Identifying Factors Affecting Supporting Industry Development In Thai Nguyen Province, Vietnam

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Abstract

This research was conducted to identifying factors affecting the supporting industry development in Thai Nguyen province, based on survey data from supporting industrial enterprises in Thai Nguyen province, applying exploratory factor analysis, research conducted. The research findings indicate that there is a factors group affecting the development of supporting industry in Thai Nguyen province, Vietnam. The results also used as a foundation for proposing recommendations to contribute to the development of supporting industries in Thai Nguyen province, Vietnam.

Keywords: Supporting industry, development, Vietnam

1. Introduction

Along with the trend of developing industrial parks of the country as well as Northern midland and mountainous of Vietnam, Thai Nguyen province has advocated the synchronous construction of industrial parks in the overall socio-economic development plan of the country. In the end of 2016, Thai Nguyen province has six concentrated industrial parks: Song Cong 1, Song Cong 2, Nam Pho Yen, Tay Pho Yen, Quyet Thang and Diem Thuy. These industrial parks have been formed and developed, contributing to economic restructuring, creating jobs for thousands of workers, developing the supporting and service industries of the province. In the end of 2017, 182 projects have been granted investment certificates for industrial parks in the province with a total registered investment capital about USD 7,061 billion and about VND 14,192.72 billion; total implemented investment capital is about USD 6.4 billion and VND 7540.3 billion. [Source: Thai Nguyen Industrial Zone Authority]. In addition, the Local also focus and invest for industrial development, leading to the great demand for raw materials for production. For many years, most ẻnterprises in Thai Nguyen province use imported materials to produce finished products. Supporting industry in Thai Nguyen province in particular and the country in general has not met the demand for domestic materials and accessories both in quantity and quality. This situation partly comes from objective reasons, that is the industry in Thai Nguyen province is still young, the supporting industry is mainly based on foreign direct investment enterprises to Thai Nguyen to rent premises, workers produce export products with most imported materials.

With that position, supporting industry not only receives the attention of policy makers but also receives the attention of researchers in the world as well as in the country. Research related to

this area are aimed at clarifying issues related to supporting industry, namely, the concept of supporting industries in different countries and regions (Dung et al., 2014). Moreover, implementing research towards developing support industries, factors affecting the development of supporting industries. Some studies focus on analyzing policies affecting industrial development in general, investment in industrial development (Pham Thi Anh Nguyet (2014), Jackson and colleagues (1999)).

Therefore, the study to identify factors affecting the development of supporting industry in Thai Nguyen province is necessary.

2. Research overview

Supporting industry receives the attention not only of researchers but also of policy makers. Various studies have approached in different directions when studying supporting industries, was approached in different directions when the industrial research assistance studies in the direction of theoretical research, research on the reality of supporting industry development or research on supporting industry development solutions. However, with the scope of this research, which focuses on an overview of studies that consider factors affecting supporting industries. Follows:

Table 1. Summary table about factors affecting development of supporting industry

Independent variables	Author / year
Infrastructure system	Kamunge và cs (2014); Trinh Duc Chieu et al (2010);
Support of local government	Kamunge và cs (2014); Bouazza và cs (2015); Abrar-ul-haq và cs (2015); Trinh Duc Chieu et al (2010); Quoc Nghi et al (2011); Phan Thi Minh Ly (2011);
Local labours	Ghosh và cs (2011); Kamunge và cs (2014); Bouazza và cs (2015); Abrar-ul-haq và cs (2015); Trịnh Đức Chiều và cs (2010); Do Thi Thu Thuy (2017); Vu Chi Loc (2010), Luu Tien Dung et al (2014)
Consumer market	Chittithaworn và cs (2011); Ghosh và cs (2011); Kamunge và cs (2014); Bouazza và cs (2015); Abrar-ul-haq và cs (2015); Trinh Duc Chieu et al (2010); Nham Tuan et al (2016); Do Thi Thu Thuy (2017); Vu Chi Loc (2010), Luu Tien Dung et al (2014).
Capital (financial resources)	Chittithaworn và cs (2011); Ghosh và cs (2011); Kamunge và cs (2014); Kamunge và cs (2014); Bouazza và cs (2015); Abrar-ul-haq và cs (2015); Phan Thi minh Ly (2011);
Science and technology	Ghosh và cs (2011); Kamunge và cs (2014); Bouazza và cs (2015); Abrar-ul-haq và cs (2015); Trịnh Đức Chiều và cs (2010); Phan Thi Minh Ly (2011); Nham Tuan và cộng sự (2016); Do Thi Thu Thuy (2017)
International integration	Chittithaworn và cs (2011); Phan Thi Minh Ly (2011); Do Thi Thu Thuy (2017); Vu Chi Loc (2010), Luu Tien Dung et al (2014)
Local advantages	Kamunge và cs (2014); Trinh Duc Chieu et al (2010); Vũ Chí Lộc (2010), Luu Tien Dung et al (2014)

3. Research Methodology

Primary information was collected from interviews with representatives of 116 enterprises in the supporting industry and related industries to supporting industries in Thai Nguyen province by the use of questionnaires. Research conducted to send survey forms to representatives of enterprises, in case of not meeting the representative of the enterprises; the author sent the survey form or sent an email and made an appointment a week later to return to receive the survey

With 116 enterprises that collected data to meet the minimum requirements of performing statistical operations.

