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**THE IMPACT OF PUBLIC INVESTMENT ON  
ECONOMIC GROWTH IN QUANG NGAI PROVINCE**

**Major : Development Economics**

**Code : 62. 31. 01. 05**

**SUMMARY OF ECONOMIC DOCTORAL DISSERTATION**

**Da Nang - 2019**

Works completed at:  
**UNIVERSITY OF ECONOMICS, DA NANG UNIVERSITY**

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The dissertation had protected in front of Board of Examiners for economic doctoral dissertation at the University of Economics, Da Nang University on 02/11/2019

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## INTRODUCTION

### 1. Rationale of the dissertation

Public investment (PI) is one of the key resources in the development of all economies and tools to adjust socio - economic development as well. Many scholars have conducted experimental studies in many different countries and pointed out the impact channels of public investment on economic growth (EG) through investment channels, private investment enhancement, and poverty reduction. However, these studies have only been conducted within national or transnational level and no research on this topic for a provincial-level economy.

During the last 20 years, the economy of Quang Ngai (QN) has grown continuously. The success in EG is greatly contributed by the investment factor, especially the public investment. However, the management of the public investment in Quang Ngai has still faced many shortcomings such as investment has not really focused; the projects have not shown the urgency, or the private sector can invest but the state still covers. Capital management has not been strict; construction debt and public debt remain at high levels; construction quality is not qualified...

In order to overcome these existing obstacles, the research on *"The Impact of public investment on economic growth in Quang Ngai province"* is essential.

### 2. Objectives of the study

(1) Systematize the theoretical basis and assessment methods for the impact of the CCP on economic concentration

(2) Analyze the situation of the impact of the PI on Quang Ngai economy through investment channels, poverty reduction, private sector and economic restructuring.

**(3) Propose a number of policy implications to use IP effectively to promote economic concentration in Quang Ngai province.**

Propose some policy implications of using effective public investment to promote economic growth in Quang Ngai province.

### **3. Object and scope of research**

- Objects: Theoretical and practical issues of the impact of public investment on economic growth in Quang Ngai province.

- Scope of research

- + Content: Study the direct and indirect impact of the PI on economic growth in Quang Ngai province (in a positive way).

- + Space: Study the direct and indirect impacts of PI on economic growth in Quang Ngai province.

- + Time: Implicate the policies to the year 2025.

**4. Research methods:** Use the qualitative and quantitative research method, which will be presented in the next section.

### **5. Scientific significance of the dissertation**

#### ***5.1. Theoretical and practical contribution***

- The dissertation summarizes related theories and practical research on the impact of PI on EG; however, these studies have been conducted on a national or transnational level, no studies was conducted at the provincial level. From these studies, they form an analytical framework for studying the impact of PI on EG at the provincial level. This has contributed to bridging the gaps in this problem.

- This is one of a few Vietnamese studies combining both quantitative and qualitative research methods on the impact of the PI on the provincial-level economic growth.

- The research results show that public investment in Quang

Ngai province has been mobilized with more increasing capital, contributing to the formation, improvement, and development of provincial socio-economic infrastructure. However, this source is still inefficient.

- Many studies have shown the positive impacts of PI on EG, but few studies have addressed the additional impact on private and labor resources. The dissertation shows that PI in Quang Ngai province has not overwhelmed the private investment and labors, but create a resonant effect on them in promoting the local economic growth.

- The results show that public investment has a positive impact on poverty reduction and economic restructuring in the province, which is an important factor to achieve the goal of sustainable development.

### ***5.2. Implications, new recommendations drawn from the results of research***

(1) Improve policies on mobilization, allocation, and use of PI effectively.

(2) Perfect the role of PI in promoting economic growth through investment channels.

(3) Improve the role of PI in sustainable poverty reduction.

(4) Promote the role of PI in stimulating private investment

(5) Increase the role of public investment in order to promote economic restructuring in Quang Ngai province.

### **6. Structure of Subject**

The opening, the conclusion, and 4 chapters included as follows:

Chapter 1. The basis for the impact of public investment on economic development.

Chapter 2. Geographical features and research methods.

Chapter 3. Public investment situation and its impacts on Quang Ngai economic growth.

