

**MINISTRY OF EDUCATION AND TRAINING  
THE UNIVERSITY OF DA NANG**

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**PHAN THANG AN**

**STUDY OF RELATION BETWEEN ECONOMIC  
GROWTH AND INEQUALITY IN THE CENTRAL  
VIETNAM KEY ECONOMIC REGION**

**Major: Development economics**

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**Instructor: 1. ASSOC. PROF. DR. BUI QUANG BINH  
2. DR. NINH THI THU THUY**

**Objection 1: assoc.prof.dr. Lê Quốc Hội**

**Objection 2: assoc.prof.dr. Đỗ Ngọc Mỹ**

**Objection 3: assoc.prof.dr. Đào Hữu Hòa**

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## INTRODUCTION

### 1. Urgency of research

Income inequality and economic growth are two associate phenomenon in the process of national development, as well as the important content contribute to sustainable development goal. Many studies both at home and abroad about this relationship have been done. Results are vary depend on economic state, duration and characteristics of the data collected. Research on this topic in the Key central Economic Region (VKTTDTB) is not mentioned, this is the gap the research will exploit. Therefore, a study within VKTTDTB will allow verification of the results were announced, while pointing out the significant of regional factors, and this will be a new contribution to Economic development.

According to the decision of the Prime Minister, VKTTDTB include the following province Danang and Hue, Quang Nam, Quang Ngai, Binh Dinh with the same goal to break through, to create a driving force of economic development – within region and country, create opportunity to raise the standard of living of the entire population and rapidly achieve social justice in the country. Since VKTTDTB been established, in my ability to research, have not seen any research to assess the relationship between economic growth and income inequality which was illustrated in interactions model, to be the base for policy recommendations related to economic growth and social welfare in VKTTDTB.

That is the reason for choosing the topic "Study the relationship between economic growth and inequality in the key central economic zone " research thesis.

### 2. Objectives of the study

Theoretical framework and methods of assessment; analyses

the state of economic development and income inequality, examine the interaction between economic growth and income inequality at VKTTDTB; Recommend some major implications.

### **3. Scope of research**

Content focused on the relationship between economic growth and income inequality. In geography and time aspect, there are 5 provinces and cities in VKTTDTB between 2000 to 2013.

### **4. Research Methodology**

This study used a combination of both quantitative and qualitative approach.

### **5. The scientific significance of the thesis**

#### ***5.1. Contribution to literature and academic:***

Firstly, the results of this study within VKTTDTB will allow verification of the result in previous literature, while pointing out the significant of specific factors will be the new contributions of the thesis.

Secondly, strengthen the theory of a causal relationship between economic growth and income inequality.

Thirdly, enrich the research results, contributing to increase scientific knowledge in this research field.

Fourthly, this is one of the few studies in Vietnam quantifiable interaction relationship of income inequality and economic growth.

#### ***5.2. Contributions to practical***

Firstly, the thorough idea of the thesis is provide comprehensive perspective and correct understanding of the relationship between economic growth and inequality of incomes in development.

Secondly, assess the situation of inequality in income distribution and economic growth in VKTTDTB with some success but there are still few shortcomings.

Thirdly, the warning needs to improve social policies to maintain a reasonable level.

Fourthly, confirmed the need to develop mechanisms and policies to create conditions to attract talent, develop good business, and favorable condition for entrepreneurs to make legitimate wealth.

Fifthly, focus on medical, education and training to address the relationship between income inequality and economic growth.

Sixthly, the policy implications will also be the suggestion to local policy maker in VKTTDTB.

Seventhly, the results of the thesis will be the reference for students, graduate students, and post graduate students in economics major.

## **6. Structural of the thesis**

Besides the introduction, conclusion, references and appendices, the thesis is structured with 05 chapters.

Chapter 1: Conceptual framework research.

Chapter 2: Research Methodology.

Chapter 3: The situation of economic growth and income inequality in the key economic region of Central Vietnam.

Chapter 4: Analysis of the relationship between economic growth and income inequality in the key economic region of Central Vietnam.

Chapter 5: Discussion and policy implications.

