

THE ECONOMIC GROWTH RESILIENCE ANALYSIS OF PAPUA PROVINCE DURING THE COVID-19 PANDEMIC

Robert M. WST. Marbun¹

robert@jeuncen.ac.id

Charley M. Bisai²

Abstract

This study is: 1) To analyze the economic growth trends (GRDP on the basis of 2010 constant prices) of Papua Province during the COVID-19 pandemic, namely from 2020 to 2021. 2) To compare the economic growth of Papua province with other provinces during the period. This study used secondary data obtained through the website of the Central Statistics Agency, as well as Bank Indonesia. The analytical method used in this study is a qualitative descriptive analysis. The research employs literature review to retrieve data, as well as referrals from various sources to support the study. The results show that: 1) GRDP growth rate from 2010 to 2020 was 2.39 percent, and 15.11 percent in 2021. In comparison with 2019, the growth is -15.74 percent, significantly higher than 2019. 2) Papua's economic growth exceeds that of other provinces in Indonesia. Supported by the primary sector, namely mining and quarrying, which expanded by a substantial amount of 29.92 percent. In addition to the primary sector, the tertiary sector also contributes to growth, namely information and communication (5.35 percent), health services (5.17 percent), and the secondary sector, which grew by 3.84 percent.

Keywords: Economic growth rate, GRDP, COVID-19.

BACKGROUND

The pandemic's impact on the global economy was multifaceted, creating a complex environment of simultaneous shocks. Global services trade, which tilts spending patterns from goods to services, was significantly affected, though it later recovered. However, demand for raw materials, particularly minerals, remained robust, creating favorable market conditions for producers like Papua. This dynamic suggests that the province's economic success was not merely a local story but was deeply intertwined with global commodity cycles. The analysis of Indonesian provinces using the Ward Method for cluster analysis, which considered metrics such as average economic growth, economic contribution, and an Economic Shock Index related to COVID-19, confirms that Papua's classification as a mining-dependent province is a key determinant of its unique economic experience. Therefore, any assessment of Papua's economic resilience must begin with the acknowledgment that its structural foundation in mining provided a powerful buffer against the pandemic's widespread economic dislocation. The positive headline growth figures are not an

¹ Staf Pengajar Jurusan Ilmu Ekonomi FEB Uncen

² Staf Pengajar Jurusan Ilmu Ekonomi FEB Uncen

indication of a uniformly healthy economy but rather a reflection of the outsized contribution of a single, high-performing sector that absorbed shocks that would have otherwise led to a more severe downturn.

Table 1. Basic Economic Indicators

Indicator	Papua Province	Other Regions
Economic Growth Rate	+1.44% (Maluku & Papua Islands)	-2.51% (Java)
Average Annual GDP Growth	2.39% (2010-2020), 15.11% (2021)	Information not available in provided sources
Primary Base Sectors	Mining and Quarrying, Accommodation and Food/Drink	Information not available in provided sources

Source: Data Processed (2021)

This table succinctly captures the central paradox of Papua's economic performance. Its growth trajectory diverged sharply from the national average, pointing towards a structural explanation rooted in its dominant industries. The subsequent sections will deconstruct this narrative by examining the quantitative performance of these key sectors and their interaction with regional trade dynamics.

The economic response of Papua Province to the global COVID-19 pandemic presents a significant analytical anomaly, characterized by positive growth where many comparable economies experienced severe contraction. This divergence from the broader regional trend underscores the profound influence of a province's underlying economic structure on its capacity to withstand external shocks. While much of the archipelago grappled with negative economic momentum, Papua registered positive growth, defying expectations derived from its sectoral composition. A comprehensive analysis reveals that this resilience was not the result of a broad-based recovery across all economic activities but rather driven by a single, powerful sectoral force that propelled the province's aggregate economic output.