Chapter 4. Policy implications.

## **CHAPTER 1**

### **THE CONVENTIONAL BASIS FOR THE IMPACT OF PUBLIC INVESTMENT ON ECONOMIC GROWTH**

#### **1. 1. Public investment and economic growth**

##### ***1.1.1. Public investment conception***

The Public Investment Law of 2014 states "Public investment is the investment of the State in programs and projects to build socio-economic infrastructure and to serve social economic development".

Public investment includes: Investing in socio-economic infrastructure programs and projects; in the operation of state agencies, non-business units, political organizations, and socio-political organizations; investing and supporting the supply of public service products; State's involvement in public-private partnership projects.

##### ***1.1.2. Mobilization and the use of public investment***

###### *Capital mobilization*

State investment capital is mobilized from the saving source of the State budget; development investment credit capital of the State; ODA, and preferential loans of foreign donors.

###### *Investment allocation*

Basically, the allocation of public investment capital is to follow the market mechanism and the government's strategic development as well. In other words, it has to focus on which sector development will be allocated and combined with other sources by the Government. In addition, allocation is also concentrated in key areas to create the spread of the larger region.

### *Investment capital utilization*

The use of capital is the process investment owners implement investment projects, establish manufacturing. This is also the process of capital transfer from capital into material capital to incorporate other production factors that produce output. Effectiveness of investment capital can be assessed through the ICOR.

Capital utilization is the process by which investment entities carry out investment projects to form a production base. This is also the process of converting capital from financial form to physical capital to combine with other production factors to create output. The effectiveness of using the investment capital can be assessed by ICOR.

#### **1.1.3. Economic growth**

In the theory of development economics, many studies have suggested that economic growth is an economic category, it reflects the up or down scale of the economy this year compared to the previous year or the same period last year. To measure economic growth, we often use two key indicators: the increase, decrease of the size of the economy (through GDP), or economic growth speed (through GDP).

Therefore, the economic growth can be considered as a better result of the economy in the time and expressed by increasing the scale of the economy as GDP or GNP. The increase needs to be sustained highly and stably in the long term according to the economic potentials.

### **1.2. The theories related to the impact of public investment on economic growth**

(1) Theory of classical growth. (2) Theory of neoclassical growth. (3) Keynesian growth Theory. (4) Theory of Samuelson on modern growth. (5) Theory of endogenous economic growth.

Relevant theories of the impact of PI on EG have been developed over time by time with different inheritance and developments. These have shown how investment impacts on economic growth through investment channels, promoting private investment, poverty reduction, growth, and economic restructuring. Therefore, this is an important theoretical basis for the study of the impact of public investment on economic growth.

### **1.3. Practical results of the impact of public investment on economic growth**

#### ***1.3.1. Through investment channels***

There are studies on the impact of PI through the investment channels, but focusing largely on developing countries. The results are both positive and negative impacts.

The first direction concludes positive effects. Accordingly, PI contributes to economic growth through providing transport, health, education, housing infrastructures... Many cases show the resonance impact of private investments leading to economic growth improvement.

The second direction includes negative impacts on economic growth. The findings found that in some countries, PI has not been influenced on economic growth, even a macroeconomic instability caused by the basic construction debt and public debt.

#### ***1.3.2. Through the poverty reduction***

Many studies also consider the impact of PI on growth through the poverty reduction. These studies not only show the effects of PI on poverty reduction but also approach poverty reduction methods. It is important that most of them confirm the importance and positive impact of this investment resource on poverty reduction.

#### ***1.3.3. Through promoting private investment***



Lutfi Erden (2002), Aschauer (1989a), Barro (1990), Evans and Karras (1994a, b), Ramirez (1994, 2000), Blejer and Khan (1984), Aschauer (1989a, 1989b), Munnell (1992) and Ramirez (1997) focus on the impact of PI on private investment through the review of PI influences such as creating hard and soft infrastructure, reducing costs for the private sector; upgrading and improving infrastructure quality, improving the quality of business environment, labor support, output support, and promotion.