## **CHAPTER 1**

### **THEORY FRAMEWORK**

#### **1.1. Literature on economic growth and income inequality**

##### ***1.1.1. Literature on economic growth***

There are many studies have discussed the concept of economic growth both foreign and locally, when it comes to economic growth there are generally three important issues being touched: *economic growth trend, shifting economic structures, the*

*production factors to create economic growth.*

### ***1.1.2. Literature of inequality and income inequality***

There are many definition of inequality, they are very broad, often exists in different countries due to vary of reasons .However , research focused on three major issues to be considered are the roots of inequality: the opportunities in life, social status, political influence. This 3 major problems are both related or create inequality of income and income inequality has been seen as important cause of the problem of social inequality in general. Income inequality is both the cause and a result of other forms of inequality. Therefore, when analyzing the issues inequality, the scope of this project is limited to studies in income inequality.

## **1.2. Literature review study on the relationship between economic growth and income inequality**

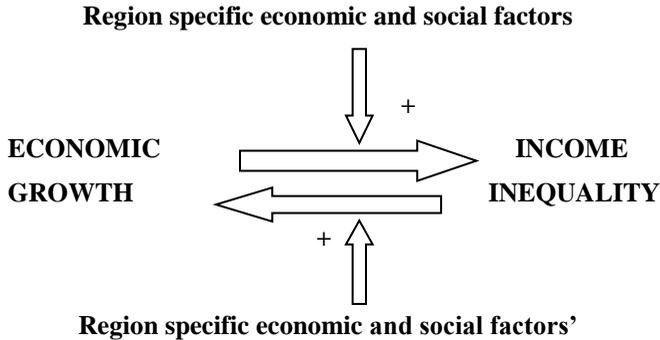
Review of foreign and Vietnam reseach on the impact of economic growth to income inequality and vice versa showed that there are indeed a relationship between growth and income inequality; of income growth have initial positive impact to inequality and gradually diminish in the development process; when using fix and random effect model the result show a positive impact. However, several other studies that have negative impact on income inequality from economic growth .There's also a small number of studies presented ambiguous results. From a review of the research, the thesis has summarized the results of research on the relationship between economic growth and income inequality and literature on the matter in table 1.1, 1.2 and 1.3.

## **1.3. Hypotheses**

Hypothesis 1: Economic growth increases income inequality in Key Economic Region of Central Vietnam. Hypothesis 2:

Inequality of income has a positive impact on economic growth in the Key Economic Region of Central Vietnam.

#### 1.4. Economic growth and income inequality relationship model



## CHAPTER 2

### RESEARCH METHOD

#### 2.1. Research method

##### *2.1.1. Qualitative research method*

Inherited method: Summary of the study the same subject and consider the conditions to be able to apply to the research, are used to analyze the content as economic growth, income inequality and relationships between them.

Depth interview method: A method of collecting and processing the assessment, forecasting, information gathered through and consult with experts in field of study to answer survey question. This is a common approach to deal with qualitative information.

##### *2.1.2. Quantitative method*

###### *2.1.2.1. Statistical analysis method*

###### *a. Economic growth analysis method*

###### **- Growth trends analysis**

*The economic growth trend analyzing method:* Comparison of

GDP, GNP of the economy by the method of chain weighted or fixed price based period with the scale, speed and rate of economic growth.

*Analytical methods and evaluate the shift in Economic structure:* rate economic shift according to the shifting level or % contribution of the sectors growth to economic growth. This ratio reflects the natural structure of the economy and impact of structural shift on economic growth.

*Analytical methods of production factors create growth:* analysis and evaluation the role of capital, labor and TFP.

***b. Analysis method of income inequality***

When research income inequality, studies often use the basic spending variable such as GINI coefficient and the wealth gap.

*2.1.2.2. Econometrics method*

Methods of analysis and evaluation impact of economic growth to income inequality: from inheritance from methodology of Kuznets (1955) and provide some further development, this thesis has synthesized option and choose the variable to examines the impact of economic growth on income inequality of the world and Vietnam economic which are illustrated in Table 2.2. The author then use the following model :

$$\ln \text{ini}_{i,t} = \beta_0 + \beta_1 \ln \text{pergdp}_{i,t-1} + \beta_i Z_{i,t} + u_{i,t} \quad (30).$$

Where:

$\ln \text{ini}_{i,t}$ : present the income inequality;

$\ln \text{pergdp}_{i,t-1}$ : present economic growth (pergdp capita income or GDP / person);

Z: is a variable representing the socio-economic specific characteristics of the region (VKTTĐTĐTB).

