

Local Government Revenue Vulnerability Index in Indonesia: A Study of Local Government in Indonesia in The Covid-19 Pandemic

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Abstract. The Covid-19 pandemic has had a slowing impact in various fields, including local government revenues. This study uses spatial analysis to present data on the vulnerability of local government revenues in Indonesia during the Covid-19 pandemic. Income vulnerability is measured using the Local Government Revenue Vulnerability Index (LGRVI) with population data on the realization of income for district/city governments throughout Indonesia during 2020. The results provide a mapping of areas in Indonesia that have income vulnerabilities during the pandemic. Covid-19 so that it can be one of the basis for determining priorities in making decisions on the implementation of various policy programs related to the recovery of the effects of the Pandemic in the future.

Keywords: Income vulnerability, Pandemic, Regional income, LGRVI.

1 Introduction

The COVID-19 pandemic has brought new challenges to all countries, challenges that not only impact health, threaten humanity and global resilience, including in Indonesia [1]. This can be seen from the decline in the Indonesian economy in Figure 1. Based on Figure 1, since 1998 the rate of economic growth and household consumption has been relatively stable and in the same direction every year. In 2020 it will be the same. In the first quarter of 2020, consumption growth was 2.83 percent while economic growth was 2.97 percent. In the second quarter of 2020, household consumption contracted by minus 5.51 percent, in line with the economic decline of minus 5.32 percent. Indonesia's poverty rate in 2020 increased from 9.22% in September 2019 to 10.19% in September 2020 [2]. On the other hand, Indonesia is one of the countries with the world's largest population, with 278 million people. The territory of Indonesia consists of 514 regencies/cities which are divided into 416 regencies and 98 cities spread across 34 provinces in Indonesia. The large population and the vast area of Indonesia make the risks faced by the government even higher when a crisis occurs.

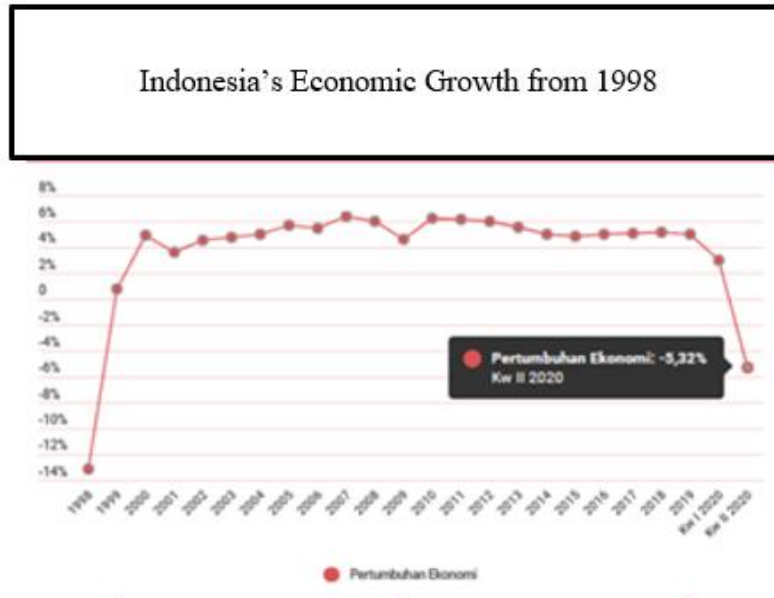


Figure 1. Indonesia's Economic Growth Since 1998
Source: (Wibowo, 2020)

The Covid-19 pandemic has also had an impact on decreasing local government revenues. The Director General of Fiscal Balance at the Ministry of Finance, Astera Primanto Bhakti, said that overall local governments in Indonesia experienced a decline in income of up to 15.81 percent. Based on the revision of the State Budget in Presidential Decree 54/2020, regional revenue from IDR 1,238.51 trillion fell by IDR 195.82 trillion to only IDR 1,042.69 trillion. Nationally, the largest decline in the component of Regional Original Revenue decreased by 27.73 percent, of which hotel tax revenue fell by around 53%, restaurant tax fell by 38%, and entertainment tax fell by 57%. The sluggish economic activity in a number of areas due to the Covid-19 pandemic was the cause of the decrease in PAD (Wibowo, 2020). The Ministry of Home Affairs also noted that regional revenues will decrease by around IDR 100 trillion in 2021. In fact, on the one hand, spending demands have increased during the Covid-19 pandemic [3].

The COVID-19 pandemic has shaken the Indonesian economy, including local government revenues. Regional government revenue is an important component in efforts to recover the economy. Therefore, income vulnerability as a result of the pandemic deserves attention and the right policies are given so that the economic recovery can run well. As is the nature of a pandemic that infects an area for a relatively long period of time, it still takes longer for local governments to survive in a pandemic situation. Mapping the vulnerability of local government revenues is very important as a reference for the government to take anticipatory and recovery steps.

Measurement of income vulnerability is carried out by the Argonne National Laboratory, a research institute in the United States, through an index known as the Local Government Revenue Vulnerability Index (LGRVI). The purpose of this index is to identify regions whose government revenues are relatively more vulnerable to the effects of economic disruptions such as the Covid19 pandemic. The focus of LGRVI measurement is an estimate of the potential loss of local revenue from various sources, including taxes and other sources of income, as a result of policies designed to reduce the impact of COVID-19. LGRVI can be used as a first step in

identifying regional financial vulnerabilities by identifying which local governments whose revenue streams are most vulnerable to the impact of the pandemic [4]. This LGRVI output can then be converted into spatial data which will show the mapping of the level of income vulnerability of various local governments in Indonesia.

