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Analysis of the Impact of Fiscal Policy on Regional Economic Growth: A Case Study of Implementation in Higher Education

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Abstract: Fiscal policy is a strategic government instrument in promoting regional economic growth, particularly through budget allocation in the higher education sector. This study aims to analyze the impact of fiscal policy on regional economic growth, taking a case study of policy implementation in higher education institutions during the period 2015-2024. The study employs a mixed-methods approach, combining quantitative panel data analysis from 340 Universities in Indonesia and in-depth interviews with 30 informants consisting of lecturers, university structural officials, and regional policymakers. Secondary data were obtained from the Central Bureau of Statistics (BPS), the Ministry of Finance, and the Directorate General of Higher Education (Dikti). The results indicate that fiscal policies in the form of BOPTN Funds and Special Allocation Funds (DAK) for Education have a positive and significant effect on regional economic growth with a coefficient of 0.47 at a 95% confidence level. The findings also reveal that higher education institutions serve as a multiplier effect in driving the local economy through job creation, increased community consumption, and knowledge transfer. However, there are gaps in fiscal policy implementation between higher education institutions in Java and outside Java, which impact regional economic growth disparities. This study recommends the need for reformulation of fiscal policies that are more equitable and performance-based for higher education institutions to promote sustainable and equitable regional economic growth.

Keyword: Fiscal Policy, Regional Economic Growth, Higher Education, BOPTN Fund, Education DAK, Multiplier Effect.

INTRODUCTION

Fiscal policy is a fundamental instrument in managing a country's economy, encompassing government decisions related to public spending and taxation to achieve certain macroeconomic objectives. In the context of fiscal decentralization implemented in Indonesia,

local governments have broader authority in managing their fiscal resources to encourage regional economic growth. This dynamic creates variations in the implementation of fiscal policies between regions that have implications for regional economic growth disparities. Universities, as educational institutions and centers for scientific development, have a strategic position in the regional economic ecosystem. The existence of universities not only contributes to the development of human resources, but also has a direct economic impact through operational activities, institutional spending, and student and staff expenses. Furthermore, universities act as catalysts for innovation and technology transfer that boost regional economic productivity. The relationship between fiscal policy and higher education is reciprocal. On the one hand, the government's budget allocation for the higher education sector reflects fiscal policy priorities in human resource development. On the other hand, universities contribute to regional revenue through various economic channels and spending multipliers. However, empirical studies of how fiscal policy is transmitted through higher education institutions to regional economic growth are still relatively limited. Recent developments show that the government continues to reform fiscal policy. Although many studies have been conducted on the impact of fiscal policy on national economic growth, studies that specifically place universities as a unit of regional economic transmission analysis are still very limited. Most of the previous literature tends to look at education spending in the aggregate without dissecting how fiscal allocation to higher education institutions creates a multiplier effect for the local economy. Therefore, this research is here to fill this gap by analyzing the transmission mechanism of central and regional fiscal policies through the university ecosystem, including the reallocation of the education budget and changes in the fiscal transfer scheme to the regions. These changes have direct implications for the fiscal capacity of public universities and indirectly affect the overall climate of higher education. Therefore, an in-depth analysis of the mechanism of transmission of fiscal policy to regional economic growth with universities as the unit of analysis is needed.

Based on the background that has been described, this study identifies several problems that need to be studied systematically:

How does the transmission mechanism of the central and regional governments' fiscal policies affect the operational capacity and development of universities? This question includes an analysis of the allocation of the education budget, fiscal transfers between the commands, and tax incentives given to the higher education sector.

To what extent does the economic activity of universities contribute to regional economic growth? This problem includes the identification and quantification of the direct, indirect, and inductive economic impacts produced by the existence of universities on the regional economy.

What factors mediate and moderate the relationship between fiscal policy, college, and regional economic growth? This aspect explores contextual variables such as regional characteristics, local economic structure, and institutional capacity of universities that affect the effectiveness of policy transmission.

How do differences in the implementation of fiscal policies between regions affect the disparity in the contribution of universities to regional economic growth? This issue highlights aspects of spatial justice and its implications for equitable development.

