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article submission

1 message

Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id> Thu, Mar 2, 2023 at 6:18 PM
To: Robin Butler <robin.butler@refpress.org>

Dear Mr. Butler

I submitted an article to Review of Economics and Finance through the submission online system yesterday. The title of the article is "What Drives Local Government Welfare Spending? A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia".

I attached the article for you.

I am looking forward to hearing good news about the feedback on my article. Thank you.

Regards

Roosemarina Anggraini Rambe.

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WHAT DRIVES LOCAL GOVERNMENT WELFARE SPENDING? A COMPARATIVE STUDY OF SPLIT AND NON-SPLIT REGIONS IN SUMATRA, INDONESIA

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ABSTRACT

The study examines and compares the role of the previous year's GRDP per capita, the previous year's tax, sharing funds, and population toward the local government welfare spending between split and unsplit regions in Sumatra, Indonesia. The study employs the panel data of districts/cities in Sumatra from 2011 to 2020. The study applies the data panel regression technique. Results show that the welfare spending determinant model differs between the two regions. In split regions, the role of the previous year's tax, the previous year's GRDP per capita, and population have a significant, positive effect on the local government welfare spending. However, in unsplit regions, the previous year's tax has a significant positive effect, whereas the sharing funds has a significant negative influence on the local government welfare spending. This study recommends that local governments manage tax revenue by implementing intensive taxation. The splitting of local government encourages the growth of the business sector. The unsplit local governments should grow their income outside of sharing funds to increase welfare spending.

Keywords: Previous year's GRDP per capita, Previous year's tax, Population, Regional splitting, Sharing funds, Welfare spending.

I. INTRODUCTION

Government activities aim to provide public service, fulfill citizens' needs, and reach social welfare. As time passes, government spending keeps increasing. Some countries merge local governments to save on ever-expanding expenditures (Reiljan, Jaansoo, and Ülper 2013; Slack and Bird 2013). However, a merger does not always result in improved conditions than before the merger. Empirical study shows that government expenditure post-merger is still more expensive than before the merger (Blesse and Baskaran 2016; Roesel 2017).

Although some countries do mergers, Indonesia does the opposite. Indonesia does region splitting. One of the reasons for Indonesia's decision to split its regions is political; local government is given more authority in managing finance in their regions. In addition, because local governments are perceived to know more about the locals' conditions and needs, they are expected to provide more appropriate public service and to create better programs and activities for their people through region splitting. Therefore, the goal of splitting regions is to increase social welfare, as expected by the government.

Since Act 32/2004 regarding region splitting was enacted in Indonesia, region splitting had risen until 2013. After implementing this regulation, out of seven areas in Indonesia, the highest numbers of districts and cities emerging from region splitting were from Sumatra. The escalation of government spending in Sumatra regions accompanied the addition of districts and cities. This increase in government spending is significant to study as the expenditure comes from the people; therefore, government expenditure should be optimally utilized to achieve the objective of region splitting. Local governments are expected to accurately allocate their expenditure to improve their people's social welfare.

Several types of government spending positively affect social welfare in Indonesia, such as education, health, economy, social protection, and housing & public facility spending. These five types of spending in this study are called welfare spending.

The local government's focus on improving social welfare can be evaluated in the programs and activities reflected in the welfare spending allocated by the local governments. A high amount of welfare spending indicates a high attentiveness of the local governments in achieving social welfare. The bigger the welfare spending in a region is, the bigger the focus the local government has given to achieve social welfare. Consequently, local governments should allocate a considerable proportion of their spending toward welfare. It is worth noting that local governments' welfare spendings vary in the amount of their growth.

Comparing the split and unsplit regions in Sumatra, the average welfare spending of local governments from split regions (approximately 52%-65%) is perpetually lower than in the unsplit areas (Indonesian Ministry of Finance, https://djpk.kemenkeu.go.id/). However, the social welfare spending of the split regions increased higher (approximately 8.73% per year) than unsplit regions (8.18% per year) until 2019. During the COVID-19 pandemic, the average welfare spending of the government declined, with a 10.29% decrease in split regions and an 8.5% decrease in unsplit areas. The difference in welfare spending growth of these two types of local governments indicates a difference in the welfare spending determinants between local governments in split and unsplit regions in Sumatra. Therefore, this study analyzes the two regions' government's welfare spending determinant model.

Studies about government spending determinants focusing on total spending as a dependent variable have been conducted frequently. However, only a few studies focus on specific government spending determinants. Some studies expanded on health spending and its determinants (Bashir, Kishwar, and Salman 2021; Braendle and Colombier 2016). Other studies analyzed education spending and its determinants (Sheikh 2019; Yun and Yusoff 2019). However,

studies elaborating on welfare spending and its determinants are relatively rare, despite the importance of analyzing welfare spending by local governments.

One of the government welfare spending determinants is tax. An empirical study shows that tax positively affects government spending (Gurdal, Aydin, and Inal 2021). In that study, the current year's tax impacts the current year's total government spending. However, this study analyzes the previous year's tax. These authors use this proxy as governments plan the following year's spending based on the current year. By knowing the amount of tax collected this year, governments can predict the tax they can gather next year; they consider this information to plan their spending.

The other factor driving the increase in government spending is economic development. Economic development has increased per capita income. Wagner's Law, also known as the "Law of increasing state activity," explains that an escalation in economic activities will increase government spending. When per capita income increases, national government expenditure also increases (Arestis, Şen, and Kaya 2021). Empirical studies show that Wagner's Law applies in various countries, such as Spain (Jaén-garcía 2011) and Greece (Antonis, Constantinos, and Persefoni 2013).

Transfer funds from the central government also have a prominent contribution in deciding local government spending. One of the components of transfer funds is sharing funds. Previous research showed how sharing funds positively impacts local government spending (Canare 2019).

Moreover, the population also becomes a government spending determinant. Government spending regarding population numbers should be considered. A past study discovered a positive effect of population on government spending (Azolibe, Nwadibe, and Okeke 2020). The bigger the number of people, the more expensive the local government spending should be to provide public services.

Previous studies showed that little research had been conducted on welfare spending determinants. However, analyzing it is urgent for the government to accommodate determinants that can increase welfare spending. Local governments able to expand welfare spending have more potential to improve their locals' welfare. As a developing country, there are many regions yet to be prosperous. Consequently, there is a need to analyze welfare spending determinants for developing countries. Studies concerning welfare spending determinants will be this study's contribution.

This research also compares government welfare spending determinants between split and unsplit regions. Unfortunately, previous studies rarely analyzed the comparison of welfare spending determinants between the two types of regions. As a developing country, Indonesia still needs to understand the factors determining welfare spending for split and unsplit regions. This determinant model can be a scientific contribution to local governments to allocate welfare spending. By comparing the welfare spending determinant model, local governments should be able to provide variables that increase welfare spending in either split or unsplit regions.

Thus, this study examines the role of the previous year's GRDP per capita, the previous year's tax, sharing funds, and population toward the local government welfare spending of split and unsplit regions in Sumatra. This research also compares the welfare spending determinant model for the two types of regions.

The rest of the article is divided into sections. This study explains articles in the literature review in section 2. This study elaborates on the research methods in section 3. In section 4, this study describes the study's results and discussion. Lastly, this study presents the conclusion and research implications in section 5.

2. LITERATURE REVIEW

Welfare spending is a fund used by the local government and allocated to provide public services. The programs and activities of local governments in giving public services are reflected in their

expenditure. In other words, government spending becomes one of the indicators of government activities. The bigger the activities are, the bigger the government spending. Hence, local governments should thoroughly contemplate the programs and activities for their regions. Local governments should also try and accommodate possible factors that can increase local government spending focusing on welfare.

One of the government spending determinants is tax. Tax is the government's primary source of income. The elevation of tax revenue drives government spending. As the tax is raised, citizens get accustomed to paying tax to a certain extent; thus, the tax remains unchanged. As a consequence, government spending also keeps increasing. This condition reflects the Tax-spend hypothesis (Gurdal, Aydin, and Inal 2021), where tax revenue positively affects government spending. Many empirical studies support the tax-spend hypothesis (Adejare and Akande 2017; Febriani and Rambe 2022; Iiyambo and Kaulihowa 2020; Jaén-García 2019; Tashevska, Trenovski, and Trpkova - Nestorovska 2020). On the contrary, other studies have found government spending to be the reason for gathering more income through tax, labeled as the spend-tax hypothesis. Several studies support this hypothesis (Champita 2016; Luković and Grbić 2014; Melé, Quarto, and Abbafati 2020).

In developing countries, Gadanne (2017) explained that governments obtain tax revenue for developments that benefit society, such as educational infrastructures. Tax revenue is the only variable positively affecting welfare spending. The tax will positively impact spending (Nxumalo and Hlophe 2018). Therefore, this study uses the tax-spend hypothesis to understand the welfare spending determinants.

Based on the explanation above, the first hypothesis of this research is:

H1a: Previous year's local tax positively affects government welfare spending in split regions.

H1b: Previous year's local tax positively affects government welfare spending in unsplit regions.

According to Wagner's Law, economic development is a variable contributing to deciding government spending. Wagner explained the tendency of government spending to increase along with economic development (Babajide et al., 2020). Economic development, marked by a rise in GDP, will stimulate government spending. People in developed economies receive high incomes. With increased revenue, society can consume plentiful goods and services with good qualities. Governments provide many infrastructures supporting complete public services and facilities, such as health facilities with advanced technologies, educational facilities with excellent quality, and tourist attractions pulling high prices. Efforts to provide infrastructure require government spending.

Moreover, the complex relationship between laborers and employers in industries in developed regions requires strict attention and supervision from the government so that lower-class people will not receive any harm. Therefore, the government should create a regulation so that programs and activities in the business sectors will thrive and lower-class society will also receive benefits. The complexity of government activities is inclined to be simple, and the government spends less on middle- and low-income society. This explains the effect of GRDP on government spending.

Empirical studies show Wagner's Law valid in some regions. In explaining the impact of national income on government spending, researchers used some proxies, such as GDP and GDP per capita. Previous studies show how GDP positively influences government spending (Bayrakdar, Demez, and Yapar 2015; Jaén-García 2018; Magazzino, Giolli, and Mele 2015; Purmini and Rambe 2021; Sedrakyan and Varela-Candamio 2019). Other studies find that GDP does not significantly determine government spending (Azolibe et al. 2020; Babajide et al. 2020).

Using GDP per capita as a proxy, other researchers discover a positive impact of the previous year's GDP per capita on government spending (Ibrahim and Bashir 2019; Irandoust 2019; Narayan, Rath, and Narayan 2012). Akca, Sönmez, and Yılmaz (2017) revealed that GDP per

capita influences health spending. Munir and Ali (2019) mentioned that GDP per capita affects subsidized education and social and economic expenditures. This study utilizes the latter proxy.

The second hypothesis of this study:

H2a: The previous year's GRDP per capita positively affects welfare spending in split regions.

H2b: The previous year's GRDP per capita positively affects welfare spending in unsplit regions.

Sharing funds also determines local government spending. A past study stated that sharing fund positively influences local government spending (Canare 2019). Sharing funds is the transfer from the central to local governments, illustrating economic development and availability of local natural resources. In other words, because regions with high central taxes have plentiful natural resources, they can significantly contribute to the state; the state will return the contribution to those regions to a certain proportion. Areas yielding high central taxes and plentiful natural resources will receive more immense proportions of sharing funds than regions that do not. More sizeable sharing funds given by the central government will enrich local government income. A considerable local government income will allow local governments to increase their spending. However, with additional sources of local government income, government spending might not increase proportionately to the sharing funds received.

From the explanation above, the hypotheses for the sharing fund variable are:

H3a: Sharing funds positively affects welfare spending in split regions.

H3b: Sharing funds positively affects welfare spending in unsplit regions.

The population also determines government spending. Empirical studies showed a positive effect of population on government spending (Akca et al. 2017; Bernardelli, Kortt, and Dollery 2020; Cai, Feng, and Shen 2018; Jibir and Aluthge 2019; Krieger and Meierrieks 2020). In addition, Azolibe et al. (2020) explained that the population group determining government spending is the population aged 0-64 years. With that in mind, the government should provide public services.

Some public services include expenditures per capita, such as health insurance, pension, and educational aid fund. The more sizeable the population is, the more they will boost the quantities of public services; this results in increased government spending. Based on that explanation, this study proposes these hypotheses:

H4a: Population positively affects welfare spending in split regions.

H4b: Population positively affects welfare spending in unsplit regions.

3. RESEARCH METHOD

This study draws from the panel data of districts and cities in 2011-2020 from the Indonesian Ministry of Finance and Statistics Indonesia. This research independently analyzes two welfare spending determinant models in each region: the welfare spending determinant model in split regions (consisting of 23 districts and cities) and the welfare spending determinant model in unsplit regions (composed of 99 districts and cities). Original regions (from which the new regions are split) are not studied. Welfare spending in this research comprises the sum of education, health, economic, social protection, and housing & public facilities spending.

Panel data regression models for both regions in Sumatra are:

$$LnGWSS_{it} = \beta_0 + \beta_1 LnGRDP\ per\ capita_{t-1it} + \beta_2 LnTax_{t-1it} + \beta_3 LnSF_{it} + \beta_4 LnPop_{it} + \delta it \ldots \quad (1)$$

$$LnGWSNS_{it} = \beta_0 + \beta_1 LnGRDP\ per\ capita_{t-1it} + \beta_2 LnTax_{t-1it} + \beta_3 LnSF_{it} + \beta_4 LnPop_{it} + \delta it \ldots \quad (2)$$

Where GWSS is welfare spending in split regions, GWSNS is welfare spending in the unsplit areas, GRDP per capita$_{t-1}$ is the previous year's Gross Regional Domestic Product per capita, tax$_{t-1}$ is the previous year's local tax, SF is sharing funds, and Pop is population. β_i is an independent variable coefficient, t is time, i is regencies/cities, and ð is an error term with α=5%.

This study tests both panel data regression models using Chow and Hausman test to find the best regression models among common, fixed, and random effect models (Wooldridge 2013). Then,

based on the best model, this study conducts the F-test, T-test, and determinant coefficient (Gujarati 2003).

4. RESULTS AND DISCUSSION

4.1. Research Result

Local government welfare spending in Sumatra varies every year from 2011-2020. Between split and unsplit regions, the average welfare spending in split regions is always lower than in unsplit areas. This condition has occurred since the beginning of the region splitting. Although the average welfare spending development in split regions is higher than in unsplit areas, the difference in welfare spending between both types of regions dramatically differs. This condition indicates that governments in the unsplit region have better control over program planning and execution regarding welfare improvement. On the contrary, in the past few years, local governments in split regions are still honing their abilities in planning and managing innovative programs and activities to deliver public service. Table 1 presents descriptive statistics of spending and independent variable.

Insert Table 1 here.

Next, this study presents the development of GRDP per capita. GRDP per capita in split regions is only 10% of the other region type. This condition is considered normal since the business sectors in unsplit regions, such as industries or foreign companies, have existed for a long time. Moreover, infrastructures supporting the business sectors and government regulations controlling economic activities are more accomplished there; this results in more advanced economic development in unsplit regions.

With that in mind, for the tax variable, split regions have lower average tax than unsplit regions since the latter have more taxpayers and more business entities which can pay more local taxes. Human resources in attracting tax from the business sectors are also higher in those regions. On

the other hand, newly split regions still need time to learn how to intensify and extensify tax. Interestingly, those efforts seem successful due to higher tax growth in split regions. Therefore, the tax amount that is supposed to be the primary government income source is set to increase in the future.

Conversely, the situations between the two region types differ regarding the sharing funds. Sharing funds is very much connected to central government tax, paid by the people and natural resources from local regions. Both components are the foundation of calculating the quantity of sharing funds received in the regions. Each year, sharing funds tends to decrease in split and unsplit regions. Even so, sharing funds in unsplit areas is always higher than in split regions, indicating that unsplit regions have more significant central government tax. Moreover, the industries of natural resources in the unsplit areas progress better.

Similar things occur for the population, as more people live in unsplit regions. This is due to people living with their families and working in that area before the split. The unsplit regions tend to be more populous.

Regression Model: Welfare Spending Determinant

This study tests the panel data regression model with Chow and Hausman test. The result shows that the best model is the Fixed Effect Model (FEM) for split and unsplit regions. This information can be seen in Table 2.

Insert Table 2 here

Based on that explanation, this research conducts statistical tests using the FEM model for both region types. This statistical test is presented in Table 3. This study runs the F test on both regions and shows that all independent variables affect welfare spending. However, the determinant coefficient for unsplit regions is more robust because the ability of all independent variables is

very high (93.6%) in explaining the variations in the ups and downs of welfare spending in this area.

Insert Table 3 here

The next test is the t-test. For split regions, three variables significantly positively influence welfare spending with α=5%. The three variables comprise the previous year's GRDP per capita, the previous year's tax, and population.

Unlike split regions, in the unsplit areas, two variables significantly and positively affect welfare spending with α=5%. The previous year's tax has had a significantly positive effect on welfare spending. However, sharing funds significantly negatively affects welfare spending because, in unsplit regions, the expenditure depends on government income (tax and sharing fund).

4.2. Discussions

This study discovers that the previous year's tax significantly and positively impacts local government welfare spending in the split and unsplit regions. Thus, this research supports the tax-spend hypothesis. Moreover, the results resemble previous studies, such as studies done by Kithinji (2019), Rahman and Wadud (2014), Rambe and Febriani (2021), and Westerlund, Mahdavi, and Firoozi (2011).