The results of many studies show that there is a strong correlation between public and private sector investment through creating favorable conditions for private investment such as the provision of public infrastructure, favorable environment for private investment development. However, some researches states that the PI is crowding out the private investment, and thus making the private economy less developed.

#### ***1.3.4. Through promoting economic restructuring***

Many studies show that public investment has an important influence on economic restructuring through policies affecting investment structure. When implementing investment policies, the State can directly intervene by implementing policies of capital allocation, planning; building investment management mechanisms or indirectly regulating policy instruments to drive the direction of the economy in a way that the government expects. This is due to the different proportion of capital allocation to industries, which will bring different results and effects. For Vietnam, to achieve the goal of industrialization and modernization, striving to bring our country into an industrial country in the direction of modernization, this is even more meaningful. This role is expressed in two main aspects, one is the impact of the PI on changing the contribution proportion of

sectors to GDP; secondly, the PI changes the proportion of sectors in the whole economy. This change is associated with the change of production structure in each sector. In other words, the division of production structure in each economic sector is due to the impact of public investment.

## **CHAPTER 2**

### **GEOGRAPHICAL FEATURES AND RESEARCH METHODS**

#### **2.1. Research geographical feature**

##### ***2.1.1. Natural condition***

Quang Ngai is located in the central key economic region with the total area of over 5,000 km<sup>2</sup>, the 135km-long coastline, and Ly Son Island. The terrain has many high mountains, mounds, valleys. Mountains occupy nearly two thirds of the total area. The province is located in a typical tropical climate with high temperature and less volatile, rich light mode, moist, rainfall with annual average temperature of over 25<sup>0</sup>c. Average annual rainfall is over 2,000 mm.

On top of the terrain, Quang Ngai has four large rivers: Tra Bong, Tra Khuc, Ve, and Tra Cau. Apart from sea and forest land, as in many other areas in the Central, it also has some mineral deposits such as gold, titanium, cobalt, iron. Out of the average amount of titanium in the coastline, most of them are not concentrated and low.

##### ***2.1.2. Economic condition***

Quang Ngai has a strategic location in the key economic region in central Viet Nam and the East – West Economic Corridor with convenient traffic on road, railway, waterway, aviation, which link to the international maritime shipping via East Sea and Pacific Ocean. The province has Dung Quat economic zone, industrial zones including Tinh Phong, Quang Phu and VSIP. They have been fully invested with many attractive incentives to attract investment projects

in the field of heavy and light industry that solve a lot of labours.

Taking advantages of the local potentials, strength, and many preferential investment attraction policies, Quang Ngai's economy has been significantly developed. Compared to the time of the provincial reestablishment (1989), the economic scale of 2016 increased by 12 times; achieving nearly 42,000 billion VND; State budget revenue increased by more than 1,300 times, reaching over 18,000 billion VND; per capita income increased over 115 times, reaching nearly 51 million VND/person/year; export turnover reached over 300 million USD; The economic structure has shifted rapidly towards industrialization and modernization, with the proportion of industry - construction accounting for over 55%.

However, the province's economic situation remains limited, such as: Economy growth speed has been still low compared to its potentials; economy mainly depends on Dung Quat Oil refinery; the application of science, technology in management has not been effective; the State management of the state, especially spending on expenditures and PI is much more difficult to produce business activities of enterprises, not mobilizing social resources in development.

### **2.1.3. Social conditions**

Quang Ngai is also the cradle of the Sa Huynh culture dating back nearly 3,000 years with many rich cultural relics in Sa Huynh and Ly Son. The population of the province is over 1.3 million, mainly living in the main land. Mountainous areas inhabited by ethnic minorities such as Cor, Cadong, Hre...

*Table 2.1. Scale and GDP growth in QN*

*(Unit: Million VND)*

<b>Years</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2016</b>
GDP/per (current	1.6	2.7	5.4	24.0	47.0	50.8

price)						
GDP/per (price in 2010)	4.1	6.1	9.8	24.0	33.7	35.3
% EG	7.5	8.5	11.8	38.8	9.5	4.7

The GDP of the province has increased rapidly, at the current price of GDP per capita in 2016 reached nearly 51 million VND (about 2,250 USD/person). The rate of poor households in QN province has fallen sharply, from just over 24% in 2010 to just over 13% in 2016. However, the poverty rate in mountainous areas is quite high, at 42.2%. Unemployment rate in the province is lower than the national average, with less than 2%.

