



Full Length Research Article

**THE IMPACT OF INVESTMENT PERFORMANCE IN DEVELOPING INDUSTRIAL ZONES ON
PEOPLE'S LIVELIHOOD: A STUDY IN THAI NGUYEN PROVINCE, VIETNAM**

***¹Le Thi Yen and ²Pham Van Hung**

¹National Economics University and Thai Nguyen University, Vietnam
²Ha Noi National Economics University, Vietnam

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ABSTRACT

This article was undertaken to examine the impact of investment performance in developing industrial zones on people's livelihoods. 230 selected households were interviewed to collect data. Ordinary Least Squares (OLS) method was chosen to study the subject matter with the help of SPSS 20.0 software. The research results indicated that several factors uncovering the results of investment activities in industrial zones have a positive influence on people's livelihoods, such as the number of increased jobs, non-agricultural investments, land loss due to the construction of industrial parks, transportation... However, these investment activities also lead to the unemployment among households. These factors have opposite effects on the livelihoods of people. From the research findings, the authors also propose a number of measures to enhance the positive effect and limit the negative impact of investment activities on people's livelihoods through investment performance.

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INTRODUCTION

During nearly three decades, from the experience of developed countries, Vietnam has built "industrial zones" model to attract investment to obtain the socio-economic goals of the country such as economic development, encouraging the service sectors to grow, supporting the industry of local area in particular and that of the whole country in general, generating new jobs, and increasing incomes for the local residents and other neighborhoods. However, while the process of industrialization and modernization occurs, a large area of land has been recovered. As estimated, in the period of 1990-2003, 697.417 ha of land was acquired for the construction of industrial parks, urban areas, infrastructure, and other national goals (Le Du Phong, 2007). By the end of 2013, Vietnam had 289 industrial zones with a total area of 81 thousand hectares of natural land, 5463 domestic investment projects and 5057 foreign investment projects (Source: Ministry of Planning and Investment). Especially, in some localities such as Hanoi, Hung Yen, Vinh Phuc, more than half the agricultural land was acquired for the construction of industrial parks, urban infrastructure and other non-agricultural uses.

(Doan Thi Binh, 2011) According to data from the Ministry of Agriculture and Rural Development, 73 thousand hectares of agricultural land was withdrawn each year, which has impacted the life of about 2.5 million people – 10 unemployed people for each hectare withdrawn. (Nguyen Quoc Nghi *et al*, 2012). Investment into industrial zones will impact directly or indirectly on the livelihoods of households via investment results. These impacts will have positive impact on the one hand and negative effects on the other hand, such as new jobs, the amount of compensation for land – an advantage for households to transform their livelihoods. However, a large number of households cannot take this kind of advantage, which may lead to unemployment, vulnerable livelihoods, etc. Their lives will become more precarious even when they receive substantial compensation from the loss of their land. All these things result from the investment activities in industrial zones towards people's livelihoods. This study was conducted to examine the impact of investment activities on people's livelihoods surrounding industrial areas, including landless people and people who do not lose their land due to the construction of industrial parks.

Literature Review

Research on the impact of factors on the livelihoods of people has received the attention of not only policy makers but also

*Corresponding author: **Le Thi Yen**,
National Economics University, Vietnam.

researchers worldwide. Some studies on suburban areas of Hanoi, Vietnam about the mixed impact of agricultural land loss towards livelihoods of people who lost their land pointed out that many households benefited when they lived near the universities, urban centers (Nguyen Van Suu, 2009). The income they got from the lease and immigrant labours emerged as an important source of income for the households. However, a small number of households had to face with insecure life because they did not have rooms for rent; many farmers lost their land and became unemployed, especially the elderly and lowbrow. Using secondary data collected from different published documents in Vietnam, Nguyen *et al* (2006) in their study showed that in the first decade, Vietnam had experienced the process of rapid urbanization and industrialization in the peri-urban areas. The result of this process is that a large number of rural households lost their agricultural land for the development of industrial zones and urban areas, and many have fallen into poverty.