On the other hand, the main practical challenge faced by policy makers in developing countries is how to prioritize policies to achieve the interrelated goals of managing health crises, recovering the economy, and achieving environmental sustainability [5]. This will enable policy makers to prioritize policy choices and allocate limited resources in such a way that they are directed towards actions that generate synergies and co-benefits [6].

This study aims to determine the level of vulnerability of local government revenues as an illustration of the impact of the Covid-19 pandemic. The index is measured at the regional government level at the provincial level. This income vulnerability index can be used as a basis for mapping the vulnerability of the regional economy and setting priorities in making decisions on the implementation of various policy programs related to recovery from the effects of the pandemic

Formulation of Research Problems

The problem discussed in this research is how vulnerable is the provincial government's income to the Covid-19 pandemic?

Benefits of research

The purpose of this study is to determine the level of vulnerability of local government revenues to the Covid-19 pandemic. The benefit of this research is as additional data on regional economic vulnerability mapping which can then be used to determine economic policy priorities in the context of recovering from the impact of a pandemic.

The scope of research

The scope of discussion of this research is that local government revenue includes original regional income and transfer income after the establishment of the Covid-19 pandemic, namely April to December 2021 with comparative data on regional original income for the period April to December 2020.

2 Literature Review

Coase Theorem

Externality according to [7] is an action that indirectly affects other parties, where the impact can be either positive or negative. The scale of externalities can occur both locally and globally such as global warming or the COVID-19 pandemic, where these externalities can result in market failures. This failure causes the market economy to produce results that do not maximize efficiency [7].

Externalities can have positive or negative impacts. Examples of negative externalities, including COVID-19 in an economic activity can cause social costs. In this case, the government can intervene, either directly through regulations or indirectly through market interventions such as collecting taxes or providing subsidies in order to internalize externalities and minimize the social costs of economic activity [8]. According to A.C. Pigou, who developed the basis of modern welfare economics, stated that taxes can correct externalities [7].

However, Ronald Coase argues that this is not the only solution to overcome social costs because there is a failure to symmetrically recognize each externality situation, thus failing to focus on maximizing economic efficiency [8]. The most important thing is that transaction costs

are low and property rights are clear. Coase explains that parties can bargain in an efficient and appropriate way to overcome these externality problems [8]. One of the Coasian solutions that can be provided is to provide subsidies, including health equipment that is very necessary for the community during the COVID-19 pandemic can be provided with subsidies so that the prices sold to the public are cheaper and more affordable.

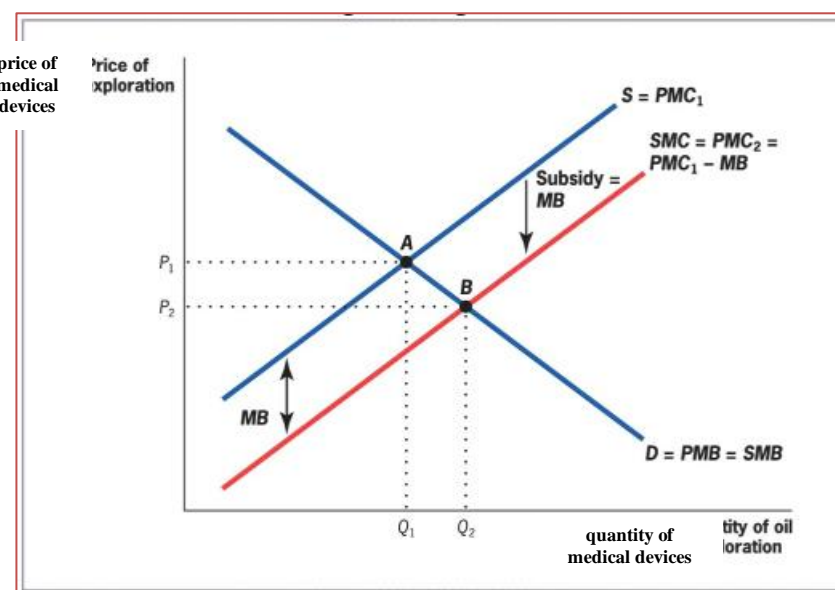


Figure 2. Medical Devices Subsidy Curve

Source: Author

Based on Figure 2, subsidies are a positive production externality solution in the Medical Devices Market. A subsidy equal to the marginal benefit of the medical device reduces the marginal cost curve of producing the medical device from PMC_1 to PMC_2 , which coincides with the SMC curve. The quantity produced rises from Q_1 to Q_2 , the socially optimal level of production [7]. Furthermore, policy makers can use subsidies not only to promote positive externalities but also to combat negative externalities such as the COVID-19 pandemic, by subsidizing for production externality activities as an example stimulus for the production of medicines and medical devices.

Regional Income

In the context of regional government, regional income is the main resource for regional governments in carrying out their functions of carrying out the task of providing public services and carrying out government tasks in general in accordance with the work plans that have been prepared. The amount of regional revenue is reflected in the Regional Revenue and Expenditure Budget (APBD) which is prepared annually based on the results of discussions and agreements between the executive (regional heads and their apparatus) and the legislature (Regional house of representative).

When referring to the regulations governing regional government in general, including regional financial governance, we are faced with at least 2 main regulations, namely Law Number 1 of 2014 concerning Regional Government and Government Regulation Number 20 of 2019

concerning Regional Financial Management. Based on the formulation of Article 1 number 35 of Law 1 of 2014 regional income is defined as "all regional rights that are recognized as an addition to the value of net assets in the relevant fiscal year period". This definition is further elaborated in several articles starting with Article 285 in the same law.