The above-mentioned previous researchers stated that tax is the most significant source of government income. Therefore, an increase in the tax that the government receives will drive an increase in government spending. To explain the case in Sumatra, the author will explain the context of the region splitting there. In the era of region splitting, local governments are given more authority to collect taxes from local people. There are 11 types of local taxes that the district and city government have mandates on, such as hotel, restaurant, entertainment, advertisement, and parking taxes. These taxes are not limited, meaning local governments can explore potentials outside the ones regulated in the constitution. Of course, tax collection should consider the ability

of the businesses. For example, if small enterprises are not stable but are taxed unsuitable, they can go bankrupt.

Every year, more Sumatra districts and cities own small and big enterprises with the potential of local tax collection. Examples are the development of tourism generating growth in hotel, restaurant, entertainment, and advertisement business. Based on that condition, taxes from the blooming of these businesses are increasing in the split and unsplit regions. The increase in local tax collection from the previous year will allow local governments to carry out regional development by providing more distributed public goods, manifested through elevated local government welfare spending.

The only variable influencing local government welfare spending in both regions is the previous year's tax. The previous year's GRDP per capita and population significantly and positively affect welfare spending only in split regions. This proves that Wagner's Law is only applicable to split regions. This result supports studies done by Ibrahim and Bashir (2019), Irandoust (2019), and Narayan et al. (2012). At the beginning of the establishment of newly split regions, there were limited public service facilities. Education, health, housing, and public facilities still need to be improved. A similar case occurs for public services supporting welfare. GRDP per capita in split regions is still low. With the increase of GRDP per capita, society's ability to utilize public services will also grow. This condition boosts local governments of split regions to use their welfare spending for infrastructures supporting more good public services. Some public service facilities built by the government are not only pure public goods but are *near public goods*, such as hospitals, laboratories, schools, markets, and public housing. With an increase in the public's ability to utilize public service facilities near public goods, the government can receive an additional tax and local retribution driving the government to increase its welfare spending.

In unsplit regions, the previous year's GRDP per capita is insignificant in affecting welfare spending. This discovery resembles previous studies, such as Babajide et al. (2020) and Azolibe et al. (2020).

In Sumatra, GRDP per capita in unsplit regions is higher than in split regions. Industries are developed, and society tends to be more prosperous and, therefore, more independent in providing welfare services. The GRDP per capita, indicating social welfare for society, also increases. Most people with high incomes can achieve welfare through their effort. They use health insurance services, attend expensive private schools, and work for high salaries. In unsplit regions, infrastructures are already available. Moreover, most people own houses. Hence, housing and public facilities spending that drive achieving social welfare is no longer urgent (unlike in split regions).

This part discusses the sharing funds. In unsplit regions, sharing funds significantly negatively affects welfare spending. This result differs from past studies that stated a positive impact of sharing funds on local government spending (Canare 2019). On the contrary, sharing funds does not significantly affect welfare spending in split regions.

In Sumatra, some unsplit regions produce natural resources, such as crude oil from Dumai City (Riau Province) and Muara Enim (South Sumatra Province). These two regions received high sharing funds. However, after decades, the production of those split regions started to decline, causing a decreased sharing funds from the central government. Similarly, other natural resources resemble those cases, such as forest products. Wood production also declined to protect forests. This caused a decrease in sharing funds in unsplit regions. Table 1 about variable descriptions presents the average sharing funds fluctuation. However, local government spending kept growing. Sharing funds was one of the forms of central government transfers to regional governments to reduce income inequality between regional governments while still considering a more significant portion for the producing regions. Aside from sharing funds, central government transfers were, in

general, specific allocation grants. This led to the continuous growth of local government welfare spending because of general and specific allocation grants, even though sharing funds kept declining.

The condition is split regions differs. Some districts still had increasing crude oil production (for example, Kepulauan Anambas District in Kepulauan Riau Province). That situation resulted in the district receiving more sharing funds. However, some districts were still poor, possessing no natural resources, and had undeveloped economies, such as South Bengkulu District in Bengkulu Province. That caused the district to receive less sharing funds. Although the amount of sharing funds varies in split regions, welfare spending kept increasing there. This information explains why the sharing fund variable is insignificant in affecting welfare spending in split regions.

This part explains how the population significantly affects local government spending in split regions. This result supports past research done by Akca et al. (2017), Cai et al. (2018), and Jibir & Aluthge (2019). The government provides public service regarding social welfare adapted to the amount of the population. For example, health spending is allocated to developing hospital infrastructures, laboratories, medical personnel (doctors, midwives, and nurses), health equipment, toddler immunization, and medical drugs adjusted to the number of the population. The bigger the population is, the bigger the health spending allocation is to maintain local public health. The same goes for education spending, where they adjust it to develop education infrastructures and provide teacher services based on the school-age population. Similarly, other welfare spending components, including economic spending and housing & public facilities spending, are the same. The more the population, the more public services are needed; the more significant the economic and, housing & public facilities spending are.

5. CONCLUSION AND RESEARCH IMPLICATIONS

The model and statistical tests show that only the previous year's tax significantly positively affects welfare spending in both split and unsplit regions. Moreover, the previous year's GRDP per capita and population positively influence welfare spending in split regions only. On the contrary, sharing funds significantly and negatively affects welfare spending in unsplit regions. Therefore, this study concludes that there is a significant difference in welfare spending determinants between split and unsplit regions.

Welfare spending is an integral part of local governance. The availability of welfare spending can drive the growth of social welfare in local regions. This study implies that in split regions, local governments should create a conducive business climate and a regulation supporting the development of local economies. In addition to supporting existing businesses, governments should also develop programs driving the emergence of small and medium enterprises in local regions.

With the proliferation of business in split regions, the opportunity for governments to collect more taxes increases. Even so, this study suggests that governments focus on strategies for increasing taxes through intensification in tax collection in preexisting local taxes instead of creating a new tax that can burden businesses. Local governments in split regions are expected to innovate in collecting taxes from society and implement an effective and efficient collection system so that the public feel at ease when paying taxes. Indeed, the effort to increase tax revenue needs to consider businesses' ability to grow and expand. On the other hand, the more the school-age population is, the more they need welfare spending. Therefore, it is expected of the government to control population growth.

In unsplit regions, the previous year's tax also positively affects welfare spending. Therefore, this study implies the significance of creating a strategy for tax collection. Local governments in unsplit regions are expected to innovate when collecting taxes with an intensification method while

protecting enterprises taxed in local areas that can survive. On the other hand, Sharing funds negatively affects welfare spending. This implies that local governments should increase other sources of income as sharing funds tend to keep decreasing.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest concerning this article's research, authorship, and publication.

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Table 1. Descriptive Statistics of Government Welfare Spending and Independent Variables

Mean of Variables	Split Regions			Non-split Regions		
	2011	2020	Growth/year	2011	2020	Growth/year
Government Welfare Spending (billion IDR)	292.27	505.73	8.73	533.40	895.78	8.18
GRDP per capita (million IDR)	33.40	53.49	6.73	320.70	508.37	6.20
Local tax (billion IDR)	3.34	18.43	23.57	28.83	86.27	16.89
Sharing Fund (billion IDR)	55.11	34.99	-1.34	179.60	119.79	-1.60
Population (thousand persons)	188.07	217.15	1,52	387.59	442.41	1.8

Source: Research results

Table 2. Panel Data Regression Model Test

Tests	Region Types	
	Splitting	Non-Splitting
Chow test	*	*
Hausman test	*	*

Source: Research results

Notes:

→*Chow test: chi-square prob > 5%, H0 is rejected. This shows that the best model is FEM.*

→ *Hausman test: chi-square prob > 5%, H0 is rejected. This shows that the best model is FEM.*

Table 3. Regression Model: Welfare Spending Determinants for Both Regions

Variable	Region Types	
	Splitting	Non-Splitting
C	9.258050	20.56311***
Ln GRDP per capita t-1	0.190201***	0.019455
Ln Tax t-1	0. 115774***	0.255276 ***
Ln SF	-0.199394	-0.055640 ***
Ln Pop	1.368066***	0.113991
R-squared	0.831326	0.921578
F-statistic	38.29132	102.1919
Prob(F-statistic)	0.00000	0.000000

*notes: *** significant at α = 1%, ** significant at α = 5%, * significant at α = 10%.*

Source: Research results

Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id>

Article Acceptance [REF]: What Drives Local Government Welfare Spending?A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia

1 message

Robin Butler <robin.butler@refpress.org> Thu, Mar 2, 2023 at 9:22 PM
To: roosemarina.rambe@unib.ac.id

Dear Prof./Dr. Roosemarina Anggraini Rambe:

Hope you are doing well and in good health and thank you very much for the submission of article entitled **"What Drives Local Government Welfare Spending? A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia"** in the journal "**Review of Economics and Finance**", which has been approved for publication in the journal. As your article will go under normal review process to the reviewers, who can conduct review your article in a week.

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Looking forward to receive your positive response.

with best wishes,

--

Robin Butler
Sr. Publication Manager
Review of Economics and Finance
164 Wagon Lane, SOLIHULL, B92 7PA, United Kingdom
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Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id>

Article Acceptance [REF]: What Drives Local Government Welfare Spending?A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia

Robin Butler <robin.butler@refpress.org> Tue, Mar 21, 2023 at 5:38 AM
To: "Roosemarina A. Rambe" <roosemarina.rambe@unib.ac.id>

Dear Prof./Dr. Roosemarina Anggraini Rambe:

I hope this email finds you well.

Reference to your manuscript entitled **'What Drives Local Government Welfare Spending? A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia'** for publication in the journal '**Review of Economics and Finance**'.

Please find the referees comments of your article are in attachment.

Please follow the comments and send your changes according to the referees.

Looking forward to receiving your positive response.

with best wishes,

--

Robin Butler
Sr. Publication Manager
Review of Economics and Finance
164 Wagon Lane, SOLIHULL, B92 7PA, United Kingdom

[Quoted text hidden]

Roosemarina Anggraini Rambe_Evaluation Form - Reviewer Comments.pdf
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International, double-blind peer-reviewed, annually,
open-access journal published by the REF Press.

Evaluation Form

Title of Manuscript: "What Drives Local Government Welfare Spending? A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia"

Referee's Assessment *(✓) the appropriate box*

Criterion	Excellent	Good	Fair	Poor
Originality of the topic		✓		
Technical Quality		✓		
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Extends the previous study			✓	
Readily Understandable		✓`		
Suitability for Journal	✓			
Interesting for a Non-Expert			✓	
Adequate Illustrations or Drawings		✓		
English language			✓	
Overall the Paper is Rated	(Excellent----------✓---------- Poor) 10 9 8 7 6 5 4 3 2 1 — 8			

Referee's Recommendations

Accept without changes	
Accept with minor changes	✓
Accept subject to revisions, as noted in comments	
Reject, with no resubmission	

Other Specific Criticisms

Imperfect style	
Too long	
References incorrectly presented	
Typographical and Grammatical errors	

Confidential Comments to the Editor (not for Transmission to Authors):

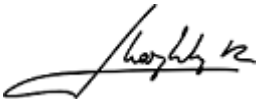
Comments removed by the Editors

Comments for the Authors *(continue on another sheet, if necessary)*:

For the paper to be acceptable for publication the suggested minor amendments in the comments for the author(s) below need to be taken into consideration.

- The article is a well-prepared research on this subject; what drives local government welfare spending? a comparative study of split and non-split regions in sumatra, indonesia is always a challenge for research on this subject will attract the attention of readers, the drivers of local government welfare spending in split and non-split regions in Sumatra, Indonesia, are likely to be complex and multifaceted, and may vary depending on specific regional characteristics and contextual factors.
- The structure of the paper needs more attention; LITERATURE REVIEW is well conducted; the references are adapted to the question. Nevertheless, it needs to be updated.
- Minor sentence constructions.
- Need more content in **(Conclusion)**
- I also recommend that you review some of your grammatical and spelling mistakes.

21/March/2023



Name & Signature of Referee / Date

Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id>

Article Acceptance [REF]: What Drives Local Government Welfare Spending?A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia

Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id> Tue, Mar 21, 2023 at 6:09 AM
To: Robin Butler <robin.butler@refpress.org>

Thanks for the information. I will revise the paper based on the reviewer's comments.

Regards

Roosemarina Anggraini Rambe
[Quoted text hidden]

Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id>

Revised paper submission

1 message

Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id> Sat, Apr 15, 2023 at 6:49 AM
To: Robin Butler <robin.butler@refpress.org>

Dear Prof. Robin Butler

We are pleased to submit a revised version of the manuscript “What Drives Local Government Welfare Spending? A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia ” to the Review of Economics and Finance. We thank you very much for allowing us to revise our paper. We have tried to address and implement the reviewers’ comments and suggestions. We hope that the manuscript is up to the standard of the journal.

Our detailed response to reviewer comments is attached. Thank you for allowing us to submit a revised version of the paper. I am looking forward to hearing good news from you.

Regards

Corresponding author

Roosemarina Anggraini Rambe

2 attachments

local government welfare spending_ revision version .docx
104K

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WHAT DRIVES LOCAL GOVERNMENT WELFARE SPENDING? A COMPARATIVE STUDY OF SPLIT AND UNSPLIT REGIONS IN SUMATRA, INDONESIA

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ABSTRACT

The study examines and compares the role of the previous year's GRDP per capita, the previous year's tax, sharing fund, and population toward the local government welfare spending between split and unsplit regions in Sumatra, Indonesia. The study employs the panel data of districts/cities in Sumatra from 2011 to 2020. The study applies the data panel regression technique. Results show that the welfare spending determinant model differs between the two regions. In split regions, the role of the previous year's tax, the previous year's GRDP per capita, and population have a significant, positive effect on the local government welfare spending. However, in unsplit regions, the previous year's tax has a significant positive effect, whereas the sharing fund has a significant negative influence on the local government welfare spending. This study recommends that local governments manage tax revenue by implementing intensive taxation. The splitting of local government encourages the growth of the business sector. The unsplit local governments should grow their income outside of sharing fund to increase welfare spending.

Keywords: Previous year's GRDP per capita, Previous year's tax, Population, Regional splitting, Sharing fund, Welfare spending.

I. INTRODUCTION

Government activities aim to provide public service, fulfill citizens' needs, and reach social welfare. As time passes, government spending keeps increasing. Some countries merge local governments to save on ever-expanding expenditures (Reiljan, Jaansoo, and Ülper 2013; Slack and Bird 2013). However, a merger does not always result in improved conditions than before the merger. Empirical study shows that government expenditure post-merger is still more expensive than before the merger (Blesse and Baskaran 2016; Roesel 2017).

Although some countries do mergers, Indonesia does the opposite. Indonesia does region splitting. One of the reasons for Indonesia's decision to split its regions is political; local government is given more authority in managing finance in their regions. In addition, because local governments are perceived to know more about the locals' conditions and needs, they are expected to provide more appropriate public service and to create better programs and activities for their people through region splitting. Therefore, the goal of splitting regions is to increase social welfare, as expected by the government.

Since Act 32/2004 regarding region splitting was enacted in Indonesia, region splitting had risen until 2013. After implementing this regulation, out of seven areas in Indonesia, the highest numbers of districts and cities emerging from region splitting were from Sumatra. The escalation of government spending in Sumatra regions accompanied the addition of districts and cities. This increase in government spending is significant to study as the expenditure comes from the people; therefore, government expenditure should be optimally utilized to achieve the objective of region splitting. Local governments are expected to accurately allocate their expenditure, and welfare spending, to improve their people's social welfare.

Several types of government spending positively affect social welfare in Indonesia, such as education, health, economy, social protection, and housing & public facility spending. These five

types of spending in this study are called welfare spending. Justino & Martorano (2018) used welfare spending as a ratio of government social expenditures to GDP. Detraz & Peksen (2018) classified welfare spending as governments' overall fiscal commitments to various social needs in three major areas: education, health, and social security. The variable is measured as a percentage of total public spending.

The local government's focus on improving social welfare can be evaluated in the programs and activities reflected in the welfare spending allocated by the local governments. A high amount of welfare spending indicates a high attentiveness of the local governments in achieving social welfare. The bigger the welfare spending in a region is, the bigger the focus the local government has given to achieve social welfare. Consequently, local governments should allocate a considerable proportion of their spending toward welfare. It is worth noting that local governments' welfare spendings vary in the amount of their growth.

Comparing the split and unsplit regions in Sumatra, the average welfare spending of local governments from split regions (approximately 52%-65%) is perpetually lower than in the unsplit areas (Indonesian Ministry of Finance, https://djpk.kemenkeu.go.id). However, the social welfare spending of the split regions increased higher (approximately 8.73% per year) than unsplit regions (8.18% per year) until 2019. During the COVID-19 pandemic, the average welfare spending of the government declined, with a 10.29% decrease in split regions and an 8.5% decrease in unsplit areas. The difference in welfare spending growth of these two types of local governments indicates a difference in the welfare spending determinants between local governments in split and unsplit regions in Sumatra. Therefore, this study analyzes the two regions' government's welfare spending determinant model.

Studies about government spending determinants focusing on total spending as a dependent variable have been conducted frequently. However, only a few studies focus on specific government spending determinants. Some studies expanded on health spending and its

determinants (Bashir, Kishwar, and Salman 2021; Braendle and Colombier 2016). Other studies analyzed education spending and its determinants (Sheikh 2019; Yun and Yusoff 2019). However, studies elaborating on welfare spending and its determinants are relatively rare, despite the importance of analyzing welfare spending by local governments.

One of the government welfare spending determinants is tax. An empirical study shows that tax positively affects government spending (Gurdal, Aydin, and Inal 2021). In that study, the current year's tax impacts the current year's total government spending. However, this study analyzes the previous year's tax. These authors use this proxy as governments plan the following year's spending based on the current year. By knowing the amount of tax collected this year, governments can predict the tax they can gather next year; they consider this information to plan their spending.

