The Causal Relationship between Local Financial Performance and Border Communities Welfare

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Abstract. The regional development in border areas including in eastern Indonesia can not be separated from important participation of local government as reflecting through the local financial performance indicators. Mostly, in some recent decades, there has been a defined policy on fiscal decentralization which is able to boost the local governments to escalate their financial performances. This research aims to seek the magnitude of local financial performance effects on the border community welfare in the areas. Furthermore, this research is also intended to discover the border community welfare effects on local financial performance. The research uses secondary data that is the application of the panel data analysis method. The results show that local financial performance is not affected by the increasing welfare of the border community. However, the upliftment of community welfare indeed possesses a significant influence on an increase in local financial performance. Efforts are needed to improve the welfare of border communities through increasing development priorities, especially by the central government to the foremost and outermost areas in eastern Indonesia.

Keywords: eastern areas, welfare, development policy

Introduction

The regional development of state borders in recent years has become a great concern in line with the issue of developing the foremost, outermost and remote areas which include in the Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah, RPJMN) 2014-2019. This issue had been listed in the third vision of RPJMN which is to build Indonesia from the peripheral areas. Building these areas to increase the border community welfare is in accordance with the government efforts to reduce social and economic gaps both in communities among areas of Indonesia and communities of the neighborhood states (Bappenas, 2011; Indra, 2013; Zulkifli, 2014; Zein, 2016; Bappenas, 2016).

The regional development of eastern Indonesia until nowadays is still left behind than the western Indonesia. The development lameness among areas has shown up a gap of community welfare which is quite striking. This becomes ironic bearing in mind that eastern Indonesia has abundant natural resources (Rosmeli and Nurhayani, 2014). Implementation of fiscal decentralization that has been conducted over the last few decades aims to escalate the local independence, to reduce the fiscal dependence, and to compose the equitable financial capacity among areas which are equal to the amount of authority given to the mentioned areas (Iskandar and Subekan, 2014; Putro, 2016; Kamaroellah, 2017; Haryanto, 2018; Mangantar, 2018). On the other hand, one of the important regional financial management in implementing authority of regional autonomy is the capacity to allocate the capital expenditures. This is regarded possessing a higher multiplier effect on the economy which is expected to be able to accelerate the realization of public welfare (Nugraheni and Priyarsono, 2012; Nurhidayati and Yaya, 2013; Arini, 2016; Waryanto 2017). In other words, the regional...
financial management that is reflected in the local financial performance indicators has an influence on increasing the local community welfare including the border communities.

While in other perspectives, public welfare is also affected by local financial performance. According to Iskandar and Subekan (2014), public welfare is influenced by local financial performance based on local financial indicators such as independence, effectiveness, and efficiency. Furthermore, Bhakti et al. (2012) and Ariansyah (2018) state that public welfare represented by Human Development Index is affected by the magnitude of local government expenditure allocation based on the functions of economy, healthcare, and education.

These two perspectives encourage research on the magnitude of contribution from each independent variable in affecting the dependent variable. Based on the reasons above, this research has two objectives. The first objective is to seek the magnitude of local financial performance effects in eastern Indonesia (representing by the indicators of local government capital expenditure proportion) on the border community welfare (deputizing by the Human Development Index). The second objective is to find out the magnitude of border community welfare contribution (representing by poverty level) on the local financial performance (representing by the local financial independence) in the areas of eastern Indonesia.

**Research Methodology**

This research used the secondary data types acquiring from the Directorate General of Fiscal Balance Ministry of Finance, the Central Bureau of Statistics, and the Border Management National Agency. These data were panel data in the period of 2016 to 2017 for 19 regencies in eastern Indonesia. The determination of data period specifically refers to the reliability of regional financial data, that the financial information of the area is the latest data that has been audited or has been determined in local regulations. While the determination of regencies as the foremost and outermost regions of Indonesia were determined by the National Border Management Agency (Badan Nasional Pengelola Perbatasan, 2019).