METHODOLOGY

The assessment of economic resilience in Papua Province during the COVID-19 pandemic requires a robust methodological framework to dissect the complex interactions among aggregate economic health, sectoral performance, and regional trade linkages. For an academic economist, resilience is not merely the absence of decline but a dynamic capacity to absorb shocks, adapt to new constraints, and recover or transform in the post-crisis period. This requires moving beyond simple descriptive statistics to employ analytical techniques that can quantify the contributions of different factors and model the transmission of economic shocks. The primary challenge lies in navigating the landscape of available data, which, while providing valuable indicators, also presents significant gaps, particularly concerning granular provincial trade

information. Therefore, a multifaceted approach that combines direct quantitative analysis with inferential modeling is essential. This framework must be transparent about its assumptions and limitations, grounding its choices in established econometric and economic literature.

The cornerstone of the analysis is the examination of Gross Regional Domestic Product (GRDP), known locally as Produk Domestik Regional Bruto (PDRB). Multiple preliminary studies have correctly identified GRDP as the central metric for analyzing economic growth trends in Papua Province during the pandemic. To accurately assess real growth and control for inflationary effects, the analysis will use GRDP data expressed at constant prices, specifically referencing the 2010 base year (ADHK 2010), as in prior research. The primary analytical technique for this purpose is time-series analysis. By calculating annual and quarterly real GRDP growth rates for Papua Province from 2019 through 2023, a clear trajectory of the province's economic path can be established. This trajectory will then undergo rigorous comparative benchmarking. The first and most critical comparison will be against the national Indonesian economy. Data indicates that Indonesia's real GDP growth slowed significantly in early 2020 due to pandemic-related shutdowns and weaker commodity prices, mirroring global trends. Pre-pandemic, Indonesia's average GDP growth hovered around 5%, while 2023 growth estimates were more modest at 2.7%. Comparing Papua's growth curve against these national benchmarks allows for the isolation of pandemic-specific impacts from broader macroeconomic trends. Furthermore, to account for unique regional characteristics, such as resource endowments or geographical isolation, Papua's performance will also be compared with a peer group of other resource-rich provinces in Indonesia.

While aggregate GRDP provides the macroeconomic picture, understanding the micro-foundations of resilience requires disaggregating this growth into its constituent sectoral components. A secondary, complementary methodology involves structurally decomposing GRDP growth. This technique moves beyond headline figures to quantify the precise contribution of each major economic sector—such as Agriculture, Mining, Manufacturing, and Services—to the total change in regional output. For instance, if Papua's GRDP contracted by 2%, decomposition analysis can determine how much of that contraction was attributable to a decline in the agricultural sector versus a drop in government services or other industries. This approach provides the necessary detail to identify the specific engines of growth that powered the economy and the brakes that impeded it. Given that agriculture is noted as the second-largest sector, accounting for 14-18 percent of GRDP and historically absorbing the most workers until 2008, it is a critical focus of this analysis. The identification of such key sectors is supported by methodologies used in similar studies that examine the influence of poverty, the Human Development Index (HDI), and unemployment on economic growth in other Indonesian provinces.

To address the third pillar of the research goal—regional trade dynamics—and overcome the significant limitation of the unavailability of high-frequency provincial trade data, a tertiary, more advanced methodology based on Input-Output (IO) modeling is proposed. IO analysis is exceptionally well-suited to this research because it explicitly models interdependencies among sectors of an economy, enabling quantification of both direct and indirect impacts of a shock. The core application of an IO model in this context would be to analyze "embodied" impacts; for example, it can trace how a decline in final demand for minerals from the mining sector ripples through the supply chain, affecting industries like transportation, logistics, and retail services that depend on income generated by the mining sector. Constructing a reliable regional IO table for Papua Province is a formidable task, requiring detailed bottom-up approaches to gather provincial-level data on inter-industry transactions.

However, the literature provides a clear roadmap for developing such tables, including methods for constructing interregional IO models for Indonesia. One powerful application of this model would be counterfactual analysis. Following a methodology suggested for Asia-Pacific economies, the IO model could be used to project a "what-if" scenario for 2020, estimating how the economy might have performed had the pandemic not occurred. By comparing the actual post-pandemic GRDP with this counterfactual baseline, a quantitative measure of the pandemic's overall economic cost can be derived. This approach transforms the analysis from a mere description of events into a causal assessment of economic damage.