Transformation of data to logarithm is to reduce the variability between observations in the data space, in order to avoid

violating the assumptions of the model.

*Methods of analysis and evaluation of the impact of income inequality to economic growth:* The thesis has select the follow variable in table 2.4. From there, the author select the model to analyse :

$$\text{Ingdp}_{it} = \beta_0 + \beta_1 \text{lnkcgngheo}_{it-1} + \beta_i Z_{it} + u_i, \quad (39)$$

where

$\text{Ingdp}_{it}$ : Economic growth variable

$\text{lnkcgngheo}_{it-1}$ : Income inequality variable

Z: Region specific factors

Transformation of the model to logarithm is to reduce the volatility of the data set and avoid the violation of model assumption.

## **2.2 . Method of collecting data**

**2.2.1. Primary data collection:** Survey of expert in the field

**2.2.2. Secondary data collection:** The data source is annually report of Province statistical office during the period (2000-2013).

## **CHAPTER 3**

### **CURRENT STATE OF ECONOMIC GROWTH AND INCOME INEQUALITY**

#### **3.1. General introduction of natural condition, economic and social of the Key Economic Region of Central Vietnam**

VKTTDTB was established under the approval decision of the Prime Minister No. 1018/1997/ QD - TTg dated 11/29/1997, including Da Nang city and Thua Thien - Hue, Quang Nam, Quang Ngai. Then, the size of the area to be extended Binh Dinh province in Decision No. 148/2004/ QD - TTg dated 13/08/2004 of Prime Minister . From the current state of economic development , local economic development, summation of the census of population and housing survey data and

household living standards in Vietnam, labor and employment survey in Vietnam South, research has selected some elements of social and economic characteristics of VKTTDTB, and this is the basis for selection of specific variables for analysis in chapter 4.

### **3.2. The status of economic growth in VKTTDTB**

#### ***3.2.1. Growth trends***

Overall, economic growth trends of each province and city in VKTTDTB is (i) positive: up is steep and quite stable; (ii) short coming: the economic growth of the region and the provinces has slowed, the growth momentum is weakening and a new boost is needed to the economy's momentum.

#### ***3.2.2. Economic structural shift***

The study results showed economic shift towards industrialization of the area has yet to boost productivity and labor exploitation potential here for economic growth. The services sector is a key driver for economic growth, the industry is taking steps to confirm its role but this is not a strong driving force, the proportion of the growth of value added in agriculture is very low and thus increased income of agricultural workers is also quite low. Private economic sector increase role in the economy but remains limited, fail to reach its potential. State economy still contribute significantly to overall growth.

#### ***3.2.3. The factors of economics growth***

##### ***a. Capital***

Total amount of investment in the VKTTDTB is quite significant, increase from 8786,6 billions in 2000 to 78548 billions in 2013. The average annually increasing of 14,8%. The ICOR coefficient have increasing trend during 2000-2010 and decrease during 2011-2013 and fell below average of Vietnam.

### ***b. Labor***

The study results also showed: (i ) Percentage of labor mobilization in the economy is high; Labour productivity ( labor productivity ) growth considerable and made great contributions to economic growth; ( Ii ) the region's labor potential is quite large; There are differences in labor productivity among the provinces.

### ***c. Total factor productivity - TFP***

TFP 's value in VKTTDTB generally have upward trend over time, this implies that this region has an interest in improving the institution, competent management and improve technology in business. TFP contribution to the whole region growth is 42,3% .

### **3.3. State of Income Inequality**

The average personal income from 2001 to 2013 has increased by about 9.3 times. General income trends of the region and of the groups increased, but the second slowest rise slowest and richest groups have higher than average growth. This is why the gap between rich and poor has increased steadily during this period. The trend of GINI coefficient increased gradually over the years in VKTTDTB and provinces have implied that income inequality has consistently increased, though levels differ. Provincial poverty rate fell dramatically, but the rate of decline has slowed down and is still higher than the national average, and poverty reduction is increasingly difficult.