Based on the available structured data, the data analysis method utilized in this research is panel data regression analysis. This refers to the analysis method conducting by prior research enabling to explain a relationship between local financial performance and public welfare, as seen in the research of Iskandar and Subekan (2014), Gousario and Dharmastuti (2015) and Suartini (2019). In these panel data regressions, two-panel model equations were built as follows:

**Model 1: The impact of regional financial performance on the community welfare**

\[
\log h_{i,j} = \beta_0 + \beta_1 c_{i,j} + \beta_2 f_{i,j} + \beta_3 p_{i,j} + \epsilon_{i,j}
\]

where: is algorithm value of the i-regency human development index in the j-year; is a capital expenditure proportion on the total regional expenditure of regency-i in the year-j; is average spending for food per capita of regency-i in the year-j; is an inflation level of regency-i in the year-j; are coefficients of regression, and is an error term.

**Model 2: The impact of public welfare on the regional financial performance**

\[
\log f_{i,j} = \beta_0 + \beta_1 g_{i,j} + \beta_2 p_{i,j} + \beta_3 p_{i,j} + \epsilon_{i,j}
\]

where: is a regional independent ratio of regency-i in the year-j; is an economic growth rate of regency-i in the year-j; is a logarithm value of total population for age above 15 years old of regency-i in the year-j; and is a population poverty level of regency-i in the year-j.

The estimated model obtained is then tested based on the classic assumption test in the form of multicollinearity and heteroscedasticity tests. A multicollinearity test is performed to determine the existence of a linear relationship or a high correlation between each independent variable in the model. Meanwhile, the heteroscedasticity test is conducted to detect any variance in residual variance for all observations on the model.

Establishing the model 1 was underlying on a consideration that the proportion of capital expenditure (functioning as a proxy of regional financial performance) was able to deliver effects on increasing the public welfare through the Human Development Index growth. Managing the local government expenditure orienting on the long-term
advantages through development based on the expansion and improvement of access for public on income, education, healthcare, and others in order to support a proper living standard is expected to improve the public welfare as a whole (Tamam and Rahma, 2013; Samputra and Munandar, 2019). Those things above are supposed to be able to reduce the public welfare gaps, especially in the border areas, both among areas in Indonesia and neighboring states.

The indicators of capital expenditure proportion are gained from a formulation of Nugraheni and Priyarsono (2012) as follows:

$$cep = \frac{capex}{texp} \times 100$$

Where: is the capital expenditure value, and is the total expenditure value.

Furthermore, another factor signifying the community welfare level is the expenditure pattern of communities consumption indicating by expenditure proportion on foods and non-foods. This is based on a thought that the change in community income has an effect on the shifting of expenditure pattern. The higher the incomes, the higher the non-foods expenditure. In other words, the lower the percentage of foods expenditure in total expenditure, the better the community welfare level (The Central Bureau of Statistics, 2019a). Therefore, the proportion of community expenditure on food can influence the growth of the Human Development Index as an indicator of community welfare level.

The macroeconomic indicator that is able to affect the community welfare level is the inflation rate. A low inflation rate in a certain area shows affordability of communities on affordably available supply and fluent distribution. This can be expected to uplifting the community’s life standards which one of them is indicated by an increase in Human Development Index.

Moreover, establishing model 2 is based on the hypothesis and thought of prior research that regional financial independence (functioning as a proxy of local financial performance) is influenced by some factors. First, economic growth is one of the factors that can escalate the local tax income and retribution (Suratman et al., 2013). Uplifting the economic activity in an area through increasing added value creation of product and service process will result in creating opportunities for local government to explore the potential tax income. Since the regional economic activity is growing, the basis of local tax and retribution will automatically increase where the local government is expected to be able to optimize the local revenue. In the end, the increase in local government revenue will escalate the local financial independence.

The indicator of local financial independence is gained from the formula of Halim (2007) as follows:

$$lfin = \frac{lgr}{bf} \times 100$$

where: is the value of Local Government Revenue, is the value of balancing funds.