METHOD

This study uses a mixed methods approach that integrates quantitative and qualitative approaches synergistically. According to Creswell and Plano Clark (2018), mixed methods research is an approach that combines or associates qualitative and quantitative forms in one study to produce a more comprehensive understanding than using just one approach. The research design used is Sequential Explanatory Design, where the collection and analysis of quantitative data is carried out first in the first stage, then followed by the collection and analysis of qualitative data in the second stage. Qualitative results are used to explain and

interpret the quantitative findings obtained (Creswell, 2014). This design was chosen because it is very in line with the objectives of the research that wants to measure the impact of fiscal policy statistically, then understand in depth the mechanisms and factors that explain the findings. Specifically, this study aims to: (1) analyze the impact of fiscal policy on regional economic growth; (2) understanding the implementation of fiscal policy in the university environment; and (3) identify factors that affect the effectiveness of fiscal policies in driving regional economic growth.

This research was carried out in a number of public and private universities spread across three regions of Indonesia, namely the Western region (Sumatra and Java), the Central region (Kalimantan and Sulawesi), and the Eastern region (Maluku, Nusa Tenggara, and Papua). The selection of the location is based on regional representation considerations that reflect the diversity of economic conditions, fiscal inequality between regions, and significant differences in the fiscal capacity of local governments. Higher education is used as the main unit of analysis because this institution is a direct recipient of the education budget allocation which is part of the government's fiscal policy, as well as an actor that contributes to regional economic growth through the role of the tridharma and the economic activities it drives. The research is planned to last for 12 months, starting from January to December 2025, which includes the stages of preparation, data collection, analysis, and report writing. Population The population in this study consists of two components that reflect the nature of mixed methods. For the quantitative component, the population includes all districts/cities in Indonesia that have universities, totaling approximately 350 regions. The data used includes data from the panel on the realization of the Regional Revenue and Expenditure Budget (APBD), General Allocation Fund (DAU), Special Allocation Fund (DAK), and economic growth indicators (GDP) during the 2015-2024 period. For the qualitative component, the population is all stakeholders involved in the process of planning, budgeting, and implementing fiscal policies in universities.

Sampling Sampling techniques for the quantitative component use purposive sampling taking into account the availability of complete data and representation of three regional regions. The quantitative sample consisted of 340 universities which were divided into two groups: 170 universities as case groups (recipients of high fiscal allocations) and 170 universities as control groups (recipients of low/medium fiscal allocations). The data used includes the latest year's cross-section data and panel data for the 2015-2024 period to see economic growth trends in the area around the campus. This number is considered adequate for multivariate analysis and differential tests between groups. This number is considered adequate for the regression analysis of panel data with reference to the rule of thumb which requires a minimum of 10 observations per variable (Hair et al., 2019). For the qualitative component, purposive sampling and snowball sampling techniques were used to select 30 key informants consisting of the rector/vice rector for finance (5 people), heads of the university finance bureau (5 people), officials of the Regional Development Planning Agency (Bappeda) at the provincial level (5 people), officials of the Ministry of Finance at the regional level (5 people), lecturers/academics experts in fiscal policy (5 people), and community leaders/regional economic practitioners (5 people). The qualitative sample size was determined based on the theoretical saturation principle (Strauss & Corbin, 2015).

Table 1. Quantitative Component Variables

Variable	Indicator	Units	Data source
Economic Growth (Y)	GDP growth rate on a constant price basis	Percent (%)	BPS
Local Government Expenditure (X1)	Total realization of APBD expenditure per capita	Million Rp	Ministry of Finance/BPS
Central Transfer Funds (X2)	DAU + DAK per capita	Million Rp	Ministry of Finance

Variable	Indicator	Units	Data source
Education Spending (X3)	Proportion of education expenditure to the total APBD	Percent (%)	Ministry of Finance
Regional Investment (X4)	Realization of domestic investment (PMDN)	Billion Rp	BKPM
Educated Workforce (X5)	Proportion of PT graduates to the total workforce	Percent (%)	Sekernas BPS
Fiscal Independence (X6)	Ratio of PAD to total regional revenue	Percent (%)	Ministry of Finance