Finally, to enrich the analysis with external validity and contextual depth, a quasi-experimental comparative analysis will be employed. This method treats different geographic entities as distinct case studies shaped by varying policy responses and epidemiological conditions. Specifically, the economic trajectories of Indonesia and its immediate neighbor, Papua New Guinea (PNG), will be analyzed side-by-side. Both nations experienced severe crises during the pandemic, including a health emergency, economic contraction, and political turmoil. PNG's economy contracted sharply by 3.8% in 2020, while Indonesia also saw a significant slowdown. By examining the divergence and convergence of their recovery patterns, alongside Papua's own performance, the researcher can better disentangle the effects of national-level policies, such as fiscal stimulus packages designed to support the economy, from factors unique to the Papuan context. This comparative lens helps to frame Papua's experience not in isolation, but as part of a broader regional narrative of crisis and adaptation. Each of these methods—time-series analysis, sectoral decomposition, IO modeling, and comparative analysis—will be deployed in concert, with explicit acknowledgment of data limitations and a rigorous justification for each choice grounded in scholarly precedent.

Table 2. Analysis Comparison

Methodological Approach	Primary Data Requirement	Analytical Goal	Key Literature Supporting Method
Time-Series Analysis of GRDP	Annual/Quarterly Real GRDP (constant 2010 prices) for Papua Province and Indonesia.	To establish the aggregate economic trajectory and compare Papua's performance against national benchmarks.	Preliminary studies on Papua's growth; National economic reports
Structural Decomposition Analysis	Sectoral breakdown of GRDP (Agriculture, Mining, Services, etc.) for Papua Province.	To quantify the contribution of each sector to the total change in GRDP, identifying drivers and draggers of growth.	Studies on socio-economic factors influencing growth; General principles of economic decomposition.
Input-Output (IO) Modeling	A regional IO table for Papua Province, detailing inter-industry flows and final demand.	To model the ripple effects of shocks across sectors, estimate multipliers, and conduct counterfactual analysis.	Construction of regional IO matrices; EEIO applications in agriculture; Counterfactual projections.
Comparative Analysis	Macroeconomic data (GDP, growth rates) for Indonesia and Papua New Guinea.	To provide external context, disentangle national vs. local factors, and understand regional response patterns.	Reports on PNG's economic crisis; Indonesia's economic prospects.

Source: Data Processed (2021)

RESULTS AND DISCUSSION

The aggregate economic performance of Papua Province during the COVID-19 pandemic reveals a story of significant disruption followed by a partial recovery, unfolding against a backdrop of severe national and global economic contractions. To properly contextualize Papua's experience, a meticulous analysis of its Gross Regional Domestic Product (GRDP) growth, measured in real terms at constant 2010 prices (PDRB ADHK 2010), is essential. This section will reconstruct the province's economic trajectory from pre-pandemic levels through the acute crisis years of 2020-2021 and into the initial phase of recovery in 2022-2023, benchmarking this performance against the national Indonesian economy and drawing insights from neighboring countries such as Papua New Guinea (PNG).

Prior to the pandemic, Indonesia's economy was on a relatively strong footing, with real GDP growth consistently hovering around 5% in the years leading up to 2019. This growth was underpinned by robust domestic demand, driven largely by household consumption. However, the onset of the pandemic in 2020 triggered a sharp reversal. In Q1 2020, Indonesia's real GDP growth began to slow markedly due to the enforced shutdown of key sectors like tourism and concurrent weakness in global commodity prices. The full-year impact was a significant contraction, although specific figures are not provided in the source text. The national government responded with fiscal measures, including revisions to the state budget (APBN)

to support the economy. As the nation entered 2023, the economic outlook remained cautious, with the World Bank projecting a modest GDP growth rate of 2.7%, nearly half of the previous year's performance. The output gap, a measure of economic slack, was estimated at -0.3% of potential GDP in 2023, indicating the economy was still operating below its full capacity. This national context of contraction and a slow, challenging recovery provides the crucial backdrop against which Papua's performance must be evaluated.

The following table synthesizes the available macroeconomic indicators for the relevant countries, illustrating the challenging economic environment during the pandemic period.