The other factor driving the increase in government spending is economic development. Economic development has increased per capita income. Wagner's Law, also known as the "Law of increasing state activity," explains that an escalation in economic activities will increase government spending. When per capita income increases, national government expenditure also increases (Arestis et al., 2021). Empirical studies show that Wagner's Law applies in various countries, such as Spain (Jaén-garcía, 2011) and Greece (Antonis et al., 2013).

Transfer funds from the central government also have a prominent contribution in deciding local government spending. One of the components of transfer funds is sharing fund. Previous research showed how sharing fund positively impacts local government spending (Canare, 2019).

Moreover, the population also becomes a government spending determinant. Government spending regarding population numbers should be considered. A past study discovered a positive effect of population on government spending (Azolibe et al., 2020). The bigger the number of people, the more expensive the local government spending should be to provide public services.

Previous studies showed that little research had been conducted on welfare spending determinants. However, analyzing it is urgent for the government to accommodate determinants that can increase welfare spending. Local governments able to expand welfare spending have more potential to improve their locals' welfare. As a developing country, there are many regions yet to be prosperous. Consequently, there is a need to analyze welfare spending determinants for developing countries. Explaining welfare spending determinants will be this study's contribution.

This research also compares government welfare spending determinants between split and unsplit regions. Unfortunately, previous studies rarely analyzed the comparison of welfare spending determinants between the two types of regions. As a developing country, Indonesia must understand the factors determining welfare spending for split and unsplit regions. This determinant model can be a scientific contribution to local governments to allocate welfare spending. By comparing the welfare spending determinant model, local governments should be able to provide variables that increase welfare spending in either split or unsplit regions.

Thus, this study examines the role of the previous year's GRDP per capita, the previous year's tax, sharing fund, and population toward the local government welfare spending of split and unsplit regions in Sumatra. This research also compares the welfare spending determinant model for the two types of regions.

The rest of the article is divided into sections. This study explains articles in the literature review in section 2. The study elaborates on the research methods in section 3. In section 4, this study describes the study's results and discussion. Lastly, the study presents the conclusion and research implications in section 5.

2. LITERATURE REVIEW

Welfare spending is a fund used by the local government and allocated to provide public services. The programs and activities of local governments in giving public services are reflected in their

expenditure. In other words, government spending becomes one of the indicators of government activities. The bigger the activities are, the bigger the government spending. Hence, local governments should thoroughly contemplate the programs and activities for their regions. Local governments should also try and accommodate possible factors that can increase local government spending focusing on welfare.

One of the government spending determinants is tax. Tax is the government's primary source of income. The elevation of tax revenue drives government spending. As the tax is raised, citizens get accustomed to paying tax to a certain extent; thus, the tax remains unchanged. Consequently, government spending also keeps increasing. This condition reflects the tax-spend hypothesis (Gurdal et al., 2021), where tax revenue positively affects government spending. Many empirical studies support the tax-spend hypothesis (Adejare & Akande, 2017; Eniekezimene et al., 2019; Febriani & Rambe, 2022; Iiyambo & Kaulihowa, 2020; Jaén-García, 2019; Linhares et al., 2021; Tashevska et al., 2020; Yinusa et al., 2017). On the contrary, other studies have found government spending to be the reason for gathering more income through tax, labeled as the spend-tax hypothesis. Several studies support this hypothesis (Champita, 2016; Luković & Grbić, 2014; Melé et al., 2020).

In developing countries, Gadanne (2017) explained that governments obtain tax revenue for developments that benefit society, such as educational infrastructures. Tax revenue is the only variable positively affecting welfare spending. The tax will positively impact spending (Kithinji, 2019; Nxumalo & Hlophe, 2018). Therefore, this study uses the tax-spend hypothesis to understand the welfare spending determinants.

Based on the explanation above, the first hypothesis of this research is:

H1a: Previous year's local tax positively affects government welfare spending in split regions.

H1b: Previous year's local tax positively affects government welfare spending in unsplit regions.

According to Wagner's Law, economic development is a variable contributing to deciding government spending. Wagner explained the tendency of government spending to increase along with economic development (Babajide et al., 2020). Economic development, marked by a rise in GDP, will stimulate government spending. People in developed economies receive high incomes. With increased revenue, society can consume plentiful goods and services with good qualities. Governments provide many infrastructures supporting complete public services and facilities, such as health facilities with advanced technologies, educational facilities with excellent quality, and tourist attractions pulling high prices. Efforts to provide infrastructure require government spending.

Moreover, the complex relationship between laborers and employers in industries in developed regions requires strict attention and supervision from the government so that lower-class people will not receive any harm. Therefore, the government should create a regulation so that programs and activities in the business sectors will thrive and lower-class society will also receive benefits. The complexity of government activities is inclined to be simple, and the government spends less on middle- and low-income society. This explains the effect of GRDP on government spending.

Empirical studies show Wagner's Law valid in some regions. In explaining the impact of national income on government spending, researchers used some proxies, such as GDP and GDP per capita. Previous studies show how GDP positively influences government spending (Bayrakdar et al., 2015; Inchauspe et al., 2022; Jaén-García, 2018; Magazzino et al., 2015; Purmini & Rambe, 2021; Sedrakyan & Varela-Candamio, 2019). Other studies find that GDP does not significantly determine government spending (Azolibe et al., 2020; Babajide et al., 2020). Other studies reported that real GDP increases government (Bazán et al., 2022).

Using GDP per capita as a proxy, other researchers discover a positive impact of the previous year's GDP per capita on government spending (Ibrahim & Bashir, 2019; Irandoust, 2019; Narayan et al., 2012). Akca, Sönmez, and Yılmaz (2017) revealed that GDP per capita influences health

spending. Munir and Ali (2019) mentioned that GDP per capita affects subsidized education and social and economic expenditures. However, Karceski & Kiser (2020) reported that a GDP per capita increase would boost government spending when GDP per capita is low. Once GDP per capita is high, government spending will decrease. The phenomenon is described in a regression model with a quadratic shape.

The second hypothesis of this study:

H2a: The previous year's GRDP per capita positively affects welfare spending in split regions.

H2b: The previous year's GRDP per capita positively affects welfare spending in unsplit regions.

Sharing fund also determines local government spending. A past study stated that sharing fund positively influences local government spending (Canare, 2019). Sharing fund is the transfer from the central to local governments, illustrating economic development and availability of local natural resources. In other words, because regions with high central taxes have plentiful natural resources, they can significantly contribute to the state; the state will return the contribution to those regions to a certain proportion. Areas yielding high central taxes and plentiful natural resources will receive more immense proportions of sharing fund than regions that do not. More sizeable sharing fund from the central government will enrich local government income. A considerable local government income will allow local governments to increase their spending. However, with additional sources of local government income, government spending might not increase proportionately to the sharing fund received.

From the explanation above, the hypotheses for the sharing fund variable are:

H3a: Sharing fund positively affects welfare spending in split regions.

H3b: Sharing fund positively affects welfare spending in unsplit regions.

The population also determines government spending. Empirical studies showed a positive effect of population on government spending (Akca et al. 2017; Bernardelli, Kortt, and Dollery 2020;

Cai, Feng, and Shen 2018; Jibir and Aluthge 2019; Krieger and Meierrieks 2020). In addition, Azolibe et al. (2020) explained that the population group determining government spending is the population aged 0-64 years. With that in mind, the government should provide public services. Some public services include expenditures per capita, such as health insurance, pension, and educational aid fund. The more sizeable the population is, the more they will boost the quantities of public services; this results in increased government spending. Based on that explanation, this study proposes these hypotheses:

H4a: Population positively affects welfare spending in split regions.

H4b: Population positively affects welfare spending in unsplit regions.

3. RESEARCH METHOD

This study draws from the panel data of districts and cities in 2011-2020 from the Indonesian Ministry of Finance and Statistics Indonesia. This research independently analyzes two welfare spending determinant models in each region: the welfare spending determinant model in split regions (consisting of 23 districts and cities) and the welfare spending determinant model in unsplit regions (composed of 99 districts and cities). Original regions (from which the new regions are split) are not studied. Welfare spending in this research comprises the sum of education, health, economic, social protection, and housing & public facilities spending.

Panel data regression models for both regions in Sumatra are:

$$LnGWSS_{it} = \beta_0 + \beta_1 LnGRDP\ percapita_{t-1it} + \beta_2 LnTax_{t-1it} + \beta_3 LnSF_{it} + \beta_4 LnPop_{it} + \delta it \ldots \quad (1)$$

$$LnGWSUS_{it} = \beta_0 + \beta_1 LnGRDP\ percapita_{t-1it} + \beta_2 LnTax_{t-1it} + \beta_3 LnSF_{it} + \beta_4 LnPop_{it} + \delta it \ldots \quad (2)$$

Where GWSS is welfare spending in split regions, GWSUS is welfare spending in the unsplit areas, GRDP percapita-1 is the previous year's Gross Regional Domestic Product per capita, tax_{t-1} is the previous year's local tax, SF is sharing fund, and Pop is population. β_i is an independent variable coefficient, t is time, i is regencies/cities, and δ is an error term with α 5%.

This study tests both panel data regression models using Chow and Hausman test to find the best regression models among common, fixed, and random effect models (Wooldridge, 2013). Then, based on the best model, this study conducts the F-test, t-test, and determinant coefficient (Gujarati, 2003).

4. RESULTS AND DISCUSSION

4.1. Research Result

Local government welfare spending in Sumatra varies every year from 2011-2020. Between split and unsplit regions, the total welfare spending in split regions is always lower than in unsplit areas. This condition has occurred since the beginning of the region splitting. Although the average welfare spending development in split regions is higher than in unsplit areas, the difference in welfare spending between both types of regions substantially differs. This condition indicates that governments in the unsplit region have better control over program planning and execution regarding welfare improvement. On the contrary, in the past few years, local governments in split regions are still honing their abilities in planning and managing innovative programs and activities to deliver public service. Table 1 presents descriptive statistics of spending and independent variable.

Insert Table 1 here.

Next, this study presents the development of GRDP per capita. GRDP per capita in split regions is only 10% of the other region type. This condition is considered normal since the business sectors in unsplit regions, such as industries or foreign companies, have existed for a long time. Moreover, infrastructures supporting the business sectors and government regulations controlling economic activities are more accomplished there; this results in more advanced economic development in unsplit regions.

With that in mind, split regions have lower average tax than unsplit regions for the tax variable since the latter have more taxpayers and business entities that can pay more local taxes. Human resources in attracting tax from the business sectors are also higher in those regions. On the other hand, newly split regions still need time to learn how to intensify and extensify tax. Interestingly, those efforts seem successful due to higher tax growth in split regions. Therefore, the tax amount that is supposed to be the primary government income source is set to increase in the future.

Conversely, the situations between the two region types differ regarding the sharing fund. Sharing fund is very much connected to central government tax, paid by the people and natural resources from local regions. Both components are the foundation of calculating the quantity of sharing fund received in the regions. Each year, sharing fund tends to decrease in split and unsplit regions. Even so, sharing fund in unsplit areas is always higher than in split regions, indicating that unsplit regions have more significant central government tax revenue. Moreover, the industries of natural resources in the unsplit areas progress better.

Similar things occur for the population, as more people live in unsplit regions. This is due to people living with their families and working in that area before the split. The unsplit regions tend to be more populous.

Regression Model: Welfare Spending Determinant

This study tests the panel data regression model with Chow and Hausman test. The result shows that the best model is the Fixed Effect Model (FEM) for split and unsplit regions. This information can be seen in Table 2.

Insert Table 2 here

Based on that explanation, this research conducts statistical tests using the FEM model for both region types. This statistical test is presented in Table 3. This study runs the F test on both regions

and shows that all independent variables affect welfare spending. However, the determinant coefficient for unsplit regions is more robust because the ability of all independent variables is very high (93.6%) in explaining the variations of welfare spending in this area.

Insert Table 3 here

The next test is the t-test. For split regions, three variables significantly positively influence welfare spending with α 5%. The three variables comprise the previous year's GRDP per capita, the previous year's tax, and population.

Unlike split regions, in the unsplit regions, two variables significantly and positively affect welfare spending with α 5%. The previous year's tax has had a significantly positive effect on welfare spending. However, sharing fund significantly negatively affects welfare spending because, in unsplit regions, the expenditure depends on government income (tax and sharing fund).

4.2. Discussions

This study discovers that the previous year's tax significantly and positively impacts local government welfare spending in the split and unsplit regions. Thus, this research supports the tax-spend hypothesis. Moreover, the results resemble previous studies, such as studies conducted by Kithinji (2019), Rahman and Wadud (2014), Rambe and Febriani (2021), and Westerlund, Mahdavi, and Firoozi (2011).

The above-mentioned previous researchers stated that tax is the most significant source of government income. Therefore, an increase in the tax that the government receives will drive an increase in government spending. To explain the case in Sumatra, the author will explain the context of the region splitting there. In the era of region splitting, local governments are given more authority to collect taxes from local people. There are 11 types of local taxes that the district and city government have mandates on, such as hotel, restaurant, entertainment, advertisement, and

parking taxes. These taxes are not limited, meaning local governments can explore potentials outside the ones regulated in the constitution. Of course, tax collection should consider the ability of the businesses. For example, if small enterprises are not stable but are taxed unsuitable, they can go bankrupt.

Every year, more Sumatra districts and cities own small and big enterprises with the potential of local tax collection. Examples are the development of the tourism and hospitality industry generates growth in hotel, restaurant, entertainment, and advertisement business. Based on that condition, taxes from such businesses are increasing in the split and unsplit regions. The increase in local tax collection from the previous year will allow local governments to carry out regional development by providing more distributed public goods, manifested through elevated local government welfare spending.

The only variable influencing local government welfare spending in both regions is the previous year's tax. The previous year's GRDP per capita and population significantly and positively affect welfare spending only in split regions. This proves that Wagner's Law is only applicable to split regions. This result supports studies conducted by Ibrahim and Bashir (2019), Irandoust (2019), and Narayan et al. (2012). At the beginning of the establishment of newly split regions, there were limited public service facilities. Education, health, housing, and public facilities still need to be improved. A similar case occurs for public services supporting welfare. GRDP per capita in split regions is still low. With the increase of GRDP per capita, society's ability to utilize public services will also grow. This condition boosts local governments of split regions to use their welfare spending for infrastructures supporting better public services. Some public service facilities built by the government are not only pure public goods but are near public goods, such as hospitals, laboratories, schools, markets, and public housing. With an increase in the public's ability to utilize public service facilities near public goods, the government can receive an additional tax and local retribution driving the government to increase its welfare spending.

In unsplit regions, the previous year's GRDP per capita is insignificant in affecting welfare spending. This discovery resembles previous studies, such as Babajide et al. (2020) and Azolibe et al. (2020).

In Sumatra, GRDP per capita in unsplit regions is higher than in split regions. Industries are developed, and society tends to be more prosperous and, therefore, more independent in providing welfare services. The GRDP per capita, indicating social welfare for society, also increases. Most people with high incomes can achieve welfare through their effort. They use health insurance services, attend expensive private schools, and work for high salaries. In unsplit regions, infrastructures are already available. Moreover, most people own houses. Hence, housing and public facilities spending that drive achieving social welfare is no longer urgent (unlike in split regions).

This part discusses the sharing fund. In unsplit regions, sharing fund significantly negatively affects welfare spending. This result differs from past studies that stated a positive impact of sharing fund on local government spending (Canare, 2019). On the contrary, sharing fund does not significantly affect split regions' welfare spending.

In Unsplit regions, local areas with high sharing fund are districts/cities that have abundant natural resources and provide more significant taxes to the central government. Therefore, the relationship between sharing fund and welfare spending should be positive. It indicates that some regional governments in Sumatra do not prioritize welfare spending. They allocate sharing fund for another spending.

The condition in split regions differs. Some districts still had increasing crude oil production (for example, Kepulauan Anambas District in Kepulauan Riau Province). That situation resulted in the district receiving more sharing fund. However, some districts were still poor, possessing no natural resources, and had undeveloped economies, such as South Bengkulu District in Bengkulu Province.

That caused the district to receive less sharing fund. Although the amount of sharing fund varies in split regions, welfare spending kept increasing. This information explains why the sharing fund variable is insignificant in affecting welfare spending in split regions.

This part explains how the population significantly affects local government spending in split regions. This result supports past research done by Akca et al. (2017), Cai et al. (2018), and Jibir & Aluthge (2019). The government provides public service regarding social welfare adapted to the amount of the population. For example, health spending is allocated to developing hospital infrastructures, laboratories, medical personnel (doctors, midwives, and nurses), health equipment, toddler immunization, and medical drugs adjusted to the number of the population. The bigger the population is, the bigger the health spending allocation is to maintain local public health. The same goes for education spending, where they adjust it to develop education infrastructures and provide teacher services based on the school-age population. Similarly, other welfare spending components, including economic spending and housing & public facilities spending, are the same. The more the population, the more public services are needed; the more significant the economic, housing & public facilities spending is.

5. CONCLUSION AND RESEARCH IMPLICATIONS

The model and statistical tests show that only the previous year's tax significantly positively affects welfare spending in both split and unsplit regions. Moreover, the previous year's GRDP per capita and population positively influence welfare spending in split regions only. On the contrary, sharing fund significantly and negatively affects welfare spending in unsplit regions. Therefore, this study concludes that there is a significant difference in welfare spending determinants between split and unsplit regions.

Welfare spending is an integral part of local governance. Local government should increase welfare spending. The availability of welfare spending can drive the growth of social welfare in local

regions. The result of the study suggests that improving tax revenue can increase local government welfare spending for both split and unsplit regions.