Article 285 paragraph (1) of Law Number 1 of 20014 stipulates that regional revenue sources consist of:

- Local Own Revenue (PAD)
- Transfer income, and
- Other legal regional income.

Still in the same article it is regulated that PAD consists of: i). Local taxes, ii). Regional retribution, iii). Results of separated regional wealth management, and iv). Other legal original regional income. Transfer income is divided into 2, namely transfers from the central government and transfers between regions. Transfers from the central government consist of:

- balancing fund,
- special autonomy fund,
- Privileges fund, and
- Village funds

Meanwhile, inter-regional transfers consist of profit-sharing revenue and financial assistance.

Revenue Vulnerability

The concept of vulnerability (vulnerability) in its development is increasingly being used in various scientific fields, especially those related to disaster. This concept continues to evolve with the increasing variety of crises facing the world. According to the UN [9], vulnerability is the inherent risk of a country in facing the danger of exposure to shocks, both exogenous and endogenous. In general, there are three types of vulnerability: economic, social and environmental. For developing countries, economic vulnerability has become an important issue in development theory literature since the early 1990s [10]. A vulnerable economy will threaten developing countries to further lag behind.

The concept of economic vulnerability is closely related to the notion of economic insecurity. This refers to a situation where there is a high risk of income difficulties, which may potentially create other difficulties in utilizing resources to achieve goals [11]. Therefore, income vulnerability is one part of economic vulnerability. [12] in research on economic vulnerability and resilience indexes, defines economic vulnerability as the risk faced by a country when faced with a shock, while resilience is the country's capacity to quickly recover from the effects of a shock, such as the impact of COVID-19. Furthermore, according to [13], the decline in revenue earned by the state was due to industries that had been hit hard by the COVID 19 pandemic, which consisted of accommodation and food services, arts, entertainment, recreation, and traveling.

Argonne National Laboratory (Argonne) developed the Local Government Vulnerability Index (LGRVI) to help identify local governments, whose incomes are particularly vulnerable to the impacts of COVID-19 and other economic downturns. This index focuses on the expected loss in fees, taxes and other sources of revenue due to the COVID-19 pandemic.

LGRVI measures the vulnerability of government revenues by estimating monthly changes relative to the January 2020 baseline [4]. Setting the baseline for January 2020 is due to the start of the pandemic in America so this requires adjustments for Indonesia by using the average monthly income before the pandemic.

Income included in the index includes: sales and product taxes, transportation and housing income, individual income taxes, severance and royalty taxes, and property taxes. Regional revenues also include regional revenues from the central government profit sharing component. In addition, the main LGRVI index for district-level government includes revenue estimates for sub-district government units, including municipalities, school districts, and special districts. This income data is aggregated to produce an index. This also requires adjustments for implementation in Indonesia due to differences in the taxation system so that it uses income data reported by local governments to the Directorate General of Fiscal Balance.

The estimated revenue-loss value (measured decrease in monthly income compared to pre-pandemic monthly income) is calculated for all types of provincial local government revenue, using the following formula:

$$LR_{c,gt,r,m} = R_{c,gt,r,base} \cdot \% \Delta R_{c,r,m}$$

$LR_{c,gt,r,m}$ is a decrease in measured monthly income compared to pre-pandemic monthly income ($R_{c,gt,r,base}$). Then the calculation of revenue-loss is calculated by index per month using the following formula:

$$Index_{c,gt,m} = \frac{\sum_r LR_{c,gt,r,m}}{\sum_r R_{c,gt,r,base}}$$

Meanwhile, Index c,gt,m is an index of decreasing cumulative monthly income which is measured by comparing the aggregate decrease in monthly income ($\sum R_{c,gt,r,m}$), compared to pre-pandemic aggregate monthly income ($\sum R_{c,gt,r,base}$). Then the monthly index will be accumulated to produce an aggregate index using the following formula:

$$Index_{c,gt,cum} = \frac{\sum_{m \in \{1, \dots, M\}} \frac{\sum_r LR_{c,gt,r,m}}{M}}{\sum_r R_{c,gt,r,base}}$$

$$Index_{c,tot,cum} = \sum_{gt} Index_{c,gt,cum}$$

The Index value can be used as a first step in identifying state and local government financial vulnerabilities by showing which governments depend on revenue streams that are likely to be most impacted by the pandemic, and can then help identify local governments that need the most assistance. In conjunction with other data sets, LGRVI can also be used to provide a more complete picture of the socio-economic impact of the pandemic. The LGRVI-generated state scores reflect the impact on revenue collected by local governments relative to the baseline. A government with an LGRVI score of 96% for a given month, for example, is expected to collect as much as 96% of revenue from economic activities that occur in that month against activities in January 2020 (baseline). When interpreting index scores for LGRVI, lower scores reflect higher income vulnerability, and higher scores reflect lower income vulnerability.

Previous research

Much research related to the Vulnerability Index has been carried out, including the UN Committee conducting a Development Policy study by creating the Economy Vulnerability Index (EVI) which includes several components including remoteness, population size, share of agriculture, concentration of merchandise exports, forestry and fisheries in GDP, production instability agriculture, homelessness due to natural disasters, volatility in the export of goods and services, and a modest proportion of the population living in coastal areas. The first objective for EVI is to identify Least Developed Countries (LDCs) which are recipients of preferential treatment in terms of foreign aid and trade facilities (Diop et al., 2021). Furthermore [12] examined the vulnerability index and resilience index among countries in dealing with the COVID-19 crisis. This study measures the vulnerability and resilience of a country based on the impact channels, both direct and indirect, which consist of trade, investment, tourism, foreign direct investment (FDI), private remittances, oil rents, natural resources.

