

THE IMPACT OF EXPORT ON ECONOMIC GROWTH OF KHANH HOA PROVINCE

Nguyen Thi Hai Anh

anhnth@ntu.edu.vn

Faculty of Economics, Developing Economics Studies, Nha Trang University

Abstract

The objective of the paper is to examine the effect of exports on the economic growth of Khanh Hoa province. The study used table data with secondary sources and applied regression estimation method of table data and 3SLS-GMM. The results show that exports have a positive effect on growth and spillover effects on other economic sectors. Along with that, capital and labor also have positive effects on economic growth.

Keywords: *Export; Economic growth; Khanh Hoa; 3SLS; FEM.*

1. Introduction

Theoretical basis of the study

The theories underpin quite a bit of research. According to the historical course and according to the different approach the role of exports in growth is considered. Classical Economic Theory adopts relative and relative snow advantage across economies to consider export advantage to promote economic growth. The endogenous growth theory holds that the diffusion of knowledge gained from trade in goods and the ability to imitate the products of foreign manufacturers are the driving force behind endogenous growth. Kaldor's Theory of Export-Based Growth: Kaldor (1970) developed an export-driven growth model built on the concept of capital accumulation, taking into account the fact that exports are the main ingredient. of the bridge. This model emphasizes the role of foreign demand growth in stimulating domestic output growth. Taylor's open structure theory holds that an open economic structure encourages international trade to promote efficiency and growth in output. The new economic theory of trade by Paul Krugman (1979) shows that the competitive advantage in international trade is due to industries that allow the efficient exploitation of traditional factors, while at the same time production specialization is required. depth is based on economies of scale. This drives the increase in the export size of that economy and the expansion of the economy.

On the basis of these theories, many empirical studies on the effects of exports have been carried out. The results of the studies have shown evidence of the role of exports in economic growth. Some of the studies are as follows:

Abou-Stait (2005) tested the export-based economic growth hypothesis also by applying

the technique of co-ordination and test-causality to Egypt (1977-2003). The results support the hypothesis that exports, imports and GDP do not coalesce, and that exports are causally related to GDP growth. Moreover, the results also show that exports of goods remain an important source of economic growth and that export shocks lead to a significant response in GDP, which also gives confidence in the growth hypothesis, export-based growth.

Aurangzeb (2006) studied the relationship between economic growth and exports in Pakistan based on the analytical framework developed by (Feder, 1982). The author has tested the applications of hypotheses of increased economic growth due to expanded exports using the time series from 1973 to 2005. Research results show that the export industry has potential. Marginal social margins are significantly higher. Hence this study concludes that an export oriented policy and an expansion of international trade are necessary to promote economic growth in Pakistan.

He and Zhang (2010) studied the impact between international trade and domestic supply and demand of the Chinese economy by the input-output (I-O) method. The study also analyzed provincial-level data to examine the causal relationship between the growth of international trade with factors of aggregate demand, and with aggregate factor productivity. The results show that the contribution of exports to the country's economic growth is mainly due to the effect of exports on the growth of aggregate factor productivity in a supply-side approach.

Mishra (2011) examines the relationship between India's exports and economic growth during the period 1970-2009. This result confirms the existence of a long-term equilibrium relationship between India's exports and economic growth. Sahni and Atri (2012) also used time series data from 1980 to 2009 to examine India's export-based growth hypothesis. Research using tissue methods structure to estimate the relationship between gross national product, total export value, processed product exports and investment through a system of 6 equations. The results of the study confirm that the country's growth is export-based. In addition, the results also reveal that investment is not a transmission channel for exports that positively affects economic growth, but that investment has an independent impact on economic growth.

Phan Minh Ngoc et al (2003) conducted a study on the relationship between exports and growth in the case of Vietnam. This study analyzes statistics on exports and GDP of Vietnam during the period 1975-2001. The results show that, despite the fact that the export sector has grown significantly in recent years, there is no reliable econometric basis to confirm that exports are the engine of growth in Vietnam. South as is the case in other Southeast Asian countries. The conclusion of this study may be influenced by the quality of data when the two different periods of the Vietnamese economy are merged. That is before and after the renovation.

Research by Phan The Cong (2011) goes and directly assesses the impact of exports

on Vietnam's economic growth. In this study, the author uses the models Feder (1983), Balassa (1978), Granger (1969) and the modified models for the period 1996-2006 with provincial data in Vietnam. The results of the study are a confirmation of the theory of economic growth based on export; At the same time, export plays an important role not only accelerating the economic growth of the country, but also contributing positively to the development of non-export factors (such as infrastructure, electricity, water, processed food ...) of the economy.