## **2.2. Research method**

### ***2.2.1. Research theories***

Hypothesis 1: The PI mobilized into the economy has increased continuously and accounted for a very high proportion of total investment, but it was still scattered and ineffective;

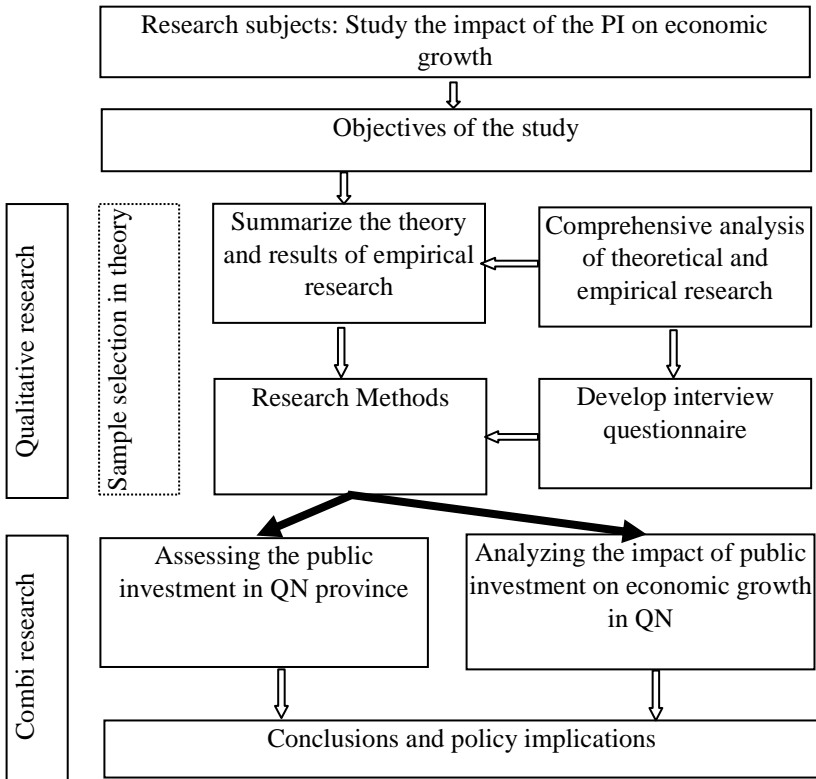
Hypothesis 2: The PI had had positive impacts on economic growth in Quang Ngai province through investment channels.

Hypothesis 3: The PI in the province has positively influenced on private investment through private investment decisions.

Hypothesis 4: The PI has positively influenced on poverty reduction and economic restructuring in Quang Ngai.

### ***Research process***

From the review of studies and the theoretical background on the impact of public investment on economic growth, the framework for analysis can be outlined as follows:



Picture 2.1 research process

(Source: by author)

## 2.2.2. Analytical method

### a. Qualitative analysis methods

(1) Deductive method. (2) Induction method. (3) Deep interview method.

### b. Quantitative analysis methods

\* Statistical analysis methods, including:

Statistical analysis of the situation of socio - economic growth of Quang Ngai province, general investment, public investment in the process of economic growth, and the impact of PI on economic growth.

Chart and statistical chart to collect information.

Methods of average numbers, correlative numbers, correlation analysis, time series.

*\* Econometric Models*

Econometric Models are used to estimate the impact of PI on economic growth, including the investment channels and poverty reduction as follows:

*Firstly, a method for analyzing the impact of public investment on economic growth through investment channels*

Using this model, the doctoral students have built the economic model to analyze the impact of PI via the province's investment channels:

$$gy_{it} = \beta_0 + \beta_1 gKg_{it} + \beta_2 gKp_{it} + \beta_3 gL_{it} + \beta_4 gH_{it} + \varepsilon_{it} \quad (1)$$

