



SPECIAL AUTONOMY LAW AND EDUCATION ATTAINMENT IN WEST PAPUA: A QUASI-EXPERIMENT ANALYSIS

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Abstract. *West Papua was granted Special Autonomy status in 2008 as mandated by Government Regulation No.1/2008. Special Autonomy Law has granted more or less than 30 percent of education Special Autonomy Funds for West Papua. Thus, this study evaluates the impact of Special Autonomy Law on education attainment in Indonesia. We use panel data sets of 33 regions in Indonesia that covers the period of 2001 to 2018. We employ quasi-experiment analysis, specifically the Difference-in-difference (DID) analysis in evaluating before and after effect of Special Autonomy Law in West Papua. We further develop fixed-effect model (FEM) panel data analysis in understanding the impact of Special Autonomy Law on education by controlling socioeconomic and demographic variables. DID analysis in this study suggests that Special Autonomy Law appears to worsen education attainment in West Papua. This study further found that despite positive and significant effect of education spending share on education attainment, it appears that the realization of education spending in West Papua is relatively low.*

Keywords: *Special Autonomy Law, Education Attainment, Education Spending Share, DID, FEM.*

INTRODUCTION

Since the commencement of decentralisation under Law No. 22/1999 and Law No. 25/1999, Indonesia has experienced fiscal and educational reforms that impacted educational attainment nationally

(Muttaqin et al., 2015). These reforms are supposed to reconstruct provision of public goods in coping with disparities in accesses of education and low level of education attainment. Specifically, to cope with the objective of these reforms, Indonesia

implemented Special Autonomy Law, which has been experimented on selected provinces since 2001. West Papua is one of the selected provinces that was granted Special Autonomy status in 2008 as mandated by Government Regulation No.1/2008. In general, Special Autonomy Law was provided as a reform tool to solve problems of human rights violation, economic and cultural rights, inequality, low level of education attainment, and acute poverty (Prabowo et al., 2020). Since West Papua evidently has lower level of education attainment in Indonesia, Special Autonomy Law also specifically manage provision of education spending in increasing education attainment (Hakim et al., 2013). Thus, the reform is expected to promote fiscal decentralisation through Special Autonomy Law, reduces disparities, and increase education attainment.

Existing literature regarding Special Autonomy Law in Indonesia is limited due to data availability. Furthermore, as it will be described in the following section, most studies appear to estimate the impact of

Special Autonomy Law on education attainment through qualitative analysis on political, social, and cultural point of views. Although Special Autonomy Law has been implemented since 2001, we have not found studies that employs empirical model in examining the impact of the reform on education attainment. This study would like to fill the gap in the existing literature by employing formal econometric model in estimating the impact of Special Autonomy Law on education attainment in West Papua. This study follows empirical strategy developed by Wang et al. (2012) in estimating the impact of fiscal decentralisation by comparing the behaviours of West Papua as the reformed province and unreformed province before and after the implementation of Special Autonomy Law in Indonesia. This study will focus in estimating the impact of fiscal decentralisation through Special Autonomy Law on education attainment by employing panel dataset of regions and municipalities in West Papua that covers the period of 2001-2018.

The paper is structured as follows. The next section provides literature review on fiscal decentralisation, local government's education spending, and education attainment. The third section provides the research methodology, which specifically discuss the quasi experiment and empirical model. The following section provides results and discussion. The final section presents conclusion of the study.

LITERATURE REVIEW

Despite vast existing literature regarding education spending and educational attainment, the results remain uncertain. Proponents of decentralisation believe that local government's intervention on education through education spending most likely results in increasing educational attainment, school quality, student's performance, student's future income, and teacher's welfare (Deke, 2003; Wenglinsky, 2009; Wilson, 2001 Jackson et al., 2016; Vegas & Coffin, 2015). On the contrary, studies highlighted the inadequate capability of local government in providing

appropriate public spending to further increase educational attainment (Blankenau & Camera, 2009; Basu & Bhattarai, 2012; Djajić et al., 2019; Wang et al., 2012).

Deke (2003) employed panel models in understanding education spending and educational attainment in Kansas during early 1990s. The study found that increase in public education spending increase the probability on post-secondary education by 5 percent. Wenglinsky (2009) and Vegas & Coffin (2015) suggested that increased per-pupil expenditures are associated with increase in student's achievement and reduced class size. Wilson (2001) developed panel study on income dynamics through theoretical model on utility-maximizing youth by incorporating the impact of economic incentives and incremental education. The study further concluded that increasing school expenditure increased educational attainment and expected income.