2. Method

2.1. Analytical methods

The study uses many different methods:

Econometric model

Based on the equation of national income account of Mankiw (2013), it can be considered that the economy includes the domestic production sector and the export production sector, referred to as the domestic sector (D) and export region (EX). Output in each sector depends on the volume of factors of production such as capital (K) and labor (L). The part of export volume used in the multiplier model stimulates growth (Bui Quang Binh (2012)). In addition, this portion of exports can also create a positive externality for other areas of the economy through the ability to develop effective international competitiveness, use of advanced technology, and training. high quality human resources or development of supporting industries. On the basis of the national income account equation of Mankiw (2013) and the production function model, Bui Quang Binh (2012) built a model to consider the impact of exports on growth when this factor is included into the model as input. Whereby:

$$\text{Domestic sector: } D = D(KD, LD, EX) \quad (1)$$

$$\text{Export sector: } EX = X(KEX, LEX) \quad (2)$$

In which D, EX is the output, KD, KEX, LD, LEX are capital inputs (production capital) and labor are used to produce goods and services.

The total amount of capital for production and labor in the economy is:

$$K = KD + KEX \quad (3)$$

$$L = LD + LEX \quad (4)$$

The output of the economy (Y) is equal to the total output of both regions:

$$Y = D + EX \Rightarrow \Delta Y = \Delta D + \Delta EX \quad (5)$$

The productivity of the inputs is its marginal product. So the productivity of the region in the country: $DK = MPKD = \Delta D / \Delta KD$ (6); $DL = MPLD = \Delta D / \Delta LD$ (7). Productivity of the export region: $EK = MPKEX = \Delta EX / \Delta KEX$ (8); $EL = MPLEX = \Delta EX / \Delta LEX$ (9)

Productivity in these two areas is different and equal to δ

$$\text{Or} \quad \text{EXK/DK} = \text{EXL/DL} = 1 + \delta \quad (10)$$

When $\delta > 0$ implies that the exporting sector has a higher input yield than the other region and $\delta < 0$ otherwise.

$$\text{From (1) we have} \quad \Delta D = \text{DK}\Delta\text{KD} + \text{DL}\Delta\text{LD} + \text{DX}\Delta\text{EX} \quad (11)$$

$$\text{From (2) when we get the differential we have} \quad \Delta\text{EX} = \text{EXK}\Delta\text{KEX} + \text{EXL}\Delta\text{LEX} \quad (12)$$

The annual investment determines the amount of capital produced because the annual capital production decreases in value (depreciation) and is compensated by the new investment - I (Mankiw (2013)).

Replace (11) to (14) with (5). After we have the results, we replace equations (10) and (12) and then change again, we have

$$\Delta Y = \text{DK} \cdot (\text{ID} + \text{IEX}) + \text{DL} \cdot (\Delta\text{LD} + \Delta\text{LEX}) + \frac{\delta}{1+\delta} \cdot \Delta\text{EX} + \text{DEX} \cdot \Delta\text{EX} \quad (13)$$

From equation (15), combined with $I = \text{ID} + \text{IEX}$, $\Delta L = \Delta\text{LD} + \Delta\text{LEX}$

$$\text{We report} \quad \frac{\Delta Y}{Y} = \text{DK} \cdot \frac{I}{Y} + \text{DL} \cdot \frac{\Delta L}{Y} + \left(\frac{\delta}{1+\delta} + \text{DEX}\right) \cdot \frac{\Delta\text{EX}}{Y} \quad (14)$$

Starting from (17), we have:

$$\alpha = \text{DK} \Rightarrow \text{DK} \cdot \frac{I}{Y} = \alpha \cdot \frac{I}{Y} \quad (15)$$

$$\beta = \text{DL} \cdot \frac{L}{Y} \Rightarrow \text{DL} \cdot \frac{\Delta L}{Y} = \text{DL} \cdot \frac{L}{Y} \cdot \frac{\Delta L}{L} = \beta \cdot \frac{\Delta L}{L} \quad (16)$$

$$\text{We have:} \quad \left(\frac{\delta}{1+\delta} + \text{DEX}\right) \cdot \frac{\Delta\text{EX}}{Y} = \frac{\delta}{1+\delta} \cdot \frac{\Delta\text{EX}}{Y} + \text{DEX} \cdot \frac{\Delta\text{EX}}{Y}$$

