statistically significant average difference in the decision-making of choosing an industrial park among workers of different ages. Thus, it can be concluded that the decision to choose an industrial park at different ages is not different, hypothesis H_1 is rejected, hypothesis H_0 is accepted.

Table 2. Results of ANOVA test with gender variable.

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
DC	Equal variances assumed	1.047	0.307	3.092	333	0.2	0.297586	0..09624	0.108260	0.486912
	Equal variances not assumed			3.009	222.333	0.003	0.297586	0..09889	0.102703	0.492469

Source: Calculation by author.

Table 3. Results of ANOVA test with age variable.

		Test of Homogeneity of Variances			
		Levene Statistic	df1	df2	Sig.
QDC	Based on Mean	0.838	2	332	0.433
		ANOVA			
		QĐ			
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.157	2	0.078	0.107	0.898
Within Groups	242.391	332	0.730		
Total	242.547	334			

Source: Calculation by author.

4. Discussion

Study results show that there are seven factors that affect employees' choice decisions, respectively: 1) Living conditions (LC), 2) Income and welfare (IC), 3) Geographical location of the industrial park (GL), 4) Ability to access to information (AI), 5) Promotion from family and friends (PF), 6) Lack of non-agricultural job opportunities (LNA), and 7) Industrial park size (IS). Therefore, to attract and retain employees, especially high-quality employees come to work in industrial parks, it is necessary to improve living conditions here by improving housing quality, ensuring security area; on the other hand, local government to simultaneously protect the environment, surrounding landscape, and upgrade the transportation system to ensure convenient movement. In addition, local authorities also need to strengthen inspection and supervision, strictly handle errors and violations of enterprises against employee as well as encourage workers to participate in community activities.

The second is the promotion from family and friends with Beta = 0.256. In the process of making the decision to choose an industrial park to work; family and friends need to support employee by motivating, encouraging, and providing information and personal experience about employment in industrial parks to help employee better understand options and make better decisions.

Thirdly, factors income and welfare are also extremely important for employees. If salary is the factor for businesses to attract workers, then to retain them, they will need more than that, such as remuneration policies, working environment, and development opportunities. Thus, enterprise needs to offer appropriate salaries, commensurate with the capabilities and experience of workers. Thus, enterprise needs to offer appropriate salaries, commensurate with the capabilities and experience of workers; full remuneration regime, including social insurance, health insurance, unemployment insurance, severance pay, and other welfare regimes such as: Tet bonus, work efficiency bonus, support lunch, etc.

Fourthly, the factor lack of non-agricultural job opportunities also significantly affects the decision of employees to choose an industrial park to work. The economy of localities is still underdeveloped, with a lack of non-agricultural job opportunities leading to more employees moving to industrial zones to work. Therefore, enterprise in industrial parks should open support programs for employees and conduct training activities to improve their skills and abilities, thereby helping to provide demand to enterprise.

Fifthly, the geographical location of industrial parks is also an important factor attracting workers to work in industrial parks. Employees often choose places near their hometown, or places with a green, clean, beautiful living environment and a developed transportation system for convenient move and a complete service system. Therefore, enterprise and local governments need to pay attention to investing in infrastructure development, public utilities, and protecting the living environment in industrial parks to attract high-quality labor,

contributing to sustainable development industrial parks.

Sixth, with employees, working in large, famous industrial parks, enterprises, and corporations is the dream of many people. Therefore, the results from our analysis have shown that the industrial park size factor is also considered an important factor that affects the choice decisions of workers. This result is completely consistent with current reality when the Vietnamese government is promoting large-scale industrial parks to attract foreign investment.

The seventh factor is the ability of employees to access information. Enterprises in industrial zones should provide recruitment information, positions and jobs accurately, publicly, transparently and attractively. In addition, enterprises need to use many information channels such as social networking sites Facebook, Instagram, TikTok or advertising on television so that many employees can grasp the information. Transparency in recruitment helps enterprises attract more quality employees, and improve the enterprise's brand.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Ministry of Planning and Investment (2022) Report on the Construction and Development of Industrial Parks and Coastal Economic Zones in 2022.

[2] http://baobacgiang.com.vn/bg/kinh-te/416266/bac-giang-thu-hut-fdi-tiep-tuc-but-pha.html

[3] https://vov.vn/kinh-te/khu-cong-nghiep-bac-giang-giam-hon-13000-lao-dong-so-voi-truoc-tet-

[4] Saunders, M., Lewis, P. and Thornhill, A. (2012) Research Methods for Business Students. 6th Edition, Pearson Education Limited, 288.

[5] Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (1998) Multivariate Data Analysis with Readings. 8th Edition, Prentice-Hall, New Jersey.

[6] Hair, J.F., Howard, M.C. and Christian, N.S. (2020) Assessing Measurement Model Quality in PLS-SEM Using Confirmatory Composite Analysis. *Journal of Business Research*, **109**, 101-110. https://doi.org/10.1016/j.jbusres.2019.11.069

[7] Azmach, E. (2019) Regulating Industrial Parks Development in Ethiopia: A Critical Analysis. *Beijing Law Review*, **10**, 23-60. https://doi.org/10.4236/blr.2019.101003

[8] Ho, M.D. and Nguyen, C.D. (2018) Cac nhan to anh huong den dong luc lam viec cua nguoi lao dong tai khu cong nghiep Long Duc tinh Tra Vinh, Tap Chi Khoa Hoc va Kinh te phat trien, So 2, tr 53-66.