## **CHAPTER 4**

### **ANALYSE THE RELATIONSHIP BETWEEN ECONOMIC GROWTH AND INCOME INEQUALITY IN THE KEY ECONOMIC REGION OF CENTRAL VIETNAM**

This chapter will focus on analyzing the relationship between economic growth and income inequality in VKTTDTB. The analysis

will combine qualitative analysis and quantitative in order to clarify the hypothesis raised. The analysis here is based on the following assumptions: (i) The economy here is still operations normally under the process of industrialization and modernization and international economic integration of Vietnam with no major shocks; (Ii) the macroeconomic environment improved gradually over the course of administrative reform in Vietnam; (Iii) the size of the working population is maintained in the process of movement of capital with no large mechanical changes; (Iv) natural environmental do not suffer from significant shock; (V) The study time interval is only in the short term; (Vi) statistical data collected by local statistical office will ensure reliability for research.

#### **4.1. Impact study of economic growth to income inequality in VKTTĐTĐTB**

##### ***4.1.1. Qualitative analysis***

###### ***a. Domestic and foreign research result***

Previous research results have shown that the impact of growth to inequality in income is positive in the early stages of development. The study also examined the impact of growth to income inequality with social and economic factors such as the development of health systems, human capital factors or poverty, the openness of the economy or the economic and others social policies.

###### ***b. Analyses depth survey result***

The expert opinions have affirmed the economy grew continuously over the years. Up to 73% of respondents confirmed existence situation of income inequality in recent years and the situation is quite serious. Up to 70% of the opinion that economic growth makes income inequality increased. This idea also implies that economic growth positively impact income inequality in VKTTĐTĐTB.

Up to 67% of experts believe that high economic growth in recent years has created opportunities for rich people, but also create more poor people

#### 4.1.2. Quantitative Analysis

##### a. Statistical analysis

From the data over the years, the author has reviewed the relationship between economic growth and the other specific factors socioeconomic to inequality by graph.

##### b. Interaction estimation

*Table 4.1. Estimation result*

Variable	obs	Mean	Std. Dev.	Min	Max
lnGINI	65	-11.34278	.4851005	-12.4753	-10.3938
gbsods	65	2.286423	.436445	1.33535	3.39317
tylengheo	65	19.74	5.848092	8.7	30.3
lnpergdp2000	65	1.385484	.4557036	.60081	2.3319
giahoa	65	40.13015	2.072575	37.01	44.96

(Source: Estimate from data of the local statistical office)

Table 4.1 presents some basic statistics about the variables in the model. Take Survey graph of the independent variables of the model estimates, the distribution has a distribution form close to normal distribution, mean values represent the majority and able to be used as independent variables.

##### Estimation model

$$\ln \text{GINI}_{it} = \beta_0 + \beta_1 \ln \text{pergdp}_{it-1} + \beta_2 \text{gbsods}_{it} + \beta_3 \text{giahoa}_{it} + \beta_4 \text{tylengheo}_{it} + u_{i,t} \quad (40)$$

##### Method of estimation

The model used the fix effect and random effect estimation method.

**Table 4.3. Estimation result**

	<b>Method</b>	
	Random effects (REM)	Fixed effects (FEM)
Endogenous lngini		
Inpergdp2000	+0,4583808* (0,1875494)	+0,4427293** (0,1228178)
GBsoDS	-0,2263227*** ( 0,0616452)	-0,1954394** (0,0547561)
Tylengheo	-0,0210468* ( 0,0120497)	-0,0278591* (0,0116567)
Giahoa	+0,0516782** (0,0166228)	+0,0593344** (0,017271)
vertical axis parent	-13,11878*** 0,7669031	-13,34048*** (0,8034035)
R- sq	0,8828	0,8817
Breusch-Pagan/ Weisberg test for heteroskedasticity	Cook- test for Adjusted by robust	Prob>chi2 = 0,9320
vif	<10	<10
Durbin-Watson	1,1870981	1,1870981
Serial correlation: Wooldridge test for autocorrelation in panel data	Prob > F = 0,0293	
N	65	65
Prob>F	0,0000	0,0000
Hausman test	Prob>chi2 = 0,0000	

Note: \*, \*\*, \*\*\* is significant level of 10%, 5% and 1%

Random effect and fix effect model both have significant level at under 5%.

First, through the analysis after  $P(P) = 0,000 < 0,05$  should be able to assert a relationship exists between the variables and assumptions acceptable regression coefficients of other variables. I.e. pattern matching.

