

FACTORS AFFECTING ECONOMIC GROWTH OF THE SOUTHWEST KEY ECONOMIC REGION

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| ARTICLE INFO | ABSTRACT |
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| <p>Received: 23/10/2023</p> <p>Revised: 10/11/2023</p> <p>Published: 10/11/2023</p> | <p>This study seeks to comprehend the influencing factors on the economic growth of the pivotal economic region in the Southwest. The authors conducted research based on the dataset from four provinces and cities in the region during the period 2005-2022, employing panel data estimation methods such as OLS pooled regression, fixed effects (FEM), and random effects (REM). REM was identified as the most optimal after rigorous testing and comparison of these models. The research results indicate that, among the six factors analyzed, which include Labor, Investment Capital, Public Expenditure, Education, Foreign Direct Investment, and Unemployment Rate, only Public Expenditure and Foreign Direct Investment have an impact on the economic growth of the region. These outcomes serve as the foundational basis for provinces and cities within the key economic areas to concentrate on enhancing policies related to the utilization of investment capital, fostering international trade, attracting foreign direct investment, and elevating workforce quality.</p> |
| <p>KEYWORDS</p> <p>Economic growth</p> <p>Southwest key economic region</p> <p>Panel data regression</p> <p>Foreign direct investment</p> <p>Public spending</p> | |

CÁC YẾU TỐ ẢNH HƯỞNG ĐẾN TĂNG TRƯỞNG KINH TẾ VÙNG KINH TẾ TRỌNG ĐIỂM TÂY NAM BỘ

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| THÔNG TIN BÀI BÁO | TÓM TẮT |
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| <p>Ngày nhận bài: 23/10/2023</p> <p>Ngày hoàn thiện: 10/11/2023</p> <p>Ngày đăng: 10/11/2023</p> | <p>Nghiên cứu này hướng đến việc tìm hiểu các yếu tố tác động đến tăng trưởng kinh tế của vùng kinh tế trọng điểm Tây Nam Bộ. Nhóm tác giả nghiên cứu dựa trên bộ dữ liệu của 04 tỉnh, thành phố thuộc vùng trong giai đoạn 2005 - 2022, thông qua các phương pháp ước lượng dữ liệu bảng như hồi quy gộp OLS, tác động cố định (FEM), tác động ngẫu nhiên (REM). Sau khi tiến hành kiểm định và so sánh các mô hình này, REM được đánh giá là tối ưu nhất. Kết quả nghiên cứu cho thấy trong 6 yếu tố đưa vào phân tích bao gồm Lao động, Vốn đầu tư, Chi tiêu công, Giáo dục, Đầu tư trực tiếp nước ngoài và Tỷ lệ thất nghiệp, chỉ có chi tiêu công và đầu tư trực tiếp nước ngoài có tác động đến tăng trưởng kinh tế của vùng. Phát hiện này là cơ sở cho các tỉnh, thành thuộc vùng kinh tế trọng điểm tập trung cải thiện các chính sách liên quan đến sử dụng vốn đầu tư, thương mại quốc tế và thu hút đầu tư trực tiếp nước ngoài; nâng cao chất lượng lao động.</p> |
| <p>TỪ KHÓA</p> <p>Tăng trưởng kinh tế</p> <p>Vùng Kinh tế trọng điểm Tây Nam Bộ</p> <p>Hồi quy dữ liệu bảng</p> <p>Đầu tư trực tiếp nước ngoài</p> <p>Chi tiêu công</p> | |

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1. Introduction

Economic growth was the expansion of a country's Gross Domestic Product (GDP) or potential output. In other words, economic growth occurred when a country's production possibilities frontier (PPF) shifted outward [1]. Therefore, economic growth is considered the GDP or gross national product (GNP) increase over a certain period. Theories of economic growth provide diverse perspectives on how the economy develops over time. The role of capital accumulation is considered very important for economic growth [2]. Besides, human factors also contribute to economic growth [3]. On the other hand, besides capital and human factors, economic growth also depends on investment in research and development [4].