Second, the population factor shows the potential size of the taxpayer. This possibly enables the higher potential revenue of tax and retribution which will implicate the locally-generated revenue that is also going to be high (Rajaraman and Vasishtha, 2000). A high locally-generated revenue can jack up the capability of the area in financing governmental activities, development, and services for the public. In the other hand, this high locally-generated revenue indicates a low dependency of the area on transferred revenue originating from central government and other areas which then points out a rise of local financial independence (Sulistyo, 2018). Data represent the variable is the number of population aged 15 years and above. This was based on a reason that this population group possessing contribution capabilities in the local government revenue, especially, local tax and retribution.

Third, the poverty level can influence the efforts of local tax collection (Nikijuluw, 2012). Bearing in mind that a taxpaying compulsory for poor households will be difficult to be conducted than the middle and upper-class households. For instance, in collecting a tax on street lighting, many poor households consume the electricity illegally that they do not pay any electricity bills including the accompanying taxes. Another thought that in general, the poor households often or even never use up the products regarding the objects of local tax and retribution such as restaurant, hotel, recreation. or parking. They are able to influence the local tax and retribution revenues which wholly the local government revenue to be low, and then it gives impact on a low level of local financial independence.
Results and Discussion

The Financial Performance Development of Border Areas in Eastern Indonesia

The local financial performance indicators used in this research are the local financial independence ratio and capital expenditure proportion. Based on the calculation of ratio as it is seen in Figure 1, a regency (kabupaten) possessing the highest financial independence ratio among border regencies in eastern Indonesia is Kupang. This regency has a ratio of 13.71 percent in 2017, increased from 7.51 percent in 2016. Then two next regencies are Belu and Sabu Raijua that have the ratios of 12.99 and 11.18 percent in 2017, respectively. These two regencies indicate an increase of 11.06 percent and 6.58 percent in 2016, separately.

Meanwhile, a regency possessing the lowest local financial independency ratio among regencies in the border areas of eastern Indonesia is Pegunungan Bintang. This regency has a ratio of 1.23 percent in 2017 and decreased from previous year i.e. 1.74 percent in 2016. Further, Keerom Regency is the lowest decreasing local financial independency ratio regency among the border regencies in eastern Indonesia, namely 8.46 percent in 2016 and becomes 1.78 percent in 2017.

According to the calculation of Capital Expenditure Proportion as seen in figure 2, the regency with the highest Capital Expenditure Proportion among all border regencies in eastern Indonesia is Maluku Barat Daya.

Figure 1. The Development of Local Financial Independence Ratio in the Border Areas of Eastern Indonesia 2016-2017
Source: results calculated by the author

Figure 2. The Development of Capital Expenditure Proportion in the Border Areas of Eastern Indonesia 2016-2017
Source: results calculated by the author
This regency possesses a proportion of 31.74 percent in 2017, goes up from 20.24 percent in 2016. It is followed by two other regencies namely Pulau Morotai and Malaka with the proportions of 28.10 percent and 26.87 percent in 2017 and increase from 20.72 percent and 26.16 percent in 2016, respectively.

Keerom is the lowest regency in capital expenditure proportion among all border regencies in eastern Indonesia, namely only 14.48 percent in 2017. Its proportion is lower than the previous year, i.e. 21.54 percent in 2016. Sabu Raijua is the highest decrease in determining the capital expenditure proportion namely 21.01 percent in 2016. Its proportion is lowering drastically than prior year namely 39 percent in 2016.

**The Public Welfare Development in Border Areas of Eastern Indonesia**

Based on data of The Central Bureau of Statistics as figuring at figure 3, most regencies in border areas of eastern Indonesia possess a poverty rate above national average poverty level i.e. 10.70 percent in 2016 and 10.12 percent in 2017. Only two regencies, Talaud and Pulau Morotai, have the lower poverty levels than the national average poverty rate, that are 10.29 percent and 7.08 percent in 2016, and then become 9.77 percent and 7.07 percent in 2017.