The author Le Du Phong (2007) who did his research through large-scale surveys in eight developed cities and provinces which had the highest agricultural land loss in the country has provided a fairly detailed picture of both positive and negative impact of agricultural land loss on household income. On average, almost half of the households suffered from reduced incomes, while more than half of them significantly increased incomes after their land loss. After land loss, 25% of the households increased their incomes while 44.5% maintained the same level, and 30.5% had lower incomes. Meanwhile, the author Tran Quang Tuyen (2013) in his study has quantified the relationship between factors affecting the income of the people. The data were collected from 447 land loss households in the outskirts of Hanoi. Simultaneously, the author divided household incomes into agricultural earnings, business income, income from paying jobs requiring low qualifications, low skills, income from jobs requiring high skill level, and non-labor income. Factors affecting the income of the people are the area of their land, the number of members in the household, gender of household head, household head's age, the average age of the labor force in the family, the average education level of the family members. With regard to another impact of the loss on the livelihoods of people living around industrial areas, Saumik Paul *et al.* (2013) in their study considered people's satisfaction with the infrastructure of industrial parks, and the impact of infrastructure development on the lives of the people in India. The least squares method was used to evaluate the impact of factors on the livelihoods of land loss people.

The data collected from interviewing 1017 households uncovered that 462 households were affected by the construction of industrial parks and displaced; 168 families gave up their farmland to make way for resettlement of land loss people; and 387 households were not affected by land loss for industrial construction. The study results showed that people had a good review on the infrastructure system after the construction of industrial parks; they had better access to roads, electricity, and clean water. However, one conflict in the outcome of this study is that better infrastructure made people's incomes lower. This result is contrary to other authors' findings such as Philippe. (2012), Nguyen Thi Hong Hanh, *et al* (2013), Nguyen Quoc Nghi (2012), Obong. (2013).

Explaining the results, the authors pointed out that it was the specific area. Before the industrial zone was built and put into operation, people mainly lived on delivering goods by waterway transport. After the construction, people's income from transporting goods decreased. Besides, the authors used variables of distance, education, work experience, etc. as explanatory variables for income variable (dependent variable) in research model. Many previous studies have been carried out to exploit different aspects of the impact of land loss due to urbanization, industrialization on people's livelihoods. However, these studies only focused on people who lost their land.

In reality, the impact of investment activities for the development of industrial parks on the resident people's livelihoods must include both land loss people and people who do not lose their land through the results of those investment activities. Specifically, the investment and development of industrial parks will generate investment performance which directly or indirectly affects the livelihoods of the people living around industrial zones. In addition, previous studies in Vietnam were done mainly in suburban areas, or southern provinces. Therefore, the current research carried out in the Northern midland and mountainous area – one of the important economic regions in Vietnam – still ensures the objectivity of the results.

MATERIALS AND METHODS

Research site

Thai Nguyen province, the economic and political centre of the Northern midland and mountainous area in Vietnam, is the gateway to socio-economic exchanges between the Northern midland and mountainous area and the Northern Delta; adjacent to Bac Kan province in the north, Vinh Phuc, Tuyen Quang provinces in the west, Lang Son, Bac Giang in the east, and the capital Hanoi in the south; natural area of 3562.82 km². Thai Nguyen province has 9 administrative units: Thai Nguyen city; Song Cong town and 7 districts: Pho Yen, Phu Binh, Dong Hy, Vo Nhai, Dinh Hoa, Dai Tu, Phu Luong. Totally, there are 180 communes, including 125 upland communes, and the rest are in plain and midland. The location is very convenient for transportation, 50 km from Noi Bai International Airport, 200 km from border with China, 75 km from the center of Hanoi, and 200 km from Hai Phong Port. Thai Nguyen is an important intersection with a system of roads, railways, inland waterways connected with other provinces: Highway 3 linking Hanoi to Bac Can; Cao Bang and Vietnam – China border gate; Highway 1B to Lang Son; Highway 37 to Bac Ninh, Bac Giang; Da Phuc - Hai Phong river system; Thai Nguyen- Hanoi - Lang Son railway.

Along with the trend of industrial development in the country in general and the Northern midland and mountainous area in particular, Thai Nguyen has advocated synchronous building of industrial zones following the overall socioeconomic development plan of the whole country. By the end of 2014, Thai Nguyen province has six industrial zones: Song Cong 1, Song Cong 2, Nam Pho Yen, Tay Pho Yen, Quyet Thang, Diem Thuy. The establishment and development of these industrial zones have contributed to the economic