In the qualitative component, variables are not measured numerically but are explored in the form of themes and categories. The main themes studied include: (1) the process of planning and budgeting fiscal policy in higher education; (2) the mechanism of budget distribution and absorption; (3) stakeholder perceptions of the impact of fiscal policy; (4) obstacles and challenges in policy implementation; and (5) contextual factors that affect the effectiveness of fiscal policies on regional economic growth. Quantitative data is collected through documentation studies from official government sources. Secondary data were obtained from: (1) the Central Statistics Agency (BPS) for GDP, employment, and demographic data; (2) the Ministry of Finance of the Republic of Indonesia through the Regional Financial Information System (SIKD) portal for APBD, DAU, DAK, and fiscal independence data; (3) Investment Coordinating Board (BKPM) for regional investment data; (4) Higher Education Database (PD Dikti) of the Ministry of Education, Culture, Research, and Technology for higher education data. All data is compiled in the form of panel data covering 340 universities for 10 years (2015-2024). Qualitative data is collected through three main techniques. First, a semi-structured in-depth interview with 30 predetermined key informants. The interview guide was developed based on the findings of quantitative analysis in the first stage (according to the sequential explanatory design), so that the interview can explore a more in-depth explanation of the statistical results found. Each interview lasts between 60-90 minutes and is recorded with the informant's consent. Second, the Focus Group Discussion (FGD) was held in three sessions, one session each per regional area, involving 6-8 participants from various stakeholders. The FGD aims to confirm, triangulate, and enrich individual interview data. Third, document studies are carried out on policy documents, university financial statements, Work Plans and Budgets (RKA), and relevant accountability reports. Qualitative data analysis uses the thematic analysis approach developed by Braun and Clarke (2006) with six stages: (1) data familiarization through transcription and repeated reading; (2) initial coding development; (3) theme search; (4) theme review; (5) naming and defining themes; and (6) writing analytical reports. The entire qualitative analysis process is assisted by NVivo 12 software to facilitate data management and coding. Quantitative and qualitative data integration is carried out at the stage of interpretation of results (connecting/merging). The findings of the panel regression analysis showing the statistical relationship between fiscal policy variables and regional economic growth are described and enriched by the findings of the themes of the qualitative analysis. The integration technique used is joint display, which is the presentation of quantitative and qualitative results side by side in a table or matrix to facilitate comparison and synthesis (Creswell & Plano Clark, 2018). The validity of mixed methods is maintained through triangulation of data sources, triangulation of methods, and member checking. Data Validity Test To ensure the validity and reliability of the research, several validation procedures are applied to each component of the method. In the quantitative component, internal validity is maintained through the use of data from official government sources that have been audited, the application of various statistical assumption tests, and the use of robustness checks. External validity is ensured through the selection of regionally representative samples and the coverage of a long period of time (2015-2024). In the qualitative component, the validity of data is maintained through four criteria stated by Lincoln and Guba

(1985): (1) credibility through prolonged engagement, triangulation of data and methods, and member checking; (2) transferability through the presentation of thick descriptions; (3) dependability through documented trail audits; and (4) confirmability through researcher reflexivity and peer debriefing. Research Ethics This research is carried out by paying attention to the ethical aspects of research which include: (1) obtaining informed consent from all informants before interviews and FGDs are conducted; (2) ensuring the confidentiality of the identity of informants who are not willing to be disclosed; (3) openness regarding the purpose and use of research results; (4) respect for the right of informants to withdraw from research at any time; and (5) reporting research results honestly and accurately without data manipulation. The research ethics protocol has been approved by the Ethics Committee of the research institution.

RESULTS AND DISCUSSION

This study involved 340 universities consisting of 170 case groups and 170 control groups. The results of the descriptive analysis show the following description of the characteristics of the sample.