With the proliferation of business in split regions, the opportunity for governments to collect more taxes increases. Even so, this study suggests that governments focus on strategies for increasing taxes through intensification in tax collection in preexisting local taxes instead of creating a new tax that can burden businesses. Local governments in split regions are expected to innovate in collecting taxes from society and implement an effective and efficient collection system so that the public feel at ease when paying taxes. Indeed, the effort to increase tax revenue needs to consider businesses' ability to grow and expand. In unsplit regions, the previous year's tax also positively affects welfare spending. Therefore, this study implies the significance of creating a strategy for tax collection. Local governments in unsplit regions are expected to innovate when collecting taxes with an intensification method while protecting enterprises taxed in local areas that can survive.

In split regions, previous GRDP per capita positively influences welfare spending. The local governments in split regions need to work harder to increase their GRDP per capita as the data show that GRDP per capita in split regions is only about 10 percent of the GRDP per capita in unsplit regions. Increasing GRDP per capita in split regions may be complex. However, some strategies can be designed to increase GRDP per capita. First, the split regions must improve their investment climate to attract investors to invest in basic and financial infrastructures. Second, the local governments can also improve their level of industrialization especially agricultures-based industries that can increase people's incomes. Third, improve the productivity of small-business companies by providing better access to banking, marketing, and digital technology in running their business. Fourth, Sumatra has excellent potential for ecotourism, such as beaches, lakes, mangroves, and rainforests. Besides, Sumatra has 2.5 million hectares of tropical rainforests in national parks such as Taman Nasional Bukit Barisan Selatan, Kerinci-Seblat, and Gunung Leuseur.

Since sharing fund negatively influences welfare spending, the local governments in unsplit regions need to redesign their welfare spending. While other spendings are essential, they need to improve their welfare spending by increasing other income revenues. The governments in unsplit regions should improve their economic growth to earn more to spend on welfare issues.

It should be noted, however. The study has some limitations. The study does not reveal the impact of spending on people's welfare in split and unsplit regions. It does not examine which region has better spending to increase people's welfare. Future research should go in that direction.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest concerning this article's research, authorship, and publication.

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Table 1. Descriptive Statistics of Government Welfare Spending and Independent Variables

Mean of Variables	Split Regions			Unsplit Regions		
	2011	2020	Growth/year	2011	2020	Growth/year
Government Welfare Spending (billion IDR)	292.27	505.73	8.73	533.40	895.78	8.18
GRDP per capita (million IDR)	33.40	53.49	6.73	320.70	508.37	6.20
Local tax (billion IDR)	3.34	18.43	23.57	28.83	86.27	16.89
Sharing Fund (billion IDR)	55.11	34.99	-1.34	179.60	119.79	-1.60
Population (thousand persons)	188.07	217.15	1,52	387.59	442.41	1.8

Source: Research results

Table 2. Panel Data Regression Model Test

Tests	Region Types	
	Splitting	Unsplitting
Chow test	*	*
Hausman test	*	*

Source: Research results

Notes:

→*Chow test: chi-square prob > 5%, H0 is rejected. This shows that the best model is FEM.*

→ *Hausman test: chi-square prob > 5%, H0 is rejected. This shows that the best model is FEM.*

Table 3. Regression Model: Welfare Spending Determinants for Both Regions

Variable	Region Types	
	Splitting	Unsplitting
C	9.258050	20.56311***
Ln GRDP per capita t-1	0.190201***	0.019455
Ln Tax t-1	0. 115774***	0.255276 ***
Ln SF	-0.199394	-0.055640 ***
Ln Pop	1.368066***	0.113991
R-squared	0.831326	0.921578
F-statistic	38.29132	102.1919
Prob(F-statistic)	0.00000	0.000000

*notes: *** significant at α = 1%, ** significant at α = 5%, * significant at α = 10%.*

Source: Research results

Comments to the reviewer.

a. The article is well-prepared research on this subject; what drives local government welfare spending? a comparative study of split and non-split regions in Sumatra, Indonesia is always a challenge for research on this subject will attract the attention of readers; the drivers of local government welfare spending in split and non-split regions in Sumatra, Indonesia are likely to be complex and multifaceted and may vary depending on specific regional characteristics and contextual factors.

   Thank you very much for the encouraging comments. We really appreciate it.

b. The structure of the paper needs more attention; LITERATURE REVIEW is well conducted; the references are adapted to the question. Nevertheless, it needs to be updated.

   Thank you for your appreciation. We have updated the literature review by adding nine articles from the last 5 years. The new materials and discussions are written in blue color.

   Minor sentence constructions.

   They have been corrected accordingly.

c. Need more content in **(Conclusion)**

   The conclusion has been rewritten. Implications of the study have been discussed. Limitations of the study have been stated, and an agenda for future research is proposed.

d. I also recommend that you review some of your grammatical and spelling mistakes.

   Both grammatical and spelling mistakes have been corrected. Grammarly software has been applied to the manuscript. The final manuscript has been edited by a proofreader.

We really appreciate your valuable insights, and we hope that we have met your expectation.

Regards

Corresponding author
Roosemarina Anggraini Rambe

Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id>

Revised manuscript submission information

Robin Butler <robin.butler@refpress.org> Fri, Apr 28, 2023 at 4:38 AM
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Dear Sir/madam

I sent our revised manuscript to Robin Butler (Robin Butler <robin.butler@refpress.org) on April 15, 2023. I have not received any reply yet. I would be happy if you could notify me. The revised manuscript and supporting documents are attached. I am looking forward to hearing good news from you.

Regards

Corresponding author

Roosemarina Anggraini Rambe

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What Drives Local Government Welfare Spending? A Comparative Study of Split and Unsplit Regions in Sumatra, Indonesia

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Abstract: The study examines and compares the role of the previous year's GRDP per capita, the previous year's tax, sharing fund, and population toward the local government welfare spending between split and unsplit regions in Sumatra, Indonesia. The study employs the panel data of districts/cities in Sumatra from 2011 to 2020. The study applies the data panel regression technique. Results show that the welfare spending determinant model differs between the two regions. In split regions, the role of the previous year's tax, the previous year's GRDP per capita, and population have a significant, positive effect on the local government welfare spending. However, in unsplit regions, the previous year's tax has a significant positive effect, whereas the sharing fund has a significant negative influence on the local government welfare spending. This study recommends that local governments manage tax revenue by implementing intensive taxation. The splitting of local government encourages the growth of the business sector. The unsplit local governments should grow their income outside of sharing fund to increase welfare spending.

Keywords: Previous year's GRDP per capita, Previous year's tax, Population, Regional splitting, Sharing fund, Welfare spending.

1. INTRODUCTION

Government activities aim to provide public service, fulfill citizens' needs, and reach social welfare. As time passes, government spending keeps increasing. Some countries merge local governments to save on ever-expanding expenditures (Reiljan, Jaansoo, and Ülper 2013; Slack and Bird 2013). However, a merger does not always result in improved conditions than before the merger. Empirical study shows that government expenditure post-merger is still more expensive than before the merger (Blesse and Baskaran 2016; Roesel 2017).

Although some countries do mergers, Indonesia does the opposite. Indonesia does region splitting. One of the reasons for Indonesia's decision to split its regions is political; local government is given more authority in managing finance in their regions. In addition, because local governments are perceived to know more about the locals' conditions and needs, they are expected to provide more appropriate public service and to create better programs and activities for their people through region splitting. Therefore, the goal of splitting regions is to increase social welfare, as expected by the government.

Since Act 32/2004 regarding region splitting was enacted in Indonesia, region splitting had risen until 2013. After implementing this regulation, out of seven areas in Indonesia, the highest numbers of districts and cities emerging from region splitting were from Sumatra. The escalation of government spending in Sumatra regions accompanied the addition of districts and cities. This increase in government spending is significant to study as the expenditure comes from the people; therefore, government expenditure should be optimally utilized to achieve the objective of region splitting. Local governments are expected to accurately allocate their expenditure, and welfare spending, to improve their people's social welfare.

Several types of government spending positively affect social welfare in Indonesia, such as education, health, economy, social protection, and housing & public facility spending. These five types of spending in this study are called welfare spending. Justino & Martorano (2018) used welfare spending as a ratio of government social expenditures to GDP. Detraz & Peksen (2018) classified welfare spending as governments' overall fiscal commitments to various social needs in three major areas: education, health, and social security. The variable is measured as a percentage of total public spending.

The local government's focus on improving social welfare can be evaluated in the programs and activities reflected in the welfare spending allocated by the local governments. A high amount of welfare spending indicates a high attentiveness of the local governments in achieving social welfare. The bigger the welfare spending in a region is, the bigger the focus the local government has given to achieve social welfare. Consequently, local governments should allocate a considerable proportion of their spending toward

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welfare. It is worth noting that local governments' welfare spendings vary in the amount of their growth.

Comparing the split and unsplit regions in Sumatra, the average welfare spending of local governments from split regions (approximately 52%-65%) is perpetually lower than in the unsplit areas (Indonesian Ministry of Finance, https://djpk.kemenkeu.go.id). However, the social welfare spending of the split regions increased higher (approximately 8.73% per year) than unsplit regions (8.18% per year) until 2019. During the COVID-19 pandemic, the average welfare spending of the government declined, with a 10.29% decrease in split regions and an 8.5% decrease in unsplit areas. The difference in welfare spending growth of these two types of local governments indicates a difference in the welfare spending determinants between local governments in split and unsplit regions in Sumatra. Therefore, this study analyzes the two regions' government's welfare spending determinant model.

Studies about government spending determinants focusing on total spending as a dependent variable have been conducted frequently. However, only a few studies focus on specific government spending determinants. Some studies expanded on health spending and its determinants (Bashir, Kishwar, and Salman 2021; Braendle and Colombier 2016). Other studies analyzed education spending and its determinants (Sheikh 2019; Yun and Yusoff 2019). However, studies elaborating on welfare spending and its determinants are relatively rare, despite the importance of analyzing welfare spending by local governments.

One of the government welfare spending determinants is tax. An empirical study shows that tax positively affects government spending (Gurdal, Aydin, and Inal 2021). In that study, the current year's tax impacts the current year's total government spending. However, this study analyzes the previous year's tax. These authors use this proxy as governments plan the following year's spending based on the current year. By knowing the amount of tax collected this year, governments can predict the tax they can gather next year; they consider this information to plan their spending.

The other factor driving the increase in government spending is economic development. Economic development has increased per capita income. Wagner's Law, also known as the "Law of increasing state activity," explains that an escalation in economic activities will increase government spending. When per capita income increases, national government expenditure also increases (Arestis et al., 2021). Empirical studies show that Wagner's Law applies in various countries, such as Spain (Jaén-garcía, 2011) and Greece (Antonis et al., 2013).

Transfer funds from the central government also have a prominent contribution in deciding local government spending. One of the components of transfer funds is sharing fund. Previous research showed how sharing fund positively impacts local government spending (Canare, 2019).

Moreover, the population also becomes a government spending determinant. Government spending regarding population numbers should be considered. A past study discovered a positive effect of population on government spending (Azolibe et al., 2020). The bigger the number of people, the more expensive the local government spending should be to provide public services.

Previous studies showed that little research had been conducted on welfare spending determinants. However, analyzing it is urgent for the government to accommodate determinants that can increase welfare spending. Local governments able to expand welfare spending have more potential to improve their locals' welfare. As a developing country, there are many regions yet to be prosperous. Consequently, there is a need to analyze welfare spending determinants for developing countries. Explaining welfare spending determinants will be this study's contribution.

This research also compares government welfare spending determinants between split and unsplit regions. Unfortunately, previous studies rarely analyzed the comparison of welfare spending determinants between the two types of regions. As a developing country, Indonesia must understand the factors determining welfare spending for split and unsplit regions. This determinant model can be a scientific contribution to local governments to allocate welfare spending. By comparing the welfare spending determinant model, local governments should be able to provide variables that increase welfare spending in either split or unsplit regions.

Thus, this study examines the role of the previous year's GRDP per capita, the previous year's tax, sharing fund, and population toward the local government welfare spending of split and unsplit regions in Sumatra. This research also compares the welfare spending determinant model for the two types of regions.

The rest of the article is divided into sections. This study explains articles in the literature review in section 2. The study elaborates on the research methods in section 3. In section 4, this study describes the study's results and discussion. Lastly, the study presents the conclusion and research implications in section 5.

2. LITERATURE REVIEW

Welfare spending is a fund used by the local government and allocated to provide public services. The programs and activities of local governments in giving public services are reflected in their expenditure. In other words, government spending becomes one of the indicators of government activities. The bigger the activities are, the bigger the government spending. Hence, local governments should thoroughly contemplate the programs and activities for their regions. Local governments should also try and accommodate possible factors that can increase local government spending focusing on welfare.

One of the government spending determinants is tax. Tax is the government's primary source of income. The elevation of tax revenue drives government spending. As the tax is raised, citizens get accustomed to paying tax to a certain extent; thus, the tax remains unchanged. Consequently, government spending also keeps increasing. This condition reflects the tax-spend hypothesis (Gurdal et al., 2021), where tax revenue positively affects government spending. Many empirical studies support the tax-spend hypothesis (Adejare & Akande, 2017; Eniekezimene et al., 2019; Febriani & Rambe, 2022; Iiyambo & Kaulihowa, 2020; Jaén-García, 2019; Linhares et

al., 2021; Tashevska et al., 2020; Yinusa et al., 2017). On the contrary, other studies have found government spending to be the reason for gathering more income through tax, labeled as the spend-tax hypothesis. Several studies support this hypothesis (Champita, 2016; Luković & Grbić, 2014; Melé et al., 2020).

In developing countries, Gadanne (2017) explained that governments obtain tax revenue for developments that benefit society, such as educational infrastructures. Tax revenue is the only variable positively affecting welfare spending. The tax will positively impact spending (Kithinji, 2019; Nxumalo & Hlophe, 2018). Therefore, this study uses the tax-spend hypothesis to understand the welfare spending determinants.

Based on the explanation above, the first hypothesis of this research is:

H1a: Previous year's local tax positively affects government welfare spending in split regions.

H1b: Previous year's local tax positively affects government welfare spending in unsplit regions.

According to Wagner's Law, economic development is a variable contributing to deciding government spending. Wagner explained the tendency of government spending to increase along with economic development (Babajide et al., 2020). Economic development, marked by a rise in GDP, will stimulate government spending. People in developed economies receive high incomes. With increased revenue, society can consume plentiful goods and services with good qualities. Governments provide many infrastructures supporting complete public services and facilities, such as health facilities with advanced technologies, educational facilities with excellent quality, and tourist attractions pulling high prices. Efforts to provide infrastructure require government spending.

Moreover, the complex relationship between laborers and employers in industries in developed regions requires strict attention and supervision from the government so that lower-class people will not receive any harm. Therefore, the government should create a regulation so that programs and activities in the business sectors will thrive and lower-class society will also receive benefits. The complexity of government activities is inclined to be simple, and the government spends less on middle- and low-income society. This explains the effect of GRDP on government spending.

Empirical studies show Wagner's Law valid in some regions. In explaining the impact of national income on government spending, researchers used some proxies, such as GDP and GDP per capita. Previous studies show how GDP positively influences government spending (Bayrakdar et al., 2015; Inchauspe et al., 2022; Jaén-García, 2018; Magazzino et al., 2015; Purmini & Rambe, 2021; Sedrakyan & Varela-Candamio, 2019). Other studies find that GDP does not significantly determine government spending (Azolibe et al., 2020; Babajide et al., 2020). Other studies reported that real GDP increases government (Bazán et al., 2022).

Using GDP per capita as a proxy, other researchers discover a positive impact of the previous year's GDP per capita on government spending (Ibrahim & Bashir, 2019; Irandoust, 2019; Narayan et al., 2012). Akca, Sönmez, and Yılmaz (2017) revealed that GDP per capita influences health spending. Munir and Ali (2019) mentioned that GDP per capita affects subsidized education and social and economic expenditures. However, Karceski & Kiser (2020) reported that a GDP per capita increase would boost government spending when GDP per capita is low. Once GDP per capita is high, government spending will decrease. The phenomenon is described in a regression model with a quadratic shape.

The second hypothesis of this study:

H2a: The previous year's GRDP per capita positively affects welfare spending in split regions.

H2b: The previous year's GRDP per capita positively affects welfare spending in unsplit regions.

Sharing fund also determines local government spending. A past study stated that sharing fund positively influences local government spending (Canare, 2019). Sharing fund is the transfer from the central to local governments, illustrating economic development and availability of local natural resources. In other words, because regions with high central taxes have plentiful natural resources, they can significantly contribute to the state; the state will return the contribution to those regions to a certain proportion. Areas yielding high central taxes and plentiful natural resources will receive more immense proportions of sharing fund than regions that do not. More sizeable sharing fund from the central government will enrich local government income. A considerable local government income will allow local governments to increase their spending. However, with additional sources of local government income, government spending might not increase proportionately to the sharing fund received.

From the explanation above, the hypotheses for the sharing fund variable are:

H3a: Sharing fund positively affects welfare spending in split regions.

H3b: Sharing fund positively affects welfare spending in unsplit regions.

The population also determines government spending. Empirical studies showed a positive effect of population on government spending (Akca et al. 2017; Bernardelli, Kortt, and Dollery 2020; Cai, Feng, and Shen 2018; Jibir and Aluthge 2019; Krieger and Meierrieks 2020). In addition, Azolibe et al. (2020) explained that the population group determining government spending is the population aged 0-64 years. With that in mind, the government should provide public services. Some public services include expenditures per capita, such as health insurance, pension, and educational aid fund. The more sizeable the population is, the more they will boost the quantities of public services; this results in increased government spending. Based on that explanation, this study proposes these hypotheses:

H4a: Population positively affects welfare spending in split regions.