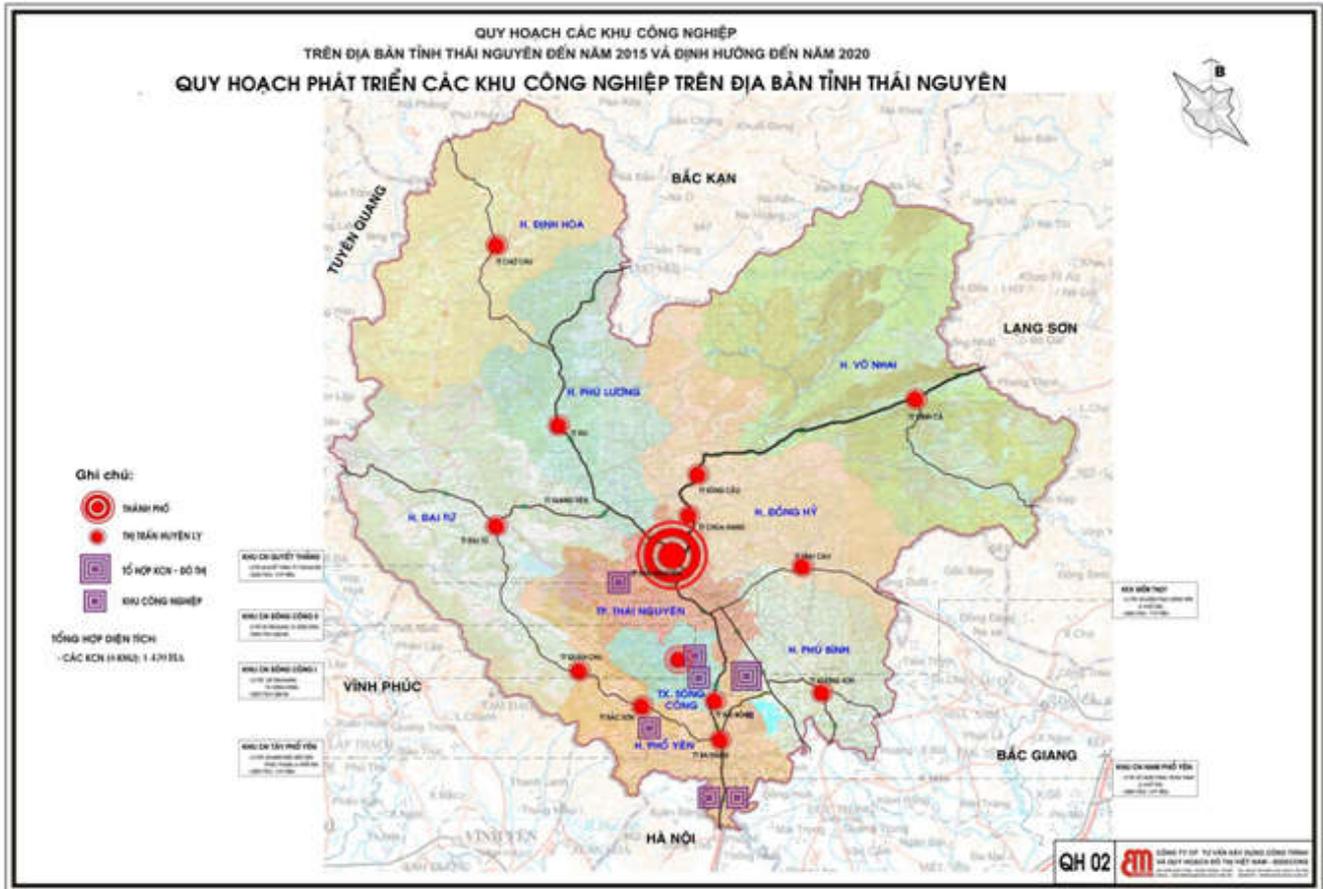
restructuring, generating jobs for thousands of workers, and the development of ancillary industries and services in the province. Beside the advantages of natural conditions, abundant mineral resources, Thai Nguyen province is also the gateway to the capital, the training center of the country. Education system under Thai Nguyen University includes University - College – Vocational schools—which contributes to providing high-quality human resources for businesses, manufacturing bases in the province. The construction of six industrial zones in Thai Nguyen has covered approximately 1.420 ha of people’s land, most of which is agricultural land. As a result, a large amount of labor would have to switch jobs; households would have to switch modes of livelihood.

Data analysis Methods

Inheriting the previous studies of Tran Quang Tuyen (2013), Tran Quang Tuyen *et al* (2014), Nguyen Quoc Nghi (2012), Saumik Paul *et al* (2013), etc, the researcher used the ordinary least squares (OLS) method to examine factors affecting household livelihoods.