*Table 2.2 Interpretation of the variables of the model*

<b>Name of variable</b>	<b>Signal</b>	<b>Interpretation and calculation</b>
Economic growth	$gy_{it}$	$gy_{it}$ is the growth rate of added value of industry $i$ year $t$ , calculated as a percentage of comparison between the increasing scale of the industry $i$ year to year.
Public investment	$gKg_{it}$	$Kg_{it}$ is the growth rate of financial investment of the sector $i$ year $t$ , calculated as a percentage of comparison between the scale of financial investment of the sector $i$ with the previous year.
Private investment	$gKp_{it}$	$Kp_{it}$ is the growth rates of public investment capital of sector $i$ in year $t$ , calculated as a percentage of comparison between the scales of its PI capital with the previous year.

Name of variable	Signal	Interpretation and calculation
Labour	$gL_{it}$	gLit is the growth rate of the labor force of the sector i year t, calculated as a percentage of comparison between the labor scale of sector i with the previous year.
Human capital	$gH_{it}$	gHit is the proportion of trained labor of sector i year t

*Secondly, an analysis of the impacts of public investment on poverty reduction*

The study will use the following models to analyze the impacts of PI on poverty reduction in Quang Ngai province:

$$\text{ratengheo}_i = \beta_0 + \beta_1 \text{ratekg}_i + \beta_2 h_i + \beta_3 \text{popu}_i + \varepsilon_{it} \quad (2)$$

ratengheo: the poverty rates; ratekp: PI is determined by the ratio of PI of the province; h: the human capital;  $\varepsilon_{it}$ : other random factors

### ***2.2.3. Data collection method***

#### ***a. Secondary data collection method***

Secondary data for the research is collected mainly from the provincial statistical yearbook of Quang Ngai and some statistics from several provincial departments.

#### ***b. Preliminary data collection method***

The research has collected primary information through the extensive interviews with private business managers to know their investment decisions, at the same time understanding the effects of PI-related factors such as infrastructure quality, environmental quality.

## **CHAPTER 3**

### **PUBLIC INVESTMENT AND ITS IMPACTS TO THE ECONOMIC GROWTH OF QUANG NGAI**

### **3.1. Investment and economic growth in Quang Ngai province**

#### ***3.1.1. Investment situation***

##### ***a. Investment source***

During the last 20 years, the province's economic growth has been high and the investment capital played as one of the important roles. Statistic data shows that the total investment in the province was very low in the first period, but increased sharply from 2006 and got the peak in 2008 (24,470 billion VND), which gradually declined, but from 2014, this increased again.

The State's investment or public investment accounts mainly, and got the highest in 2007 (more than 84%) and the lowest in 2016. Non-state investment fell sharply from 2006 to 2009. Foreign investment increased and accounted for nearly 9%. From above factors, we can conclude: (1) The role of public investment capital in this economy is essential; (2) The investment potential from the Non-state sector is also quite large.

##### ***b. Allocation and use of investment capital in economic growth***

The allocation of investment capital shows that the investment source for aquaculture is decreasing gradually. The service capital share is generally increasing but fluctuated. Sources of investment mainly focus on the industrial development. This proportion has increased continuously since 1995, and got to the peak of 2010, at near 80%.

If the ratio of investment capital in the investment section indicates the proportion of capital invested in the basis of capital construction. This proportion is increasing and now more than 80%. Fixed asset purchase rates are not built in the basic construction ratio but also decreasing and currently accounted for more than 12%. Other accounts accounted for about 4.4 – 8.6 %.

The ICOR used the general investment capital from 1995 -



2016 was five. The low effectiveness of using of investment capital was due to many causes, mainly complex administrative procedures, poor governance quality, which made investors waste longer time to carry out the projects.

### ***3.1.2. Investment in Quang Ngai province***

#### ***a. Mobilization of public investment***

Public investment according to current prices and fixed prices in previous years 2000 is very low, with less than a hundred billion dong. In 2001 - 2005 began to increase. The largest PI in 2006 and to the top of 2007, and then declined. In the years after 2010, the scale is still quite high. The rate of PI with the total investment in QN province has always taken quite a high proportion, before 2005 is more than 62%, from 2006 to nearly 76%, and 2007 is more than 84%, 2008 is more than 78%.