Second, the t-test with results in the Coefficients, all value

Sig.= P(t) corresponding to the variables are statistically significant at the 0,05 level.

Third, testing Breusch - Pagan has  $\text{Prob} > \chi^2 > 0,05$  allows the conclusions that nonexistent of heterogeneous variance in FEM and has been adjusted with REM.

Fourth, the VIF value associated with the explanatory variables (independent variables) are less than 10 indicate that multicollinearity phenomenon does not exist.

Fifth, Durbin-Watson coefficients are in the range of 1 to 3 shows no autocorrelation .

Sixth, the correlation coefficient of 0,88, said the change in income inequality of GINI is explained from the impact of growth and socio-economic factors at more than 88%.

Sevently, the inspection results as shown in Table 4.3 Hausman test suggests that using FEM result of better methods.

Eighth, serial correlation test have result of  $\text{Prob} > F = 0,0293$  means that the model does not have serial correlation.

The two results have similar coefficient value and same sign, the only difference is the standard deviation.

Thus economic growth to the positive impact of income inequality as the result of qualitative research has shown. The regression coefficient is +0,4427293 mean if GDP per capita up 1%, the GINI income inequality will increase 0,442%, assuming other factors remain unchanged.

These results seem broadly consistent with the results of qualitative analysis above. It can be concluded that economic growth had a positive impact to income inequality here.

## **4.2. Analyses impact of income inequality to economic growth in VKTTDTB**

### ***4.2.1. Qualitative analysis***

#### ***a. DoImestic and foreign result***

Look at the impact of income inequality to economic growth have various results from different studies.

### ***b. Analyses depth interview result***

Experts have affirmed the growth in their local economy, but the state of income inequality is exist at a high level, the income inequality has positive effect to increase economic growth, poverty gap is huge but it entails many rich people to contribute to economic growth. 60% of the view suggested that the rich will contribute to economic growth and job creation.

#### ***4.2.2. Quantitative analysis***

##### ***a. Statistical analysis***

Processing data from the Statistical Yearbook of the provinces VKTTDTB and data Survey of Household Living Vietnam and expressed as a graph to see the trend of changing relationship between income inequality through gap index income and others elements of socio-economic characteristics with GDP growth - lnGDP.

##### ***b. Interaction estimation***

The assumptions for the analysis stated at the beginning of chapter 4. The next section will introduce each content of the estimated results. From secondary data collected can form descriptive statistics table as below.