Factors that affect household livelihoods:

- Land loss due to the construction of industrial zones (Land loss area): is the household land area recovered for the construction of industrial zones. The unit is m². According



(Source: Thai Nguyen Management Board of industrial zones)

Fig.1. Planning map of industrial zones in Thai Nguyen province

Data collection

On the basis of the General Statistics Office questionnaires in 2006 (GSO, 2006), the researcher has designed household questionnaires to collect quantitative data for the study. Data in the questionnaire include: household characteristics, resources, incomes, and livelihood assests of 230 households interviewed, there were 115 who lost their land due to the construction of industrial parks. Many lost all agricultural land, some lost part of the land, some lost a little, and the other 115 lost nothing. The Data were collected from early April to late May 2015 using questionnaires to directly interview household owners with the presence of other family members.

to Nguyen Van Suu (2009), when households lose their land for industrial zones constructon or other purposes, a majority of people will get higher incomes if they can take full advantages of industrialization and urbanization. However, other people will have to face with unstable lives because they become unemployed when losing their land. According to Nguyen, McGrath, and Pamela, (2006), the loss of agricultural land will lead to poverty, and negative effect on people’s income.

- The accessibility to preferential policies (Policy approach): This is a variable the authors used to consider the possibility of policy approaches of households. The value

of the variable will be 1 if the household has access to preferential policies, otherwise, it is 0. Results from Nguyen Quoc Nghi (2012), Huynh Thi Dan Xuan (2012), etc. show that the accessibility to policies is directly proportional to household income.

- Non-agricultural investment (Non-agricultural investment): the actual investment of households for non-agricultural activities such as building hostels, running business services, ...Unit is million dong per year. According to Tu Quang Phuong (2013), the more the investment increases, the more the household income is.
- Transport system after the construction of industrial zones (Transport): is a variable to evaluate people's review on the transport system after the industrial zone was built. Its value is 1 if the system is very bad; 2 if the system is bad; 3 if the system is normal; 4 if good; and 5 if excellent. In Saumik Paul *et al* (2013)'s study, the authors pointed out that better infrastructure system lowered people's income. The result is contrary to the study of Philippe.L (2012), Nguyen Thi Hong Hanh, *et al* (2013), Nguyen Quoc Nghi (2012), Obong, (2013).
- The number of increased jobs in the industrial zones (The number of increased jobs): is the number of jobs each household gets more after the construction of the industrial zone. According to Le Du Phong (2007), and Tran Quang Tuyen (2014), the number of increased jobs contributes to increasing income for people.
- The number of employees in the industrial park (the number of employees) is the quantity of household labor who work directly in the industrial zones. Unit: worker (s).
- The number of unemployed workers (the number of the unemployed): is the number of employees in each household who are unemployed after the construction of industrial parks. Unit: worker (s). According to Nguyen Van Suu (2009), Le Du Phong (2007), unemployment is the main cause for household's poverty. The relationship between unemployment and household income is the opposite relationship.

In this study, the researcher used income as the variable for people's livelihoods. Household income was the whole earnings in a year, unit: million dong per year.

Therefore, this study suggests the research model as follows:

$$Y_i = a + b_1 (\text{Land loss area}) + b_2 (\text{policy approach}) + b_3 (\text{non-agricultural investment}) + b_4 (\text{Transport}) + b_5 (\text{The number of increased jobs}) + b_6 (\text{The number of employees}) + b_7 (\text{The number of the unemployed}) + U_i$$

RESULTS

Descriptive statistics of variables

The results from interviewing 230 households living surrounding industrial zones are shown as follows:

Table 1. Descriptive Statistics

Descriptive Statistics			
	Mean	Std. Deviation	N
Y	123.860	93.0216	230
Land loss area	676.96	1067.066	230
Policy approach	.29	.455	230
Non-agricultural investment	38.238	91.5241	230
Transport	2.72	.911	230
The number of increased jobs	1.20	.996	230
The number of employees	1.08	1.075	230
The number of the unemployed	.81	.923	230

(Source: Results from the survey data analysis with the help of SPSS 20.0 software)

The average income of the households interviewed was 123.86 million dong per year; the average non-agricultural investment was 38.238 million dong per year. The number of increased jobs after the construction of industrial zone was 1.2 people per household. However, the number of unemployed workers was relatively high with an average of about 0.81 people per household.

Verifying the conformity and defect of the model

With the expected pattern for the study, the researcher conducted tests on the suitability of regression function and some defects of the model.

Results:

Table 2a. Results from verifying the suitability and defect of the model

Model Summary ^b				
Model	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.813	.807	40.9139	1.845

a. Predictors: (Constant), SD_compensation, Transport, Policy approach, Non-agricultural investment, The number of employees, The number of jobs, The number of the unemployed, Land loss area.
b. Dependent Variable: Y

(Source: Results from the survey data analysis with the help of SPSS20.0 software)

Table 2b. Results from verifying the suitability and defect of the model

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1611598.959	8	201449.870	120.344	.000 ^a
	Residual	369941.875	221	1673.945		
	Total	1981540.834	229			

a. Predictors: (Constant), SD_compensation, Transport, Policy approach, Non-agricultural investment, The number of employees, The number of jobs, The number of the unemployed, Land loss area.
b. Dependent Variable: Y

(Source: Results from the survey data analysis with the help of SPSS20.0 software)

It is clearly seen from the tables that:

- Coefficient Sig = 0.000: research model is appropriate
- Coefficient Durbin-Watson = 1.845, research model has no autocorrelation
- Coefficient R Square = 0.813 shows that the independent variables in the model explained about 81.3% of the dependent variables.