![Figure 3. The Poverty Rate Development in the Border Areas of Eastern Indonesia 2016-2017](image1.png)

Source: The Central Bureau of Statistics (2019b)

![Figure 4. The Development of Human Development Index in the Border Areas of Eastern Indonesia 2016-2017](image2.png)

Source: The Central Bureau of Statistics (2019b)
percent in 2017, respectively. This condition is an irony as the opposite of the abundant natural resources possessing by the areas in the eastern Indonesia in general.

Next, a regency with the highest poverty rate in the border areas of eastern Indonesia is Supiori i.e. 37.40 percent in 2017 and having a little decrease from previous years of 37.99 percent in 2016. The second and third positions are Sabu Raijua Regency and Pegunungan Bintang Regency with 31.07 percent and 30.60 percent in 2017, and these percentages are lower than previous year namely 32.44 percent and 31.52 percent in 2016, respectively.

According to the data issued by the Central Bureau of Statistics of Indonesia as seen in figure 4, the Human Development Indexes in all border areas of eastern Indonesia are below the national average index, either in 2016 (70.18 percent) or 2017 (70.81). The closest regency to an average national human development index is Sangihe Regency for both years of 2016 (68.52) and 2017 (69.14). While the two lowest human development indexes among all border regencies in eastern Indonesia are Sabu Raijua and Pegunungan Bintang i.e. 55.22 and 43.24 in 2017 and increase from 54.16 and 41.90 in 2016, respectively.

The Inferential Analysis and Model Interpretation of Local Financial Performance on Public Welfare

Estimating both models above needs a data panel model selection to gain the best model out of three available alternative data panel models. These models are the pooled least square (common effect), fixed effect and random effect. Things to do in the first test is to select the proper model between the pooled least square model and fixed effect model via applying the Chow test. The statistical calculation results of this model point out the probability of cross-section Chi-square is 0.00 or less than 5 percent of confidence level. This indicates H0 is rejected meaning the best model of both mentioned models above is the fixed effect model.

Testing model 1 is carried out by selecting the best model between the fixed effect and random effect through the Hausman test. The results of statistical calculation denote that the probability of random cross-section is 0.02 or less than 5 percent of confidence level. This condition indicates to reject H0 and implying the best model through this test is the fixed effect (\ Table 1).

The next test is conducted by using a classical assumption test via checking the possibility of multicollinearity and heteroscedasticity. The multicollinearity test result signifies there is not any correlation coefficient among independent variables in this model which is more than 0.8. It means there are no perfect linear relationships among variables explained by the regression model.

Furthermore, the heteroscedasticity test result utilizing the Glejser test exhibits that the probability value in the variable of capital expenditure proportion on the total local expenditure (cep) is 0.0477. It means the probability value in both variables above is higher than 5 percent of confidence level which indicates there is a heteroscedastic problem. Therefore, a regression using white weighting (robust standard error regression) is needed in order to estimate that the conducted model is free of the transgressing assumption.

The regression equation of the model above using fixed effect is able to be set as follows:

\[
\log hdi = 1.7576 - 0.0002*cep + 0.0005*fdexp + -0.0003*inf + [CX=F]
\]

SE (0.0085) (0.0001) (0.0002) (0.0003)

Adj. R^2 = 99.38 percent, Probability of F-statistic = 0.00 percent

The estimation results of the model above exhibit that all available independent variables in the model together are able to give a significant explanatory impact on the growth of human development index in a 99 percent of confidence level. This is based on the probability value (F-statistic) of 0.00 percent which is lower than α = 1 percent. Therefore, Adj. R^2 denotes that the growth variation of human development index can be explained collectively by the capital expenditure proportion on total local expenditure, average food expenditure per capita, and inflation rate of 99.38 percent. The last 0.62 percent is able to be described by other variables outside the model.