After collecting data, the author performed data analysis using EFA factor analysis method with the help of SPSS 20.0 software.

4. Research findings

To perform factor analysis, the author first checks whether the data is eligible for analysis by KMO tests and Barlett testing.

Table 2: Testing KMO and Barlett factors group

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.742
Bartlett's Test of Sphericity	Approx. Chi-Square	3048.972
	Df	595
	Sig.	.000

Source: Result of analysis from the author research data

Testing result of KMO and Bartlett in the above table show that this database is completely suitable because the test value reaches 0.742 (in the range of 0.5 to 1) with statistical significance at 1% level (Sig. = 0.000 <0.005). So research model of the author is inappropriate.

The analytical results show that, corresponding to 35 observed variables, 35 calculated specific values, after the last EFA analysis, 8 factors with a characteristic value equal or greater than 1 are retained, the remaining elements with specific values (eigenvalue) less than 1 will not be used, this means that 35 observed variables will converge to 8 factors.

As a result of the research, the total index of the rotation sums of squared loadings reached 72.235%, which indicates the use of 8 factors representing 35 observed variables enjoy about 70% more for observed variables. For studies in the field of social sciences, the total index of the rotation sums of squared loadings about 50% is acceptable, so it can be concluded: Use 8 factors to reflect the information of 35 observations.

The result of the rotation matrix is as follows:

Table 3: Matrix of the factor EFA (Exploratory Factor Analysis)

Rotated Component Matrix[a]								
	Component							
	1	2	3	4	5	6	7	8
LD_5	.900							
LD_2	.885							
LD_4	.864							
LD_1	.854							
LD_3	.832							
CQDP_2		.857						
CQDP_4		.824						
CQDP_3		.814						
CQDP_1		.807						
CQDP_5		.778						
V2			.821					
V1			.820					
V3			.797					
V5			.715					
V4			.706					
TTTT_4				.697				
TTTT_3				.650				
TTTT_2				.641				
TTTT_5				.635				
TTTT_6				.634				
TTTT_1				.617				
LTDP1					.837			
LTDP2					.779			
LTDP3					.754			
LTDP4					.630			
LTDP5					.602			
HT3						.890		
HT1						.807		
HT2						.749		
HN3							.979	
HN2							.850	
HN1							.799	
KHCN_1								.715
KHCN_3								.705
KHCN_2								.566
Extraction Method: Principal Component Analysis.								
Rotation Method: Varimax with Kaiser Normalization.								
a. Rotation converged in 7 iterations.								

Source: Result of analysis from the author research data

Based on the rotating matrix of these factors, there are 8 factors extracted into 8 groups of scales:

(1) About local labours (LD)

This factor includes 5 observed variables:

LD1. Labor meets the quantity requirement

LD2. High quality human resources easily to attract in the province

LD3. Labor in the province is enthusiastic and disciplined at work

LD4. Skilled labor

LD5. Labor resources meet the technical requirements of enterprises

The author sets the group 1 denoted by FAC1 with the equation:

$$FAC1 = 0.854 \, LD1 + 0.885 \, LD2 + 0,832 \, LD3 + 0,864 \, LD4 + 0,900 \, LD5$$

The factors group of labor working in the locality, with the coefficient of variable LD5: The labor source to meet the technical requirements of enterprises is 0.900; this is the variable with the greatest impact on the local labor force, the lowest impact is LD3: Labor in the province is enthusiastic and disciplined in work with a coefficient of 0.832

(2) Regarding support of local government (CQDP)

Supporting factors of local government include 5 observed variables:

CQDP1. The administrative procedures of the province are quick and simple

CQDP2. Fast customs clearance

CQDP3. Investment and trade promotion centers good support for investors

CQDP4. Local leaders are ready to support enterprises

CQDP5. Investment incentive policy of the local government is good

The author sets the group 2 denoted by FAC2 with the equation:

$$FAC2 = 0.807 \, CQDP1 + 0.857 \, CQDP2 + 0.814 \, CQDP3 + 0,824 \, CQDP4 + 0,778 \, CQDP5$$

With the coefficient of observed variable CQDP2: Fast customs procedures with a coefficient of 0.857, this is the variable with the most influence level, the observed variable has the lowest impact level is CQDP5: First preferential policy Investment from the local government is good with an influence coefficient of 0.778.

(3) Capital (V)

The capital factor consists of 5 observed variables:

V1. Self-financing of enterprises is good

V2. Enterprises are supported with interest rates when borrowing production and business loans from organizations and financial units

V3. Enterprises can easily access credit capital

V4. Enterprises are able to mobilize diverse sources of capital

V5. Enterprises have easy access to financial-related information

The author sets the group 3 denoted by FAC3 with the equation:

$$FAC3 = 0,820 \, V1 + 0,821 \, V2 + 0,797 \, V3 + 0,706 \, V4 + 0,715 \, V5$$

With the coefficient of observed variable V2: Enterprises are supported with interest rate when borrowing capital for production and business loan from organizations, financial units with a

coefficient of 0.821 which is the most influential variable, variable The lowest level of observation is V4: Enterprises have the ability to mobilize diversified sources of capital with an influence coefficient of 0.706.

