

Structural Transformation of Indonesia's Regional Economy Post-COVID-19: Sectoral Shifts and Recovery Policy Analysis

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ABSTRACT

The COVID-19 pandemic has significantly altered Indonesia's regional economic structure, with varying impacts across provinces. This study analyzes changes in the contribution of economic sectors to the Gross Regional Domestic Product (GRDP) of Indonesian provinces from 2020 to 2024, focusing on sectors directly affected by the pandemic. The research employs a content analysis approach using sectoral GRDP data from the Central Statistics Agency and relevant literature. The findings indicate shifts in sectoral dominance, including the rapid expansion of digitalization across regions, while traditional sectors such as tourism experience slower recovery. Technology-based and natural resource-based sectors demonstrate greater resilience to pandemic-related disruptions. These results highlight the importance of adaptive economic policies in supporting structural transformation at the regional level. The study provides insights for designing more inclusive and sustainable Post-COVID-19 recovery strategies, particularly by strengthening resilient sectors and facilitating the transition of vulnerable sectors within Indonesia's evolving regional economic landscape.

Keywords: *Regional Economic Structure Transformation; Post-COVID-19 Economic Recovery; Economic Policy; Impact of COVID-19 on the Economy.*

ABSTRAK

Pandemi COVID-19 telah menyebabkan perubahan signifikan pada struktur ekonomi regional di Indonesia dengan dampak yang berbeda antarprovinsi. Penelitian ini bertujuan menganalisis perubahan kontribusi sektor ekonomi terhadap Produk Domestik Regional Bruto (PDRB) provinsi di Indonesia pada periode 2020–2024, dengan fokus pada sektor-sektor yang terdampak langsung oleh pandemi. Penelitian menggunakan pendekatan analisis konten terhadap data PDRB sektoral yang bersumber dari Badan Pusat Statistik serta studi literatur yang relevan. Hasil penelitian menunjukkan terjadinya pergeseran dominasi sektor ekonomi, termasuk percepatan perkembangan digitalisasi di berbagai wilayah, sementara sektor tradisional seperti pariwisata mengalami pemulihan yang lebih lambat. Sektor berbasis teknologi dan sumber daya alam menunjukkan tingkat ketahanan yang lebih tinggi terhadap dampak pandemi. Temuan ini menegaskan pentingnya kebijakan ekonomi yang adaptif dalam mendukung transformasi struktural di tingkat regional serta memberikan dasar bagi perumusan strategi pemulihan ekonomi pascapandemi yang lebih inklusif dan berkelanjutan.

Kata Kunci: *Transformasi Struktur Ekonomi Daerah; Pemulihan Ekonomi Pasca COVID-19 ; Kebijakan Ekonomi; Dampak COVID-19 terhadap Perekonomian*

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INTRODUCTION

The COVID-19 epidemic has significantly altered the regional economic structure in Indonesia, with different sectors experiencing substantial changes based on the health crisis, digital developments, and policy adaptations. One of the most prominent trends observed during this period is the accelerated digital transformation among Micro, Small, and Medium Enterprises (MSMEs). In response to decreasing demand and major market disruptions, MSMEs were compelled to adopt digital solutions in order to survive. This shift has been considered crucial not only for the development of innovative business models that can withstand economic fluctuations but also for transforming the operational landscape of MSMEs (Heliyani et al., 2023; Legowo et al., 2022).

Furthermore, efforts aimed at economic recovery have led to significant fiscal changes at the municipal government level. With a shift in focus, Indonesia's budget allocation has prioritized essential services, such as health and economic recovery. This realignment seeks to stabilize the socio-economic environment and support the recovery of vulnerable populations who have been hit hardest by the pandemic (Rachmadani et al., 2022; Suwanda, 2024). In order to aid businesses facing financial distress during the pandemic and stimulate economic activity, the Indonesian government introduced several stimulus packages (Saputra & Ariutama, 2021).

In addition, food security has emerged as a major concern due to disruptions in the supply chain and agricultural output. Research indicates that the COVID-19 economic crisis severely impacted Indonesian agricultural productivity, jeopardizing food availability and ultimately national food security (Akbar et al., 2021). This disruption underscores the importance of policy measures that support the resilience of the agricultural sector and ensure food availability during times of crisis.

The pandemic significantly reduced aggregate demand due to declines in family and business expenditure, investment, and exports, which, in turn, led to higher levels of unemployment and underemployment (Machmud, 2024; Ssenyonga, 2021; Temenggung et al., 2021). To mitigate these effects, the Indonesian government implemented fiscal and monetary stimulus, tax incentives, and promoted digital transformation (Ispriyarso & Wibawa, 2023; Lee, 2021; Nugraha et al., 2022). These measures were designed to support vulnerable industries and stabilize the economy.

The pandemic accelerated the transition to a digital economy, resulting in growth within the Digital Economy Sector. E-commerce and cashless transactions have seen a significant rise (Lee, 2021). This transition is expected to continue driving long-term economic transformation. However, disruptions to the supply chain and decreased purchasing power have posed challenges for the agricultural sector. Suggested strategies, such as limiting food prices, providing subsidies for farmers, and promoting food diversification, aim to strengthen food security and the agricultural sector's resilience (Benu et al., 2024; Rozaki, 2020; Soegoto et al., 2022). In the construction industry, project delays and cancellations have been exacerbated by budget centralization and activity restrictions. To recover, the industry must focus on sustainable building practices and repair supply chains (Susanti et al., 2021). The travel and tourism sector, particularly sharia tourism, has also been significantly affected. However, by adapting to the new socio-economic and financial environment, halal tourism could emerge as a viable pathway for economic recovery (Izza et al., 2023).