Estimating the model above exhibits that the coefficient of capital expenditure proportion as a proxy of local financial performance does not significantly affect the growing human development index of border communities in eastern areas of Indonesia.
This finding is relevant to the research result of Khairudin et al. (2019). This is presumed that the local financial performance achievement is not only defined by one indicator (not merely stand-alone) but also being collectively supported and integrated by indicator achievements of other local financial performances in order to drive the growing human development index. Nonetheless, it is also determined by other indicators such as the local financial independence level (Iskandar and Subekan, 2014), and the absorption rate of capital expenditure (Nugraheni and Priyarsono, 2012). Another reason for the capital expenditure proportion which is not significant in affecting the growing human development index is low partisanship of local government in the border areas to allocate their capital expenditure in promoting local infrastructure development. This is confirmed based on the calculation results of capital expenditure proportion as seen in figure 2. During 2016 to 2017, the majority of regencies in the border areas of eastern Indonesia allocate their capital expenditure proportion in a range of 20 to 30 percent.

In estimating this model, only the variable coefficient of the average food expenditure per capita which is significantly affecting the growing human development index partially. A 10 percent change of the average food expenditure per capita is able to jack up the growing human development index as high as 0.005 percent, ceteris paribus. This petite effect of the average food expenditure per capita on the growth of human development index is surmised due to the low fulfillment of basic needs such as education and healthcare services in the majority of border communities. It is well known that these two services are variables that also deciding the establishing of human development index, as it is confirmed by the existing of high poverty levels in most regencies in the border areas of eastern Indonesia which are still above the average national poverty level.

Furthermore, the coefficient of inflation variable as the proxy of local macroeconomic condition has no significance in influencing the growth of human development index. This is presumed by a decrease of inflation that is resulted in affordability of border communities on prices of staple goods. The effort to lower the inflation in areas of eastern Indonesia, namely a governmental program of one fuel price that had been issued recently, is surmised to not targeting yet on decreasing the prices on education and healthcare sectors. Thus, the effort would not be able to jack up the human development indexes in the border areas.

### Table 1
Selecting the best model for model 1

<table>
<thead>
<tr>
<th>Model Test</th>
<th>Test Method</th>
<th>Result</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed effect vs common effect</td>
<td>Chow Test</td>
<td>Probability value of Cross-section Chi-square = 0.00 &lt; 0.05</td>
<td>Reject H0, the best model is the fixed effect.</td>
</tr>
<tr>
<td>Fixed effect vs random effect</td>
<td>Hausman Test</td>
<td>Probability value of Cross-section random = 0.02 &lt; 0.05</td>
<td>Reject H0, the best model is the fixed effect.</td>
</tr>
</tbody>
</table>

Source: The calculation results of the author

### Table 2
Selecting the Best Model for Model 2

<table>
<thead>
<tr>
<th>Model Test</th>
<th>Test Method</th>
<th>Result</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed effect vs common effect</td>
<td>Chow Test</td>
<td>Probability value of Cross-section Chi-square = 0.00 &lt; 0.05</td>
<td>Reject H0, the best model is the fixed effect.</td>
</tr>
<tr>
<td>Fixed effect vs random effect</td>
<td>Hausman Test</td>
<td>Probability value of Cross-section random = 0.048 &lt; 0.05</td>
<td>Reject H0, the best model is the fixed effect.</td>
</tr>
</tbody>
</table>

Source: The calculation results of the author
The Inferential Analysis and Impact of Model Interpretation of Public Welfare on Local Financial Performance

As carrying out in the previous model, the first test is to select a model between the pooled least square and fixed effect through a Chow test. The results of a statistical calculation in this model denotes that a probability of cross-section Chi-square is 0.00 or less than 5 percent of confidence level. This indicates rejecting H0 which means the best model from both models above is the fixed effect.

Furthermore, this model test is conducted by selecting the best model between the fixed effect and the random effect via Hausman test. The results of statistical calculation signify that the probability value of random cross-section is 0.048, or lower than 5 percent of confidence level. This indicates to reject H0 that infers the best model for the mentioned model is the fixed effect (Table 2).

The tests of classic assumption conducted next are multicollinearity and heteroscedasticity tests. The first test points out there is not any correlation coefficient among free variables in this model which is more than 0.8. This means there is not any perfect linear relationship among variables which describe the regression model.