Economic growth is affected by many factors. Within the article's research scope, we focus on analyzing factors such as investment capital, labor, education, foreign direct investment, public spending, and the unemployment rate on Vietnam's economic growth—the critical economic region of the Southwest region. Around the world, the impact of these factors on economic growth has been verified through many studies by many authors. Foreign Direct Investment (FDI) can benefit the receiving industry and other domestic industries through the spillover effects of improved human capital and technology [5]. However, for the receiving country, FDI can also bring negative impacts. Foreign companies often only invest in areas they consider adequate, potentially leading to competition with domestic businesses and reducing the country's overall benefits [6].

Educational attainment is gradually becoming a critical factor in economic development, widely recognized as a clear indicator of a country's economic strength. The country's economic growth rate has been demonstrated to be increased by 0.7% per year for each additional year of schooling [7]. This highlights that investing in human capital is more than simply improving educational attainment; it is an essential means of enhancing workforce employability and improving productivity. Furthermore, it emphasizes the academic level of workers as a critical measure of human capital directly related to labor performance and productivity in an economic context [8].

Public spending positively and significantly impacts economic growth [9]. Similar to that conclusion, research from 14 countries in the European Union shows that infrastructure and human capital play an important role, having a clear impact on long-term economic growth [10].

Examining the link between unemployment and the economic landscape in South Africa between 1994 and 2012 reveals fascinating and insightful insights. Using the cointegration method established a long-run association between the variables, indicating a positive correlation between GDP and unemployment in South Africa [11]. Taking this line of research a step further, the study uses the OLS method and shows a 'paradoxical' relationship between growth and employment [12].

In practical terms, the Southwest Key Economic Region was officially designated by the Government of Vietnam on April 16, 2009, including four provinces and cities: Can Tho, An Giang, Kien Giang, and Ca Mau, located in the Mekong Delta region. Despite favorable natural conditions, economic growth in the Southwest Key Economic Region still needs to meet available resources. Compared to the remaining three key economic regions, the Northern critical economic region, the Southern key economic region, and the Central critical economic area, the Southwest key economic region has the slowest growth rate. In 2017 - 2021, the Northern Key Economic Region stood out with the fastest Gross Regional Domestic Product (GRDP) growth rate, reaching an average annual rate of approximately 7.96%. Following closely, the Southern Key Economic Region recorded the second-highest GRDP growth rate, reaching about 4.2%/year. The Central Key Economic Region has a GRDP growth rate of about 4.1%/year in third place. Meanwhile, the GRDP growth of the Mekong Delta Key Economic Region over the past five years has been at 3.8% annually [13].

Until now, there has not been a complete study on the factors affecting economic growth in the Southwest critical economic region. Previous studies mainly analyzed one locality in the critical economic region of the Southwest. They approached the analysis of TFP's contribution to economic growth, for example, analyzing growth for Kien Giang province [14] and similarly for Can Tho City [15]. Some studies cover the entire Mekong Delta region, such as studying the

impact of human capital on the economic growth of the Mekong Delta [16]. Stemming from the general research as well as the practical urgency of the issue of factors affecting economic growth in the crucial economic region of the Southwest, it shows that there is a need for an exploratory study to clear the problem. Therefore, this study aims to clarify the influence of different factors on the economic growth of the Southwest Key Economic Region. The research results serve as a reference for policy recommendations to promote economic development in the Southwest Key Economic Region and the Mekong Delta region.

2. Data and Methodology

2.1. Data

The article relies on secondary data obtained from the General Statistics Office and local statistical offices within the Southwestern Key Economic Region, spanning the years from 2005 to 2022. To ensure consistency, all data collected has been adjusted to a common reference year of 2010. The research sample encompasses a total of 72 observations, spanning four provinces and an 18-year timeframe.

2.2. Method of analysis

A panel data regression model is employed, utilizing techniques such as Pooled OLS, Fixed Effects Model (FEM), and Random Effects Model (REM), to assess the collective influence of independent variables on the dependent variable (LnGRDP). The choice of which model to analyze depends on the conducted tests. Selecting between OLS, REM, and FEM models relies on the results of the Lagrange Breusch-Pagan coefficient test. If the p-value is less than 5%, the OLS model should be discarded. To decide between REM and FEM models, the Hausman Test is employed, and if the p-value is less than 5%, the REM model is chosen.