A prominent theme in these changes is how local governments have managed the pandemic and its effects. Zsolt et al. (2020) highlighted the collective research conducted by the Institute for Regional Studies in Hungary, which examined the impacts of the COVID-19 crisis on municipal sectors through surveys and qualitative data. This study demonstrated how local authorities adjusted their policies to address immediate health risks while simultaneously responding to economic disruptions. (Ilona, 2023) further discussed the increasing importance of resilience in governance, emphasizing that the crisis has brought resilience-based policies into sharper focus at all levels-global, national, and local. The findings reveal that local governments have faced and overcome challenges, signaling a shift from traditional crisis management toward a more resilient and adaptive approach.

In addition, spatial inequalities and economic concentration have been exacerbated in the aftermath of the pandemic. Razin & Joseph Drew (2025) illustrated that large urban areas in Australia continue to experience disproportionate growth compared to rural regions, which deepens existing economic disparities. The authors argue that such regional imbalances hinder equitable recovery efforts in the Post-COVID-19. This disparity draws attention to how economic growth can be concentrated in certain regions while neglecting others, prompting policymakers to reconsider regional development

dynamics. As noted by Zsuzsanna et al. (2021), economic concentration is expected to persist, driven by unfavorable demographic trends, creating sustainability challenges in achieving balanced growth across regions.

The growing influence of resilience in urban planning also has far-reaching consequences. Edrei noted that urban planners are increasingly shaped by evolving narratives surrounding resilience. While this focus can be beneficial, there is a risk that resilience narratives might be co-opted for political agendas, complicating the true objectives of community resilience (Edrei, 2025). The interaction between political motivations and urban planning presents a significant challenge, not only for managing pandemic recovery but also for shaping long-term economic and spatial strategies.

The Digital divide between Urban-Rural and regional inequality is another effect of the epidemic. Particularly between urban and rural areas, the epidemic has worsened already existing regional inequalities. With rural areas trailing in digital infrastructure and access, the digital divide still presents a significant obstacle (Indrawati & Kuncoro, 2021; Ssenyonga, 2021). Different areas have also had different economic effects on regional economic performance. For instance, whilst Sulawesi saw the biggest drop in refined petroleum energy consumption, Java and Bali saw a notable drop in coal-based energy consumption and emissions (Hartono et al., 2021).

In terms of economic disparities between regions, the pandemic has exacerbated existing disparities between provinces in Indonesia. Regions that rely heavily on tourism and trade, such as Bali and Jakarta, have experienced a sharper decline in economic activity compared to regions with a more diversified economic base (Fitri et al., 2024). These economic pressures have prompted local governments to explore alternative sources of revenue and encourage sector diversification to reduce future (Andriansyah et al., 2024). These developments indicate a major shift in how regional economies in Indonesia will operate in the Post-COVID-19 era, toward a more sustainable and integrated economic framework to increase resilience to similar crises.

As discussed above, the COVID-19 pandemic has created multidimensional shocks that have affected all aspects of life, including the economic structure in various regions in Indonesia. The health crisis that has been going on since early 2020 has had a direct impact on the contraction of the Gross Regional Domestic Product (GRDP) in almost all provinces, with variations that are highly dependent on the sectoral characteristics of each region. Economic structures that are too dependent on vulnerable sectors such as trade, accommodation, and transportation have experienced significant pressure. In contrast, several sectors such as agriculture and information-communication have shown relatively better resilience. This change in sectoral structure is an early indicator of economic transformation at the regional level, which is important to be studied systematically to formulate Post-COVID-19 region-based development policies.

The transformation of regional economic structures is very important in the context of Post-COVID-19 Indonesia because Indonesia has high regional heterogeneity in terms of economic base, fiscal capacity, and social resilience. Referring to the Gross Regional Domestic Product from the Central Statistics Agency (2020–2024) (BPS, 2024), shows that several provinces have experienced significant changes in the sectoral composition of the PDR. Furthermore, this study is practically relevant in supporting the agenda of inclusive and sustainable national development. Within the framework of regional autonomy, each province is expected to be able to formulate economic policies that are by its respective capacities and potentials. Therefore, an analysis of the dynamics of Post-COVID-19 regional economic transformation will provide an important contribution to identifying structural challenges, sectoral opportunities, and the need for policy reform at the subnational level.

The GRDP (BPS, 2024) data of provinces in Indonesia shows complex dynamics during the 2020–2024 period. For example, the growth of the wholesale and retail trade sector in many provinces has stagnated or even contracted, while the information and communication sector has experienced a significant surge in contribution, such as in DKI Jakarta and West Java. However, most regional policy documents, such as the RPJMD, have not fully captured this transformation in their sectoral planning. This creates a gap between structural reality and the direction of the formulated policies.

Studies on regional economic transformation that combine a content analysis approach to official sectoral documents, such as GRDP, are still very limited. In fact, according to Miles, M.B., Huberman, A.M., and Saldana, J. (2020), content analysis has the power to extract meaning from textual and numerical data that are both narrative and structural. Thus, this study offers a new approach that enriches

the treasury of public policy studies based on sectoral data and presents an empirical mapping of Post-COVID-19 economic transformation.