Moreover, result of the heteroscedasticity test using Glejser test signifies that the probability value in the poverty level variable (povr) is 0.0402. This means the probability value in both variables is higher than 5 percent of confidence level. Therefore, a regression utilizing the white weighting (robust standard error regression) is important to make the model estimation above free from the trespass assumption. Accordingly, the regression equation of this model applying the fixed effect can be defined as follows.

\[
\text{lfir} = 80.9548 + 1.9483 \times \text{growth} \\
[- 8.661 \times \log \text{pop} - 1.9670 \times \text{povr} + \text{CX=F} \\
\text{SE (43.6835)} (1.1869) (6.1085) \\
\text{R2 = 67.80 percent, Probability of F-statistic = 0.13 percent}
\]

The model estimation results above point out that all available independent variable in the model together is able to deliver an explanatory impact significantly on the local financial independency ratio in 99 percent of confidence level. This is based on the probability value (F-statistic) of 0.13 percent which is lower than \( \alpha = 1 \) percent. Thus, the value of Adj. \( R^2 \) can indicate that the variation of local financial independence ratio can be figured out collectively by the economic growth rate, logarithm values of population number age 15 years and above, and 67.80 percent of the poverty level. The rest only 32.20 percent that is able to be demonstrated by other variables outside the model.

The estimation results of the models above denote that an increase in public welfare representing by a decrease in the poverty level, partially, possessing a significant effect on escalating the local financial performance representing by the local financial independence level. A one percent decrease of the poverty level is able to influence the independence level of local financial as high as 1.97 percent, ceteris paribus. This result points out a relationship which is suitable with the hypothesis had been stated previously that in line with a lowering poverty level, it is expected the consumption of border communities in general becomes lifted (including consumption regarding tax and local retribution revenues). In return, it can jack up the local government revenue and then results in escalating the local financial independence level.

The variable coefficient of population growth age 15 years old and above is suitable with the estimation results of the model above and exhibits a negative relationship and has no significant in affecting the local financial independence level. It is presumed that the population growth is defined as a potential tax-payer improvement but government have difficulties in collecting the tax and local retribution. This finding is parallel with a thought of Nikijuluw (2012) regarding widely administrative territories of border areas stating that population in the rural areas and islands have to pay more for delivering tax and local retribution. In return, the local government revenue is difficult to be upgraded which then results in a low local financial independence level.

In the other hand, the variable coefficient value of economic growth rate signifies a positive relationship, however, it is not significant in affecting the local financial independence level. This is presumed regarding the low capability of local governments in the eastern areas of Indonesia to utilize tax basis expansion in various economic sectors. It can, consequently, impact on a low revenue
and financial independency rate of local governments.

Conclusions

Based on the research results above, it can be concluded that the local financial performance does not affect significantly on increasing the border community welfare in eastern Indonesia. It needs closeness and integration among various achievements of local financial performance indicators to uplift public welfare. Furthermore, the partisanship of local government in the border areas is necessary in allocating the capital expenditure for the local infrastructure development. Another result from this research is that an increase in public welfare possesses a significant influence on local financial performance.

Setting up the development strategy of border areas in eastern Indonesia to increase public welfare should be the main priority followed by escalating the local financial performance. The increase of public welfare in border areas can be conducted through intensifying the development orientation of central and provincial governments in the outermost and foremost areas of eastern Indonesia. This conclusion is in line with the currently implementing direction of national development oriented to the areas of eastern Indonesia via policies to reduce regional inequality. The welfare approach for border communities is recognized to be more quickly since the development can be targeted properly to strategic areas that require fast attention and management.

This research still has some weaknesses; hence, further research needs to consider aspects of endogeneity and simultaneity in estimating the relationship between local financial performance and public welfare. The suggested model for further research is the one that is able to apply a simultaneous equation expecting to gain progress from the current research. Moreover, the next research can also be carried out by using a long time series data which is able to acquire hopefully a better estimation result.

References