$$\text{But} \quad \text{DEX} \cdot \frac{\Delta\text{EX}}{Y} = \theta \cdot \frac{D}{\text{EX}} \cdot \frac{\Delta\text{EX}}{Y} = \theta \cdot \frac{\Delta\text{EX}}{\text{EX}} \cdot \frac{D}{Y} = \theta \cdot \frac{\Delta\text{EX}}{\text{EX}} \cdot \frac{Y - \text{EX}}{Y} = \theta \cdot \frac{\Delta\text{EX}}{\text{EX}} \cdot \left(1 - \frac{\text{EX}}{Y}\right)$$

$$\begin{aligned} \left(\frac{\delta}{1+\delta} + \text{DEX}\right) \cdot \frac{\Delta\text{EX}}{Y} &= \frac{\delta}{1+\delta} \cdot \frac{\Delta\text{EX}}{Y} + \theta \cdot \frac{\Delta\text{EX}}{\text{EX}} - \theta \cdot \frac{\Delta\text{EX}}{\text{EX}} \cdot \frac{\text{EX}}{Y} = \frac{\delta}{1+\delta} \cdot \frac{\Delta\text{EX}}{\text{EX}} \cdot \frac{\text{EX}}{Y} + \theta \cdot \frac{\Delta\text{EX}}{\text{EX}} - \\ \theta \cdot \frac{\Delta\text{EX}}{\text{EX}} \cdot \frac{\text{EX}}{Y} &= \left(\frac{\delta}{1+\delta} - \theta\right) \cdot \frac{\Delta\text{EX}}{\text{EX}} \cdot \frac{\text{EX}}{Y} + \theta \cdot \frac{\Delta\text{EX}}{\text{EX}} \end{aligned} \quad (17)$$

Putting (15), (16) and (17) in equation (14) yields equation (18):

$$\frac{\Delta Y}{Y} = \alpha \cdot \frac{I}{Y} + \beta \cdot \frac{\Delta L}{L} + \left(\frac{\delta}{1+\delta} - \theta\right) \cdot \frac{\Delta\text{EX}}{\text{EX}} \cdot \frac{\text{EX}}{Y} + \theta \cdot \frac{\Delta\text{EX}}{\text{EX}} \quad (18)$$

From (18) here we can propose the following analytical model

$$\text{ggdpit} = a + \alpha\text{sit} + \beta\text{glit} + \delta\text{xxit} + \theta\text{gxit} + \text{uit} \quad (19)$$

In which: $\text{ggdp} = \Delta Y/Y$, $s = I/Y$, $\text{gl} = \Delta L/L$, $\text{xx} = (\Delta\text{EX}/\text{EX})(\text{EX}/Y)$, $\text{gx} = \Delta\text{EX}/\text{EX}$

$$\frac{\delta}{1+\delta} - \theta = \delta \text{ and } u \text{ is error.}$$

Other methods

The research also uses other methods such as descriptive statistical analysis, comparison to consider the trend and changes in economic output, export activities of Khanh Hoa.

2.2. Data for analysis

The data used for the analysis are obtained from the statistical yearbooks of Khanh Hoa province and districts from 2010 to 2019, provided by the Statistics Department of Khanh Hoa province. In which economic output is the production value of districts at constant 2010 prices (the district level does not consider GRDP). The data of investment capital is also calculated at constant 2010 prices; Number of employees here is the number of employees working aged 15 and over by district. The export value by district is determined by the province at constant 2010 prices. In addition, the study also uses the population data and the income level of the households in each district for analysis. The province's districts are divided into 5 districts at the district level and include Nha Trang, Cam Ranh, Ninh Hoa, Van Phong (Van Ninh and Cat Lam) and the remaining districts are the other group (Khanh Vinh, Dien Khanh and Khanh Son).

3. Results

3.1 The State of Khanh Hoa's Economic Growth and Exports

a. Economic growth situation

The scale of the economy has been continuously expanded, the growth is quite high, continuous and quite stable compared to the general ground of the provinces of the Southern Oceania. At current prices, the GRDP value in 2010 is VND 28,358 billion, in 2015 it is VND 56,801 billion and in 2019 it is VND 86,121 billion. The scale of GRDP in 2019 is 3.03 times higher than that of 2010. At constant 2010 prices, the GRDP value in these timelines is VND 28,358 billion, VND 38,901 billion and VND 52,296 billion respectively. At constant prices, the GRDP has increased continuously, the annual growth rate has the highest rate in 2014 of 9.3% and the lowest of 4.6%, 10-year average of 7.05%. With such volatility, the stability rate is quite good, the stable rate is around (-34.6%; 32.2%), the average is 0.2%. The most stable period is 2016-2019.