This study aims to examine the structural transformation of Indonesia's regional economy in the post-COVID-19 pandemic period by focusing on sectoral changes in provincial economic structures. The pandemic not only generated short-term economic contraction but also triggered shifts in sectoral dominance across regions. Therefore, this research is directed at identifying whether these changes represent temporary cyclical adjustments or indicate deeper structural transformation within regional economies.

This study aims to analyze the pattern of transformation of regional economic structures in Indonesia in the post-COVID-19 pandemic period (2020–2024) based on sectoral contributions in official provincial GRDP documents. The novelty of this study lies in the use of content analysis methods on sectoral GRDP data documents as an approach to identify structural changes in regional economies comparatively between regions. In addition, this study also contributes to the development of public policy studies based on official empirical data from the state. The scope of the research covers provinces in Indonesia with a focus on analyzing changes in the contribution of the main economic sectors in the 2020–2024 ADHK GRDP. The research not only identifies sectoral trends but also tries to interpret these changes in the context of regional development policies, the relevance of the RPJMD, and the implications of post-COVID-19 pandemic strategic planning.

LITERATURE REVIEW

In his book “Introduction to Modern Economic Growth,” Acemoglu provides a comprehensive foundation for understanding economic growth through various models. Macroeconomic analysis and comprehending economic growth require these models, dynamic general equilibrium, and optimisation (Acemoglu, 2008; Acemoglu et al., 2001).

This study uses Daron Acemoglu's economic structural transformation theory. Acemoglu studies sectoral economic development. He emphasises how social group ties impact economic structures and dynamics in the political economics of structural change (Acemoglu & Robinson, 2008; Daron Acemoglu et al., 2004). Understanding how economies adjust to economic shocks and technological transformations requires understanding change resistance and innovation (Baranzini et al., 2015; Cardinale & Landesmann, 2022). New production and distribution technologies restructure economic sectors and growth patterns, highlighting the role of technology and innovation in economic transformation (Reinert & Kvangraven, 2023; Spithoven, 2024).

Acemoglu also emphasises institutions' influence on economic structures (Acemoglu & Robinson, 2008). Government measures that encourage economic freedom, property rights, and free trade can accelerate structural change and improve economic efficiency (Brancaccio & De Cristofaro, 2022). His study emphasises how economic structure, power distribution, and institutional frameworks interact circularly (Acemoglu & Robinson, 2008). This paradigm illuminates historical industrial strategy changes and the government's role in conflict management and economic power negotiations (Tassinari, 2022).

Finally, Acemoglu's theory emphasises capital accumulation in long-term economic growth (Acemoglu & Robinson, 2008). The accumulation of physical and human capital drives growth, accelerating the development of increasingly advanced and productive industries (Reddy, 2025).

Daron Acemoglu's Theory of Economic Structure and Change (Acemoglu & Robinson, 2008) can be used to analyse regional economic structure changes, notably post-COVID-19. Technology, government regulations, and sector dynamics often cause structural changes in the economy, according to Acemoglu. This theory also emphasises how economic institutions and policies affect income distribution and economic inequality and promote or hinder such changes.

RESEARCH METHODS

This study employs a qualitative content analysis approach within a document-based (library research) design to examine structural transformation in Indonesia's regional economies following the COVID-19 pandemic. Content analysis is applied to systematically interpret and analyze official macroeconomic documents, particularly sectoral Gross Regional Domestic Product (GRDP) data, in order to identify patterns of structural change (White & Marsh, 2006). The research does not merely

review literature descriptively but focuses on extracting analytical meaning from sectoral economic data and related policy documents.

The primary data source consists of official GRDP by industrial sector at constant prices (ADHK) for all Indonesian provinces during 2020–2024, published by Statistics Indonesia (BPS). These data are used to assess sectoral contribution, sectoral share change, and shifts in economic dominance across provinces. Secondary sources include peer-reviewed journal articles, National Economic Recovery (PEN) policy documents, regional budget refocusing reports, RPJMD documents, and other relevant publications concerning Post-COVID-19 economic recovery and regional development.

Structural transformation is operationalized through analysis of changes in sectoral composition over time. Sectoral share (percentage contribution to total GRDP) and changes in sectoral share are calculated to detect structural strengthening or weakening. Economic activities are grouped into primary, secondary, and tertiary sectors to identify broader structural orientation, such as service-sector deepening, resource-based reinforcement, or digital-sector expansion. Comparative analysis across provinces is conducted to reveal asymmetric recovery trajectories and variations in sectoral reconfiguration.

The analytical procedure follows standard stages of content analysis (Islam et al., 2022; Burkhardt, 2012), including problem identification, development of theoretical framework, construction of analytical categories, systematic examination of sectoral data, and interpretative analysis. Interpretation emphasizes multi-year trends (2020–2024) to distinguish structural tendencies from temporary fluctuations. Although the study does not employ econometric modeling, it provides a structured macro-level examination of sectoral change and policy alignment in Indonesia's Post-COVID-19 regional economic transformation.

RESULTS AND DISCUSSION

RESULT

Spatial Perspective For Indonesia's Economy

There was no significant change in the contribution of GRDP by islands in Indonesia from 2020 to 2024. The western region of Indonesia, consisting of the islands of Sumatra and Java, contributed 80.07 percent in 2020 and decreased to 79.14 percent in 2024. In contrast, the eastern region of Indonesia (except the islands of Sumatra and Java) experienced an increase in contribution from 19.93 percent in 2020 to 20.86 percent in 2024. Meanwhile, there was a dynamic year-to-year change in the economic growth of GRDP from 2020 to 2024. After experiencing a contraction in growth in 2020 due to the COVID-19 pandemic, the economy of each island has shown signs of economic recovery since 2022.