Research on the economic vulnerability index was also carried out by the European Investment Bank (EIB Economic Vulnerability Index) for countries outside the European Union by including various indicators, including the health system, tourism, exports, remittances, capital outflows, fiscal capacity and banking health during a pandemic Covid [12]. The results of the index calculation are to provide an overview of which countries need the most assistance during a pandemic. The United Nation is also developing a multidimensional vulnerability index (Multidimensional Vulnerability Index-MVI) for small island developing countries which are considered vulnerable during the Covid pandemic due to the high level of dependence on the tourism and business sectors and increasing public debt [14]. The MVI includes economic, environmental and social indicators. Meanwhile, research by [15] designed a pandemic vulnerability index (PVI) which was calculated based on indicators of the health system and country's preparedness in facing a pandemic. The result is the identification of several countries that are more vulnerable than other countries for each continent, which is then expected to help plan and implement strategies for dealing with pandemics both in each country and in the international community.

Furthermore [13] in research on the strategy of balancing the state budget in the United States between COVID-19 and the Great Resession, states that state revenues have increased gradually after the end of the Great Recession in the second quarter of 2009. Furthermore, cumulative tax revenues in fiscal 2020 has recovered to 18.7% greater than its pre-plunge peak during the Great Resession. However, during the COVID 19 pandemic, cumulative state tax revenue decreased dramatically, revenue in the second quarter of 2020 was 25% below the second quarter of 2019. The decline in state revenue was due to the industry being hit by the pandemic which includes accommodation and food services, arts, entertainment, recreation , and travel. Overall, state revenues are expected to be \$878.2 billion in fiscal 2020 or a decrease of 1.4% compared to fiscal 2019.

Issues related to the impact of the Covid 19 pandemic on regional income in Indonesia have been widely studied. Ariyanti [16] states that the tax revenue of the Regional Government of Sidoarjo Regency in 2020 has not met the target due to the Covid-19 pandemic. Meanwhile Sari found that levy revenues at the Sleman Regency Industry and Trade Service showed a significant decrease, especially in market service fees and solid waste [17]. However, fees for using regional assets and service fees are not affected by the Covid-19 pandemic. Research by Maharani regarding the contribution of taxes to the Regional Original Revenue (PAD) of the City of Surabaya shows inefficiency in 2020 during the Covid-19 pandemic. The three studies

above used qualitative methods in their implementation [18].

Research with empirical evidence related to the impact of the pandemic on regional income was carried out by Salsabila with the results of tax revenue and the occurrence of a pandemic together having a significant influence on Jember Regency's PAD [19]. Even if viewed individually, empirical evidence shows that the pandemic has no significant effect on PAD in Jember District. Meanwhile, another study conducted by Syamsul et,all., applied a different test to the income realization of 34 provinces in Indonesia in 2019 and 2020 [20]. The results showed that the pandemic had caused a significant reduction in the income of 34 provinces in Indonesia, especially from the taxation and retribution sector [21]. Similar research with the objects of all district/city local governments in Indonesia, showed similar results that there was a significant decrease between income before and during the pandemic [21]. sayadi examined the performance of Indonesia's income during the Covid-19 pandemic in 2020. The results showed a decline in almost all types of state revenue, except for the revenue of Public Service Agencies (BLU) which grew positively in 2020 [22].

Based on the description of previous research, it can be concluded that research related to vulnerability as a result of the Covid pandemic is mostly related to macroeconomic indicators. Meanwhile, this study aims to specifically measure the vulnerability of regional income as a result of the Covid 19 pandemic by using the income vulnerability index from the Argonne Laboratory as explained in the previous sub-chapter. As for the research that has been conducted regarding the theme of the impact of the pandemic on regional income that has been described above, most of it is still in the nature of descriptive analysis, using both quantitative and qualitative methods. Meanwhile, this research will use spatial analysis to present an index of income vulnerability with the aim of making it easier for users of information to fully understand and in detail related to income vulnerability in each region in Indonesia. Furthermore, measurement results can also be used as input for monitoring and encouraging regional independence in the framework of decentralization.

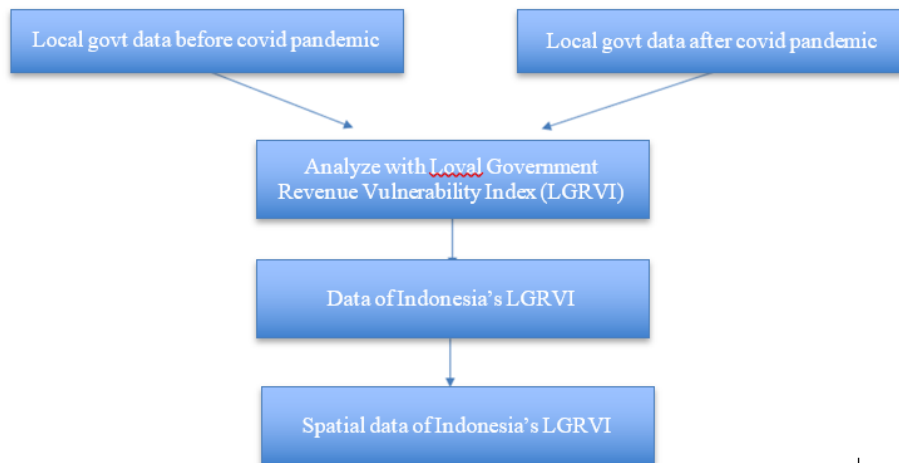


Figure 3. research framework

Source: Author

This study analyzes local government revenue data in Indonesia during the Pandemic and compares it to projected growth that should have been. Growth projections are calculated on the basis of pre-pandemic regional income data, namely knowing local government revenue data in