Table 2. Research Sample Characteristics (n = 340)

Variabel	Category	Case n (%)	Control n (%)	Total n (%)
Region	Jawa	108 (63,5)	72 (42,4)	180 (52,9)
	Outside Java	62 (36,5)	98 (57,6)	160 (47,1)
Status PT	PTN	112 (65,9)	92 (54,1)	204 (60,0)
	PTS	58 (34,1)	78 (45,9)	136 (40,0)
Accreditation	Superior (A)	98 (57,6)	38 (22,4)	136 (40,0)
	Very good (B)	52 (30,6)	84 (49,4)	136 (40,0)
	Good (C)	20 (11,8)	48 (28,2)	68 (20,0)
Dana BOPTN	Height (>Rp 50 M)	123 (72,4)	30 (17,6)	153 (45,0)
	Medium (Rp 20–50 M)	35 (20,6)	84 (49,4)	119 (35,0)
	Low (<Rp 20 M)	12 (7,0)	56 (32,9)	68 (20,0)
DAK Education	Height	116 (68,2)	36 (21,2)	152 (44,7)
	Medium	38 (22,4)	82 (48,2)	120 (35,3)
	Low	16 (9,4)	52 (30,6)	68 (20,0)
Regional HDI	Height (>72)	118 (69,4)	54 (31,8)	172 (50,6)
	Low ($\leq$ 72)	52 (30,6)	116 (68,2)	168 (49,4)

Table 2 Discussion: The results of the sample characteristics analysis showed that the case group was dominated by universities in the Java region (63.5%), PTN status (65.9%), Superior accreditation (57.6%), and received high-category BOPTN Funds (72.4%). On the other hand, the control group was more from outside Java (57.6%), with PTS status (45.9%), Baik Very accredited (49.4%), and received BOPTN in the medium category (49.4%). The difference in the distribution of characteristics between these two groups indicates a structural gap in the distribution of education fiscal policies that has an impact on differences in regional economic growth.

There was a striking difference between the case group and the control across all continuous variables. The average regional economic growth of the case group of 6.34% far exceeded the control group of only 3.40%, with a difference of 2.94 percentage points. The average BOPTN fund in the case group (IDR 72.48 billion) was almost 3.3 times compared to the control group (IDR 22.02 billion). Similarly, the DAK of Education in the case group (IDR

89.62 billion) was 2.2 times greater than the control group (IDR 41.24 billion). The average HDI of the case group was 75.84 compared to the control group of 66.86 which was below the national average. These differences consistently show that greater fiscal policy correlates with higher regional economic growth.

The distribution of regional economic growth shows a very clear pattern. Universities in the Java region have a high proportion of economic growth of 60.0% compared to only 38.8% outside Java. PTS with PTN status achieved high growth of 61.8%, far exceeding PTS which was only 32.4%. The accreditation gradient is very real: universities accredited as Superior achieve high growth of 76.5%, Very Good 39.7%, and Good only 17.6%. This data emphasizes that the institutional quality of universities, status, and regional location are the main determinants of the distribution of fiscal policy benefits to regional economic growth.

The results of the Chi Square test showed that seven of the eight variables had a statistically significant relationship with regional economic growth ($p < 0.05$). The BOPTN fund has the strongest relationship with Cramér's value $V = 0.423$, indicating the strength of the medium to strong relationship. The variables of Regional HDI ($V = 0.365$), Education DAK ($V = 0.381$), and Regional ($V = 0.340$) showed a relationship at a moderate level. The only variable that did not show a meaningful relationship was Number of Students ($\chi^2 = 7.234$; $p = 0.124$; $V = 0.147$), so this variable was not included in the next multivariate analysis. These findings confirm that the quantity of students does not necessarily have implications for regional economic growth, but rather the institutional quality and amount of fiscal allocation that are more decisive for cross-tabulation show a very consistent gradient between the amount of BOPTN Funds and regional economic growth. Universities with high BOPTN in areas of high economic growth reached 72.5%, far above universities with medium BOPTN (38.7%) and low BOPTN (19.1%). On the other hand, the proportion of low growth in universities with low BOPTN reached 33.8%, almost five times compared to universities with high BOPTN (6.6%). This consistent gradient pattern reinforces evidence of a dose-response relationship between the amount of BOPTN's fiscal policy and regional economic growth.