The highest economic growth in 2024 was experienced by the Maluku and Papua Islands, driven by the improvement of Manufacturing, Mining and Quarrying, and Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles Sectors. Meanwhile, the source of growth of other islands varied. In 2022, new provinces were formed in Papua Island, specifically Papua Barat Daya from West Papua Province, and South Papua, Papua Tengah, and Papua Pegunungan from Papua Province. The GRDP of these provinces will be available in 2023.

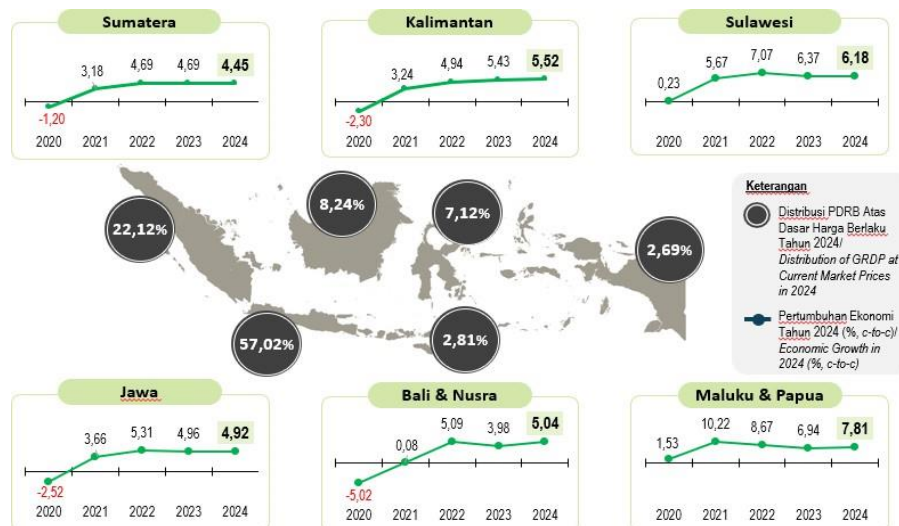


Figure 1. Distribution and Growth Rate of GRDP by Island in Indonesia 2020-2024
Source: BPS-Statistics Indonesia 2024

The above data presents an in-depth analysis of the dynamics of Indonesia's economic growth that has taken place over time, highlighting the importance of economic growth data as a basis for assessing the health and progress of the economy at the regional level. The data provides clearer insights into the process of economic expansion in Indonesia by considering in-depth empirical aspects and contextual relevance, especially in the post-COVID-19 pandemic recovery process that has significantly affected many economic sectors.

The projection of Indonesia's economic growth in 2024 reflected in this data, shows different recoveries in each region, reflecting the impact of the COVID-19 pandemic. As is known, the pandemic has shaken the global and Indonesian economy, causing a sharp economic contraction in almost all sectors, both at the national and regional levels. This data provides an overview of how each province and region is recovering from the impact of the pandemic, as well as the challenges that still have to be faced in the process.

Sources Of Economic Growth

In this section, we will analyze the sources of economic growth reflected in Indonesia's GRDP (Gross Regional Domestic Product) data between 2020 and 2024. These sources of economic growth reflect changes in the economic structure of each region, indicating which sectors are recovering faster Post-COVID-19, as well as which sectors are facing greater challenges in the process.

Provinces in Sumatra experienced relatively stable growth Post-COVID-19, with a projected growth of 4.45% in 2024. The main sources of growth in Sumatra came from the manufacturing, trade, and construction sectors. The manufacturing sector, which is closely related to extractive products such as oil and gas, showed better resilience compared to other sectors. This stable growth was also driven by the trade sector, which dominates the regional economy, even though the pandemic disrupted supply chains and reduced people's purchasing power. However, this sector managed to adapt by diversifying markets, both domestically and internationally, to maintain trade volume.

The increasing contribution of the manufacturing sector in Sumatra reflects the economic transformation that is moving towards a more industrial and processing-oriented direction, potentially increasing the added value of available natural resources. In addition, the construction sector is also starting to recover, albeit at a slower pace, along with increasing demand for Post-COVID-19 infrastructure projects. The following is a presentation of the data:

Table 1. Source of Economic Growth in Sumatra Island 2024

Region	Value	Main Source of Growth
Sumatra Utara	1.16	
Riau	0.75	
Sumatra Selatan	0.70	
Lampung	0.47	
Kepulauan Riau	0.39	Manufacturing
Sumatra Barat	0.32	Trading
Jambi	0.29	Construction
Aceh	0.26	
Bengkulu	0.09	
Kep. Bangka Belitung	0.02	
Sumatera	4.45	

Source: BPS-Statistics Indonesia, 2024

This transformation in the manufacturing sector shows that the industry in Java is increasingly integrated with technological developments, creating opportunities for greater innovation. The trade sector, which was hit by declining purchasing power, is now showing signs of recovery along with increasing domestic economic activity and increasing exports of superior products from Java. The following is a presentation of the data:

Table 2. Source of Economic Growth in Jawa Island 2024

Region	Value	Main Source of Growth
DKI Jakarta	1.38	
Nort Java	1.25	
West Java	1.13	Manufacturing
Central Java	0.75	Trading
Banten	0.33	Construction
DI Yogyakarta	0.08	
Jawa	4.92	

Source: BPS-Statistics Indonesia, 2024

The tourism sector, which is the backbone of the economy of Bali and Nusa Tenggara, has experienced a sharp decline due to the COVID-19 pandemic. Despite a projected growth of 5.04% in 2024, the recovery of this sector is still relatively slow compared to other regions, given the high dependence on the tourism sector and the long-standing restrictions on international travel.