2019 which is projected using the Growth projection indicators listed in the Macroeconomic Policy Documents and Principles of Fiscal Policy (KEM PPKF) for Fiscal Year (TA) 2020. The data is then analyzed using the Local Government Revenue Vulnerability Index (LGRVI) framework. The resulting index is visualized through the application of spatial data. Data is presented monthly, from May to December 2020.

3 Methodology

The method used in this study uses a descriptive qualitative approach. A descriptive qualitative method was carried out to analyze the level of vulnerability of local governments during the Covid 19 pandemic using the LGRVI index. The index results are used as a basis for compiling a map of the level of vulnerability of local government revenues and then conducting spatial data analysis to determine priorities among local governments.

Data Types and Sources

In carrying out this research, we used secondary data, namely regional income data per month for 2019-2021. The average regional income for 2019 to March 2020 is used as baseline data. Meanwhile, monthly income data from April 2020 to December 2021 is used as income data during the pandemic. The data used is regional income data from 34 provincial governments throughout Indonesia with the following details:

- Locally-generated revenue
 - local tax
 - regional fees
 - results of separated regional wealth management
 - other legitimate regional original income
- Transfer Income
- Other legitimate local revenues.

Provincial Government monthly income data will be taken from the Directorate General of Fiscal Balance database and BPS census data.

The number of local governments that are used as research objects are as follows:

Table 1. List of local governments

The lists of local governments that are used as research objects			
Province of Bangka Belitung	7 Prov/district govt.	Province of Central Kalimantan	14 Prov/district govt
Province of Bengkulu	11 Prov/district govt	Province of East Kalimantan	10 Prov/district govt
Province of Lampung	16 Prov/district govt	Province of North Kalimantan	5 Prov/district govt
Province of Aceh	23 Prov/district govt	Province of Riau Island	7 Prov/district govt
Province of Bali	9 Prov/district govt	Province of Maluku	11 Prov/district govt
Province of Banten	8 Prov/district govt	Province of North Maluku	10 Prov/district govt
Province of DI Yogyakarta	5 Prov/district govt	Province of West Nusa Tenggara	10 Prov/district govt
Province of DKI Jakarta	1 Prov govt	Province of East Nusa Tenggara	22 Prov/district govt
Province of Gorontalo	6 Prov/district govt	Province of Papua	29 Prov/district govt
Province of Jambi	11 Prov/district govt	Province of West Papua	13 Prov/district govt
Province of West Java	27 Prov/district govt	Province of Riau	12 Prov/district govt
Province central Java	35 Prov/district govt	Province of West Sulawesi	6 Prov/district govt
Province of east Java	38 Prov/district govt	Province of South Sulawesi	24 Prov/district govt
Province of West Kalimantan	14 Prov/district govt	Province of Central Sulawesi	13 Prov/district govt
Province of South Kalimantan	13 Prov/district govt	Province of southeast Sulawesi	17 Prov/district govt
Province of South Sumatera	17 Prov/district govt	Province of North Sulawesi	15 Prov/district govt
Province of North Sumatera	33 Prov/district govt	Province of West Sumatera	19 Prov/district govt

Source: Author

Data collection technique

The data collection method used in this research is the documentation method. The documentation method is a method that collects information and data through literature study and exploration of literature and financial reports prepared by the provincial government as well as provincial government data in the DJPK database and BPS census results. Based on the results of data collection carried out, the data needed to measure the level of vulnerability index of local governments in Indonesia was obtained.

Data analysis method

Data processing carried out in this study through a series of stages, namely:

- data collection.
- grouping data into index indicators.
- Analysis of the calculation of all indicators into the LGRVI index.
- Compilation of index data into geographic information system (GIS) format using the Python programming language.
- Mapping LGRVI Indonesian local government
- draw conclusions from this study.

4 Results And Discussion

Based on data from the Google mobility index, we can see that the pattern of movement of the Indonesian population has changed, especially after the announcement of the first case of Covid-19 in Indonesia in March 2020. The majority of movement in housing has increased, but in other places such as recreation areas, workplaces, supermarkets, parks and other places transit is decreasing along with the anticipatory attitude of the community and the preparation of restriction policies for movement or Lockdown. This graph is consistent with the Lockdown policy pattern in Indonesia where restrictions on space for movement have resulted in most community activities being in residencies or housing where they live.