The structure of the research model is as follows:

$$\ln(\text{GRDP}_{it}) = \beta_0 + \beta_1 \ln K_{it} + \beta_2 \ln L_{it} + \beta_3 \text{Edu}_{it} + \beta_4 \text{Ur}_{it} + \beta_5 \ln \text{PS}_{it} + \beta_6 \text{FDI}_{it} + e_{it}$$

Where:

"i" encompasses the four provinces/cities within the Southwestern Key Economic Region.

"t" represents the data spanning from 2005 to 2022.

The model's variables are outlined in Table 1.

Table 1. Variables' Measurement in the Model

| Variable | Definition of variables | Source of Data |
|---------------------------------|---|----------------|
| Dependent variable | | |
| Economic growth (LnGRDP) | The GRDP of the four provinces is computed in logarithmic form at 2010 prices, measured in billion VND. | [17]; [18] |
| Independent variables | | |
| Investment capital (K) | This encompasses investment capital for capital construction, capital for acquiring fixed assets excluding capital construction, and investment capital for renovating and enhancing fixed assets, all measured in billion VND and presented in logarithmic form. | [2]; [4] |
| Labor (L) | The labor force, consisting of individuals aged 15 years and older, is expressed in logarithmic form. | [2]; [4] |
| Education (Edu) | Percentage of high school students relative to the entire local population (%). | [7]; [8] |
| Unemployment rate (Ur) | Local unemployment rate (%) | [19]; [12] |
| Public spending (PS) | Local budget expenditures (in billion VND) presented in logarithmic form. | [9] |
| Foreign Direct Investment (FDI) | Amount of realized foreign direct investment (in millions of dollars). | [20] |

(Source: Compiled by the authors)

3. Results and Discussion

3.1. Research results

3.1.1. Description of variables in the research sample

The outcomes presented in Table 2 delineate the variables under analysis in the research model. The total product within the research area, represented by Gross Regional Domestic Product (GRDP), possesses an average value of 41,131.4 billion VND. The lowest recorded figure is in Ca Mau (7673 billion VND in 2005), while the highest is in Kien Giang (7215.4 billion VND in 2015). Regarding investment capital, the average stands at 13,173.2 billion VND. Kien Giang registered the lowest investment capital in 2005, with 2,261.8 billion VND and the highest in 2018, at 33,572.2 billion VND. The average labor force (L) in the region amounts to 858,025.8 people, with the lowest figure observed in Ca Mau in 2005 (581,600 people) and the highest in An Giang in 2011 (1,271,100 people). The average ratio of high school students to the total population (Edu) is 2.3%, with Can Tho recording the lowest percentage in 2018 (1.5%) and An Giang achieving the highest in 2022 (3.1%). In the working-age group, the average unemployment rate (Ur) is 3.5%, with Ca Mau displaying the lowest rate in 2022 (1.4%) and Can Tho registering the highest in 2005 (7.4%). Public expenditure (PS) averages 1,191.2 billion VND, with Ca Mau reporting the lowest value in 2005 (1,515.5 billion VND) and Kien Giang recording the highest in 2019 (30,874.2 billion VND). The average Foreign Direct Investment (FDI) amounts to 16.2 million USD. The lowest FDI, denoted as 0 million USD, is observed for 2005 and 2006, as it's solely calculated based on actual realized capital during those years. The highest FDI was recorded for Kien Giang in 2009, at 441 million USD.

Table 2. Description of Variables Analyzed

| Variable | Observations | Mean | Standard deviation | Min | Max |
|--------------------|--------------|----------|--------------------|--------|---------|
| GRDP (billion VND) | 72 | 41131,4 | 15980,9 | 7673 | 72151,4 |
| K (billion VND) | 72 | 13173,2 | 7834,7 | 2261,8 | 33572,2 |
| L (person) | 72 | 858025,8 | 214004,7 | 581600 | 1271100 |
| Edu (%) | 72 | 2,3 | 0,3 | 1,5 | 3,1 |
| Ur (%) | 72 | 3,5 | 1,3 | 1,4 | 7,4 |
| PS (billion VND) | 72 | 11991,2 | 8743,6 | 1515,5 | 30874,2 |
| FDI (million USD) | 72 | 16,2 | 53,3 | 0 | 441 |

(Source: calculations by the authors)

3.1.2. Correlation analysis

Table 3 displays the correlation between the independent variables in the research model based on the results. Notably, all the correlation coefficients exhibit values below 0.7, indicating the absence of multicollinearity within the model. However, this conclusion will be subject to further examination in the section that test the regression model's assumptions.