However, there are signs that sector diversification is starting to show results. In Bali, in addition to tourism, the agriculture and technology sectors are starting to receive more attention in regional economic planning. The slower recovery of the tourism sector is driving the acceleration of the development of alternative sectors that support more sustainable economic resilience. For example, the agriculture sector is starting to see an increase, especially in organic and environmentally friendly products, which also supports the sustainability goals of the Balinese economy. Here is the economic growth data for the islands of Bali and Nusa Tenggara:

Table 3. Source of Economic Growth in Bali and Nusa Tenggara Island 2024

Region	Value	Main Source of Growth
Bali	2.58	Accommodation &
West Nusa Tenggara	1.63	Food Service Activities
East Nusa Tenggara	0.83	Mining & Quarrying
		Trading
Bali-Nusa Tenggara	5.04	

Source: BPS-Statistics Indonesia, 2024

Kalimantan, with a significant contribution to Indonesia's GRDP (8.24%), has shown rapid recovery with a projected economic growth of 5.52% in 2024. The sector that dominates Kalimantan's economic recovery is natural resources, especially the mining and energy sectors. Kalimantan has proven to be resilient to external crises, including the pandemic, thanks to its reliance on the mining industry, which has continued to operate despite global market disruptions.

The growth of the energy sector in Kalimantan is further accelerated by the application of new technologies in the exploration and processing of natural resources. The construction sector is also experiencing a faster recovery due to the high demand for infrastructure development that supports the energy and mining sectors. This shows that Kalimantan has an advantage in sustainable natural resource-based economic recovery. The following is a presentation of economic growth data on the island of Kalimantan:

Table 4. Source of Economic Growth in Kalimantan Island 2024

Region	Value	Main Source of Growth
East Kalimantan	3.24	
West Kalimantan	0.74	Mining & Quarrying Trading Construction
South Kalimantan	0.73	
Central Kalimantan	0.50	
North Kalimantan	0.31	
Kalimantan	5.52	

Source: BPS-Statistics Indonesia, 2024

However, Sulawesi's 2024 economic growth forecast is 6.18%, higher than others. Manufacturing, agriculture, fisheries, and trade drive growth. Sulawesi relies more on agriculture and fisheries, which are less affected by pandemic-related social restrictions and transportation interruptions.

Sulawesi's 7.12% GRDP contribution shows its versatility in various sectors, focusing on productivity and data-driven agricultural technologies. Sulawesi's Post-COVID-19 economic landscape is also improving as agricultural and fishery processing technologies boost the industry. Data about Sulawesi Island's economic growth:

Table 5. Source of Economic Growth in Sulawesi Island 2024

Region	Value	Main Source of Growth
Central Sulawesi	2.25	
South Sulawesi	2.23	
Southeast Sulawesi	0.69	Manufacturing Agriculture, Forestry, & Fishing Trading
North Sulawesi	0.65	
West Sulawesi	0.20	
Gorontalo	0.16	
Sulawesi	6.18	

Source: BPS-Statistics Indonesia, 2024

Maluku and Papua's GRDP is anticipated to expand 7.81% in 2024, but its contribution to the national GRDP is relatively minor (2.69%). Natural resources like mining, oil and gas, and infrastructure drove this tremendous increase. Major government programmes in this region, including energy sector expansion and mining infrastructure development, accelerate economic recovery.

The increasing contribution of the mining sector and infrastructure development shows that this region has great potential that has not been fully explored. Increased investment and policies that support these sectors will strengthen long-term economic growth in Papua and Maluku. The following is a presentation of economic growth data on the islands of Maluku and Papua:

Table 6. Source of Economic Growth in Maluku and Papua Island 2024

Region	Value	Main Source of Growth
West Papua	2.58	
North Maluku	2.01	
Central Papua	1.33	Manufacturing
Papua	0.62	Mining & Quarrying
Maluku	0.57	Trading
Southwest Papua	0.26	
South Papua	0.25	
Mountain Papua	0.19	
Maluku & Papua	7.81	

Source: BPS-Statistics Indonesia, 2024

Based on the above data, the sources of Post-COVID-19 economic growth in Indonesia show significant variations between regions, influenced by dependence on certain sectors and the recovery policies implemented. Tourism-dependent Bali and Nusa Tenggara recover more slowly than Kalimantan and Sulawesi, which depend on natural resources and agriculture. To improve Indonesia's economic resilience, diversifying and developing crisis-resistant sectors is crucial.

Economic Transformation post-COVID-19 pandemic

The data on Indonesian provinces' GRDP (Gross Regional Domestic Product) between 2019 and 2024 shows how the COVID-19 epidemic changed regional economic structures. This data sheds light on how regional economies are adapting and evolving Post-COVID-19, taking into account significant changes in economic sectors directly affected by the pandemic and regional recovery efforts.