The public investment at current and fixed prices in the years before 2000 was very low, with just below a few hundred billion VND. In the period 2001-2005, it began to increase gradually. The PI has increased the most since 2006 and peaked in 2007, 2008, and then gradually decreased. In the years after 2010, although it decreased, the scale was still quite high.

The ratio of financial investment always accounts for a high proportion of the total investment in Quang Ngai province; before 2005, it always accounted for over 62%, increased to nearly 76% in 2006 and more than 84 in 2007 %, more than 78% in 2008, and then decreased until 2016, just over 52%. These changes have led to a low ratio of private investment compared to the PI, and gradually decreased until 2007 but increased significantly since 2010.

PI is mobilized from different sources, of which the state budget is still the main source, with more than 85%. The inherent

capital of state - owned enterprises is usually low except in the period from 2005-2013, then plummeted from 2014, only about 7%. Other sources are not significant.

***b. The public investment allocation***

The proportion of PI for the sectors of the economy is basically same as general distribution situation. The proportion of investment in the construction has been still high, although it fell from 2010, with nearly 54%, followed by tourism industry. Although it was fluctuated, tourism still rose in 2010, with nearly 40%. The proportion of PI to fisheries decreased significantly, lower than 7%.

***c. The use of public investment***

The way to use public investment is displayed firstly through the ICOR. Table 3.1 shows that the ratio of PI was high in the period 1995 - 2005, and then decreased gradually in the next two periods. The average for 20 years of ICOR has been 6.85. This was higher than the average of the Vietnamese PI (6.4).

*Table 3.1. Effectiveness of PI in Quang Ngai*

	1995-2000	2001-2005	2006-2010	2011-2016	1995-2016
The State's ICOR	7.39	7.85	4.70	3.85	6.85
The Private ICOR	1.37	2.78	4.59	3.33	3.02

*(Source: Provincial statistical yearbook and the socio - economic report of the provincial People's committee)*

Compared to the investment effectiveness of the private sector, it is quite low, the same as the general situation of the whole country, this coefficient of the PI is 2 times higher than that of the private sector.

**3.2. Impact of public investment on economic growth in Quang**

## Ngai province

### 3.2.1. A contribution of public investment to the local economic growth

According to the overall contribution level of to GDP, the share of GDP in total GDP has increased from 1995 to now. In 1995, this number was 23%, now more than 52%. So, the public sector has created more than GDP and contribution to the increasing GDP of Quang Ngai province.

### 3.2.2. Estimating the impact of public investment on the local economic growth through investment channels.

#### - Economic model

- Research on using (1) equations.

$$gy_{it} = \beta_0 + \beta_1gKg_{it} + \beta_2gKp_{it} + \beta_3gL_{it} + \beta_4gH_{it} + \varepsilon_{it} \quad (1)$$

Table 3.2. Estimate results

	Estimate method	
	Random effects (REM)	Fixed effects (FEM)
Dependent variable : economic growth – $gy_{it}$		
$gKg_{it}$	+0.0581*** (0.012***)	+0.056*** (0.012***)
$gKp_{it}$	+0.031*** (0.016***)	+0.032*** (0.015***)
$GL_{it}$	+0.2200744*** (0.041***)	+0.185*** (0.043***)
$gH_{it}$	+0.201*** (0.067***)	+0.157*** (0.067***)
constants	+5.012*** 0.703***	+5.582*** 0.725***
R – sq	0.801	0.799

	Estimate method	
	Random effects (REM)	Fixed effects (FEM)
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	Control by robust	chi2 (3) = 6.77 Prob > chi2 = 0.0795
Vif	<3	<3
N	63	63
Prob>F	0.000	0.000
Durbin-Watson	1.4374063	
Hausman test	Prob > chi2 = 0.0735	

*Using the FEM model results, there are some comments as follows:*

+ PI growth has had positive impacts on economic growth. The regression coefficient + 0.056 states that if the growth rate increases by 1%, the GDP growth will increase + 0.056 % with the assumption that other factors are unchanged;

+ The regression coefficient of Gli is + 0.185. This means when other conditions do not change, and labor force adds to 1%, GDP growth will increase plus 0.185%;

+ The regression coefficient of human capital is + 0.157. This implies that when other conditions do not change if the professional qualification of labor force increases by 1%, GDP growth will increase + 0.157%.