H4b: Population positively affects welfare spending in unsplit regions.

Table 1. Descriptive Statistics of Government Welfare Spending and Independent Variables

Mean of Variables	Split Regions			Unsplit Regions		
	2011	2020	Growth/year	2011	2020	Growth/year
Government Welfare Spending (billion IDR)	292.27	505.73	8.73	533.40	895.78	8.18
GRDP per capita (million IDR)	33.40	53.49	6.73	320.70	508.37	6.20
Local tax (billion IDR)	3.34	18.43	23.57	28.83	86.27	16.89
Sharing Fund (billion IDR)	55.11	34.99	-1.34	179.60	119.79	-1.60
Population (thousand persons)	188.07	217.15	1,52	387.59	442.41	1.8

Source: Research results

3. RESEARCH METHOD

This study draws from the panel data of districts and cities in 2011-2020 from the Indonesian Ministry of Finance and Statistics Indonesia. This research independently analyzes two welfare spending determinant models in each region: the welfare spending determinant model in split regions (consisting of 23 districts and cities) and the welfare spending determinant model in unsplit regions (composed of 99 districts and cities). Original regions (from which the new regions are split) are not studied. Welfare spending in this research comprises the sum of education, health, economic, social protection, and housing & public facilities spending.

Panel data regression models for both regions in Sumatra are:

$$LnGWSS_{it} = \beta_0 + \beta_1 LnGRDP\ percapitat\text{-}1_{it} + \beta_2 LnTaxt\text{-}1_{it} + \beta_3 LnSF_{it} + \beta_4 LnPop_{it} + \delta it \quad ... (1)$$

$$LnGWSUS_{it} = \beta_0 + \beta_1 LnGRDP\ percapitat\text{-}1_{it} + \beta_2 LnTaxt\text{-}1_{it} + \beta_3 LnSF_{it} + \beta_4 LnPop_{it} + \delta it \quad ... (2)$$

Where GWSS is welfare spending in split regions, GWSUS is welfare spending in the unsplit areas, GRDP percapita-1 is the previous year's Gross Regional Domestic Product per capita, taxt-1 is the previous year's local tax, SF is sharing fund, and Pop is population. β_i is an independent variable coefficient, t is time, i is regencies/cities, and δ is an error term with α 5%.

This study tests both panel data regression models using Chow and Hausman test to find the best regression models among common, fixed, and random effect models (Wooldridge, 2013). Then, based on the best model, this study conducts the F-test, t-test, and determinant coefficient (Gujarati, 2003).

4. RESULTS AND DISCUSSION

4.1. Research Result

Local government welfare spending in Sumatra varies every year from 2011-2020. Between split and unsplit regions, the total welfare spending in split regions is always lower than in unsplit areas. This condition has occurred since the beginning of the region splitting. Although the average welfare spending development in split regions is higher than in unsplit areas, the difference in welfare spending between both types of regions substantially differs. This condition indicates that governments in the unsplit region have better control over program planning and execution regarding welfare improvement. On the contrary, in the past few years, local governments in split regions are still honing their abilities in planning and managing innovative programs and activities to deliver public service. Table **1** presents descriptive statistics of spending and independent variable.

Next, this study presents the development of GRDP per capita. GRDP per capita in split regions is only 10% of the other region type. This condition is considered normal since the business sectors in unsplit regions, such as industries or foreign companies, have existed for a long time. Moreover, infrastructures supporting the business sectors and government regulations controlling economic activities are more accomplished there; this results in more advanced economic development in unsplit regions.

With that in mind, split regions have lower average tax than unsplit regions for the tax variable since the latter have more taxpayers and business entities that can pay more local taxes. Human resources in attracting tax from the business sectors are also higher in those regions. On the other hand, newly split regions still need time to learn how to intensify and extensify tax. Interestingly, those efforts seem successful due to higher tax growth in split regions. Therefore, the tax amount that is supposed to be the primary government income source is set to increase in the future.

Conversely, the situations between the two region types differ regarding the sharing fund. Sharing fund is very much connected to central government tax, paid by the people and natural resources from local regions. Both components are the foundation of calculating the quantity of sharing fund received in the regions. Each year, sharing fund tends to decrease in split and unsplit regions. Even so, sharing fund in unsplit areas is always higher than in split regions, indicating that unsplit regions have more significant central government tax revenue. Moreover, the industries of natural resources in the unsplit areas progress better.

Similar things occur for the population, as more people live in unsplit regions. This is due to people living with their families and working in that area before the split. The unsplit regions tend to be more populous.

Regression Model: Welfare Spending Determinant

This study tests the panel data regression model with Chow and Hausman test. The result shows that the best model is

the Fixed Effect Model (FEM) for split and unsplit regions. This information can be seen in Table **2**.

Table 2. Panel Data Regression Model Test.

Tests	Region Types	
	Splitting	**Unsplitting**
Chow test	*	*
Hausman test	*	*

Source: Research results

Notes:

→Chow test: chi-square prob > 5%, H0 is rejected. This shows that the best model is FEM.

→ Hausman test: chi-square prob > 5%, H0 is rejected. This shows that the best model is FEM.

Based on that explanation, this research conducts statistical tests using the FEM model for both region types. This statistical test is presented in Table **3**. This study runs the F test on both regions and shows that all independent variables affect welfare spending. However, the determinant coefficient for unsplit regions is more robust because the ability of all independent variables is very high (93.6%) in explaining the variations of welfare spending in this area.

Table 3. Regression Model: Welfare Spending Determinants for Both Regions.

Variable	Region Types	
	Splitting	**Unsplitting**
C	9.258050	20.56311***
Ln GRDP per capita t-1	0.190201***	0.019455
Ln Tax t-1	0. 115774***	0.255276 ***
Ln SF	-0.199394	-0.055640 ***
Ln Pop	1.368066***	0.113991
R-squared	0.831326	0.921578
F-statistic	38.29132	102.1919
Prob(F-statistic)	0.00000	0.000000

notes: *** significant at α = 1%, ** significant at α = 5%, * significant at α = 10%.

Source: Research results

The next test is the t-test. For split regions, three variables significantly positively influence welfare spending with α 5%. The three variables comprise the previous year's GRDP per capita, the previous year's tax, and population.

Unlike split regions, in the unsplit regions, two variables significantly and positively affect welfare spending with α 5%. The previous year's tax has had a significantly positive effect on welfare spending. However, sharing fund significantly negatively affects welfare spending because, in unsplit regions, the expenditure depends on government income (tax and sharing fund).

4.2. Discussions

This study discovers that the previous year's tax significantly and positively impacts local government welfare spending in the split and unsplit regions. Thus, this research supports the tax-spend hypothesis. Moreover, the results resemble previous studies, such as studies conducted by Kithinji (2019), Rahman and Wadud (2014), Rambe and Febriani (2021), and Westerlund, Mahdavi, and Firoozi (2011).

The above-mentioned previous researchers stated that tax is the most significant source of government income. Therefore, an increase in the tax that the government receives will drive an increase in government spending. To explain the case in Sumatra, the author will explain the context of the region splitting there. In the era of region splitting, local governments are given more authority to collect taxes from local people. There are 11 types of local taxes that the district and city government have mandates on, such as hotel, restaurant, entertainment, advertisement, and parking taxes. These taxes are not limited, meaning local governments can explore potentials outside the ones regulated in the constitution. Of course, tax collection should consider the ability of the businesses. For example, if small enterprises are not stable but are taxed unsuitable, they can go bankrupt.

Every year, more Sumatra districts and cities own small and big enterprises with the potential of local tax collection. Examples are the development of the tourism and hospitality industry generates growth in hotel, restaurant, entertainment, and advertisement business. Based on that condition, taxes from such businesses are increasing in the split and unsplit regions. The increase in local tax collection from the previous year will allow local governments to carry out regional development by providing more distributed public goods, manifested through elevated local government welfare spending.

The only variable influencing local government welfare spending in both regions is the previous year's tax. The previous year's GRDP per capita and population significantly and positively affect welfare spending only in split regions. This proves that Wagner's Law is only applicable to split regions. This result supports studies conducted by Ibrahim and Bashir (2019), Irandoust (2019), and Narayan et al. (2012). At the beginning of the establishment of newly split regions, there were limited public service facilities. Education, health, housing, and public facilities still need to be improved. A similar case occurs for public services supporting welfare. GRDP per capita in split regions is still low. With the increase of GRDP per capita, society's ability to utilize public services will also grow. This condition boosts local governments of split regions to use their welfare spending for infrastructures supporting better public services. Some public service facilities built by the government are not only pure public goods but are near public goods, such as hospitals, laboratories, schools, markets, and public housing. With an increase in the public's ability to utilize public service facilities near public goods, the government can receive an additional tax and local retribution driving the government to increase its welfare spending.

In unsplit regions, the previous year's GRDP per capita is insignificant in affecting welfare spending. This discovery

resembles previous studies, such as Babajide et al. (2020) and Azolibe et al. (2020).

In Sumatra, GRDP per capita in unsplit regions is higher than in split regions. Industries are developed, and society tends to be more prosperous and, therefore, more independent in providing welfare services. The GRDP per capita, indicating social welfare for society, also increases. Most people with high incomes can achieve welfare through their effort. They use health insurance services, attend expensive private schools, and work for high salaries. In unsplit regions, infrastructures are already available. Moreover, most people own houses. Hence, housing and public facilities spending that drive achieving social welfare is no longer urgent (unlike in split regions).

This part discusses the sharing fund. In unsplit regions, sharing fund significantly negatively affects welfare spending. This result differs from past studies that stated a positive impact of sharing fund on local government spending (Canare, 2019). On the contrary, sharing fund does not significantly affect split regions' welfare spending.

In Unsplit regions, local areas with high sharing fund are districts/cities that have abundant natural resources and provide more significant taxes to the central government. Therefore, the relationship between sharing fund and welfare spending should be positive. It indicates that some regional governments in Sumatra do not prioritize welfare spending. They allocate sharing fund for another spending.

The condition in split regions differs. Some districts still had increasing crude oil production (for example, Kepulauan Anambas District in Kepulauan Riau Province). That situation resulted in the district receiving more sharing fund. However, some districts were still poor, possessing no natural resources, and had undeveloped economies, such as South Bengkulu District in Bengkulu Province. That caused the district to receive less sharing fund. Although the amount of sharing fund varies in split regions, welfare spending kept increasing. This information explains why the sharing fund variable is insignificant in affecting welfare spending in split regions.

This part explains how the population significantly affects local government spending in split regions. This result supports past research done by Akca et al. (2017), Cai et al. (2018), and Jibir & Aluthge (2019). The government provides public service regarding social welfare adapted to the amount of the population. For example, health spending is allocated to developing hospital infrastructures, laboratories, medical personnel (doctors, midwives, and nurses), health equipment, toddler immunization, and medical drugs adjusted to the number of the population. The bigger the population is, the bigger the health spending allocation is to maintain local public health. The same goes for education spending, where they adjust it to develop education infrastructures and provide teacher services based on the school-age population. Similarly, other welfare spending components, including economic spending and housing & public facilities spending, are the same. The more the population, the more public services are needed; the more significant the economic, housing & public facilities spending is.

5. CONCLUSION AND RESEARCH IMPLICATIONS

The model and statistical tests show that only the previous year's tax significantly positively affects welfare spending in both split and unsplit regions. Moreover, the previous year's GRDP per capita and population positively influence welfare spending in split regions only. On the contrary, sharing fund significantly and negatively affects welfare spending in unsplit regions. Therefore, this study concludes that there is a significant difference in welfare spending determinants between split and unsplit regions.

Welfare spending is an integral part of local governance. Local government should increase welfare spending. The availability of welfare spending can drive the growth of social welfare in local regions. The result of the study suggests that improving tax revenue can increase local government welfare spending for both split and unsplit regions.

With the proliferation of business in split regions, the opportunity for governments to collect more taxes increases. Even so, this study suggests that governments focus on strategies for increasing taxes through intensification in tax collection in preexisting local taxes instead of creating a new tax that can burden businesses. Local governments in split regions are expected to innovate in collecting taxes from society and implement an effective and efficient collection system so that the public feel at ease when paying taxes. Indeed, the effort to increase tax revenue needs to consider businesses' ability to grow and expand. In unsplit regions, the previous year's tax also positively affects welfare spending. Therefore, this study implies the significance of creating a strategy for tax collection. Local governments in unsplit regions are expected to innovate when collecting taxes with an intensification method while protecting enterprises taxed in local areas that can survive.

In split regions, previous GRDP per capita positively influences welfare spending. The local governments in split regions need to work harder to increase their GRDP per capita as the data show that GRDP per capita in split regions is only about 10 percent of the GRDP per capita in unsplit regions. Increasing GRDP per capita in split regions may be complex. However, some strategies can be designed to increase GRDP per capita. First, the split regions must improve their investment climate to attract investors to invest in basic and financial infrastructures. Second, the local governments can also improve their level of industrialization especially agricultures-based industries that can increase people's incomes. Third, improve the productivity of small-business companies by providing better access to banking, marketing, and digital technology in running their business. Fourth, Sumatra has excellent potential for ecotourism, such as beaches, lakes, mangroves, and rainforests. Besides, Sumatra has 2.5 million hectares of tropical rainforests in national parks such as Taman Nasional Bukit Barisan Selatan, Kerinci-Seblat, and Gunung Leuseur.

Since sharing fund negatively influences welfare spending, the local governments in unsplit regions need to redesign their welfare spending. While other spendings are essential, they need to improve their welfare spending by increasing other income revenues. The governments in unsplit regions

should improve their economic growth to earn more to spend on welfare issues.

It should be noted, however. The study has some limitations. The study does not reveal the impact of spending on people's welfare in split and unsplit regions. It does not examine which region has better spending to increase people's welfare. Future research should go in that direction.

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Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id>

RE: Galley Proofs [REF]: What Drives Local Government Welfare Spending?A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia

Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id> Sat, Apr 29, 2023 at 12:22 PM
To: Robin Butler <robin.butler@refpress.org>

Dear Prof Bulter.

I have read the manuscript carefully and made some corrections. I am sending it to you. I am looking forward to hearing good news from you. Thank you very much.

Regards

Corresponding author
Roosemarina Anggraini Rambe
[Quoted text hidden]

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Dear prof Butler

Here are my suggestions for the final article.

1. In first sentence of the literature section, the words “welfare spending” should not be written in italic.
2. In the first paragraph of the introduction, the citation style in the manuscript should be corrected. It is written:

> “Some countries merge local governments to save on ever-expanding ex-penditures (Reiljan, Jaansoo, and Ülper 2013; Slack and Bird 2013). However, a merger does not always result in im-proved conditions than before the merger. Empirical study shows that government expenditure post-merger is still more expensive than before the merger (Blesse and Baskaran 2016; Roesel 2017)”.

The correct style of citation should be:

> “Some countries merge local governments to save on ever-expanding expenditures (Reiljan et al., 2013; Slack & Bird, 2013). However, a merger does not always result in improved conditions than before the merger. Empirical study shows that government expenditure post-merger is still more expensive than before the merger (Blesse & Baskaran, 2016; Roesel, 2017)”.

3.In the second paragraph on page two:

> “Some studies expanded on health spending and its determinants (Bashir, Kishwar, and Salman 2021; Braendle and Colombier 2016)”.

The correct citation should be:

> “Some studies expanded on health spending and its determinants ((Bashir et al., 2021; Braendle & Colombier, 2016)”.

4. In the third paragraph on page two:

> “One of the government welfare spending determinants is tax. An empirical study shows that tax positively affects govern-ment spending (Gurdal, Aydin, and Inal 2021)”.

It should be:

> “One of the government welfare spending determinants is tax. An empirical study shows that tax positively affects government spending (Gurdal et al., 2021)”.

5. On Page 3, paragraph 2. The writer name Gadanne should be replaced with Gadenne.

"In developing countries, Gadanne (2017) explained that governments obtain tax revenue for developments that benefit society, such as educational infrastructures."

It should be:

"In developing countries, Gadenne (2017) explained that governments obtain tax revenue for developments that benefit society, such as educational infrastructures".

6.On page 3, paragraph 7:

Akca, Sönmez, and Yılmaz (2017) revealed that GDP per capita influences health spend-ing.

It should be:

Akca et al. (2017) revealed that GDP per capita influences health spending.

7.On page 3, in the last paragraph:

"The population also determines government spending. Em-pirical studies showed a positive effect of population on gov-ernment spending (Akca et al. 2017; Bernardelli, Kortt, and Dollery 2020; Cai, Feng, and Shen 2018; Jibir and Aluthge 2019; Krieger and Meierrieks 2020)".

It should be:

"The population also determines government spending. Empirical studies showed a positive effect of population on government spending (Akca et al., 2017; Bernardelli et al., 2020; Cai et al., 2018; Jibir & Aluthge, 2019; Krieger & Meierrieks, 2020)".

8.On page 5, under discussion section:

"Moreover, the results resemble previous studies, such as studies conducted by Kithinji (2019), Rahman and Wadud (2014), Rambe and Febriani (2021), and Westerlund, Mahdavi, and Firoozi (2011)".

It should be:

"Moreover, the results resemble previous studies, such as studies conducted by Kithinji (2019), Rahman & Wadud (2014), Rambe & Febriani (2021), and Westerlund et al. (2011)".