Table 7. Gross Regional Domestic Product at Current Market Prices by Province (billion rupiahs), 2020–2024

Provinsi/Province	2020	2021	2022	2023*	2024**
(1)	(2)	(3)	(4)	(5)	(6)
1. Aceh	166.372	184.980	209.698	227.018	243.202
2. North Sumatra	811.188	859.934	955.193	1.050.995	1.146.920
3. West Sumatra	241.894	253.100	285.375	312.769	332.936
4. Riau	727.599	839.002	991.615	1.026.472	1.112.482
5. Jambi	205.082	232.294	276.937	293.780	322.976
6. South Sumatra	454.607	493.637	590.079	629.169	663.962
7. Bengkulu	73.305	79.603	90.112	96.583	103.992
8. Lampung	353.025	371.199	414.120	448.851	483.883
9. Bangka Belitung Islands	75.520	85.961	95.286	102.527	107.505
10. Riau Islands	254.095	275.623	308.740	331.645	352.436
Sumatera	3.362.689	3.675.333	4.217.156	4.519.809	4.870.293
11. DKI Jakarta	2.767.273	2.912.885	3.188.541	3.443.026	3.679.359
12. West Java	2.082.107	2.204.660	2.422.782	2.625.226	2.823.339
13. Central Java	1.347.222	1.419.735	1.559.140	1.695.622	1.817.777
14. DI Yogyakarta	138.118	149.414	165.725	180.696	193.515
15. East Java	2.299.808	2.454.792	2.731.424	2.953.547	3.168.296
16. Banten	625.895	665.870	747.221	814.122	873.626
Jawa	9.260.424	9.807.357	10.814.833	11.712.239	12.555.911
17. Bali	224.226	220.466	245.368	274.358	298.442
18. West Nusa Tenggara	133.614	140.115	156.943	166.395	182.265
19. East Nusa Tenggara	106.482	110.881	118.722	128.523	137.282
Bali & Nusa Tenggara	464.322	471.463	521.033	569.276	617.989
20. West Kalimantan	213.950	231.321	255.797	274.469	300.167
21. Central Kalimantan	152.187	169.656	199.741	208.783	222.865

22. South Kalimantan	179.162	197.882	251.099	269.192	286.819
23. East Kalimantan	607.744	696.633	921.451	843.571	858.431
24. North Kalimantan	100.423	111.530	138.675	147.279	146.793
Kalimantan	1.253.467	1.407.022	1.766.763	1.743.294	1.815.074
25. North Sulawesi	132.230	142.620	157.039	171.969	187.374
26. Central Sulawesi	197.441	247.280	323.630	347.139	376.950
27. South Sulawesi	504.053	544.857	605.176	652.648	696.253
28. Southeast Sulawesi	130.107	139.477	158.800	176.180	189.482
29. Gorontalo	41.730	43.893	47.566	51.367	54.555
30. West Sulawesi	46.466	50.566	54.028	58.572	64.215
Sulawesi	1.052.026	1.168.693	1.346.241	1.457.875	1.568.829
31. Maluku	46.263	48.894	54.079	58.488	62.646
32. North Maluku	42.299	52.481	70.903	85.143	95.788
33. West Papua	83.589	85.078	91.302	61.576	76.177
34. Southwest Papua	–	–	–	36.105	37.040
35. Papua	199.187	235.487	262.520	81.732	85.914
36. South Papua	–	–	–	31.358	33.383
37. Central Papua	–	–	–	150.377	174.943
38. Mountain Papua	–	–	–	24.434	26.561
Maluku & Papua	371.338	421.940	478.803	529.213	592.453

Source: BPS-Statistics Indonesia, 2024

DISCUSSION

Changes In The Structure Of The Economic Sector

Indonesia's regional economies have changed due to the COVID-19 epidemic. Some areas of the regional economy have grown while others have declined due to the pandemic. The epidemic, economic policies, and Indonesia's structural issues all affect this change. A detailed review of these changes follows. The analysis results are explained below:

Impact on Key Economic Sectors

Due to travel restrictions and restricted international mobility, the tourism sector, notably in Bali, plummeted. This drop temporarily reduced tourism's influence on inter-provincial disparity, but it is predicted to return Post-COVID-19 (Akita & Alisjahbana, 2023). The Information and Communication (IC) and Financial Services sectors have survived the epidemic and even enhanced their regional economic contributions. Tech developments and the quick growth of digital services have reinforced these industries, especially in Java-Bali, highlighting their relevance in Indonesia's economy (Akita & Alisjahbana, 2023).

The manufacturing sector still contributes to national income, albeit at a lesser rate than before the crisis. Agriculture remained the largest source of employment, reflecting a shift towards more traditional sectors throughout the recession (Sulistiawati & Lestari, 2022).

Regional Disparities and Structural Transformation

One of the main aspects of this structural transformation is the crucial role of local governance in development planning. Rafinzar et al. (2023) emphasize the importance of incorporating good governance principles in these planning deliberations to effectively address the heterogeneous conditions of local communities. This governance framework not only facilitates effective planning but also ensures that development initiatives reflect the needs of various demographic groups across regions. For example, East Java has seen a substantial economic downturn due to the outbreak. Real estate and education services show resilience and recovery potential (Oelietina, 2022). However, mining and agriculture drove expansion in West Kalimantan, despite the economic downturn (Sartika, 2024).

Industrial estate development also affects regional economies, but differently. Industrial estates can boost economic diversification and job development, but their advantages are not evenly dispersed across regions, necessitating targeted governmental interventions. The complicated recovery and transformation process requires broad policy interventions and support for vulnerable sectors and regions. Certain sectors and regions can recover, suggesting optimised recovery strategies. Successful policy implementation and support for the most challenging sectors and regions are crucial.