The impact of investment performance in developing industrial zones on people's livelihoods

This is entirely favorable for the business of households living nearby. Quoted from Nguyen Xuan Quang's speech, manager of Song Cong town: "After the traffic system is built, people move more easily, trade becomes favorable, people's lives changed dramatically".

- The number of increased jobs in the industrial zones: this contributes to increasing income for people living around industrial zones. The coefficient of this variable is 18.866. The research results also support the previous studies of Le Du Phong (2007) and Tran Quang Tuyen (2014).

Table 3. Results of regression model

Coefficients ^a		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	52.459	11.067		4.740	.000
	Land loss area	.028	.003	.321	8.539	.000
	Policy approach	15.905	6.210	.078	2.561	.011
	Non-agricultural investment	.341	.036	.335	9.561	.000
	Transport	5.589	3.063	.055	1.825	.069
	The number of jobs	18.866	3.344	.202	5.641	.000
	The number of employees	14.354	3.301	.166	4.348	.000
	The number of the unemployed	-22.924	3.526	-.227	-6.502	.000

a. Dependent Variable: Y

(Source: Results from the survey data analysis with the help of SPSS20.0 software)

Results from Table 4.3 indicate that all variables in the study are statistically significant with an error of 0.07. Factors affect the livelihoods of households at different levels. Specifically:

- Land loss area due to the construction of the industrial zones: the coefficient of this variable is 0.028. This means that people lost their land to build industrial parks when their income increased. In reality, people used the compensation from the loss of their land to convert into new livelihoods: from farming to commodity trade, service business or building hostel for workers.
- Access to preferential policies of households (policy approach): preferential support from the authorities that people can have access to is an effective channel to help increase people's income. In practice, the findings show that people's income increases when they have access to the policy. The findings of this research are consistent with previous ones.
- Non-agricultural investment: The study results support the perspective of Tu Quang Phuong (2013), the coefficient of non-agricultural investment has positive sign, and its value is 0.341. When non-agricultural investment increases by 1 thousand VND, people's income increases by 0.341.
- The transport system after the construction of the industrial zones (Transport): The study results pointed out that the more favorable the transport system becomes, the more people's income increases. The coefficient of the transportation variable is 5.589. This result is not consistent with the views of Saumik Paul *et al* (2013). In the opinion of the authors, after the industrial construction, transport systems will be upgraded to meet the transportation needs of businesses in the industrial zone.

- The number of employees in the industrial zones: The coefficient of this variable is 14.354. This shows the positive relationship between the variable and income. The income increases when more jobs are generated.
- The number of the unemployed workers: It is undoubted that among households whose land is recovered, there will be unemployed households because of not keeping up with the opportunities generated by the construction of industrial zones. As a result, the number of unemployed workers still remains, income of households decreases; the relationship between unemployment and household income is reserve. The research results also support the previous studies of Nguyen Van Suu (2009), Le Du Phong (2007).

Results of investment activity bring a positive impact on the people's income when the number of employees working in industrial zones, and the number of additional workers in other business and services increase. However, it also has negative effects when a majority of people are unemployed due to loss of land for building industrial zones. They could not find new livelihood strategies for themselves and their families. This is one major problem that needs solving. There must be specific plans for the management of the local government.

Recommendations

- Local authorities should collaborate with businesses, employers to organize short-term training courses for people to apply science and technology in production; practice skills to support directly the recruited jobs etc. so that people can have access to suitable livelihood strategies for their own conditions.
- There should be measures to support people as loans from credit institutions, farming techniques which help people to cultivate, produce efficiently.

- There must be collaboration with businesses in the industrial zones to have specific support for people directly affected from land loss such as preferential recruitment if they meet the requirements.
- Local government should have the tools and standards to control environmental pollution in order to avoid unexpected damage to the residents living around industrial zones.
- In addition, local governments should also take steps to encourage and attract investors to come in the industrial zone. The appearance of these investors will be a good opportunity to improve people's incomes directly through additional jobs created from the industrial zones, or indirectly through business services, accommodation, etc.

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