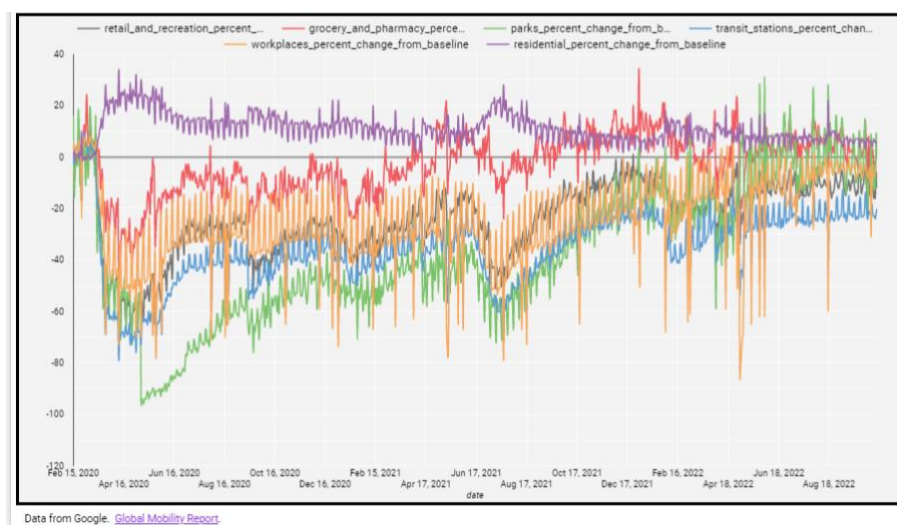


Figure 4. The Google Mobility Index Report
Source: Google (2022)

BPS data shows that Indonesia's GDP in the 1st quarter of 2020, we see that there is still growth of 2.97%, although it has decreased compared to the 4th quarter of 2019 and the 1st quarter of 2019 but there is still a growth of 2.97%. Data year on year the lowest growth is from Bali and Nusa Tenggara by 3% and the largest is from Java, which is 2%. Maluku and Papua are also at the lowest 0.6% along with Bali and Nusa Tenggara. Then we see the movement or GDP growth in the 2nd quarter starting to decline in a downward direction to minus 5.32% compared to the 2nd quarter of 2019. We see that in fact GDP growth this is consistent with the graph from the previous Google mobility report. Growth rate and source of GRDP growth, the majority distribution is from Java Island, followed by Sumatra Island. The biggest minus growth was on the island of Java, which was -7.23, while there was an increase in the GDP growth rate, namely for Maluku and Papua islands of 0.64%. the island of Java is also with 6.69% and the highest growth is Maluku and Papua with 2.36%.

The following is a graph of Mandiri spending index data. This index is an illustration that shows the level of spending of the Indonesian people, here we see in March when the announcement was made shortly after the announcement of the first Covid case, the level of public spending decreased where the deepest decline was in May along with the implementation of the first PSBB when the relaxation of the spending rate also rose and then fell again in November when

the second PSBB was reinstated.



Figure 5. The Mandiri spending index data
Source: Mandiri (2022)

The most significant impact on the spending ability of the public has started to occur in April 2020 both in terms of the frequency of spending and the value of spending from the Indonesian people. If we pay attention when approaching PSBB1 there was a moment of panic buying from the public so that the graph rose slightly to the level of 106.9 but then immediately decreased after the PSBB was implemented in April even though that period coincided with the fasting month and Eid 2020 but the public spending index only corrected slightly.

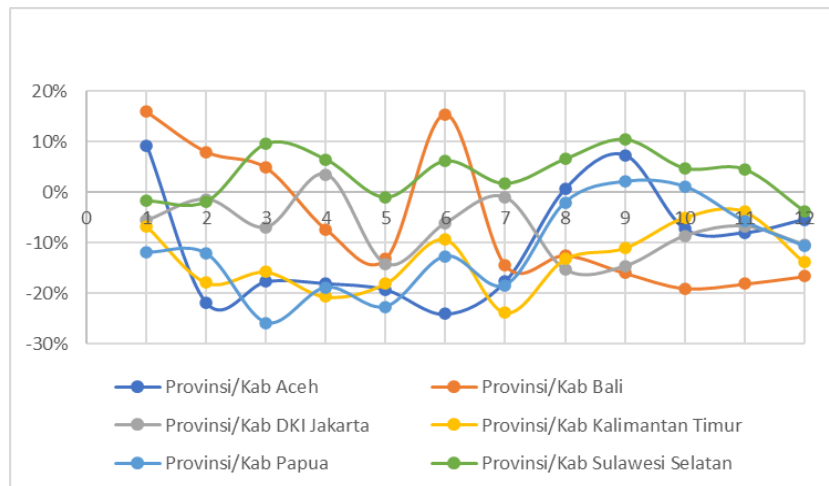


Figure 6. 2020 monthly YOY local revenue realization data.
Source: Author

On a monthly basis, we collect data from the 2020 Regional Revenue Realization from 6 local governments with the largest budgets on each island in Indonesia. For Sumatra Island, represented by the local government of Aceh, Province of Aceh, then the local government of the district province in DKI Jakarta, then the provincial government of Papua, the provincial government of Bali, the Provincial government of Kalimantan East and South Sulawesi provinces, from the data of the 6 provinces, we can see that Realization of Regional Revenues has started to fall in March, it happened for province I, Jakarta, it was below 0%. but we'll see that others have started to decline in the 4th month. However, the provinces of DKI Jakarta and South Sulawesi have not been affected and there is still growth in Regional Revenue Realization from April the previous year. In May 2020 we looked at all the provinces that we sampled, the realization of regional income in May was lower than the Realization of Regional Income in May of the previous year. Of the 6 provincial regional governments, we see that the lowest are the provincial governments of Papua and Aceh Province.

After looking at the Google Mobility Index report, GDP data for the first and second quarters of 2020, the Mandiri Spending Index and the local government's monthly realization trend for 2022, this research will use May data as the basis for LRGVI calculations. Where in that month there has been a change in pattern compared to before the Covid 19 case occurred in Indonesia.

