

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 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; Tashevskia 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:

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

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

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%, H_0 is rejected. This shows that the best model is FEM.

→Hausman test: chi-square prob > 5%, H_0 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 $\alpha = 1\%$, ** significant at $\alpha = 5\%$, * significant at $\alpha = 10\%$.

Source: Research results

The next test is the t-test. For split regions, three variables significantly positively influence welfare spending with $\alpha = 5\%$. 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 $\alpha = 5\%$. 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 agriculture-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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REFERENCES

- Adejare, Adegbite Tajudeen, and Shittu Saheed Akande. 2017. "The Impact of Personal Income Tax on Government Expenditure in Oyo State." *Account and Financial Management Journal* 2(4):635–43.
- Akca, Nesrin, Seda Sönmez, and Ali Yılmaz. 2017. "Determinants of Health Expenditure in OECD Countries: A Decision Tree Model." *Pakistan Journal of Medical Sciences* 33(6):2–7.
- Antonis, Antoniou, Katrakilidis Constantinos, and Tsaliki Persefoni. 2013. "Wagner's Law versus Keynesian Hypothesis: Evidence from Pre-WWII Greece." *Panoeconomicus* 60(4):457–72. <https://doi.org/10.2298/PAN1304457A>
- Arestis, Philip, Hüseyin Şen, and Ayşe Kaya. 2021. "On the Linkage between Government Expenditure and Output: Empirics of the Keynesian View versus Wagner's Law." *Economic Change and Restructuring* 54 (2). Springer US. <https://doi.org/10.1007/s10644-020-09284-7>
- Azolibe, Chukwuebuka Bernard, Chidinma Emelda Nwadike, and Chidinma Maria Gorretti Okeke. 2020. "Socio-Economic Determinants of Public Expenditure in Africa: Assessing the Influence of Population Age Structure." *International Journal of Social Economics* 47(11):1403–1418. DOI 10.1108/IJSE-04-2020-0202
- Babajide, Abiola Ayopo, Funso Abiodun Okunlola, Emeka Nwuba, and Adedoyin Isola Lawal. 2020. "Wagner Proposition in Nigeria: An Econometric Analysis." *Heliyon* 6(8 (e04680)):1–10.
- Bashir, S., Kishwar, S., & Salman. 2021. "Incidence and determinants of catastrophic health expenditures and impoverishment in Pakistan." *Public Health* 197:42–47. <https://doi.org/10.1016/j.puhe.2021.06.006>
- Bayrakdar, Seda, Selim Demez, and Mustafa Yapar. 2015. "Testing the Validity of Wagner's Law: 1998–2004, The Case of Turkey." *Procedia - Social and Behavioral Sciences* 195:493–500.
- Bazán, Ciro, Víctor Josué Álvarez-Quiroz, Yennyfer Morales Olivares. 2022. "Wagner's Law vs. Keynesian Hypothesis: Dynamic Impacts." *Sustainability* (Switzerland) 14(16). <https://doi.org/10.3390/su141610431>
- Bernardelli, Luan Vinicius, Michael A. Kortt, and Brian Dollery. 2020. "Economies of Scale and Brazilian Local Government Expenditure: Evidence from the State of Paraná." *Local Government Studies* 46(3):436–458. <https://doi.org/10.1080/03003930.2019.1635018>
- Blesse, Sebastian, and Thushyanthan Baskaran. 2016. "Do municipal mergers reduce costs? Evidence from a German federal state." *Regional Science and Urban Economics* 59:54–74. <https://doi.org/10.1016/j.regsciurbeco.2016.04.003>
- Braendle, Thomas, and Carsten Colombier. 2016. "What drives public health care expenditure growth? Evidence from Swiss cantons, 1970–2012." *Health Policy* 120(9):1051–1060. <https://doi.org/10.1016/j.healthpol.2016.07.009>
- Cai, Yong, Wang Feng, and Ke Shen. 2018. "Fiscal Implications of Population Aging and Social Sector Expenditure in China." *Population and Development Review* 44(4):811–31.
- Canare, Tristan. 2023. "The Effect of Revenue Shares on Local Government Spending: Evidence from Philippine Provinces." *Singapore Economic Review* 68(01):29–63. DOI: 10.1142/S0217590819500206