### **4.6. Statistical descriptive table of variable**

```
. sum lngdp lnkcgngho tdcnrv tysuatxuatcu v1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
lngdp	65	8.694801	.4778436	7.783406	9.582983
lnkcgngho	65	1.771083	.0759489	1.625069	1.928213
tdcnrv	65	-.887767	.2298848	-.4225	1.32
tysuatxuatcu	65	-7.899869	1.81032	-11.9	-5.1
v1	65	49.80292	5.425513	40.27	58.3

(Source: Estimate data from province statistical office )

Basic statistics of other variables used in the model are shown in Table 4.6. With linear regression model, the probability distribution of the random error is the probability distribution of independent

variables, so random error is normally distributed and dependent variable must be normal distribution. So we will conduct surveys graph of the variables used as independent variables in the model analysis.

### Estimation method and model

$$\text{Inrgdp}_{it} = \beta_0 + \beta_1 \text{lnkcgngheo}_{it-1} + \beta_2 \text{tdcmnv}_{it} + \beta_3 \text{tysuatxuatcu}_{it} + \beta_4 \text{VL}_{it} + u_{i,t} \quad (41)$$

### Estimation result

We use both fix effect and random effect in estimate the model.

**Table 4.8. Estimation result ( Inpergdp is dependent variable)**

	Method	
	Random effects (REM)	Fixed effects (FEM)
Dependent var lnrgdp		
lnkcgngheo	+1,384478** (0,5652227)	+1,146857** (0,3353408)
tdcmnv	+0,4109874*** (0,1032015)	+0,6581259** (0,1186717)
tysuatxuatcu	-0,0289083*** ( 0,0062173)	-0,0334418* (0,0156964)
VL	+0,0438201*** (0,0078907)	+0,0324603** (0,0094097)
Constant value	+3,467172*** (0,7214664)	+ 4,198554** (0,4171756)
R- sq	0,9559	0,9531
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	Adjusted by robust	Adjusted by robust
vif	<10	<10
Durbin-Watson	1,3000671	1,3000671
N	65	65
Serial correlation: Wooldridge test for autocorrelation in panel data	Prob > F = 0,0117	
Prob>F	0,0000	0,0000
Hausman test	Prob>chi2 = 0,0000	

(Source: Estimate data from province statistical office )

Random effect and fix effect model both have significant level at under 5%.

First, through the analysis after  $P(P) = 0,000 < 0,05$  should be able to assert a relationship exists between the variables and assumptions acceptable regression coefficients of other variables. I.e. pattern matching.

Second, the t-test with results in the Coefficients, all value Sig.= P(t) corresponding to the variables are statistically significant at the 0,05 level.

Third, testing Breusch - Pagan has  $\text{Prob} > \chi^2 < 0,05$  lead to the justification for both method

Fourth, the VIF value associated with the explanatory variables (independent variables) are less than 10 indicate that multicollinearity phenomenon does not exist.

Fifth, Durbin-Watson coefficients are in the range of 1 to 3 shows no autocorrelation .

Sixth, the correlation coefficient of 0,95, said the change in economic growth being explain by change in income inequality and socio-economic factors at more at 95%

Seventh, the inspection results as shown in Table 4.8 Hausman test suggests that using FEM result of better methods.

Eighth, serial correlation test have result of  $\text{Prob} > F = 0,0293$  means that the model does not have serial correlation.

Such income inequality has positive effects on economic growth as the result of qualitative research has shown. The regression coefficient is +1,146857 said if the income gap increased 1%, GDP would increase by 1,14%, assuming other factors remain unchanged.

These results seem broadly consistent with the results of qualitative analysis above. It can be concluded that income inequality

has a positive impact on economic growth here.

### **4.3. Shortcoming of the estimation model**

Number of observations is small, lack of times, only able to exam short-term results. The research was also not able to identify the long-term impact of economic growth to income inequality by other methods eg colinearity method. Also cross section-correlation phenomena in individual units in the same period has not been considered.

## **CHAPTER 5**

### **DISCUSSION AND POLICY IMPLICATION**

#### **5.1. Result discussion**

##### ***5.1.1. Economic growth***

In the period from 2000-2013, the economy of VKTTDTB and individual provinces here has experienced fairly rapid growth and stability, somewhat better than the Central and Central Highlands in general. The process of economic restructuring in the right direction has been creating new momentum for economic growth. In this economy, industry, services and the private sector is becoming the main driving force for growth here. VKTTDTB has exploited the resources for development, especially the capital, land, labor and institutions. Besides these successes, there remain many problems that economies need to be addressed. They are: *growth trend of the economy has slowed down signs; the dynamics of growth is weakening and should have a new boost to the dynamics of the economy; Economic restructuring has yet to boost productivity and underutilize labor potential, not promote the development of rural areas; The imprint of the growth economy based on width factors quite clear and not allow the creation of a new accelerator for the economy. The region*

*could not take advantage of the opportunities offered by economic institutional reform in Vietnam and the integration process of Vietnam.*

### **5.1.2. Income Inequality**

Status of income inequality in the region and the provinces here have increased continuously from 2001 to 2013, and the gap of income inequality tend to widening according to the growth process. Income inequality increased with the economic growth process and can be seen. While the wealth gap has stretched but the income and living standards in all group have increased and improved. Income structure has made positive changes in the wage rate and salaries from non-agricultural sector increased. The actual income of the rich is growing much stronger than the poor and spending as well as the structure of their spending is higher and have much better quality. *Poor people have lower accumulation capacity and lower spending on health and education, that is, the ability to invest for the physical and human capital of their future income is low and limited.* It looks like income inequality is shown that market economy and international integration are enabling people with talent, skilled grasp the opportunity to invest to increase wealth. Many of them have contributed to the growth and job creation. But besides that it also contribute to form poor group for many reasons. That's the duality of any income inequality.