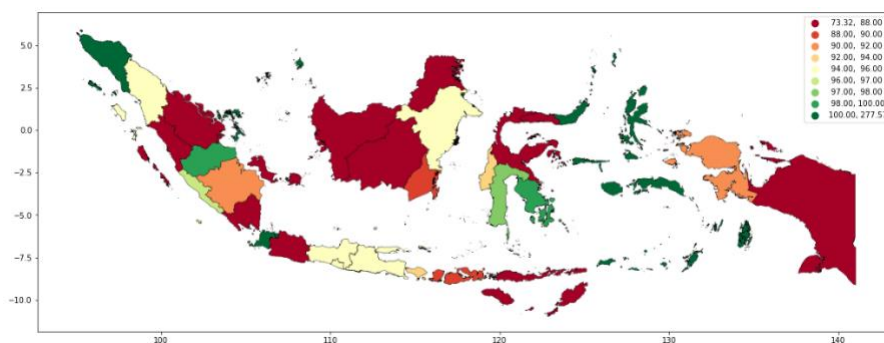


Figure 7. LRGVI May spatial data

Source: Author

The first patient of Covid-19 in Indonesia was officially announced by the government on March 2, 2020. This case also became the beginning of a policy of limiting activities in Indonesia. The community is starting to adjust to new habits related to the 2019 covid pandemic for the government to immediately make a policy of limiting large-scale PSBB activities from April 10 to June 4 2020. Here we can see from the realization picture of the local government in May 2020, the regions the province that was most affected was the regional government in the Papua Province area, with only 73% year-on-year realization. Likewise, the regional government in the East Nusa Tenggara province area only had a budget realization of 79%. Local governments in the areas of DKI Jakarta, East Kalimantan and South Kalimantan Provinces, the realization of regional revenues is in the range of 81%, 82% and 33%. Even so, there are still a number of Regional Governments that posted quite good performance in May, the first being South Sumatra with a budget realization achievement of 278% followed by North Sulawesi and Aceh with 119% and 117% year-on-year then South Sulawesi with 113% and Southeast Sulawesi with 104%

The following is an image of a spatial analysis of the condition of local government revenue realization at the provincial level when the first PSBB relaxation took place from 5 June to 13 September 2020 in June, we will see the government in At the end of May 2020 it has issued a national economic recovery program or PEN by issuing Government Regulation in Lieu of Law Number 1 of 2020 concerning State Financial Policies and Financial System Stability for Handling the 2019 Corona Virus Disease (Covid-19) Pandemic and/or in the Context of Facing Threats that Endanger the National Economy and/or Financial System Stability. In this policy the government has budgeted funds of 695 trillion and these funds have 5 programs that will be implemented mainly focusing on handling health, social protection, priority programs for micro, small and medium enterprises (MSMEs) or cooperatives and business incentives. Of the five programs, the social protection and MSME support sectors received the most budget, namely 216 trillion and 172 trillion respectively. It seems that this policy has had enough impact to see that the majority of realized revenue budgets turned green in June 2020.