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Roosemarina A. Rambe <roosemarina.rambe@unib.ac.id>

RE: Galley Proofs [REF]: What Drives Local Government Welfare Spending?A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia

Robin Butler <robin.butler@refpress.org> Mon, May 1, 2023 at 2:19 AM
To: "Roosemarina A. Rambe" <roosemarina.rambe@unib.ac.id>

Dear Prof./Dr. Roosemarina Anggraini Rambe:

Hope you are doing well and in good health.

Reference to your manuscript entitled **"What Drives Local Government Welfare Spending? A Comparative Study Of Split And Non-Split Regions In Sumatra, Indonesia."** for publication in the journal '**Review of Economics and Finance**'.

Please check your revised galley proof in attachment.

Looking forward to receive your positive response.

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What Drives Local Government Welfare Spending? A Comparative Study of Split and Unsplit Regions in Sumatra, Indonesia

Roosemarina Anggraini Rambe[1*] and Lizar Alfansi[2]

[1]*Economics Department, Faculty of Economics and Business, University of Bengkulu, Indonesia.*

[2]*Management Department, Faculty of Economics and Business, University of Bengkulu, Indonesia.*

Abstract: The study examines and compares the role of the previous year's GRDP per capita, the previous year's tax, sharing fund, and population toward the local government welfare spending between split and unsplit regions in Sumatra, Indonesia. The study employs the panel data of districts/cities in Sumatra from 2011 to 2020. The study applies the data panel regression technique. Results show that the welfare spending determinant model differs between the two regions. In split regions, the role of the previous year's tax, the previous year's GRDP per capita, and population have a significant, positive effect on the local government welfare spending. However, in unsplit regions, the previous year's tax has a significant positive effect, whereas the sharing fund has a significant negative influence on the local government welfare spending. This study recommends that local governments manage tax revenue by implementing intensive taxation. The splitting of local government encourages the growth of the business sector. The unsplit local governments should grow their income outside of sharing fund to increase welfare spending.

Keywords: Previous year's GRDP per capita, Previous year's tax, Population, Regional splitting, Sharing fund, Welfare spending.

1. INTRODUCTION

Government activities aim to provide public service, fulfill citizens' needs, and reach social welfare. As time passes, government spending keeps increasing. Some countries merge local governments to save on ever-expanding expenditures (Reiljan et al., 2013; Slack & Bird, 2013). However, a merger does not always result in improved conditions than before the merger. Empirical study shows that government expenditure post-merger is still more expensive than before the merger (Blesse & Baskaran, 2016; Roesel, 2017).

Although some countries do mergers, Indonesia does the opposite. Indonesia does region splitting. One of the reasons for Indonesia's decision to split its regions is political; local government is given more authority in managing finance in their regions. In addition, because local governments are perceived to know more about the locals' conditions and needs, they are expected to provide more appropriate public service and to create better programs and activities for their people through region splitting. Therefore, the goal of splitting regions is to increase social welfare, as expected by the government.

Since Act 32/2004 regarding region splitting was enacted in Indonesia, region splitting had risen until 2013. After implementing this regulation, out of seven areas in Indonesia, the highest numbers of districts and cities emerging from region splitting were from Sumatra. The escalation of government spending in Sumatra regions accompanied the addition of districts and cities. This increase in government spending is significant to study as the expenditure comes from the people; therefore, government expenditure should be optimally utilized to achieve the objective of region splitting. Local governments are expected to accurately allocate their expenditure, and welfare spending, to improve their people's social welfare.

Several types of government spending positively affect social welfare in Indonesia, such as education, health, economy, social protection, and housing & public facility spending. These five types of spending in this study are called welfare spending. Justino & Martorano (2018) used welfare spending as a ratio of government social expenditures to GDP. Detraz & Peksen (2018) classified welfare spending as governments' overall fiscal commitments to various social needs in three major areas: education, health, and social security. The variable is measured as a percentage of total public spending.

The local government's focus on improving social welfare can be evaluated in the programs and activities reflected in the welfare spending allocated by the local governments. A high amount of welfare spending indicates a high attentiveness of the local governments in achieving social welfare. The bigger the welfare spending in a region is, the bigger the focus the local government has given to achieve social welfare. Consequently, local governments should allocate a considerable proportion of their spending toward

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welfare. It is worth noting that local governments' welfare spendings vary in the amount of their growth.

Comparing the split and unsplit regions in Sumatra, the average welfare spending of local governments from split regions (approximately 52%-65%) is perpetually lower than in the unsplit areas (Indonesian Ministry of Finance, https://djpk.kemenkeu.go.id). However, the social welfare spending of the split regions increased higher (approximately 8.73% per year) than unsplit regions (8.18% per year) until 2019. During the COVID-19 pandemic, the average welfare spending of the government declined, with a 10.29% decrease in split regions and an 8.5% decrease in unsplit areas. The difference in welfare spending growth of these two types of local governments indicates a difference in the welfare spending determinants between local governments in split and unsplit regions in Sumatra. Therefore, this study analyzes the two regions' government's welfare spending determinant model.

Studies about government spending determinants focusing on total spending as a dependent variable have been conducted frequently. However, only a few studies focus on specific government spending determinants. Some studies expanded on health spending and its determinants (Bashir et al., 2021; Braendle & Colombier, 2016). Other studies analyzed education spending and its determinants (Sheikh 2019; Yun and Yusoff 2019). However, studies elaborating on welfare spending and its determinants are relatively rare, despite the importance of analyzing welfare spending by local governments.

One of the government welfare spending determinants is tax. An empirical study shows that tax positively affects government spending (Gurdal et al., 2021). In that study, the current year's tax impacts the current year's total government spending. However, this study analyzes the previous year's tax. These authors use this proxy as governments plan the following year's spending based on the current year. By knowing the amount of tax collected this year, governments can predict the tax they can gather next year; they consider this information to plan their spending.

The other factor driving the increase in government spending is economic development. Economic development has increased per capita income. Wagner's Law, also known as the "Law of increasing state activity," explains that an escalation in economic activities will increase government spending. When per capita income increases, national government expenditure also increases (Arestis et al., 2021). Empirical studies show that Wagner's Law applies in various countries, such as Spain (Jaén-garcía, 2011) and Greece (Antonis et al., 2013).

Transfer funds from the central government also have a prominent contribution in deciding local government spending. One of the components of transfer funds is sharing fund. Previous research showed how sharing fund positively impacts local government spending (Canare, 2019).

Moreover, the population also becomes a government spending determinant. Government spending regarding population numbers should be considered. A past study discovered a positive effect of population on government spending (Azolibe et al., 2020). The bigger the number of people, the more expensive the local government spending should be to provide public services.

Previous studies showed that little research had been conducted on welfare spending determinants. However, analyzing it is urgent for the government to accommodate determinants that can increase welfare spending. Local governments able to expand welfare spending have more potential to improve their locals' welfare. As a developing country, there are many regions yet to be prosperous. Consequently, there is a need to analyze welfare spending determinants for developing countries. Explaining welfare spending determinants will be this study's contribution.

This research also compares government welfare spending determinants between split and unsplit regions. Unfortunately, previous studies rarely analyzed the comparison of welfare spending determinants between the two types of regions. As a developing country, Indonesia must understand the factors determining welfare spending for split and unsplit regions. This determinant model can be a scientific contribution to local governments to allocate welfare spending. By comparing the welfare spending determinant model, local governments should be able to provide variables that increase welfare spending in either split or unsplit regions.

Thus, this study examines the role of the previous year's GRDP per capita, the previous year's tax, sharing fund, and population toward the local government welfare spending of split and unsplit regions in Sumatra. This research also compares the welfare spending determinant model for the two types of regions.

The rest of the article is divided into sections. This study explains articles in the literature review in section 2. The study elaborates on the research methods in section 3. In section 4, this study describes the study's results and discussion. Lastly, the study presents the conclusion and research implications in section 5.

2. LITERATURE REVIEW

Welfare spending is a fund used by the local government and allocated to provide public services. The programs and activities of local governments in giving public services are reflected in their expenditure. In other words, government spending becomes one of the indicators of government activities. The bigger the activities are, the bigger the government spending. Hence, local governments should thoroughly contemplate the programs and activities for their regions. Local governments should also try and accommodate possible factors that can increase local government spending focusing on welfare.

One of the government spending determinants is tax. Tax is the government's primary source of income. The elevation of tax revenue drives government spending. As the tax is raised, citizens get accustomed to paying tax to a certain extent; thus, the tax remains unchanged. Consequently, government spending also keeps increasing. This condition reflects the tax-spend hypothesis (Gurdal et al., 2021), where tax revenue positively affects government spending. Many empirical studies support the tax-spend hypothesis (Adejare & Akande, 2017; Eniekezimene et al., 2019; Febriani & Rambe, 2022; Iiyambo & Kaulihowa, 2020; Jaén-García, 2019; Linhares et

al., 2021; Tashevska et al., 2020; Yinusa et al., 2017). On the contrary, other studies have found government spending to be the reason for gathering more income through tax, labeled as the spend-tax hypothesis. Several studies support this hypothesis (Champita, 2016; Luković & Grbić, 2014; Melé et al., 2020).

In developing countries, Gadenne (2017) explained that governments obtain tax revenue for developments that benefit society, such as educational infrastructures. Tax revenue is the only variable positively affecting welfare spending. The tax will positively impact spending (Kithinji, 2019; Nxumalo & Hlophe, 2018). Therefore, this study uses the tax-spend hypothesis to understand the welfare spending determinants.

Based on the explanation above, the first hypothesis of this research is:

H1a: Previous year's local tax positively affects government welfare spending in split regions.

H1b: Previous year's local tax positively affects government welfare spending in unsplit regions.

According to Wagner's Law, economic development is a variable contributing to deciding government spending. Wagner explained the tendency of government spending to increase along with economic development (Babajide et al., 2020). Economic development, marked by a rise in GDP, will stimulate government spending. People in developed economies receive high incomes. With increased revenue, society can consume plentiful goods and services with good qualities. Governments provide many infrastructures supporting complete public services and facilities, such as health facilities with advanced technologies, educational facilities with excellent quality, and tourist attractions pulling high prices. Efforts to provide infrastructure require government spending.

Moreover, the complex relationship between laborers and employers in industries in developed regions requires strict attention and supervision from the government so that lower-class people will not receive any harm. Therefore, the government should create a regulation so that programs and activities in the business sectors will thrive and lower-class society will also receive benefits. The complexity of government activities is inclined to be simple, and the government spends less on middle- and low-income society. This explains the effect of GRDP on government spending.

Empirical studies show Wagner's Law valid in some regions. In explaining the impact of national income on government spending, researchers used some proxies, such as GDP and GDP per capita. Previous studies show how GDP positively influences government spending (Bayrakdar et al., 2015; Inchauspe et al., 2022; Jaén-García, 2018; Magazzino et al., 2015; Purmini & Rambe, 2021; Sedrakyan & Varela-Candamio, 2019). Other studies find that GDP does not significantly determine government spending (Azolibe et al., 2020; Babajide et al., 2020). Other studies reported that real GDP increases government (Bazán et al., 2022).

Using GDP per capita as a proxy, other researchers discover a positive impact of the previous year's GDP per capita on government spending (Ibrahim & Bashir, 2019; Irandoust, 2019; Narayan et al., 2012). Akca et al. (2017) revealed that GDP per capita influences health spending. Munir and Ali (2019) mentioned that GDP per capita affects subsidized education and social and economic expenditures. However, Karceski & Kiser (2020) reported that a GDP per capita increase would boost government spending when GDP per capita is low. Once GDP per capita is high, government spending will decrease. The phenomenon is described in a regression model with a quadratic shape.

The second hypothesis of this study:

H2a: The previous year's GRDP per capita positively affects welfare spending in split regions.

H2b: The previous year's GRDP per capita positively affects welfare spending in unsplit regions.

Sharing fund also determines local government spending. A past study stated that sharing fund positively influences local government spending (Canare, 2019). Sharing fund is the transfer from the central to local governments, illustrating economic development and availability of local natural resources. In other words, because regions with high central taxes have plentiful natural resources, they can significantly contribute to the state; the state will return the contribution to those regions to a certain proportion. Areas yielding high central taxes and plentiful natural resources will receive more immense proportions of sharing fund than regions that do not. More sizeable sharing fund from the central government will enrich local government income. A considerable local government income will allow local governments to increase their spending. However, with additional sources of local government income, government spending might not increase proportionately to the sharing fund received.

From the explanation above, the hypotheses for the sharing fund variable are:

H3a: Sharing fund positively affects welfare spending in split regions.

H3b: Sharing fund positively affects welfare spending in unsplit regions.

The population also determines government spending. Empirical studies showed a positive effect of population on government spending (Akca et al., 2017; Bernardelli et al., 2020; Cai et al., 2018; Jibir & Aluthge, 2019; Krieger & Meier-rieks, 2020). In addition, Azolibe et al. (2020) explained that the population group determining government spending is the population aged 0-64 years. With that in mind, the government should provide public services. Some public services include expenditures per capita, such as health insurance, pension, and educational aid fund. The more sizeable the population is, the more they will boost the quantities of public services; this results in increased government spending. Based on that explanation, this study proposes these hypotheses:

H4a: Population positively affects welfare spending in split regions.

H4b: Population positively affects welfare spending in unsplit regions.

Table 1. Descriptive Statistics of Government Welfare Spending and Independent Variables.

Mean of Variables	Split Regions			Unsplit Regions		
	2011	2020	Growth/year	2011	2020	Growth/year
Government Welfare Spending (billion IDR)	292.27	505.73	8.73	533.40	895.78	8.18
GRDP per capita (million IDR)	33.40	53.49	6.73	320.70	508.37	6.20
Local tax (billion IDR)	3.34	18.43	23.57	28.83	86.27	16.89
Sharing Fund (billion IDR)	55.11	34.99	-1.34	179.60	119.79	-1.60
Population (thousand persons)	188.07	217.15	1,52	387.59	442.41	1.8

Source: Research results

3. RESEARCH METHOD

This study draws from the panel data of districts and cities in 2011-2020 from the Indonesian Ministry of Finance and Statistics Indonesia. This research independently analyzes two welfare spending determinant models in each region: the welfare spending determinant model in split regions (consisting of 23 districts and cities) and the welfare spending determinant model in unsplit regions (composed of 99 districts and cities). Original regions (from which the new regions are split) are not studied. Welfare spending in this research comprises the sum of education, health, economic, social protection, and housing & public facilities spending.

Panel data regression models for both regions in Sumatra are:

$$Ln\text{GWSS}_{it} = \beta_0 + \beta_1 Ln\text{GRDP percapitat-1}_{it} + \beta_2 Ln\text{Taxt-1}_{it} + \beta_3 Ln\text{SF}_{it} + \beta_4 Ln\text{Pop}_{it} + \delta it \quad ... (1)$$

$$Ln\text{GWSUS}_{it} = \beta_0 + \beta_1 Ln\text{GRDP percapitat-1}_{it} + \beta_2 Ln\text{Taxt-1}_{it} + \beta_3 Ln\text{SF}_{it} + \beta_4 Ln\text{Pop}_{it} + \delta it \quad ... (2)$$

Where GWSS is welfare spending in split regions, GWSUS is welfare spending in the unsplit areas, GRDP percapita-1 is the previous year's Gross Regional Domestic Product per capita, taxt-1 is the previous year's local tax, SF is sharing fund, and Pop is population. β_i is an independent variable coefficient, t is time, i is regencies/cities, and δ is an error term with α 5%.

This study tests both panel data regression models using Chow and Hausman test to find the best regression models among common, fixed, and random effect models (Wooldridge, 2013). Then, based on the best model, this study conducts the F-test, t-test, and determinant coefficient (Gujarati, 2003).

4. RESULTS AND DISCUSSION

4.1. Research Result

Local government welfare spending in Sumatra varies every year from 2011-2020. Between split and unsplit regions, the total welfare spending in split regions is always lower than in unsplit areas. This condition has occurred since the beginning of the region splitting. Although the average welfare spending development in split regions is higher than in unsplit areas, the difference in welfare spending between both types of regions substantially differs. This condition indicates that governments in the unsplit region have better control over program planning and execution regarding welfare improvement. On the contrary, in the past few years, local governments in split regions are still honing their abilities in planning and managing innovative programs and activities to deliver public service. Table **1** presents descriptive statistics of spending and independent variable.

Next, this study presents the development of GRDP per capita. GRDP per capita in split regions is only 10% of the other region type. This condition is considered normal since the business sectors in unsplit regions, such as industries or foreign companies, have existed for a long time. Moreover, infrastructures supporting the business sectors and government regulations controlling economic activities are more accomplished there; this results in more advanced economic development in unsplit regions.

With that in mind, split regions have lower average tax than unsplit regions for the tax variable since the latter have more taxpayers and business entities that can pay more local taxes. Human resources in attracting tax from the business sectors are also higher in those regions. On the other hand, newly split regions still need time to learn how to intensify and extensify tax. Interestingly, those efforts seem successful due to higher tax growth in split regions. Therefore, the tax amount that is supposed to be the primary government income source is set to increase in the future.

Conversely, the situations between the two region types differ regarding the sharing fund. Sharing fund is very much connected to central government tax, paid by the people and natural resources from local regions. Both components are the foundation of calculating the quantity of sharing fund received in the regions. Each year, sharing fund tends to decrease in split and unsplit regions. Even so, sharing fund in unsplit areas is always higher than in split regions, indicating that unsplit regions have more significant central government tax revenue. Moreover, the industries of natural resources in the unsplit areas progress better.

Similar things occur for the population, as more people live in unsplit regions. This is due to people living with their families and working in that area before the split. The unsplit regions tend to be more populous.