The driving force for economic growth is the service sector and the non-state economic sector and breadth factors. Among the main industries of the economy, in the past 10 years the construction industry has had the fastest growth rate of value added, an average of 9.06% per year, the service industry has had the growth rate of value added. 7.34% and the growth rate of agriculture, forestry and fisheries is 1.4%. From the sector's share in GRDP, it can be seen that Khanh Hoa's GRDP growth is based on non-agricultural sectors, especially services. Compared with other provinces in the Central Coast of America in 2010 and 2019, it shows that Khanh Hoa's position in 2019 is worse than 2010.

b. Khanh Hoa's export situation

Export size and growth

Value export turnover of Khanh Hoa province has increased continuously in the past 10 years, accounting for a large proportion of the GRDP, but growth is slower than economic growth and accounts for a relatively small proportion of Vietnam's export value. The scale of Khanh Hoa's exports at current prices has increased over time. In 2010, the export value was 13,457 trillion VND and accounted for nearly 48% of GRDP; In 2015, it was nearly 23.9 trillion VND and accounted for 42.1% of GRDP and in 2019 it was 34.58 trillion VND and accounted for 40.2% of GRDP.

The province's export growth is quite high but unstable and slower than GRDP growth. In the period 2010-2019, the average growth rate of the economy is nearly 7%, while export growth is close to 8.5%. But the export growth rate is quite volatile, the highest year of growth was more than 10% in 2015 and the lowest was -4.46% in 2017. The reason given is that the nature of the province's exports are commodities, but they are biased towards agricultural products and raw exports. These export products have very volatile markets in terms of both input materials and output. This also requires the locality to choose an appropriate foreign trade strategy to reduce the volatility.

The trade surplus is high and gradually increasing. The rapidly increasing export turnover compared to the general level of the Central region and the import turnover of the province in recent years. the statistics shows that the value of exports is always higher than imports. In 2010, the export value was 13,457 trillion dong while the import was only 7.8 trillion dong, so the trade surplus was nearly 5.6 trillion dong; In 2015, export turnover was nearly 23.9 trillion dong, import was 14.4 trillion dong, and trade surplus was over 9.4 trillion dong; In 2019, these figures are 34.58 trillion dong; 19.6 and 14.9 trillion dong. These developments are explained by the structure of exports, which are mainly agro-forestry products, while imports are mainly raw materials for production such as cashew nuts for export processing, seafood raw materials, and raw materials, materials for tobacco production, machinery and silk thread ...

Although the province's export turnover scale is quite high compared to other provinces in the region, it is still modest compared to the whole country: In 2010, the export turnover of the province was 723.0 million USD, accounting for about 1.01% of the total export turnover of Vietnam, lower than that of Da Nang and higher than the rest of the provinces; In 2015, the export turnover of the province was 1127.3 million USD, accounting for 0.68% of Vietnam and in 2019 these indicators were 1497.1 million USD and 0.567% of Vietnam, still ranked second after Da Nang in the Central region. This shows that the province still needs to make great efforts to promote its potential to expand production for export in the coming years.

3.2. The results of analysis of the impact of exports on economic growth

Model and estimation method

This section will use econometric model (18) to conduct humility. Model (18) is used for OLS estimation, converging table data.

Estimation method: With data that is spatially medium - districts and cities of Khanh Hoa province and over time from 2010 to 2019, tabular data will be established. With this data, we can apply the raw OLS estimation method or method (Pooled OLS). With this method, time factor will be ignored but only pure data observations or cross data is used. The raw estimate is the OLS estimate on the obtained data set of spatial features, so then consider that all coefficients do not change between different objects and do not change over time. This is also a limitation of this method. We continue to use the random effect (REM) and fixed effect (FEM) convergence estimation method for the necessary tests, then use the Hausman test for selection (REM), continue to deal with the endogenous problem of the *gex* variable. Also here will use the 3SLS - GMM method by adding 1 equation $gex = \beta_0 + \beta_1 Inc_{it} + \beta_3 csoy + uit$ (19) together with (18) to form a system of equations including (18) and (19) means that the variable *gex* is endogenous. Here the endogenous variable *gex* is solved through the exogenous variables in Equation 19. In this case, according to Zellner, A & Theil.H (1962), the 3SLS estimation method can be applied.

Metrics and descriptive statistics of the data

The data presented in section 2. With the above data on time series, problems such as the delay of the variable over time arise. However, for a short 10-year period such as this study, latency is not a problem.