- Champita, Mutinta. 2016. "Causality between Government Revenue and Expenditure: Empirical Evidence from Zambia." *Zambia Social Science Journal* 6(1) article 5.
- Detraz, Nicole, & Dursun Peksen. 2018. "“ Women Friendly ” Spending ? Welfare Spending and Women ’ s Participation in the Economy and Politics”. *Politics and Gender* 14:137–161. <https://doi.org/10.1017/S1743923X17000253>
- Eniekezime, Esetebafa Daniel, Ebele Patricia Ifionu, & Ikechukwu Samuel Nnamdi. 2019. "Tax Revenues, Duties and Public Expenditure: Nigerian Evidence". *Saudi Journal of Economics and Finance* 3(7): 254–282. <https://doi.org/10.21276/sjef.2019.3.7.1>
- Febriani, Ratu Eva, and Roosemarina Anggraini Rambe. 2022. "Government Revenue and Spending Nexus in Regional Indonesia: Causality Approach." *Economics Management and Sustainability* 7(1):34–42. <https://doi.org/10.14254/jems.2022.7-1.3>
- Gadenne, Lucie. 2017. "Tax Me , but Spend Wisely ? Sources of Public Finance and Government Accountability." *American Economic Journal: Applied Economics* 9(1):274–314.
- Gujarati, D. (2003). *Basic Econometrics*. McGraw-Hill.
- Gurdal, Temel, Mucahit Aydin, and Veyssel Inal. 2021. "The Relationship between Tax Revenue, Government Expenditure, and Economic Growth in G7 Countries: New Evidence from Time and Frequency Domain Approaches." *Economic Change and Restructuring* 54(2):305–37.
- Ibrahim, Ahmed Abdu Allah, and Mohamed Sharif Bashir. 2019. "Causality between Government Expenditure and Economic Growth in Sudan: Testing Wagner's Law and Keynesian Hypothesis." *Journal of Economic Cooperation and Development* 40(4):23–54.
- Iiyambo, Hambeleleni, and Teresia Kaulihowa. 2020. "An Assessment of the Relationship between Public Debt, Government Expenditure and Revenue in Namibia." *Public Sector Economics* 44(3):331–53.
- Inchauspe, Julian, Moch Abdul Kobir, & Garry MacDonald. 2022. "Wagner's Law and the Dynamics of Government Spending on Indonesia". *Bulletin of Indonesian Economic Studies*, 58(1): 79–95. <https://doi.org/10.1080/00074918.2020.1811837>
- Irandoust, Manuchehr. 2019. "Wagner on Government Spending and National Income: A New Look at an Old Relationship." *Journal of Policy Modeling* 41(4):636–46.
- Jaén-garcía, Manuel. 2011. "Empirical Analysis of Wagner's Law for the Spain's Regions." *International Journal of Academic Research in Accounting, Finance and Management Sciences* 1(1):1–17.
- Jaén-García, Manuel. 2018. "Wagner's Law: A Revision and a New Empirical Estimation." *Hacienda Publica Espanola* 224(1):13–35.
- Jaén-García, Manuel. 2019. "Tax-Spend, Spend-Tax, or Fiscal Synchronization. A Wavelet Analysis." *Applied Economics* 1–12. <https://doi.org/10.1080/00036846.2019.1705238>
- Jibir, Adamu, and Chandana Aluthge. 2019. "Modelling the Determinants of Government Expenditure in Nigeria." *Cogent Economics and Finance* 7(1):1–23.
- Justino, Patricia, & Bruno Martorano. 2018. "Welfare spending and political conflict in Latin America, 1970–2010." *World Development* 107:98–110. <https://doi.org/10.1016/j.worlddev.2018.03.005>
- Karceski, Steven M., & Edgar Kiser. 2020. "Is there a limit to the size of the state? The scope conditions of Wagner's law." *Journal of Institutional Economics* 16(2):217–232. <https://doi.org/10.1017/S1744137419000481>
- Kithinji, Angela Mucece. 2019. "The Effect of Taxation on Government Expenditure in Kenya." *International Journal of Business Management and Economic Research* 10(5):1679–86. <https://www.ijbmer.com/docs/volumes/vol10issue5/ijbmer2019100503.pdf>
- Krieger, Tim, and Daniel Meierrieks. 2020. "Population Size and the Size of Government." *European Journal of Political Economy* 61(January). 101837. <https://doi.org/10.1016/j.ejpoleco.2019.101837>
- Linhares, Fabricio, Glauber Nojosa, & Rogerio Bezerra. 2021. "Changes in the Revenue – Expenditure Nexus: Confronting Evidence with Fiscal Policy in Brazil." *Applied Economics* 53(44): 5051–5067. <https://doi.org/10.1080/00036846.2021.1915463>