A 15-year trend analysis reveals five phases of fiscal policy dynamics and Indonesia's regional economic growth. The initial phase (2010–2013) showed the highest economic growth of an average of 6.19%, driven by the commodity boom and the beginning of the implementation of BOPTN. The stabilization phase (2014–2017) showed a decline in growth to an average of 4.99% as the commodity cycle ended, although BOPTN continued to increase. This indicates that education fiscal policy has an impact on economic growth with a certain time lag. The contraction phase of 2020 due to the COVID-19 pandemic was the largest anomaly with a contraction of -2.07%, although the BOPTN budget was maintained at Rp 4.87 trillion, proving that the education fiscal policy is not enough as a single buffer to face a global external crisis. The 2022–2025 acceleration phase showed a strong recovery with an average growth of 5.18%, confirming the long-term resilience of higher education fiscal investments. The linear regression model projection estimates that regional economic growth will reach 5.82% in 2030 as BOPTN increases to Rp 11.41 trillion, assuming there are no significant external shocks. The results of the estimates also show that tax revenues play a role in supporting development financing, although its impact on regional economic growth can be indirect. In some studies, fiscal revenues have been shown to have a significant effect when directed at productive spending, but they are not always strong when viewed only as an income variable regardless of the quality of their use.

In the context of implementation in higher education, fiscal policies reflected through the allocation of operational funds, investment in infrastructure facilities, and support for academic programs are seen to contribute to improving the quality of educational services. This impact then drives derivative effects on the regional economy, for example through labor absorption, consumption activities around campus, and the growth of supporting businesses such as

boarding houses, transportation, and food services. This pattern is in line with the findings that fiscal policy can strengthen regional economic stability and activity.

The results show that fiscal policy is an important instrument in driving regional economic growth, especially when directed to productive spending. Government spending has a multiplier effect because it is able to create new demand in the regional economy, so that regional output also increases. In the case study of universities, the implementation of fiscal policy not only has an impact on the internal institution, but also affects the surrounding economic environment. When colleges receive and manage budgets effectively, academic and non-academic activities increase, which ultimately fosters local economic activity. This means that universities can be seen as regional economic nodes that strengthen the circulation of income in the surrounding area. However, the influence of fiscal policy on regional economic growth is not always direct and significant across all variables. Some studies show that fiscal decentralization or certain fiscal components have only a positive but not significant impact on economic growth, although it still has an effect on social welfare and other development indicators. This indicates that the effectiveness of fiscal policy is highly dependent on the quality of planning, spending efficiency, and program orientation.

Conceptually, these results confirm that fiscal policy will be more effective when directed at sectors that generate long-term benefits, such as education, infrastructure, and human resource development. In the context of higher education, spending that supports innovation, research, and academic capacity building can produce a greater economic impact than routine spending that is consumptive in nature. These findings imply that local governments and university managers need to ensure that the fiscal budget is used productively and transparently. The main focus is not only on the size of the budget, but also on the effectiveness of the distribution and the economic output produced. Thus, fiscal policy can be a driver of regional economic growth if it is directed to strengthen local economic activity, improve the quality of education, and create a broad multiplier effect. This agreement can be used as a basis to affirm that universities are not only educational institutions, but also the driving force of the regional economy.

CONCLUSION

Fiscal policies in the form of BOPTN Funds and Education DAK have a positive and significant effect on regional economic growth ($\beta = 0.47$; $p < 0.05$), with universities proven to play a multiplier effect through job creation, increased public consumption, and knowledge transfer to the local economy. The institutional quality of higher education as reflected in accreditation is proven to be more decisive than the number of students, where universities accredited with Superior achieved a high growth proportion of 76.5% compared to 17.6% in universities with good accreditation. However, there is a structural gap in the distribution of fiscal policy between Java and outside Java that has an impact on economic growth disparities between regions, so this study recommends a more equitable, performance-based, and affirmation-oriented fiscal policy reformulation for universities outside Java to encourage equitable regional economic growth in a sustainable manner.

Specifically, the government needs to consider providing special fiscal incentives or affirmation assistance for Private Universities (PTS) outside Java that show good academic performance. In addition, policy synchronization between the local government and the central government is needed to strengthen the role of universities as centers of local innovation, so that the allocation of BOPTN and DAK Education Funds does not only stop at routine spending, but is able to create a creative economy ecosystem and the absorption of educated workers in the area around the campus.

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