### **5.1.3. Interaction between economic growth and income inequality**

#### **a. Impact of economic growth to inequality**

Economic growth has a positive impact to income inequality. The regression coefficient is +0.44 said if per capita income increased by 1%, will increase GINI by 0.44% assuming other factors remain constant. This result also shows that these factors have a strong impact level. Regarding the impact of this trend in the short term is similar to

the research results on the World in the short-term .We could see economic growth in the central key economic region are making slightly increasing in income inequality over the years. This also shows that Vietnam's policies on society have contributed to effective inhibition of the growth impact to income inequality. Going along with economic growth, the economic and social factors also have different levels of impact to income inequality, but the extent is not strong compared to the impact from economic growth.

***b. Impact of income inequality to economic growth***

Income inequality - through wealth gap variable has positive effects on economic growth. Regression coefficient of this variable is +1.15 said if the income gap increased by 1%, the GDP increase by 1.15%, assuming other factors remain unchanged. This finding coincides with the results of other studies in Vietnam but larger extent in the use of short-term data. This result also shows that income inequality in VKTTDTB is still in an acceptable threshold. At the same time income inequality here is stimulating people to enrich themselves. Entrepreneurs are the rich people will directly contribute to growth and create more jobs for the labor income. This does not mean that there is no need for improvement of the income inequality. Because when this condition exceeds acceptable threshold, the impact of "bad" will overwhelm positive effects as it will impact negatively on economic growth.

***c. Discussion of causality between economic growth and income inequality***

The results from Section 4.1.2 and Section 4.2.2 showed that interaction exists between economic growth and income inequality or exists a causal relationship between them. This finding coincides with the previous results in Vietnam. The use of statistics is limit to 13 years

and should only be able to conclude a causal relationship between economic growth and income inequality in VKTTDTB in the short term. The implication that the results of the study are only useful for policy makers in the short term and the tend to expand this approach in the long term. And also in order to maintain long-term sustainability of the policies, there are need to integrate growth with social policy.

## **5.2. Policy implication**

Firstly, (i) Retrieve and maintain the momentum of economic growth of about 8% per year, depending on province capacity. For Economic growth in VKTTDTB to really become a driving force for the development of the central region and the Highlands, (Ii) Implementation of close links and a reasonable allocation of labor among the provinces in the region to create mutually supportive rather than competitive. (Iii) Adjust the way in the direction of growth shifted from mainly promoting increased economic output by the width to increase production right between the width and depth, expand capacity and focus on improve the quality, efficiency and sustainability. (Iv) should pay more attention to the distribution policy from guarantee production factors to surge employment income growth for sustainable poverty reduction.

Secondly, (i) the trend of income inequality increases with growth in the short term which are often in the early stages of the process of industrialization of the economy, this is an objective fact to be aware and not avoid. We should avoid ideological fear rising income inequality that restricts economic growth, constraining its ability to enrich people's legitimate business especially. (Ii) In the context of the provinces in VKTTDTB there is call for appropriate economic policies to further stimulate economic growth in order to maintain and increase the income of all population groups. (Iii) The

provinces in VKTTDTB need social policies better suited not only to ensure the redistribution of better income but also to improve life and bring more opportunities to the poor to enjoy quality social services , in particular to health services, education and social security. (Iv) The need in VKTTDTB provincial coordination and link economic and social policies to ensure high growth in all provinces.

Thirdly, income inequality increased rapidly in recent years. The rise of this phenomenon impact economic growth and this also coincides with the results of other studies in the world and in Vietnam. Therefore, there is need to recognize the right explanation of the duality of this phenomenon. On the one hand it makes the income gap between populations group become higher, between the rich and poor widens. On the other hand it creates the ability to accumulate capital for those with conditions and the ability of highly qualified in all aspects and seize business opportunities to generate their own income and contribute greatly in tax aspect of the economy.

Fourthly, the need to adopt policies and measures to improve health services in the provinces of VKTTDTB towards developing a service sector of the economy to ensure the provision of high quality services and create more value added, since then contributed to the growth and provides assurance services for disadvantaged groups and the poor.

Fifth, create conditions for development of education and training systems in the direction of improving the efficiency and performance of the system to accelerate the process of human capital accumulation for the area. Focus on vocational training for laborers, especially rural workers and youth to increase the rate of trained workers.