+ Constant equals + 5.582 explains that if elements are unchanged, GDP growth is still 5.582%.

### **3.3. Impact of public investment for poverty reduction in Quang Ngai province**

### 3.3.1. Some public investment programs for poverty reduction in Quang Ngai province

- National targeted programs on rural development.
- National targeted programs on sustainable poverty reduction.

### 3.3.2. Estimating public investment for poverty reduction

#### \* Economic model

The study will use the following model to analyze:

$$\text{ratengheo}_{it} = \beta_0 + \beta_1 \text{ratekg}_{it} + \beta_2 h_{it} + \beta_3 \text{popu}_{it} + \varepsilon_{it} \quad (2)$$

The estimate is shown in table 3. 28 and annex 3

*Table 3.3 Estimate Results*

	Model (2) with 3SLS	Model (2A)	Model (2) with OLS
Dependent variable	Ratengheo	ratekg	ratengheo
Ratekg	-0.649*** (0.099)		-0.64*** (0.05)
Hi	-0.374* (0.201)		-0.36** (0.11)
Ratepopu	3.562** (1.684)		3.62* (1.69)
Ratego		0.670*** (0.077)	
Constant	30.337*** (1.498)	21.914*** (0.691)	29.95*** (1.31)
Observations	42	42	42
R-squared	0.9671	0.6436	0.9673

*The results of model estimation (4) with 3SLS have the following remarks:*

Firstly, PI has the effects on poverty reduction, the regression

coefficient is - 0.649 implies that if other factors are unchanged, PI rate for districts compared to the total increase is 1%; poverty rate will reduce 0.649%.

Secondly, human capital - an increase in the proportion of trained labor force in districts will stimulate poverty reduction. The regression coefficient of -0.374 implies that when other factors are constant, the districts' trained labor rate increases by 1%, the poverty rate decreases by 0.374%.

Thirdly, the high percentage of population growth will be accompanied by severe poverty, the regression coefficient + 3.562 states that when other elements are constant, the percentage of population increases by 1%, poverty rate will increase 3.562%.

### ***3.3.3. Poverty reduction in QN***

The proportion of poor households in QN province has steadily decreased. From 2015 to 2017, the new poverty rate fell 4.42% in rural areas and more than 1.5% in urban ones. As a result, Quang Ngai's poverty reduction effort has gained quite good successes. One of the contributions is from public investment.

## **3.4. The impact of public investment on private investment through private investment decisions**

### ***3.4.1. The impacts of public investment on private investment, including:***

(1) Infrastructure; (2) Business environment; (3) Output support and trade promotion; (4) Labour support for enterprises; (5) Start-up support.

### ***3.4.2. Contributions of the private sector to economic growth in Quang Ngai province***

The private sector has made an increasingly important contribution to economic growth in Quang Ngai. GDP of the private

sector in 1995 was about 3,648 billion VND, increased to 8,822 billion VND and more than 21438 billion VND in 2005 and 2016 respectively. The average growth rate for the period 1995-2016 was 8.3%. Private sector ICOR was 3.02, much better than the public sector of 6.85. The proportion of private investment of Quang Ngai economy has increased but still slow, from 39% in 1995 to 47.9% in 2016. This implies that although of the large private investment, it has not been mobilized into the economy. There are many ways to mobilize this source, one of which is to use the PI to create the most favorable conditions for private investors.

### **3.5. The impact of public investment on the scale of growth and economic restructuring in Quang Ngai province**

Generally, the province's economic growth heavily relies on TFP or technology but the capital is still very important. In the structure of investment capital, compared to the total investment capital of the province, the PI always accounts for a high proportion. This shows that PI has a significant impact on the scale of economic growth and economic restructuring in Quang Ngai. Therefore, the PI has been an important factor contributing to the economic growth of the province over a period of more than 20 years and creating a breakthrough in development. One of important results of the PI in Quang Ngai was that Dung Quat Oil Refinery was put into operation in 2009. The GDP growth rate increased from 1995 to 2009, and then maintained stably from 2011. According to 2010 prices, GDP reached 17 trillion in 2008, more than 29 trillion in 2010, and more than 44 trillion in 2016. The economic scale of the province has expanded significantly and made the socio-economic situation better.