Table 3. Correlation matrix of variables in the model

| | LnK | LnL | Edu | Ur | LnPS | FDI |
|------|-------|-------|------|-------|-------|------|
| LnK | 1.00 | | | | | |
| LnL | -0.27 | 1.00 | | | | |
| Edu | -0.09 | -0.27 | 1.00 | | | |
| Ur | -0.25 | -0.35 | 0.08 | 1.00 | | |
| LnPS | 0.65 | 0.24 | 0.11 | -0.58 | 1.00 | |
| FDI | -0.08 | -0.03 | 0.03 | 0.10 | -0.09 | 1.00 |

(Source: calculations by the authors)

3.1.3. Regression results

The analysis results presented in Table 4, using Stata software, demonstrate that none of the three models (OLS, REM, and FEM) exhibit multicollinearity or serial correlation issues. To

discern the preferred model among OLS, REM, and FEM, the Breusch–Pagan Lagrange multiplier test is employed. The results indicate a remarkably low p-value of 0.0000, which falls significantly below the predetermined levels of statistical significance. Consequently, the OLS model is deemed less suitable than the other two. The Hausman test yields a probability (Prob > chi2) greater than 0.05, which exceeds the standard significance levels. As a result, the null hypothesis (Ho) cannot be rejected. Consequently, the Fixed Effects Model (FEM) is unsuitable, and the Random Effects Model (REM) should be employed instead. A heteroskedasticity test will be performed to ascertain the presence of this issue in any of the models. The examination reveals that the FEM model violates the assumption of homoskedasticity, while the REM model remains unaffected. Thus, the REM model emerges as the most suitable choice after satisfying the tests for regression model assumptions. Consequently, the analysis results will be based on the REM model.

Table 4. Regression Results for OLS, REM, and FEM Models

| Model | OLS | REM | FEM |
|-----------------------------|--|---|---|
| LnK | -0.053 (-0.58) | -0.053 (-0.58) | -0.141** (-2.11) |
| LnL | 0.249 (1.19) | 0.249 (1.19) | 1.302*** (3.10) |
| Edu | -0.042 (-0.29) | -0.041 (-0.29) | 0.024* (1.94) |
| Ur | 0.014 (0.45) | 0.014 (0.45) | -0.044 (-1.64) |
| LnPS | 0.525*** (6.36) | 0.525*** (6.36) | 0.485*** (7.61) |
| FDI | 0.001* (1.81) | 0.001* (1.81) | 0.0004 (1.13) |
| Constant | 2.884 (0.89) | 2.884 (0.89) | -10.64* (-1.78) |
| | N= 72 F(6,65) = 28.37 Prob > F = 0.000 R ² = 0.723 | N= 72 R ² : Within = 0.75 Between = 0.70 Overall = 0.72 Wald chi2(6) = 170.20 Prob > chi2 = 0.000 | N= 72 R ² : Within = 0.82 Between = 0.38 Overall = 0.55 F(6,62) = 47.74 Prob > F = 0.000 |
| Multicollinearity test | | Mean ViF = 2.5 | |
| Test for serial correlation | | F (1, 3) = 0.854 Prob > F = 0.423 | |
| Test for heteroskedasticity | Chi 2(27) = 49.63 Pro > chi2 = 0.005 | Chibar2(01) = 0.00 Prob > chibar2 = 1.00 | Chi 2(4) = 185.00 Prob > chi2 = 0.000 |

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; t value in parentheses

(Source: Results Estimated Using Stata Software)

3.2. Discussion

The regression analysis results, employing the REM estimation method displayed in Table 4, reveal a p-value of 0.000, less than 0.05. So, the regression model is statistically significant, indicating that at least one independent variable in the model affects the dependent variable, LnGRDP. The substantial R² coefficient of 75.00% means that the variables incorporated into the model account for 75.00% of the variation in LnGRDP, elucidating the factors considered in the model. The remaining unexplained variation can be attributed to other unexplored factors.