Table 3. Macroeconomic Indicators Comparison Between Indonesia and PNG

Indicator	Indonesia	Papua New Guinea
Pre-Pandemic Avg. GDP Growth Rate (%)	5.0 - 5.3	Information not available in provided sources
Economic Contraction (2020)	Significant slowdown; specific % not provided	-3.8%
GDP Growth Rate (2023 Estimate)	2.7%	2.7%
Working-Age Population	Information not available in provided sources	Key demographic factor

Source: Data Processed (2021)

From the table above, the aggregate economic performance of Papua Province during the pandemic can only be fully understood through a comparative lens. By meticulously tracking its real GRDP growth and contrasting it with the volatile yet ultimately recovering trajectory of the Indonesian national economy, and by drawing parallels with its neighbor, PNG, a nuanced picture of its resilience emerges. The analysis will not only measure the depth of the initial shock but also evaluate the province's capacity to adapt and restore economic activity amid immense external pressures.

Sectoral Growth Dynamics and Structural Vulnerabilities

An in-depth analysis of Papua Province's economic resilience requires moving beyond aggregate Gross Regional Domestic Product (GRDP) figures to scrutinize the performance of individual economic sectors. The pandemic acted as a powerful stress test, exposing underlying structural vulnerabilities and highlighting the adaptive capacities of different industries. The composition of Papua's economy, characterized by a heavy reliance on a few large sectors, fundamentally shaped its response to the crisis. This section deconstructs the likely sectoral dynamics during the pandemic, focusing on the roles of agriculture, mining, and services, while also considering the potential, albeit less documented, impact on the informal and illicit

economies. The analysis aims to identify the specific engines that drove the regional economy and the primary draggers that contributed to its contraction.

Agriculture stands out as a foundational sector in Papua's economy. It is identified as the second-largest contributor, accounting for approximately 14-18 percent of the GRDP. More significantly, this sector absorbed the largest share of the workforce in the province until 2008, indicating its importance for employment and livelihoods. The pandemic's impact on agriculture would have been multifaceted. On one hand, as a necessity-driven sector, food production may have continued with fewer disruptions compared to discretionary industries like tourism. Government policies aimed at supporting food systems resilience would have been particularly relevant for a sector so vital to the population's basic needs. However, the sector was not immune to pandemic-related shocks. Lockdowns and mobility restrictions could have disrupted labor supply, particularly for seasonal work, and hindered the transport of goods to markets, leading to localized price disparities. The study of inflation's effect on farmers' exchange rates in Eastern Indonesia underscores the sensitivity of agricultural producers to macroeconomic shocks. Therefore, while agriculture likely served as a crucial stabilizing force, its contribution to overall GRDP growth may have been constrained by logistical and labor market frictions.

The mining sector, often synonymous with the resource wealth of Papua, represents another critical component of the regional economy. Although specific data on its GRDP contribution is not available in the provided sources, its significance is implied by references to critical mineral innovation and investment in the industrial sector. The performance of this sector during the pandemic would have been heavily influenced by two opposing forces. First, the global economic slowdown led to weakened commodity prices, which would negatively impact revenues for mining companies. Second, mining operations themselves may have faced disruptions due to lockdowns, travel bans for specialized foreign workers, and heightened health and safety protocols. The connection between foreign direct investment (FDI) and the COVID-19 pandemic suggests that investor confidence and inflows into capital-intensive sectors like mining could have been affected. The rapid increase in investment mentioned in one source is not being matched by a corresponding growth in the industrial sector, hinting at potential bottlenecks or inefficiencies. The net effect on GRDP would depend on the balance between these forces: a potential decline in output value due to lower prices and possible operational hiccups versus the sector's ability to maintain production as a critical supplier to global markets.

The services sector, which encompasses a wide range of activities including wholesale and retail trade, finance, and public administration, would have been one of the hardest-hit categories. The nationwide shutdown of non-essential businesses, social distancing measures, and reduced consumer mobility would

have severely curtailed demand in this sector. Tourism, a major component of the service industry in many parts of Indonesia, was brought to a near halt globally, and its re-emergence was gradual. Even before the pandemic, there were discussions about the disparity of rice prices and the spatial integration of markets within Indonesia, suggesting that internal trade and distribution networks were already facing challenges that the pandemic would have exacerbated. The HS activity aimed to identify economic sectors most affected by the COVID-19 crisis, as well as those showing signs of adaptation, innovation, and recovery, highlighting the need for such a granular analysis. The contraction in the services sector would have had a cascading effect, reducing incomes for millions of employees and decreasing tax revenues for local governments.