Djajić et al. (2019) emphasize on optimal education policy for developing countries by incorporating the issue of brain drain.

This study argued that public spending on education and student's efforts in acquiring human capital and career opportunities are indeed complementary. The study concluded that increase in emigration induces net brain gain and reduces optimal public expenditure on education.

Dearden et al. (2002) investigate the impact of pupil-teacher ratios and type of school on educational attainment and wages. The study found that pupil-teacher ratio has no impact on educational attainment and men's wages, but particularly have impact on women's wages at the age of 33. This study further emphasize that selective choice of schools provided better result on educational outcomes rather than spending on education. Wang et al. (2012) employed quasi-experiment analysis, specifically the differences-in-differences (DID) analysis in understanding the impact of fiscal autonomy on education spending. The results concluded that local government were less responsive in the fiscal decentralization era.

Blankenau & Camera (2009) emphasized human capital investment in education. This study examine the impact of human capital accumulation on three basic education policies. The study concluded that increased tuition subsidies only led to increased educational enrollment but provided low incentives for students' achievement, productivity, and skill level. This study recommended that policies on education needed to incorporate productivity as main focal point in improving educational outcomes. Similarly, Basu & Bhattacharai (2012) argued that higher public spending on education led to lower long-run growth rate and educational attainment.

Accordingly, we argue that studies of Basu & Bhattacharai (2012), Blankenau & Camera (2009), and Wang et al. (2012) may work for developed countries, while it may provide misleading ideas for the case of developing countries. Since we particularly stress our studies on developing countries with less resources on education such as West Papua, it is arguably unfavourable to

reduce educational spending as it may only reduce educational attainment. West Papua need policies that will efficiently provide educational spending that will further increases education quality.

However, specific studies regarding educational spending under fiscal autonomy on West Papua's educational attainment is limited. Most studies also focuses on qualitative analysis on political, cultural, and social impact of public spending on educational attainment (Mollet, 2007; Munro, 2016). Mollet (2007) studied educational attainment in West Papua. This study suggested that special autonomy law for Papua led to local government's mismanagement on monetary investment in the education sector. Education spending in West Papua provided less incentive for students due to inequal provision between the indigenous and non-indigenous students. Munro (2016) provided qualitative analysis on education, transformation, and diminshment in Papua. This study emphasized that major cultural and political drama in

Papua resulted in meaningless educational policies.

METHODOLOGY

We are interested in examining the impact of the special autonomy effect, if any, on public education attainment. Indonesian government has attached great importance in increasing education spending share in the long term. Provinces under special autonomy, after obtaining stronger fiscal capacity, may later catch up on the education attainment, which will have significant long-term benefits to the society.

To estimate the impact of special autonomy on education attainment in West Papua, we use provincial and regional level data from Central Bureau of Statistics and Directorate General of Fiscal Balance, Ministry of Finance. Following Wang et al. (2012) we develop two steps of empirical analysis in this study. Firstly, we estimate differences-in-differences (DID) quasi-experimental analysis on education attainment. Specifically, we estimate the difference between

reformed group and unreformed group before the special autonomy law, difference between the two groups during the special autonomy law, and the DID results that portray changes on educational attainment before and after the Special Autonomy Law. Therefore, the empirical model is as follows:

$$MYS_{i,t} = \beta_0 + \beta_1 SAL + \delta_0 Post + \delta_1 DID + u \dots \text{ (Eq. 1)}$$

where $MYS_{i,t}$ is mean years of schooling that portrays level of education attainment. SAL is dummy variable (1 for reformed region and 0 for unreformed region), $Post$ is dummy variable (1 for the year 2009-2018, 0 otherwise), DID is interaction between SAL and $Post$, β_1 is the specific effect of reformed region, δ_0 is trend of reformed and unreformed group, δ_1 is the DID estimator that portrays the impact of Special Autonomy Law on education attainment.