Regression Model: Welfare Spending Determinant

This study tests the panel data regression model with Chow and Hausman test. The result shows that the best model is

the Fixed Effect Model (FEM) for split and unsplit regions. This information can be seen in Table **2**.

Table 2. Panel Data Regression Model Test.

Tests	Region Types	
	Splitting	**Unsplitting**
Chow test	*	*
Hausman test	*	*

Source: Research results

Notes:

→Chow test: chi-square prob > 5%, H0 is rejected. This shows that the best model is FEM.

→ Hausman test: chi-square prob > 5%, H0 is rejected. This shows that the best model is FEM.

Based on that explanation, this research conducts statistical tests using the FEM model for both region types. This statistical test is presented in Table **3**. This study runs the F test on both regions and shows that all independent variables affect welfare spending. However, the determinant coefficient for unsplit regions is more robust because the ability of all independent variables is very high (93.6%) in explaining the variations of welfare spending in this area.

Table 3. Regression Model: Welfare Spending Determinants for Both Regions.

Variable	Region Types	
	Splitting	**Unsplitting**
C	9.258050	20.56311***
Ln GRDP per capita t-1	0.190201***	0.019455
Ln Tax t-1	0. 115774***	0.255276 ***
Ln SF	-0.199394	-0.055640 ***
Ln Pop	1.368066***	0.113991
R-squared	0.831326	0.921578
F-statistic	38.29132	102.1919
Prob(F-statistic)	0.00000	0.000000

notes: *** significant at α = 1%, ** significant at α = 5%, * significant at α = 10%.

Source: Research results

The next test is the t-test. For split regions, three variables significantly positively influence welfare spending with α 5%. The three variables comprise the previous year's GRDP per capita, the previous year's tax, and population.

Unlike split regions, in the unsplit regions, two variables significantly and positively affect welfare spending with α 5%. The previous year's tax has had a significantly positive effect on welfare spending. However, sharing fund significantly negatively affects welfare spending because, in unsplit regions, the expenditure depends on government income (tax and sharing fund).

4.2. Discussions

This study discovers that the previous year's tax significantly and positively impacts local government welfare spending in the split and unsplit regions. Thus, this research supports the tax-spend hypothesis. Moreover, the results resemble previous studies, such as studies conducted by Kithinji (2019), Rahman & Wadud (2014), Rambe & Febriani (2021), and Westerlund et al. (2011).

The above-mentioned previous researchers stated that tax is the most significant source of government income. Therefore, an increase in the tax that the government receives will drive an increase in government spending. To explain the case in Sumatra, the author will explain the context of the region splitting there. In the era of region splitting, local governments are given more authority to collect taxes from local people. There are 11 types of local taxes that the district and city government have mandates on, such as hotel, restaurant, entertainment, advertisement, and parking taxes. These taxes are not limited, meaning local governments can explore potentials outside the ones regulated in the constitution. Of course, tax collection should consider the ability of the businesses. For example, if small enterprises are not stable but are taxed unsuitable, they can go bankrupt.

Every year, more Sumatra districts and cities own small and big enterprises with the potential of local tax collection. Examples are the development of the tourism and hospitality industry generates growth in hotel, restaurant, entertainment, and advertisement business. Based on that condition, taxes from such businesses are increasing in the split and unsplit regions. The increase in local tax collection from the previous year will allow local governments to carry out regional development by providing more distributed public goods, manifested through elevated local government welfare spending.

The only variable influencing local government welfare spending in both regions is the previous year's tax. The previous year's GRDP per capita and population significantly and positively affect welfare spending only in split regions. This proves that Wagner's Law is only applicable to split regions. This result supports studies conducted by Ibrahim and Bashir (2019), Irandoust (2019), and Narayan et al. (2012). At the beginning of the establishment of newly split regions, there were limited public service facilities. Education, health, housing, and public facilities still need to be improved. A similar case occurs for public services supporting welfare. GRDP per capita in split regions is still low. With the increase of GRDP per capita, society's ability to utilize public services will also grow. This condition boosts local governments of split regions to use their welfare spending for infrastructures supporting better public services. Some public service facilities built by the government are not only pure public goods but are near public goods, such as hospitals, laboratories, schools, markets, and public housing. With an increase in the public's ability to utilize public service facilities near public goods, the government can receive an additional tax and local retribution driving the government to increase its welfare spending.

In unsplit regions, the previous year's GRDP per capita is insignificant in affecting welfare spending. This discovery

resembles previous studies, such as Babajide et al. (2020) and Azolibe et al. (2020).

In Sumatra, GRDP per capita in unsplit regions is higher than in split regions. Industries are developed, and society tends to be more prosperous and, therefore, more independent in providing welfare services. The GRDP per capita, indicating social welfare for society, also increases. Most people with high incomes can achieve welfare through their effort. They use health insurance services, attend expensive private schools, and work for high salaries. In unsplit regions, infrastructures are already available. Moreover, most people own houses. Hence, housing and public facilities spending that drive achieving social welfare is no longer urgent (unlike in split regions).

This part discusses the sharing fund. In unsplit regions, sharing fund significantly negatively affects welfare spending. This result differs from past studies that stated a positive impact of sharing fund on local government spending (Canare, 2019). On the contrary, sharing fund does not significantly affect split regions' welfare spending.

In Unsplit regions, local areas with high sharing fund are districts/cities that have abundant natural resources and provide more significant taxes to the central government. Therefore, the relationship between sharing fund and welfare spending should be positive. It indicates that some regional governments in Sumatra do not prioritize welfare spending. They allocate sharing fund for another spending.

The condition in split regions differs. Some districts still had increasing crude oil production (for example, Kepulauan Anambas District in Kepulauan Riau Province). That situation resulted in the district receiving more sharing fund. However, some districts were still poor, possessing no natural resources, and had undeveloped economies, such as South Bengkulu District in Bengkulu Province. That caused the district to receive less sharing fund. Although the amount of sharing fund varies in split regions, welfare spending kept increasing. This information explains why the sharing fund variable is insignificant in affecting welfare spending in split regions.

This part explains how the population significantly affects local government spending in split regions. This result supports past research done by Akca et al. (2017), Cai et al. (2018), and Jibir & Aluthge (2019). The government provides public service regarding social welfare adapted to the amount of the population. For example, health spending is allocated to developing hospital infrastructures, laboratories, medical personnel (doctors, midwives, and nurses), health equipment, toddler immunization, and medical drugs adjusted to the number of the population. The bigger the population is, the bigger the health spending allocation is to maintain local public health. The same goes for education spending, where they adjust it to develop education infrastructures and provide teacher services based on the school-age population. Similarly, other welfare spending components, including economic spending and housing & public facilities spending, are the same. The more the population, the more public services are needed; the more significant the economic, housing & public facilities spending is.

5. CONCLUSION AND RESEARCH IMPLICATIONS

The model and statistical tests show that only the previous year's tax significantly positively affects welfare spending in both split and unsplit regions. Moreover, the previous year's GRDP per capita and population positively influence welfare spending in split regions only. On the contrary, sharing fund significantly and negatively affects welfare spending in unsplit regions. Therefore, this study concludes that there is a significant difference in welfare spending determinants between split and unsplit regions.

Welfare spending is an integral part of local governance. Local government should increase welfare spending. The availability of welfare spending can drive the growth of social welfare in local regions. The result of the study suggests that improving tax revenue can increase local government welfare spending for both split and unsplit regions.

With the proliferation of business in split regions, the opportunity for governments to collect more taxes increases. Even so, this study suggests that governments focus on strategies for increasing taxes through intensification in tax collection in preexisting local taxes instead of creating a new tax that can burden businesses. Local governments in split regions are expected to innovate in collecting taxes from society and implement an effective and efficient collection system so that the public feel at ease when paying taxes. Indeed, the effort to increase tax revenue needs to consider businesses' ability to grow and expand. In unsplit regions, the previous year's tax also positively affects welfare spending. Therefore, this study implies the significance of creating a strategy for tax collection. Local governments in unsplit regions are expected to innovate when collecting taxes with an intensification method while protecting enterprises taxed in local areas that can survive.

In split regions, previous GRDP per capita positively influences welfare spending. The local governments in split regions need to work harder to increase their GRDP per capita as the data show that GRDP per capita in split regions is only about 10 percent of the GRDP per capita in unsplit regions. Increasing GRDP per capita in split regions may be complex. However, some strategies can be designed to increase GRDP per capita. First, the split regions must improve their investment climate to attract investors to invest in basic and financial infrastructures. Second, the local governments can also improve their level of industrialization especially agricultures-based industries that can increase people's incomes. Third, improve the productivity of small-business companies by providing better access to banking, marketing, and digital technology in running their business. Fourth, Sumatra has excellent potential for ecotourism, such as beaches, lakes, mangroves, and rainforests. Besides, Sumatra has 2.5 million hectares of tropical rainforests in national parks such as Taman Nasional Bukit Barisan Selatan, Kerinci-Seblat, and Gunung Leuseur.

Since sharing fund negatively influences welfare spending, the local governments in unsplit regions need to redesign their welfare spending. While other spendings are essential, they need to improve their welfare spending by increasing other income revenues. The governments in unsplit regions

should improve their economic growth to earn more to spend on welfare issues.

It should be noted, however. The study has some limitations. The study does not reveal the impact of spending on people's welfare in split and unsplit regions. It does not examine which region has better spending to increase people's welfare. Future research should go in that direction.

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Roosemarina Anggraini Rambe

What Drives Local Government Welfare Spending? A Comparative Study of Split and Unsplit Regions in Sumatra, Indonesia

Roosemarina Anggraini Rambe[1*] and Lizar Alfansi[2]

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Abstract: The study examines and compares the role of the previous year's GRDP per capita, the previous year's tax, sharing fund, and population toward the local government welfare spending between split and unsplit regions in Sumatra, Indonesia. The study employs the panel data of districts/cities in Sumatra from 2011 to 2020. The study applies the data panel regression technique. Results show that the welfare spending determinant model differs between the two regions. In split regions, the role of the previous year's tax, the previous year's GRDP per capita, and population have a significant, positive effect on the local government welfare spending. However, in unsplit regions, the previous year's tax has a significant positive effect, whereas the sharing fund has a significant negative influence on the local government welfare spending. This study recommends that local governments manage tax revenue by implementing intensive taxation. The splitting of local government encourages the growth of the business sector. The unsplit local governments should grow their income outside of sharing fund to increase welfare spending.

Keywords: Previous year's GRDP per capita, Previous year's tax, Population, Regional splitting, Sharing fund, Welfare spending.

1. INTRODUCTION

Government activities aim to provide public service, fulfill citizens' needs, and reach social welfare. As time passes, government spending keeps increasing. Some countries merge local governments to save on ever-expanding expenditures (Reiljan et al., 2013; Slack & Bird, 2013). However, a merger does not always result in improved conditions than before the merger. Empirical study shows that government expenditure post-merger is still more expensive than before the merger (Blesse & Baskaran, 2016; Roesel, 2017).

Although some countries do mergers, Indonesia does the opposite. Indonesia does region splitting. One of the reasons for Indonesia's decision to split its regions is political; local government is given more authority in managing finance in their regions. In addition, because local governments are perceived to know more about the locals' conditions and needs, they are expected to provide more appropriate public service and to create better programs and activities for their people through region splitting. Therefore, the goal of splitting regions is to increase social welfare, as expected by the government.

Since Act 32/2004 regarding region splitting was enacted in Indonesia, region splitting had risen until 2013. After implementing this regulation, out of seven areas in Indonesia, the highest numbers of districts and cities emerging from region splitting were from Sumatra. The escalation of government spending in Sumatra regions accompanied the addition of districts and cities. This increase in government spending is significant to study as the expenditure comes from the people; therefore, government expenditure should be optimally utilized to achieve the objective of region splitting. Local governments are expected to accurately allocate their expenditure, and welfare spending, to improve their people's social welfare.

Several types of government spending positively affect social welfare in Indonesia, such as education, health, economy, social protection, and housing & public facility spending. These five types of spending in this study are called welfare spending. Justino & Martorano (2018) used welfare spending as a ratio of government social expenditures to GDP. Detraz & Peksen (2018) classified welfare spending as governments' overall fiscal commitments to various social needs in three major areas: education, health, and social security. The variable is measured as a percentage of total public spending.

The local government's focus on improving social welfare can be evaluated in the programs and activities reflected in the welfare spending allocated by the local governments. A high amount of welfare spending indicates a high attentiveness of the local governments in achieving social welfare. The bigger the welfare spending in a region is, the bigger the focus the local government has given to achieve social welfare. Consequently, local governments should allocate a considerable proportion of their spending toward

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welfare. It is worth noting that local governments' welfare spendings vary in the amount of their growth.

Comparing the split and unsplit regions in Sumatra, the average welfare spending of local governments from split regions (approximately 52%-65%) is perpetually lower than in the unsplit areas (Indonesian Ministry of Finance, https://djpk.kemenkeu.go.id). However, the social welfare spending of the split regions increased higher (approximately 8.73% per year) than unsplit regions (8.18% per year) until 2019. During the COVID-19 pandemic, the average welfare spending of the government declined, with a 10.29% decrease in split regions and an 8.5% decrease in unsplit areas. The difference in welfare spending growth of these two types of local governments indicates a difference in the welfare spending determinants between local governments in split and unsplit regions in Sumatra. Therefore, this study analyzes the two regions' government's welfare spending determinant model.

Studies about government spending determinants focusing on total spending as a dependent variable have been conducted frequently. However, only a few studies focus on specific government spending determinants. Some studies expanded on health spending and its determinants (Bashir et al., 2021; Braendle & Colombier, 2016). Other studies analyzed education spending and its determinants (Sheikh 2019; Yun and Yusoff 2019). However, studies elaborating on welfare spending and its determinants are relatively rare, despite the importance of analyzing welfare spending by local governments.

One of the government welfare spending determinants is tax. An empirical study shows that tax positively affects government spending (Gurdal et al., 2021). In that study, the current year's tax impacts the current year's total government spending. However, this study analyzes the previous year's tax. These authors use this proxy as governments plan the following year's spending based on the current year. By knowing the amount of tax collected this year, governments can predict the tax they can gather next year; they consider this information to plan their spending.

The other factor driving the increase in government spending is economic development. Economic development has increased per capita income. Wagner's Law, also known as the "Law of increasing state activity," explains that an escalation in economic activities will increase government spending. When per capita income increases, national government expenditure also increases (Arestis et al., 2021). Empirical studies show that Wagner's Law applies in various countries, such as Spain (Jaén-garcía, 2011) and Greece (Antonis et al., 2013).

Transfer funds from the central government also have a prominent contribution in deciding local government spending. One of the components of transfer funds is sharing fund. Previous research showed how sharing fund positively impacts local government spending (Canare, 2019).

Moreover, the population also becomes a government spending determinant. Government spending regarding population numbers should be considered. A past study discovered a positive effect of population on government spending (Azolibe et al., 2020). The bigger the number of people, the more expensive the local government spending should be to provide public services.

Previous studies showed that little research had been conducted on welfare spending determinants. However, analyzing it is urgent for the government to accommodate determinants that can increase welfare spending. Local governments able to expand welfare spending have more potential to improve their locals' welfare. As a developing country, there are many regions yet to be prosperous. Consequently, there is a need to analyze welfare spending determinants for developing countries. Explaining welfare spending determinants will be this study's contribution.

This research also compares government welfare spending determinants between split and unsplit regions. Unfortunately, previous studies rarely analyzed the comparison of welfare spending determinants between the two types of regions. As a developing country, Indonesia must understand the factors determining welfare spending for split and unsplit regions. This determinant model can be a scientific contribution to local governments to allocate welfare spending. By comparing the welfare spending determinant model, local governments should be able to provide variables that increase welfare spending in either split or unsplit regions.

Thus, this study examines the role of the previous year's GRDP per capita, the previous year's tax, sharing fund, and population toward the local government welfare spending of split and unsplit regions in Sumatra. This research also compares the welfare spending determinant model for the two types of regions.

The rest of the article is divided into sections. This study explains articles in the literature review in section 2. The study elaborates on the research methods in section 3. In section 4, this study describes the study's results and discussion. Lastly, the study presents the conclusion and research implications in section 5.

2. LITERATURE REVIEW

Welfare spending is a fund used by the local government and allocated to provide public services. The programs and activities of local governments in giving public services are reflected in their expenditure. In other words, government spending becomes one of the indicators of government activities. The bigger the activities are, the bigger the government spending. Hence, local governments should thoroughly contemplate the programs and activities for their regions. Local governments should also try and accommodate possible factors that can increase local government spending focusing on welfare.

One of the government spending determinants is tax. Tax is the government's primary source of income. The elevation of tax revenue drives government spending. As the tax is raised, citizens get accustomed to paying tax to a certain extent; thus, the tax remains unchanged. Consequently, government spending also keeps increasing. This condition reflects the tax-spend hypothesis (Gurdal et al., 2021), where tax revenue positively affects government spending. Many empirical studies support the tax-spend hypothesis (Adejare & Akande, 2017; Eniekezimene et al., 2019; Febriani & Rambe, 2022; Iiyambo & Kaulihowa, 2020; Jaén-García, 2019; Linhares et

al., 2021; Tashevska et al., 2020; Yinusa et al., 2017). On the contrary, other studies have found government spending to be the reason for gathering more income through tax, labeled as the spend-tax hypothesis. Several studies support this hypothesis (Champita, 2016; Luković & Grbić, 2014; Melé et al., 2020).

In developing countries, Gadenne (2017) explained that governments obtain tax revenue for developments that benefit society, such as educational infrastructures. Tax revenue is the only variable positively affecting welfare spending. The tax will positively impact spending (Kithinji, 2019; Nxumalo & Hlophe, 2018). Therefore, this study uses the tax-spend hypothesis to understand the welfare spending determinants.