- Luković, Stevan, and Milka Grbić. 2014. "The Causal Relationship Between Government Revenue and Expenditure in Serbia." *Economic Themes* 52(2):127–38. <https://doi.org/10.1515/ethemes-2014-0009>
- Magazzino, Cosimo, Lorenzo Giolli, and Marco Mele. 2015. "Wagner's Law and Peacock and Wiseman's Displacement Effect in European Union Countries: A Panel Data Study." *International Journal of Economics and Financial Issues* 5(3):812–819.
- Melé, Marco, Angelo Quarto, and Cristiana Abbafati. 2020. "On the Fiscal Policy in Malaysia: An Econometrical Analysis between the Revenue-and Expenditure." *Research in World Economy* 11(1):1–10. <https://doi.org/10.5430/rwe.v11n1p1>
- Munir, Kashif, and Wajid Ali. 2019. "Wagner versus Keynesian Hypothesis: Role of Aggregate and Disaggregate Expenditure in Pakistan." *Theoretical and Applied Economics XXVI*(4):181–200.
- Narayan, Seema, Badri Narayan Rath, and Pares Kumar Narayan. 2012. "Evidence of Wagner's Law from Indian States." *Economic Modelling* 29(5):1548–57. <https://doi.org/10.1016/j.econmod.2012.05.004>
- Nxumalo, Welcome N., and Nomvuyo F. Hlophe. 2018. "Assessing Fiscal Sustainability in Swaziland." *South African Journal of Economic and Management Sciences* 21(1):1–13. <https://doi.org/10.4102/sajems.v21i1.1821>
- Purmini, and Roosemarina Anggraini Rambe. 2021. "Labor and Government Policies on Poverty Reduction in Sumatera Island, Indonesia." *Jurnal Ekonomi Pembangunan* 19(June):61–74. <https://doi.org/10.29259/jep.v19i1.13775>
- Rahman, S. M., and Md. Wadud. 2014. "Tax and Spend, Spend and Tax, Fiscal Synchronization of Fiscal Neutrality: Evidence from Bangladesh." *The International Journal of Applied Economics and Finance* 8(3):98–108. <https://doi.org/10.3923/ijaef.2014.98.108>
- Rambe, Roosemarina Anggraini, and Ratu Eva Febriani. 2021. "The Impact of Regional Splitting and Local Taxes on Local Government Spending in Indonesia." *Anatolian Journal of Economics and Business* 5(2):74–88.
- Reiljan, Jano, Annika Jaansoo, and Aivo Ülper. 2013. "The Impact of Amalgamation on the Financial Sustainability of Municipalities in Estonia." *Public Finance and Management* 13(3): 167-194.
- Roesel, Felix. 2017. "Do mergers of large local governments reduce expenditures? – Evidence from Germany using the synthetic control method." *European Journal of Political Economy* 50(February):22–36. <https://doi.org/10.1016/j.ejpoleco.2017.10.002>
- Sedrakyan, Gohar Samvel, and Laura Varela-Candamio. 2019. "Wagner's Law vs. Keynes' Hypothesis in Very Different Countries (Armenia and Spain)." *Journal of Policy Modeling* 41(4):747–62. <https://doi.org/10.1016/j.jpolmod.2019.02.011>
- Sheikh, MdRashidul Islam. 2019. "Analysis of the Determinants of Public Education Expenditures in Bangladesh." *Journal of Public Administration and Governance* 9(3): 151. <https://doi.org/10.5296/jpag.v9i3.15419>
- Slack, Enid, and Richard M Bird. 2013. "Does Municipal Amalgamation Strengthen the Financial Viability of Local Government? A Canadian Example." *Public Finance and Management* 13(2): 99-123.
- Tashevskaya, Biljana, Borce Trenovski, and Marija Trpkova - Nestorovska. 2020. "The Government Revenue–Expenditure Nexus in Southeast Europe: A Bootstrap Panel Granger-Causality Approach." *Eastern European Economics* 58(4):309–326. <https://doi.org/10.1080/00128775.2020.1724156>
- Westerlund, Joakim, Saeid Mahdavi, and Fathali Firoozi. 2011. "The Tax-Spending Nexus: Evidence from a Panel of US State-Local Governments." *Economic Modelling* 28(3):885–890. <https://doi.org/10.1016/j.econmod.2010.10.016>
- Wooldridge, J. 2013. *Introductory Econometrics: A Modern Approach*. 5th ed. Australia: South-Western Cengage Learning.
- Yinusa, Olumuyiwa Ganiyu, Olalekan Bashir Aworinde, and Isiaq O-lasunkanmi Oseni. 2017. "The Revenue-Expenditure Nexus In Nigeria: Asymmetric Cointegration Approach." *South-Eastern Europe Journal of Economics* 1:47–61.
- Yun, Wong Sing, and Remali Yusoff. 2019. "Determinants of public education expenditure: A Review". *Southeast Asian Journal of Economics* 7(2):127–142.

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