Secondly, we incorporate control variables in our panel data regression models to estimate the DID results. The panel data regression on DID provide deeper understanding in estimating the impact of Special

Autonomy Law in West Papua by controlling socioeconomic and demographic factors that may affect education attainment. We use socioeconomic and demographic datasets from Central Bureau of Statistics and Indonesia Database for Policy and Economic Research (INDO-DAPOER) World Bank that covered the period of 2001-2018. Table 1 provides summary of variables included in the empirical regression model. The regression model is as follows:

$$MYS_{i,t} = \alpha_0 + \alpha X_{i,t} + \gamma_1 SAL + \gamma_2 Post + \gamma_3 DID + \varepsilon_{i,t} \dots \text{ (Eq. 2)}$$

where $MYS_{i,t}$ is mean years of schooling that portrays level of education attainment. $X_{i,t}$ is control variables included in the model, which is the share of education spending on overall government spending (EDUSHARE), population density (POPDEN), and GRDP per capita (GRDPERCAP). SAL is dummy variable (1 for reformed region and 0 otherwise), $Post$ is dummy variable (1 for the year 2009-2018, 0 otherwise), DID is interaction between SAL and $Post$.

Table 1. Summary of Variables

Variables	Explanation of Variables	Data Source
<i>MYS</i>	Mean years of schooling	Central Bureau Statistics
<i>SAL</i>	Dummy variable (1 for reformed region; 0 for unreformed region)	
<i>Post</i>	Dummy variable (1 for the year 2009-2018; 0 otherwise)	
<i>DID</i>	Interaction between <i>SAL</i> and <i>Post</i>	
EDUSHARE	The share of education spending on overall government spending	Directorate General of Fiscal Balance, Ministry of Finance
POPDEN	Population density	Central Bureau Statistics
GRDPERCAP	Gross Regional Domestic Product (GRDP) per capita	Central Bureau Statistics and INDO-DAPOER World Bank

Source: Central Bureau Statistics, Directorate General of Fiscal Balance, Ministry of Finance, INDO-DAPOER World Bank

RESULTS AND DISCUSSION

Table 2 presents education attainment in West Papua before and after the Special Autonomy Law. As discussed in the previous section, this study uses provincial and regional level datasets that covers the period from 2001 to 2018. This study further aims to evaluate the implementation of Special Autonomy Law in West Papua by employing quasi-experiment DID analysis. To estimate the DID analysis, we include regional level datasets on 13 regions in West Papua as the reformed group and 20 selected regions in Indonesia as unreformed group or control group. Table 2 presents the DID results. On average, all regions' education attainment decreased by 0.029 after

the Special Autonomy Law, indicating reduction of education attainment since the reform. Furthermore, before the Special Autonomy Law, reformed group has lower average education attainment level, that apparently worsen after the implementation of Special Autonomy Law. After the Special Autonomy Law, reformed group's average education attainment level is lower by 0.106 compared to the unreformed group. Thus, the DID estimator is -0.052. The result implies that regions in West Papua has lower education attainment than other regions during the same period and that it worsens after the implementation of Special Autonomy Law.

Table 2. DID Estimation of Education Attainment in West Papua

Observations and Differences	
All	
Education Attainment before Special Autonomy Law	0.216 (0.024)
Education Attainment after Special Autonomy Law	0.187 (0.002)
Unreformed Group	
Education Attainment before Special Autonomy Law	0.224 (0.054)
Education Attainment after Special Autonomy Law	0.211 (0.074)
Observations	$n = 13; t = 18$
Reformed Group	
Education Attainment before Special Autonomy Law	0.170 (0.051)
Education Attainment after Special Autonomy Law	0.105 (0.063)
Observations	$n = 20; t = 18$
Differences	
Before Special Autonomy Law	-0.054 (0.025)
After Special Autonomy Law	-0.106 (0.025)
Difference-in-Difference	-0.052
R²	0.30

Note: The estimate uses regional level datasets from 2001-2018. Standard errors in parenthesis. Source: Own Calculation with STATA 14.0

As described in the previous section, we incorporate control variables to further deepen our understanding in investigating the DID results. We use socioeconomic and demographic variables as control in evaluating the impact Special Autonomy Law on education attainment in West Papua. Firstly, we run both fixed-effect model (FEM) and random-effect model (REM) to select the appropriate panel data analysis in the study. We also run all diagnostic testing in estimating the

presence of serial correlation, multicollinearity, which would lead to biased estimates. Through Hausman Test result, we found that fixed-effect model (FEM) is more suitable in the study.

Table 3 presents FEM regression results. The result shows a combined fixed-effect model with yearly effect in the estimate. Variable *Post* and *DID* shows negative and significant results at 0.050 level, which means that the effect of Special Autonomy Law on education

attainment is not only transitional and appears to be consistent in West Papua. Over time, education attainment in West Papua worsen even after the implementation of Special Autonomy Law.