Based on the explanation above, the first hypothesis of this research is:

H1a: Previous year's local tax positively affects government welfare spending in split regions.

H1b: Previous year's local tax positively affects government welfare spending in unsplit regions.

According to Wagner's Law, economic development is a variable contributing to deciding government spending. Wagner explained the tendency of government spending to increase along with economic development (Babajide et al., 2020). Economic development, marked by a rise in GDP, will stimulate government spending. People in developed economies receive high incomes. With increased revenue, society can consume plentiful goods and services with good qualities. Governments provide many infrastructures supporting complete public services and facilities, such as health facilities with advanced technologies, educational facilities with excellent quality, and tourist attractions pulling high prices. Efforts to provide infrastructure require government spending.

Moreover, the complex relationship between laborers and employers in industries in developed regions requires strict attention and supervision from the government so that lower-class people will not receive any harm. Therefore, the government should create a regulation so that programs and activities in the business sectors will thrive and lower-class society will also receive benefits. The complexity of government activities is inclined to be simple, and the government spends less on middle- and low-income society. This explains the effect of GRDP on government spending.

Empirical studies show Wagner's Law valid in some regions. In explaining the impact of national income on government spending, researchers used some proxies, such as GDP and GDP per capita. Previous studies show how GDP positively influences government spending (Bayrakdar et al., 2015; Inchauspe et al., 2022; Jaén-García, 2018; Magazzino et al., 2015; Purmini & Rambe, 2021; Sedrakyan & Varela-Candamio, 2019). Other studies find that GDP does not significantly determine government spending (Azolibe et al., 2020; Babajide et al., 2020). Other studies reported that real GDP increases government (Bazán et al., 2022).

Using GDP per capita as a proxy, other researchers discover a positive impact of the previous year's GDP per capita on government spending (Ibrahim & Bashir, 2019; Irandoust, 2019; Narayan et al., 2012). Akca et al. (2017) revealed that GDP per capita influences health spending. Munir and Ali (2019) mentioned that GDP per capita affects subsidized education and social and economic expenditures. However, Karceski & Kiser (2020) reported that a GDP per capita increase would boost government spending when GDP per capita is low. Once GDP per capita is high, government spending will decrease. The phenomenon is described in a regression model with a quadratic shape.

The second hypothesis of this study:

H2a: The previous year's GRDP per capita positively affects welfare spending in split regions.

H2b: The previous year's GRDP per capita positively affects welfare spending in unsplit regions.

Sharing fund also determines local government spending. A past study stated that sharing fund positively influences local government spending (Canare, 2019). Sharing fund is the transfer from the central to local governments, illustrating economic development and availability of local natural resources. In other words, because regions with high central taxes have plentiful natural resources, they can significantly contribute to the state; the state will return the contribution to those regions to a certain proportion. Areas yielding high central taxes and plentiful natural resources will receive more immense proportions of sharing fund than regions that do not. More sizeable sharing fund from the central government will enrich local government income. A considerable local government income will allow local governments to increase their spending. However, with additional sources of local government income, government spending might not increase proportionately to the sharing fund received.

From the explanation above, the hypotheses for the sharing fund variable are:

H3a: Sharing fund positively affects welfare spending in split regions.

H3b: Sharing fund positively affects welfare spending in unsplit regions.

The population also determines government spending. Empirical studies showed a positive effect of population on government spending (Akca et al., 2017; Bernardelli et al., 2020; Cai et al., 2018; Jibir & Aluthge, 2019; Krieger & Meierrieks, 2020). In addition, Azolibe et al. (2020) explained that the population group determining government spending is the population aged 0-64 years. With that in mind, the government should provide public services. Some public services include expenditures per capita, such as health insurance, pension, and educational aid fund. The more sizeable the population is, the more they will boost the quantities of public services; this results in increased government spending. Based on that explanation, this study proposes these hypotheses:

H4a: Population positively affects welfare spending in split regions.

H4b: Population positively affects welfare spending in unsplit regions.

Table 1. Descriptive Statistics of Government Welfare Spending and Independent Variables.

Mean of Variables	Split Regions			Unsplit Regions		
	2011	2020	Growth/year	2011	2020	Growth/year
Government Welfare Spending (billion IDR)	292.27	505.73	8.73	533.40	895.78	8.18
GRDP per capita (million IDR)	33.40	53.49	6.73	320.70	508.37	6.20
Local tax (billion IDR)	3.34	18.43	23.57	28.83	86.27	16.89
Sharing Fund (billion IDR)	55.11	34.99	-1.34	179.60	119.79	-1.60
Population (thousand persons)	188.07	217.15	1,52	387.59	442.41	1.8

Source: Research results

3. RESEARCH METHOD

This study draws from the panel data of districts and cities in 2011-2020 from the Indonesian Ministry of Finance and Statistics Indonesia. This research independently analyzes two welfare spending determinant models in each region: the welfare spending determinant model in split regions (consisting of 23 districts and cities) and the welfare spending determinant model in unsplit regions (composed of 99 districts and cities). Original regions (from which the new regions are split) are not studied. Welfare spending in this research comprises the sum of education, health, economic, social protection, and housing & public facilities spending.

Panel data regression models for both regions in Sumatra are:

$$Ln\text{GWSS}_{it} = \beta_0 + \beta_1 Ln\text{GRDP percapitat-1}_{it} + \beta_2 Ln\text{Taxt-1}_{it} + \beta_3 Ln\text{SF}_{it} + \beta_4 Ln\text{Pop}_{it} + \delta it \quad ... (1)$$

$$Ln\text{GWSUS}_{it} = \beta_0 + \beta_1 Ln\text{GRDP percapitat-1}_{it} + \beta_2 Ln\text{Taxt-1}_{it} + \beta_3 Ln\text{SF}_{it} + \beta_4 Ln\text{Pop}_{it} + \delta it \quad ... (2)$$

Where GWSS is welfare spending in split regions, GWSUS is welfare spending in the unsplit areas, GRDP percapita-1 is the previous year's Gross Regional Domestic Product per capita, taxt-1 is the previous year's local tax, SF is sharing fund, and Pop is population. β_i is an independent variable coefficient, t is time, i is regencies/cities, and δ is an error term with α 5%.

This study tests both panel data regression models using Chow and Hausman test to find the best regression models among common, fixed, and random effect models (Wooldridge, 2013). Then, based on the best model, this study conducts the F-test, t-test, and determinant coefficient (Gujarati, 2003).

4. RESULTS AND DISCUSSION

4.1. Research Result

Local government welfare spending in Sumatra varies every year from 2011-2020. Between split and unsplit regions, the total welfare spending in split regions is always lower than in unsplit areas. This condition has occurred since the beginning of the region splitting. Although the average welfare spending development in split regions is higher than in unsplit areas, the difference in welfare spending between both types of regions substantially differs. This condition indicates that governments in the unsplit region have better control over program planning and execution regarding welfare improvement. On the contrary, in the past few years, local governments in split regions are still honing their abilities in planning and managing innovative programs and activities to deliver public service. Table **1** presents descriptive statistics of spending and independent variable.

Next, this study presents the development of GRDP per capita. GRDP per capita in split regions is only 10% of the other region type. This condition is considered normal since the business sectors in unsplit regions, such as industries or foreign companies, have existed for a long time. Moreover, infrastructures supporting the business sectors and government regulations controlling economic activities are more accomplished there; this results in more advanced economic development in unsplit regions.

With that in mind, split regions have lower average tax than unsplit regions for the tax variable since the latter have more taxpayers and business entities that can pay more local taxes. Human resources in attracting tax from the business sectors are also higher in those regions. On the other hand, newly split regions still need time to learn how to intensify and extensify tax. Interestingly, those efforts seem successful due to higher tax growth in split regions. Therefore, the tax amount that is supposed to be the primary government income source is set to increase in the future.

Conversely, the situations between the two region types differ regarding the sharing fund. Sharing fund is very much connected to central government tax, paid by the people and natural resources from local regions. Both components are the foundation of calculating the quantity of sharing fund received in the regions. Each year, sharing fund tends to decrease in split and unsplit regions. Even so, sharing fund in unsplit areas is always higher than in split regions, indicating that unsplit regions have more significant central government tax revenue. Moreover, the industries of natural resources in the unsplit areas progress better.

Similar things occur for the population, as more people live in unsplit regions. This is due to people living with their families and working in that area before the split. The unsplit regions tend to be more populous.

Regression Model: Welfare Spending Determinant

This study tests the panel data regression model with Chow and Hausman test. The result shows that the best model is

the Fixed Effect Model (FEM) for split and unsplit regions. This information can be seen in Table **2**.

Table 2. Panel Data Regression Model Test.

Tests	Region Types	
	Splitting	Unsplitting
Chow test	*	*
Hausman test	*	*

Source: Research results

Notes:

→Chow test: chi-square prob > 5%, H0 is rejected. This shows that the best model is FEM.

→ Hausman test: chi-square prob > 5%, H0 is rejected. This shows that the best model is FEM.

Based on that explanation, this research conducts statistical tests using the FEM model for both region types. This statistical test is presented in Table **3**. This study runs the F test on both regions and shows that all independent variables affect welfare spending. However, the determinant coefficient for unsplit regions is more robust because the ability of all independent variables is very high (93.6%) in explaining the variations of welfare spending in this area.

Table 3. Regression Model: Welfare Spending Determinants for Both Regions.

Variable	Region Types	
	Splitting	Unsplitting
C	9.258050	20.56311***
Ln GRDP per capita t-1	0.190201***	0.019455
Ln Tax t-1	0. 115774***	0.255276 ***
Ln SF	-0.199394	-0.055640 ***
Ln Pop	1.368066***	0.113991
R-squared	0.831326	0.921578
F-statistic	38.29132	102.1919
Prob(F-statistic)	0.00000	0.000000

notes: *** significant at α = 1%, ** significant at α = 5%, * significant at α = 10%.

Source: Research results

The next test is the t-test. For split regions, three variables significantly positively influence welfare spending with α 5%. The three variables comprise the previous year's GRDP per capita, the previous year's tax, and population.

Unlike split regions, in the unsplit regions, two variables significantly and positively affect welfare spending with α 5%. The previous year's tax has had a significantly positive effect on welfare spending. However, sharing fund significantly negatively affects welfare spending because, in unsplit regions, the expenditure depends on government income (tax and sharing fund).

4.2. Discussions

This study discovers that the previous year's tax significantly and positively impacts local government welfare spending in the split and unsplit regions. Thus, this research supports the tax-spend hypothesis. Moreover, the results resemble previous studies, such as studies conducted by Kithinji (2019), Rahman & Wadud (2014), Rambe & Febriani (2021), and Westerlund et al. (2011).

The above-mentioned previous researchers stated that tax is the most significant source of government income. Therefore, an increase in the tax that the government receives will drive an increase in government spending. To explain the case in Sumatra, the author will explain the context of the region splitting there. In the era of region splitting, local governments are given more authority to collect taxes from local people. There are 11 types of local taxes that the district and city government have mandates on, such as hotel, restaurant, entertainment, advertisement, and parking taxes. These taxes are not limited, meaning local governments can explore potentials outside the ones regulated in the constitution. Of course, tax collection should consider the ability of the businesses. For example, if small enterprises are not stable but are taxed unsuitable, they can go bankrupt.

Every year, more Sumatra districts and cities own small and big enterprises with the potential of local tax collection. Examples are the development of the tourism and hospitality industry generates growth in hotel, restaurant, entertainment, and advertisement business. Based on that condition, taxes from such businesses are increasing in the split and unsplit regions. The increase in local tax collection from the previous year will allow local governments to carry out regional development by providing more distributed public goods, manifested through elevated local government welfare spending.

The only variable influencing local government welfare spending in both regions is the previous year's tax. The previous year's GRDP per capita and population significantly and positively affect welfare spending only in split regions. This proves that Wagner's Law is only applicable to split regions. This result supports studies conducted by Ibrahim and Bashir (2019), Irandoust (2019), and Narayan et al. (2012). At the beginning of the establishment of newly split regions, there were limited public service facilities. Education, health, housing, and public facilities still need to be improved. A similar case occurs for public services supporting welfare. GRDP per capita in split regions is still low. With the increase of GRDP per capita, society's ability to utilize public services will also grow. This condition boosts local governments of split regions to use their welfare spending for infrastructures supporting better public services. Some public service facilities built by the government are not only pure public goods but are near public goods, such as hospitals, laboratories, schools, markets, and public housing. With an increase in the public's ability to utilize public service facilities near public goods, the government can receive an additional tax and local retribution driving the government to increase its welfare spending.

In unsplit regions, the previous year's GRDP per capita is insignificant in affecting welfare spending. This discovery

resembles previous studies, such as Babajide et al. (2020) and Azolibe et al. (2020).

In Sumatra, GRDP per capita in unsplit regions is higher than in split regions. Industries are developed, and society tends to be more prosperous and, therefore, more independent in providing welfare services. The GRDP per capita, indicating social welfare for society, also increases. Most people with high incomes can achieve welfare through their effort. They use health insurance services, attend expensive private schools, and work for high salaries. In unsplit regions, infrastructures are already available. Moreover, most people own houses. Hence, housing and public facilities spending that drive achieving social welfare is no longer urgent (unlike in split regions).

This part discusses the sharing fund. In unsplit regions, sharing fund significantly negatively affects welfare spending. This result differs from past studies that stated a positive impact of sharing fund on local government spending (Canare, 2019). On the contrary, sharing fund does not significantly affect split regions' welfare spending.

In Unsplit regions, local areas with high sharing fund are districts/cities that have abundant natural resources and provide more significant taxes to the central government. Therefore, the relationship between sharing fund and welfare spending should be positive. It indicates that some regional governments in Sumatra do not prioritize welfare spending. They allocate sharing fund for another spending.

The condition in split regions differs. Some districts still had increasing crude oil production (for example, Kepulauan Anambas District in Kepulauan Riau Province). That situation resulted in the district receiving more sharing fund. However, some districts were still poor, possessing no natural resources, and had undeveloped economies, such as South Bengkulu District in Bengkulu Province. That caused the district to receive less sharing fund. Although the amount of sharing fund varies in split regions, welfare spending kept increasing. This information explains why the sharing fund variable is insignificant in affecting welfare spending in split regions.

This part explains how the population significantly affects local government spending in split regions. This result supports past research done by Akca et al. (2017), Cai et al. (2018), and Jibir & Aluthge (2019). The government provides public service regarding social welfare adapted to the amount of the population. For example, health spending is allocated to developing hospital infrastructures, laboratories, medical personnel (doctors, midwives, and nurses), health equipment, toddler immunization, and medical drugs adjusted to the number of the population. The bigger the population is, the bigger the health spending allocation is to maintain local public health. The same goes for education spending, where they adjust it to develop education infrastructures and provide teacher services based on the school-age population. Similarly, other welfare spending components, including economic spending and housing & public facilities spending, are the same. The more the population, the more public services are needed; the more significant the economic, housing & public facilities spending is.

5. CONCLUSION AND RESEARCH IMPLICATIONS

The model and statistical tests show that only the previous year's tax significantly positively affects welfare spending in both split and unsplit regions. Moreover, the previous year's GRDP per capita and population positively influence welfare spending in split regions only. On the contrary, sharing fund significantly and negatively affects welfare spending in unsplit regions. Therefore, this study concludes that there is a significant difference in welfare spending determinants between split and unsplit regions.

Welfare spending is an integral part of local governance. Local government should increase welfare spending. The availability of welfare spending can drive the growth of social welfare in local regions. The result of the study suggests that improving tax revenue can increase local government welfare spending for both split and unsplit regions.

With the proliferation of business in split regions, the opportunity for governments to collect more taxes increases. Even so, this study suggests that governments focus on strategies for increasing taxes through intensification in tax collection in preexisting local taxes instead of creating a new tax that can burden businesses. Local governments in split regions are expected to innovate in collecting taxes from society and implement an effective and efficient collection system so that the public feel at ease when paying taxes. Indeed, the effort to increase tax revenue needs to consider businesses' ability to grow and expand. In unsplit regions, the previous year's tax also positively affects welfare spending. Therefore, this study implies the significance of creating a strategy for tax collection. Local governments in unsplit regions are expected to innovate when collecting taxes with an intensification method while protecting enterprises taxed in local areas that can survive.

In split regions, previous GRDP per capita positively influences welfare spending. The local governments in split regions need to work harder to increase their GRDP per capita as the data show that GRDP per capita in split regions is only about 10 percent of the GRDP per capita in unsplit regions. Increasing GRDP per capita in split regions may be complex. However, some strategies can be designed to increase GRDP per capita. First, the split regions must improve their investment climate to attract investors to invest in basic and financial infrastructures. Second, the local governments can also improve their level of industrialization especially agricultures-based industries that can increase people's incomes. Third, improve the productivity of small-business companies by providing better access to banking, marketing, and digital technology in running their business. Fourth, Sumatra has excellent potential for ecotourism, such as beaches, lakes, mangroves, and rainforests. Besides, Sumatra has 2.5 million hectares of tropical rainforests in national parks such as Taman Nasional Bukit Barisan Selatan, Kerinci-Seblat, and Gunung Leuseur.

Since sharing fund negatively influences welfare spending, the local governments in unsplit regions need to redesign their welfare spending. While other spendings are essential, they need to improve their welfare spending by increasing other income revenues. The governments in unsplit regions

should improve their economic growth to earn more to spend on welfare issues.

It should be noted, however. The study has some limitations. The study does not reveal the impact of spending on people's welfare in split and unsplit regions. It does not examine which region has better spending to increase people's welfare. Future research should go in that direction.

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