The Role of Technology in Economic Transformation

Technology is crucial to the restructuring of Indonesian regional economies, especially after the COVID-19 pandemic. The epidemic boosted digital technology adoption, making it crucial to economic recovery and transformation. MSMEs, logistics, and the digital economy are all experiencing this transformation. Integration of technology boosts economic resilience and positions Indonesia as a Southeast Asian economic giant. Indonesia's economic revival relies on the digital economy. Digital platforms are helping MSMEs, the backbone of the economy, enhance their market reach and operational efficiency. Many MSMEs have switched to digital marketing, e-commerce, and digital payment systems to survive and grow due to the pandemic (Hastiadi et al., 2024). Government programmes, including business capital assistance and digital transformation, are helping MSMEs navigate the Post-COVID-19 economy (Margahayu, 2021).

Logistics, an essential part of the Indonesian economy, has also been digitalized. WMS and TMS have enhanced efficiency, cost, and economic performance (Al Farohi et al., 2023). Internet and smartphone use in logistics has reduced expenses and supported provincial economic growth (Al Farohi et al., 2023). The Indonesian digital economy is expected to reach USD 146 billion by 2025 due to rising internet usage and digital payment systems (Prasidya & Dewi, 2023). The digital economy is predicted to drive South-east Asian economic recovery and transformation, strengthening Indonesia's strategic position (Prasidya & Dewi, 2023).

Even while digitalisation has helped, systemic issues persist. The digital gap and skilled labour shortages are big issues. The Quadruple Helix Model, which emphasises government, private sector, university, and society engagement, is intended to solve these difficulties and achieve inclusive economic growth (Hastiadi & Ramadhan, 2024). While certain sectors have undergone significant reform, structural development in Indonesia is still unequal. Many regions remain reliant on the primary sector, and labour transfer has slowed economic development (Sartika, 2024; Sulistiawati & Lestari, 2022).

Economic Institutions and Policies

The COVID-19 pandemic has severely harmed Indonesia's regional economy, necessitating economic institution and policy-driven change. The Indonesian government has employed Pancasila-based structural recovery and reform policies during the economic slump. This system emphasises social welfare and economic resilience, the foundation of the COVID-19 Response and National Economic Recovery (PC-PEN). This strategy includes fiscal and monetary policy, legal reform, and targeted economic sector support. This analysis seeks to understand how economic institutions and policies changed Indonesia's regional economic structure Post-COVID-19.

The 2020-2024 National Medium-Term Development Plan (RPJMN) guides Indonesia's economic development through pandemic-related structural adjustments. This RPJMN prioritises economic sovereignty, independence, and reciprocal cooperation to fight the epidemic and promote regional economic change. RPJMN focuses on equitable development to boost regional economic competitiveness and reduce inequality. The governance framework in this development not only facilitates effective planning but also ensures that development initiatives reflect the needs of various demographic groups across regions. Challenges such as the lack of public participation, as reported by Mardianto et al. (2022), indicate that a lack of understanding about governance processes can hinder effective community engagement.

Income Distribution and Inequality

The epidemic cut Indonesia's GDP by 2.7% in 2020, with significant regional variability. The highly afflicted tourism industry reduced its contribution to inter-provincial disparity, whereas the information and communication (IC) and financial services sectors expanded, especially in Java-Bali (Akita & Alisjhabana, 2023). Despite negative growth, mining, energy, and agriculture in West Kalimantan demonstrated resilience, suggesting a structural shift. Labour movement between sectors has failed, suggesting this transformation process has stagnated (Sartika, 2024).

Urban income inequality has increased more than rural income inequality due to the epidemic. This has led to urban poverty, unemployment, and economic deterioration. The Theil Index showed that income inequality increased from 0.258 in 2019 to 0.516 in 2020, with inequality within provinces contributing more to national inequality than inequality between

provinces (Novianti & Panjaitan, 2022). Fiscal decentralisation reduces regional income disparity better than centralisation, but the pandemic has emphasised the necessity for targeted urban poverty and inequality measures. Policies should address income disparity and distribution through institutional initiatives, sustainable fiscal policies, and equitable development. The Presidential Instruction on Disadvantaged Villages (IDT) and National Economic Recovery (PEN) are crucial to reducing pandemic effects (Ihsani & Rohman, 2022). Wealth redistribution through progressive tax policy, investment in education and digital infrastructure, and community empowerment in underdeveloped areas can reduce socioeconomic inequality.

The pandemic has highlighted and worsened disparities, but it also offers Indonesia a chance to evaluate and reorient its economic policies towards more inclusive growth. Reducing the urban-rural gap, encouraging fair development, and ensuring that technological breakthroughs benefit more people should be the top priorities. Coordination across sectors and government levels is needed to deliver successful and lasting policy solutions.

Structural Transformation and Inclusive Post-Covid-19 Recovery Through Policy–Structure Interaction at The Regional Level

The COVID-19 pandemic must be understood as a catalyst for structural transformation rather than merely a cyclical shock followed by temporary recovery. The literature indicates that this crisis has driven permanent reorganization in sectoral composition, production organization, and regional development trajectories (Madeira et al., 2024). Unlike the 2008 financial crisis, which primarily operated through demand and credit channels, the COVID-19 pandemic simultaneously combined supply shocks, demand disruptions, and behavioral changes, thereby generating deeper and longer-term structural implications (Wiadek & Jadwiga Gorczkowska, 2024). Consequently, Indonesia's regional economic recovery should be analyzed as a process of structural reallocation with the potential to alter regional specialization patterns.