Table 3. Fixed Effect Estimate on Education Attainment

	Fixed-Effect Estimate
<i>SAL</i>	-0.235*** (0.062)
<i>Post</i>	-0.569** (0.014)
<i>DID</i>	-0.079** (0.582)
EDUSHARE	0.159*** (0.234)
POPDEN	0.025 (0.689)
GRDPERCA	0.485** (0.020)
P	0.443
R^2	594
Observation	

Source: Own Calculation

Furthermore, the *DID* result shows that regions in West Papua will have consistently lower education attainment compared to the other regions over a long period, although the gap becomes narrow over time. Thus, the implementation of Special Autonomy Law in Papua results in lower education attainment in West Papua. Furthermore, education spending share and GRDP per capita

has significant and positive effect on education attainment in West Papua. This result implies that increasing education spending share and GRDP per capita is important in increasing education attainment in West Papua.

Major finding of this study suggests that Special Autonomy Law worsen educational attainment in West Papua. Despite the granted Special Autonomy Funds on education in West Papua, the result appears to be undesirable¹. This finding supported studies of McGibbon (2004), Mollet (2014), and Munro (2016) which stated that Special Autonomy Law granted low incentive for local government in formulating better education policies in West Papua. It is arguable that local government were unprepared for such responsibility in planning, implementing, and controlling Special Autonomy Funds on education. Local government appear to mismanage educational sector priority in West Papua that leads to misdirect of monetary investment in

¹ Law No. 35/2008 mandated that 30 percent of Special Autonomy Funds in West Papua is allocated for education sector

the education sector. Therefore, educational investment in West Papua supposedly focus on investing Special Autonomy Funds in education

infrastructure, training for teacher, and formulation of better education curriculum.

Table 4. Education Spending Share in West Papua, 2017-2018

Region	Education Spending Share (%)	
	2017	2018
West Papua, Province	10.87	13.65
Fak Fak, District	14.56	16.92
Manokwari, District	16.84	17.51
Sorong, District	17.12	13.51
Sorong, Municipality	18.66	17.83
Raja Ampat, District	12.18	13.54
South Sorong, District	13.89	14.03
Teluk Bintuni, District	11.02	12.03
Teluk Wondama, District	9.59	9.95
Kaimana, District	16.19	16.76
Maybrat, District	7.84	9.77
Tambrau, District	9.32	10.06
South Manokwari, District	11.61	10.01
Pegunungan Arfak, District	5.36	9.63

Source: Own Calculation from Directorate General of Fiscal Balance, Ministry of Finance

Accordingly, the FEM analysis suggest that increasing education spending share has significant and positive effect on education attainment in West Papua. This finding supports studies of Deke (2003), Wenglinsky (2009), Wilson (2001), Jackson et al. (2016), and Vegas & Coffin (2015). However, the result appears to be contradictive with the major finding of the study. Thus, we further conduct descriptive analysis on education spending share as summarized in Table 4. Despite the mandate of Special Autonomy Funds

on education, the realization of education spending share in West Papua is relatively low, which is less than 20 percent annually, while national average reaches 29-30 percent annually. Hence, the result arguably supported the major finding of the study, which highlighted the inability of local government in investing Special Autonomy Funds on education in West Papua. We argue that local government lack ability in prioritizing educational policies which leads to underinvestment on education in

West Papua. Therefore, local government needs to increase investment on education through increasing of education spending share in West Papua.

CONCLUSION

This study evaluates the decentralisation reform, specifically implementation of Special Autonomy Law on education attainment in West Papua. Major finding in the study conclude that apparently Special Autonomy Law worsen education attainment in West Papua. FEM analysis in the study suggests that education spending share and GRDP per capita needs to be increased to increase education attainment in West Papua. Moreover, descriptive analysis result presents that education share spending in West Papua is relatively low, which is less than 20 percent annually. This result implies that local government lacks the ability in formulating local education policies that will effectively increase productivity and education attainment in West Papua. Thus, we recommend local government in West Papua to focus on investing Special Autonomy

Funds in education investment on education infrastructure, increase teacher's quality, and formulate better education curriculum.

Conclusion from this study needs to be addressed with further research. First, this study employs DID methods and FEM panel data analysis without incorporating within-between relation between regions in West Papua. Further study needs to explore and address relationship within-between relationship of regions in West Papua that would induce better discussion on the issue of education attainment and Special Autonomy Law. Second, further studies will contribute greatly in evaluating the impact of Special Autonomy Law in the long term. Lastly, due to limited data availability, this study develops basic empirical model regarding Special Autonomy Law and education attainment in West Papua.

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