Considering the economic structure, the share of the agriculture sector decreased from 51% to 17.9%. During this time,

construction and industry increased from 15.7% to 55.9%, up more than 40%, while services dropped from 33.1% to 26.2%, down by nearly 7%. The above analysis shows that the economy has changed positively; the economic promotion is gradually based on industry - construction growth. In other words, this industry has been growing and playing as the important role of the economy in the province.

## **CHAPTER IV**

### **POLICY IMPLICATIONS**

#### **4.1. Policy implications**

##### ***4.1.1. Improve the policy on effective mobilization, allocation, and use***

Firstly, there must be changes in mobilizing, allocating and using financial capital in accordance with actual conditions.

Secondly, creating favorable environment to promote economic sectors' development, increase sources for development and investment.

Thirdly, the PI allocation in the coming years must ensure the highest effectiveness to promote the socio-economic development.

Fourthly, strengthen the management of investment supervision and evaluation; promote the role of community supervision...

##### ***4.1.2. Promoting the role of public investment to boost economic growth through the investment channel***

Firstly, continue to maintain and increase the positive impact of PI on economic growth in the coming years.

Secondly, restructure of PI should focus on the development of private investment and improving the effectiveness of this resource.

Thirdly, use PI as resources to invest in the highest capital mobilization in the economy.

Fourthly, use PI to increase human capital.



#### ***4.1.3. Promoting the role of public investment to promote private investment***

In terms of PI, general view is to consider PI as bait to mobilize more private investment into the economy. Focus PI on solving problems and barriers to private investments.

#### ***4.1.4. Promoting the role of public investment to promote poverty reduction***

Firstly, when planning the PI policies, we should link them to the sustainable poverty reduction goals.

Secondly, focus on vocational training, training for rural laborers in the remote areas.

Thirdly, continue to maintain and improve the quality of family planning in the province.

### **4.2. The limitations of research and solutions**

#### *The limitations of the dissertation*

Firstly, the research conducted on the economy of a province, so the inheritance of previous studies and solving the problem is not good as expected;

Secondly, the length of time is only about 21 years and the extent of the coverage of the field of research is only three sectors.

Thirdly, the research method compares only the REM and FEM estimation method. We should compare with many other methods.

Fourthly, the content has only mentioned to the main channels including investment channels, private sector promotion, poverty reduction, growth scale, and economic restructuring. Many channels have not been mentioned such as creating jobs, improving living environment, quality of health, education....

Solutions: If further researching, PhD student will:

- Apply many other estimation methods for comparison such

as VAR model or 2SLS two-phase method and equation system such as 3SLS to handle endogenous problems.

- Expanding the research time and scope of secondary field.
- Compare two other estimating methods including Rem and Fem approach, and even many other methods.

### **CONCLUSION**

On the basis of the research results in the chapters of the above dissertation, the conclusions can be drawn as follows:

First, the first goal is to formulate a framework for analyzing the impact of the PI on TFF.

Secondly, the dissertation also assessed the situation of raising, allocating, and using the capital in the province; it shows that the Quang Ngai people have been mobilized on a larger scale; contributing to the formation, improvement, and development of the socio-economic infrastructure. However, the PI is fragmented and ineffective. This is also the basis for confirming that the dissertation has clarified Hypothesis 1 and fulfilled the second objective from the beginning.

Thirdly, the dissertation proved Hypothesis 2 and the second objective were set out from the beginning. The PI has a positive impact on economic concentration through the investment channels; at the same time, it is not overwhelming, but supplements and promotes the role of other resources.

Fourthly, the research has made it clear that Hypothesis 4 and a third set of objectives are set from the beginning. The PI helps improve poverty and poverty reduction.

Fifthly, the dissertation has suggested some policy implications to promote the role of the private sector to the economy. Implications have focused on the more effective use of the PI, especially using this source to improve the effectiveness of poverty reduction.