Sixth, to adjust poverty reduction strategies towards more sustainable, enabling the poor to access resources and improve

business production, decreasing subsidies and patronage. There should be special policies for rural areas, remote areas, ethnic minority areas of the provinces.

Seventh, elderly care especially in rural, remote areas. In the context of the phenomenon of accelerated aging population, a good law for elderly in society, simultaneously with improving social welfare policies.

Eighthly, to accelerate the process of improvement of social security policies in response to actual requirements in Vietnam. This policy should complete in a comprehensive manner with all other parts of the social safety network.

### **5.3. Shortcoming of the research and solution**

Firstly, economic growth is a major content in economic development and that it can be studied in many different aspects. This study focuses on clarifying the trend growth, economic structural change creates growth, ways to generate growth from production factors and refers to solving social problems associated with growth. Some of the content has not been mentioned. Second, the relationship between economic growth and income inequality are comprehensive even though research has been studied . This study is difficult to include all the province specific factors in the research process. In addition, the capacity of a author in the process of newly "learning" research method to solving difficult problems have been a factor. Third, In this study, data were collected from various sources such as statistical yearbooks of VKTTDTB provinces, the General Statistics Office, even they have the same criteria, but the extent is difficult to ensure uniformity. Research period of 13 years is not long enough to consider the impact of the trend of economic growth to income inequality in the long term, and vice versa. Fourthly, the estimation

method is made above also have some short coming. That is: the number of observations is small, short period of time, only short-term results; it is not able to identify the long-term impact of economic growth to income inequality by other methods eg colinearity method; Also cross section-correlation phenomena in individual variable in the same period has not been considered.

## **CONCLUSION**

From the research results we can draw the following conclusions:

First; the theoretical framework of the thesis was to clarify the literature of economic growth and income inequality and the general review the domestic and international research on this relationship. The research results have shown that economic growth and income inequality have relationships with each other and depending on the context and level of development of the national economy, a study of this relationship in a specific economic have not been done before in Vietnam. However, we can apply the research results in studies linked to specific characteristic of the region.

Secondly; To prove the assumptions and achieve the objectives of the research, the thesis has combined several different methods, including qualitative and quantitative analysis from many different data sources.

Thirdly; In the period 2000 -2013, the economy grew rapidly in VKTTDTB, stability, economic restructuring positively. The fruits of economic growth have helped improve the lives of people constantly. However along with this process income inequality status in VKTTDTB and belonging provinces have increased continuously, the gap of income inequality tend to be widening over time. Going along with that process is that many social and economic issues that arise such

as mass demographic shift, aging population, low labor skills and lack of jobs, the weakness of the medical service providers system.

Forthly; research results have permit to ascertain in the period from 2000- 2013, economic growth in VKTTDTB positive impact income inequality here. Along with that, the specific factors VKTTDTB tend to affect income inequality differently: improving health conditions will have an impact in reduce income inequality, poverty status has negative impact, but the aging population increases the impact of income inequality.

Fifthly; Also in the period 2000-2013, in the opposite direction, the analysis showed increased income inequality in recent years has impacted positively or promote economic growth in VKTTDTB. In addition, specific factors also have an impact VKTTDTB economic growth such as the professional qualifications of workers has a positive effect to economic growth; immigration status have a negative impact on economic growth and the employment situation had a positive impact on economic growth here.

Sixthly; confirming the relationship between economic growth and income inequality in VKTTDTB is causal relationship. However, the conclusion of this relationship is only in short-term nature.

Seventhly; with these characteristics of VKTTDTB in the coming years, to achieve fast economic growth, stability and limiting income inequality the policy makers need to implement policies to economic and social contract synchronously and efficiently.

## REFERENCE

1. Le Van Dinh, Phan Thang An (eds) (2015), *a number of solutions for sustainable development key economic region of Central Vietnam*, political theory publisher company.
2. Phan Thang An (2015), "Economic growth in the key economic region of Central Vietnam", *Journal of Science and Technology, University of Da Nang*, No. 04 (89) .2015.
3. Phan Thang An (2015), "Income Inequality in key economic zone central Vietnam", *Journal of Theoretical Activities, Political Academy Region III Danang* , No. 4 (131) / 2015.
4. Phan Thang An (2015), "The impact of economic growth to income inequality (BBD) Key Economic Region Central Vietnam", *Journal of Science and Technology, University of Da Nang*, No. 08 (93) .2015.
5. Phan Thang An (2013), "Solution to Daklak free migration", *Journal of Science and Technology, University of Da Nang*, No. 04 (65) .2013.