Assessing the significance level of each variable within the model, it is evident that two variables impact the economic growth of provinces and cities within the critical economic region of the Southwest: LnPS and FDI. The remaining variables, including investment capital,

education, labor, and unemployment rate, all exhibit P-values exceeding the 5% significance threshold. Therefore, they are not considered statistically significant, and there is insufficient evidence to conclude that they impact economic growth in Dong Thap province. Notably, all estimated coefficients for these variables exhibit positive signs, signifying a positive influence on economic growth. This outcome aligns with the initial expectations of the study. The effects of these variables will be expounded as follows:

At a 99% confidence level, the financial profit variable positively impacts the economic growth of provinces and cities in the critical economic region of the Southwest, with an impact coefficient of 0.525. This means that when other factors remain unchanged when provinces and cities in the Southwestern critical economic region increase public spending by 1%, the total local product generated increases by 0.525%. This shows that public spending policy plays a huge role in the growth of localities in the Southwestern critical economic region. This result is similar to the study [9], which stated that public expenditures positively impact promoting economic concentration. Public spending is always an essential expenditure for economic growth in most countries in the world, including Vietnam.

Besides, the FDI variable also positively affects the economic growth of provinces and cities in the Southwestern critical economic region at the 10% significance level with a coefficient of 0.001. This means that when other factors do not change, when foreign direct investment increases by 1 million USD, the total product in the provinces and cities of the Southwest Key Economic Region increases by 0.001%. This result is consistent with research on economic concentration by Jordan [5] when he said that foreign direct investment positively impacts economic engagement. Foreign Direct Investment is an essential component of total social investment capital, which affects output growth, especially issues aimed at social benefits, such as improving infrastructure and accumulating human wealth. At the same time, this is an essential factor affecting a country's decision to innovate and develop science and technology.

Of the two factors, public spending and foreign direct investment, the public spending factor has a more substantial impact on the economic growth of provinces and cities in the Southwestern critical economic region, as shown by the estimated coefficient. This indicates that FDI capital's penetration into local economic development is still slow, and the effect is not apparent.

4. Conclusion

Analysis results show that the economic growth of the Southwest critical economic region has tended to increase in recent years. However, compared to other key economic areas, it is still low. The study analyzed factors such as investment capital, labor, education, unemployment rate, FDI, and public spending affecting the economic growth of the Southwest critical economic region. The results show that two factors statistically impact economic growth: public expenditure and FDI. The remaining variables have yet to be delivered to affect the economic growth of Southwest critical region in the period 2005-2022.

From the results of factor analysis, some policies can be suggested to promote economic growth in the Southwest critical economic region:

First, it is necessary to focus on training, professional development, and qualifications for workers in the region to improve labor productivity. To support employees in performing their current job duties well, it is necessary to provide them with the required knowledge and skills to enhance their qualifications and expertise.

Second, promoting capital mobilization and prioritizing strategically essential projects is critical in financial management. The Southwestern key economic region faces many economic development opportunities; however, development investment requires a large amount of capital, while investment capital from the state budget is limited.

Third, to effectively use foreign direct investment (FDI), policies are necessary to create a favorable investment environment: Provinces and cities in the key economic region of the

Southwest need to establish a stable business environment, ensuring fairness and security. Provinces and cities in the key economic region of the Southwest need clear and transparent investment regulations to attract Foreign Direct Investment (FDI). Provinces and cities in the key economic region of the Southwest need to facilitate conditions for FDI enterprises to engage in research and development activities. This can help improve products and services, increasing competition in the market. Provinces in the key economic region of the Southwest need to formulate long-term strategies to ensure that FDI yields short-term benefits and fosters sustainable development for the local economy.

A limitation of this study is that it did not analyze the quality factors of economic growth in the Key Economic Region of the Southwest. This represents a promising avenue for future research.

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