Table 3.1: Descriptive statistics of the data in the model

Variables	Mean	Standard Deviation	Minimum Value	Maximum Value
ggdp	6.61	0.43	5.63	7.22
gex	8.48	0.36	7.80	9.30
gl	1.17	0.08	1.0	1.3
s	48.77	0.91	47.0	50.3
xx	230.12	23.22	177.3	276.0
lnc	11.175	0.780	10.28	12.56
csoy	38.490	1.610	34.10	41.20

(Source: processed from the Statistics Directory of localities at district level in Khanh Hoa province).

Table 3.1 shows some basic statistics about the variables in the model. The mean value of the dependent variable *ggdp* is 6.61, the minimum value is 5.63 and the maximum value is 7.22 (note that this mean is higher than the provincial GRDP growth rate as it uses the value data. production at district level). The mean value of the export growth variable -

gex is 8.48 and the minimum and maximum are 7.8 and 9.3. The baseline statistics for the other variables used in the analysis are shown in this table. The data have demonstrated convergence and can be used for analysis.

Estimated results

Estimated results are presented in Table 3.2. The estimation methods are fundamentally significant and can be used for evaluation.

This result shows that in recent years, export growth has had a positive impact on economic growth and confirmed the above qualitative statements when analyzing the trend of changing exports and the province's GRDP. Labor growth has a positive impact on economic growth, which is also consistent with the province's labor advantages and conditions. This is also the most influential factor. Ratio of investment to output - the rate of saving has a positive effect, which is also consistent with the current stage of development of developing economies like Vietnam. The regression coefficient of variable xx is 0.11, implying that export growth has a spillover effect on all sectors of the economy.

With the coefficients $\sigma = +0.015$ and $\theta = 0.475$ with REM; equal to $\sigma = 0.016$ because $\theta = 0.588$ in 3SLS method, so the coefficient δ can be realized. $\sigma = \delta / (1 + \delta) + \theta \Rightarrow \delta < 0$ in both ends. This implies that the productivity of the exporting sector of the province is less than that of the other manufacturing sector.

Table 3.2 Estimates results

	Estimating methods		
	OLS	Random effects (REM)	3SLS
Dependable variable – ggdp			
gx	0.266*** (0.056)	0.475*** (0.135)	0.588*** (0.125)
gl	1.423** (0.430)	1.167** (0.513)	1.164** (0.469)
s	0.139** (0.040)	0.114** (0.048)	0.118** (0.044)
xx	0.011*** (0.002)	0.015*** (0.002)	0.016*** (0.003)
Constant	-5.937*** (1.502)	-7.84*** (1.88)	-7.721*** (1.621)
R - sq	0.9669	0.9606	0.9460
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	chi2(1) = 0.28 Prob > chi2 = 0.5956		
vif	8.69 < 10	7.42	
Durbin-Watson	1.302272	1.4215877	
N	50	50	50

Prob>F	0.000	0.000	0.000
Wooldridge test for autocorrelation in panel data		Prob > F = 0.2035	
Hausman test		Prob>chi2 = 0.2495	

*Note: in () is the standard deviation, ***, **, * are 1%, 5% and 10% significance levels*

(Source: processed from the Statistics Directory of localities at district level in Khanh Hoa province)

4. Discussion and Conclusion

4.1. Discussion

Firstly, the economic growth maintained continuously in the past 10 years is quite high and stable. Economic growth is driven by the service sector, the non-state economy and breadth factors (capital and labor). However, the economic growth rate of the province is not commensurate with its existing potentials and strengths; The economic status of the province compared to other provinces in the Central Coast of the Central region has a certain decline.

Secondly, the province's exports have grown continuously but less stable, slower than economic growth and quite small compared to Vietnam's exports. The export of the province is mainly based on the export of goods and on natural scavenging, which has no room for exploitation;

Thirdly, export growth has a positive impact on economic growth, but the impact level is not high and implies that if the export structure changes, it will gradually shift to service exports and exploit dynamic advantages.

Fourthly, the labor productivity of the export sector still has great potential to improve.

4.2. Policy implications

To promote the role of exports in economic growth, the following actions should be taken:

Firstly, the province's economic growth still has a lot of room, especially based on export strategy if it takes advantage of the trend of opening up the economy and exploiting the free trade agreements that Vietnam signed with other countries. and other economies.

Secondly, export has room to promote growth by improving productivity, changing export structure and exporting strategy from raw export to export based on processed goods and services;

Thirdly, improve the productivity of the economy in general and focus on improving the productivity of the export sector.

Fourthly, the export restructuring is associated with economic restructuring, especially the service - tourism sector of the province in order to exploit the advantages of exporting goods and services in the domestic market.

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