This transformation is reflected in shifts in sectoral composition and the strengthening of digitally based sectors. Digital transformation has become a permanent feature of Post-COVID-19 economic organization (Lyaskovskaya & Kristina Grigorieva, 2024). In Indonesia, the acceleration of e-commerce, digital financial services, and supply chain digitalization demonstrates service-sector deepening, relatively concentrated in regions with stronger infrastructure and human capital. However, disparities in digital literacy and infrastructure create adaptation barriers for lagging regions (Tiesheva et al., 2025). This phenomenon suggests that digital transformation may become exclusionary if not accompanied by policies aimed at equalizing capacity.

In developing and decentralized countries such as Indonesia, structural change is strongly influenced by institutional quality and governance capacity. The relationship between economic growth and sectoral shifts is contextual and varies across regions (Cyrek, 2024). Institutional quality determines whether external shocks generate productive diversification or reinforce existing structural dependence (Shen & Tsai, 2016). Regions with adaptive governance and effective public–private partnerships demonstrate higher transformative resilience (Grillitsch et al., 2025). Conversely, regions trapped in development traps face difficulties in increasing economic complexity and sectoral diversification (Niembro & Carla Daniela Cala, 2025). International experience shows that local leadership and change agents can stimulate new diversification pathways, as seen in entrepreneurship-based transformation in peripheral regions (Morisson & H Mayer, 2021). However, such transformation requires systematic institutional support.

Sectoral dependence explains variations in recovery trajectories across Indonesian regions. Resource-based regions face risks associated with raw commodity dependence and global price volatility (Shust, 2025). Meanwhile, manufacturing-based regions confront industrial restructuring pressures, automation, and the transition toward a low-carbon economy (Cyrek, 2024). The service sector also displays significant heterogeneity, with digital services expanding rapidly while contact-intensive services such as tourism experience prolonged contraction (Wiadek & Jadwiga Gorczkowska, 2024). Therefore, place-based development strategies that leverage local assets while promoting diversification are essential for long-term sustainability.

The design of fiscal policy and recovery programs also shapes the direction of structural change. Targeted stimulus toward green sectors and digital infrastructure generates higher multiplier effects compared to general expenditure (Batini et al., 2021). Its effectiveness depends heavily on

implementation capacity and multi-level governance coordination (Sakharnatska et al., 2025). Institutional quality and transparent governance enhance regional competitiveness (Chelak, 2025). International financing and foreign direct investment also influence transformation trajectories, particularly when directed toward green innovation and technology transfer (Li & Qiaoqiao Zhu, 2025). However, reliance on external financing must be balanced with strengthening domestic capacity to avoid long-term fiscal burdens (Mykytenko et al., 2025).

In the Indonesian context, opportunities for sustainable transformation lie in integrating green economic development and industrial downstreaming strategies. Investment in renewable energy and environmentally friendly innovation has the potential to promote structural diversification while enhancing competitiveness (Khumairoh et al., 2025). Strengthening domestic value chain integration and downstream processing of strategic commodities can increase regional value added (Fitrianto et al., 2025). The development of coordinated innovation clusters and regional ecosystems involving government, universities, and the private sector constitutes a prerequisite for successful transformation (Yemchenko & Ihor Maistrenko, 2025).

Thus, Post-COVID-19 recovery in Indonesia should be understood as a transitional phase toward a more inclusive and sustainable economic restructuring. Effective structural transformation requires a combination of equitable digital acceleration, institutional strengthening, place-based development strategies, and well-targeted fiscal policy. Without integration of these elements, the crisis may instead deepen regional divergence and reinforce longstanding structural dependence.

CONCLUSIONS AND RECOMMENDATIONS

This study demonstrates that the COVID-19 pandemic acted as a structural shock that reconfigured Indonesia's regional economic structure rather than generating a temporary cyclical downturn. Using sectoral GRDP data for 2020–2024, the findings reveal asymmetric structural transformation across provinces. Tourism-dependent regions, particularly Bali and Nusa Tenggara, experienced deeper contraction and slower recovery, while resource-based regions such as Kalimantan and parts of Sulawesi exhibited stronger resilience driven by mining, agriculture, and processing industries. Concurrently, digitally intensive sectors—including information and communication, financial services, and e-commerce—expanded their contribution, especially in provinces supported by stronger infrastructure and human capital. These patterns indicate that Post-COVID-19 recovery reflects differentiated structural reallocation shaped by sectoral dependence, technological readiness, institutional quality, and policy intervention.

Theoretically, the study strengthens structural transformation literature by empirically showing how crisis-induced shocks accelerate sectoral reconfiguration within a decentralized and heterogeneous national context. The Indonesian case illustrates that regional endowments and governance capacity mediate transformation trajectories, thereby contributing to debates on subnational structural change in developing economies. Methodologically, the research advances public policy analysis by applying qualitative content analysis to official sectoral GRDP documents as a systematic framework for interpreting structural dynamics at the provincial level.

From a practical standpoint, the findings highlight the urgency of aligning regional development planning with emerging sectoral realities through diversification strategies, digital infrastructure expansion, green economic integration, and targeted high-multiplier fiscal measures. Strengthening institutional capacity and multi-level governance coordination is essential to avoid structural lock-in and widening regional disparities. Future research should incorporate quantitative modeling and longer time-series data to assess the durability of observed structural shifts and their distributional consequences.

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