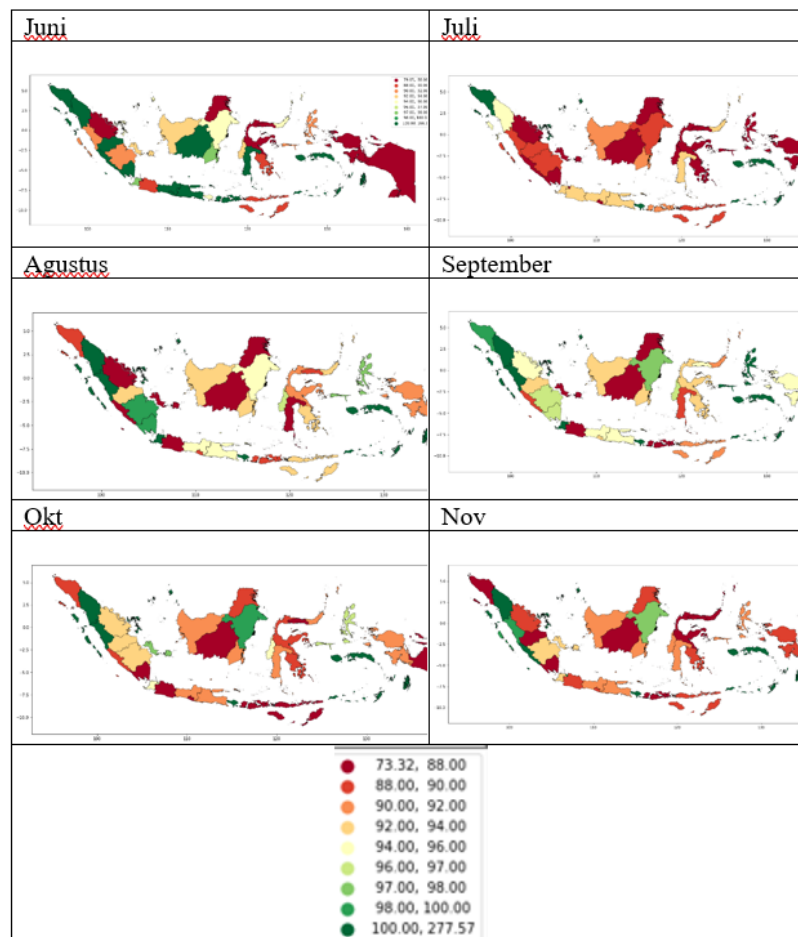


Figure 8. LGRVI Jun-Nov spatial data
Source: Author

In June, local governments in the areas of Papua and East Nusa Tenggara Provinces and the Bangka Belitung Islands were the 3 lowest with realization of 79 to 80% year-on-year. The regional government of South Kalimantan and in the Bengkulu Province area realized its Regional Revenue of only 81% year-on-year in June, the best performing were the West Kalimantan regional government with 138% followed by Aceh with 166% and Riau and Bali with 131% and 154%. However, we can see that in July 2020 the realization of local government revenues decreased a lot and was lower than the average monthly local government revenue realization in July 2019. In July there was also an increase in Covid-19 cases with a new variant, namely the Delta variant, which increased quite significantly. In July 2020, the number of sufferers of Covid-19 increased dramatically. In July the local governments with the lowest Regional Revenue Realization were East Kalimantan at 77% and East Nusa Tenggara at 76% followed by West Kalimantan at 80% South Kalimantan at 81% and Papua at 82% Meanwhile for local governments in the Kalimantan area of North Kalimantan Province the highest 94% North Sumatra 110% North Sulawesi 117% South Sulawesi 117% and Aceh 167%. In August Realization of Local Government Revenue was lowest in DKI Jakarta by 80% followed by West Kalimantan by 81%, East Kalimantan by 85%, Riau by 86% and South Kalimantan by 87%. Whereas the regions with the best performance in August 2020 were South Sulawesi with 149% and West Papua with 131% and 118% for the Aceh region consistently from May to August 2020.

In September 2020 the covid cases were more sloping after being hit by the Delta storm in June 2020. Community activities have become looser, it can be seen that the economy has also increased Realization of local government revenues has also improved in September local governments in the areas of North Kalimantan, North Sumatra, North Sulawesi , South Sulawesi, and West Papua had the best Regional Revenue Realization performance with the highest being North Sumatra at 255%, while the provincial government with the lowest performance was DKI Jakarta at 81% followed by West Kalimantan at 84% and South Kalimantan and Bali with 86. % year-on-year.

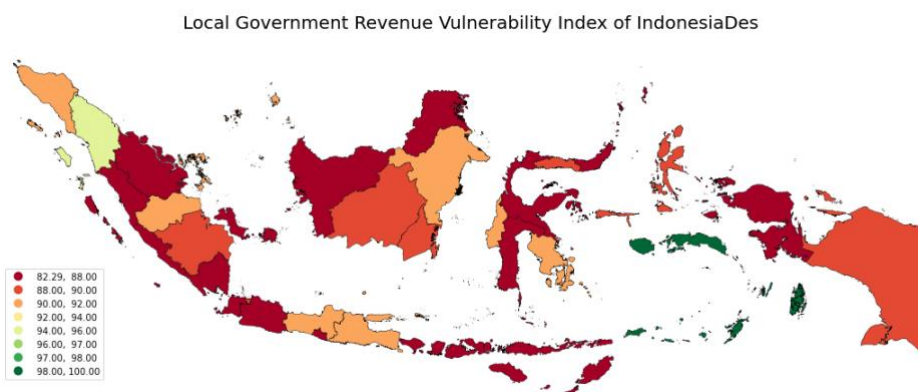


Figure 9. LGRVI Des spatial data
Source: Author

In the last quarter of October to December there was a PSBB policy volume 2 and then relaxation in mid-October until the end of the year. In general, the performance of local

governments with the lowest Regional Revenue Realization is Bali with 82% and East Kalimantan with 83% while DKI Jakarta, the Bangka Islands, Bangka Belitung and Jambi are both 85% year-on-year for local governments in the North Kalimantan area at 96%, Riau, Lampung 92% and Central Java at 98%, and finally, South Sulawesi has the best performance with 100% in December 2020.

5 Conclusion

This study analyzes the vulnerability of local government revenues due to the Covid-19 pandemic in 2020. The analysis was carried out on all provincial governments, regency governments and city governments in Indonesia, with a total of 541 local governments. The analysis uses the Local Government Vulnerability Index (LGRVI) to help identify local governments, whose incomes are particularly vulnerable to the impacts of COVID-19 and other economic downturns. LGRVI measures the vulnerability of government revenues by estimating monthly changes relative to the baseline, namely pre-Covid-19 income.

From the discussion above, we can see that from May to December there were several local governments in the provincial area that consistently had low Revenue Realization and high Regional Revenue Realization. for the first quarter (May, June and July 2020) West Kalimantan, Papua, East Nusa Tenggara and South Kalimantan occupy the lowest performing local governments. Meanwhile, from August to December the local governments with consistently low revenue realization were West Kalimantan, Bali and DKI Jakarta. In the first quarter the local governments with the best performance consistently were North Kalimantan, North Sumatra, North Sulawesi and South Sulawesi and Aceh from May to August but then corrected in September to December. The realization of regional income for West Papua was quite good from August to October. During 2020 the regional income that was most affected was Bali by 82% then East Kalimantan by 83% and in DKI Jakarta the Bangka-Belitung Islands and Jambi together by 85% year on year.

Implications And Limitations

The results of this study are the vulnerability profile of local government income in Indonesia, this data can be used by academics as material for analysis and research development related to local government income. This data can also be used by governments such as the Ministry of Finance c.q. Directorate General of Fiscal Balance as the basis for deciding regional government fiscal related policies. This study uses spatial data analysis in examining the vulnerability of regional income, for further research it can use other data analysis methodologies such as quantitative analysis.

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