(4) About consumption market (TTTT)

The consumer market factor includes 6 observed variables:

TTTT1. Good consumption market

TTTT2. Enterprises take initiative in output

TTTT3. Enterprises have measures to market output products

TTTT4. Enterprises have effective channels to find partners in production and business

TTTT5. Enterprises focus on reputation and product quality

TTTT6. Enterprises have advantages in supporting industry compared to other enterprises

The author sets the group 4 denoted by FAC4 with the equation:

FAC4 = 0.617 TTTT1 + 0.641 TTTT2 + 0,650 TTTT3 + 0,697 TTTT4 + 0,635 TTTT5 + 0.634 TTTT6

Group of consumer market factors, with the coefficient of variable TTTT4: Enterprises with effective channels to seek partners in production and business are 0.697; This is the variable with the greatest impact on the market consumption factor, the lowest impact is TTTT1: Good consumption market with a coefficient of 0.832.

(5) Local advantages (LTDP)

Factors of local advantages include 5 observed variables:

LTDP1. Favorable geographical position for production and business activities of enterprises

LTDP2. Natural resources can be exploited conveniently for production and business activities of enterprises

LTDP3. Political, economic and social environment is stable

LTDP4. The habit of consuming Vietnamese goods by domestic enterprises is good

LTDP5. Policies on supporting industries of Thai Nguyen province are in line with the development requirements of enterprises

The author sets the group 5 denoted by FAC5 with the equation:

FAC5 = 0,837 LTDP1 + 0,779 LTDP2 + 0.754 LTDP3 + 0,630 LTDP4 + 0,602 LTDP5

With the coefficient of the observed variable (LTDP1): The favorable geographical position for production and business activities of enterprises with a coefficient of 0.837 is the variable with the most influence level, the observed variable of level the lowest impact is (LTDP 5): Policies on Thai Nguyen's supporting industry are in line with the development requirements of enterprises with an influence coefficient of 0.602.

(6) About infrastructure system (HT)

The factors of infrastructure system include 3 observed variables:

HT1. Convenient transportation system

HT2. Local electricity, water and lighting systems are stable

HT3. Preferential premises

The author sets the group 6 denoted by FAC6 with the equation:

FAC6 = 0.807 HT1 + 0.749 HT2 + 0,890 (HT3)

Scale of infrastructure system, with the coefficient of (HT3) variable: Factory premises incentives are 0,890; this is the variable that has the greatest influence on the factor of infrastructure system, the least influential variable is HT2. Stable local electricity, water and lighting systems with a score of 0.749

(7) International integration (HN)

The international integration group has 3 observed variables:

HN1. International economic integration opens new opportunities for businesses in seeking output markets

HN2. International economic integration facilitates enterprises to seek opportunities to cooperate with partners

HN3. International economic integration facilitates enterprises to expand the input market

The author sets the group 7 denoted by FAC7 with the equation:

FAC7 = 0.799 HN1 + 0,850 HN2 + 0,979 HN3

The factor of international integration is evaluated by observed variable enterprises (HN3): International economic integration facilitates enterprises to expand the input market with the biggest influence score of 0.979 while turning (HN1). International economic integration opens up new opportunities for businesses in search of output markets (0,799) with the smallest impact score in the group of factors.

(8) About science and technology (Science and Technology)

The scientific and technological factor includes 3 observed variables:

KHCN1. The technology and equipment of the applied technology is modern

KHCN2. Enterprises have invested in technological lines for production

Science and Technology 3 The application of science and technology to production helps enterprises have a competitive advantage compared to other enterprises

The author sets the group 8 denoted by FAC8 with the equation:

FAC8 = 0.715 KHCN1 + 0.566 KHCN2 + 0.705 KHCN3

With the coefficient of the observed variable KHCN1: The technological equipment and machinery of the applied enterprise is modern with the coefficient of 0.715 which is the variable with the most influence level, the observed variable has the lowest impact level is KHCN2:

 Enterprises have invested in production lines for production with an influence coefficient of 0.566.

5. Conclusion

The results of the research have shown that there are different factors that affect the development of supporting industries and in different levels, so, Local governments need to have different strategies and solutions to promote the development of supporting industries through stimulating factors that have a significant impact on supporting industry development. Specific solutions are shown in content proposed solutions.

6. Recommendations

To develop supporting industries for Thai Nguyen province in the coming time, the solutions need to be implemented synchronously as follows:

Firstly, investing in developing infrastructure system

Secondly, ensuring capital sources for supporting industry development

Third, training human resources to meet the needs of enterprises in the supporting industry in the province

Fourth, investing and innovating in technological

Fifthly, strengthening international integration, facilitating the expansion of product consumption market

Eighth, taking advantage of local

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