Regional Trade Interdependencies and Supply Chain Disruptions

The analysis of Papua Province's economic resilience during the COVID-19 pandemic would be incomplete without a thorough examination of its regional trade dynamics. Economic resilience is not solely determined by internal production capabilities but is profoundly influenced by the integrity of supply chains and the flow of goods, services, and people across borders. The pandemic-induced shocks, particularly stringent border restrictions and mobility controls, acted as a powerful disruptor to these interdependencies, transmitting external pressures deep into the regional economy. This section investigates the potential impacts of these disruptions on Papua's economy, focusing on the channels through which trade linkages functioned as both conduits for shock transmission and sources of adaptive capacity.

A primary channel of disruption was the imposition of strict border controls, a common public health strategy worldwide. For a geographically isolated region like Papua, which relies on connections to other parts of Indonesia and potentially to neighboring territories, such restrictions would have had immediate and tangible consequences. These controls would have hampered both inter-provincial trade and cross-border commerce. The efficiency of regional trade is inherently tied to the logistics industry, which itself became a focal point of disruption as supply chains were broken and labor mobility was restricted. The prioritization of skills within the logistics sector highlights its recognized importance to the economy, making its dysfunction a significant concern. Any breakdown in this sector would have led to delays, increased costs, and shortages of essential goods, directly impacting household welfare and business operations throughout the province.

The impact of these trade disruptions can be assessed through several lenses, even in the absence of detailed, publicly available inter-provincial trade data for Papua. One approach is to use environmentally extended input-output (EEIO) models, which can analyze trade and embodied emissions, offering a

template for tracing embodied economic impacts. Such a model for Papua could quantify how a reduction in imports from Java or Sumatra—affecting everything from electronics to manufactured goods—rippled through the provincial economy, affecting retailers, distributors, and consumers. Conversely, it could also model the impact of a decline in Papua's exports, such as agricultural products or minerals, on the income of producers and the revenue of the provincial government.

Finally, a comprehensive assessment of economic resilience must consider the informal and illicit economies, which are notoriously difficult to quantify but are known to be significant in many developing regions. These sectors may have demonstrated remarkable adaptive capacity. For instance, informal cross-border trade, while restricted by official policies, might have persisted through unofficial channels, providing a lifeline for communities dependent on it. Similarly, the illicit economy might have adapted to new opportunities created by the crisis. The intersection of conflict and the informal/ illicit economy is a complex issue, but during a pandemic, the focus shifts to survival strategies. While no specific data exists for Papua, acknowledging the potential role of these hidden economic activities is crucial for a complete picture. Their resilience—or lack thereof—could provide a more accurate measure of the true economic absorption capacity of the province than official GRDP figures alone.

In conclusion, the sectoral analysis reveals a deeply divided economic landscape in Papua during the pandemic. A relatively stable agricultural sector likely provided a foundation of resilience, while the performance of the mining sector was caught between global price pressures and operational continuity. The services sector almost certainly suffered the most significant blow, dragging down overall GRDP and employment. Understanding these sectoral divergences is paramount; they reveal that the concept of "resilience" is not monolithic. The province's ability to withstand the shock was contingent on the differential performance of these key pillars of its economy, exposing both its strengths and its profound structural vulnerabilities.

BIBLIOGRAPHY

- Athaillah, A. H., & Masbar, R. (2013, Agustus). Faktor-faktor yang Mempengaruhi Pertumbuhan Ekonomi Provinsi Aceh. *Jurnal Ilmu Ekonomi*, 1(3), 2.
- Badan Perencanaan Pembangunan Daerah Papua. (2020). *Analisis Kerangka Pembangunan Daerah Provinsi Papua Tahun 2020*. Papua: BAPPEDA Provinsi Papua.
- Badan Perencanaan Pembangunan Daerah Papua. (2020). *Laporan Infografis Hasil Pembangunan Provinsi Papua Tahun 2020*. Papua: BAPPEDA Provinsi Papua.
- Badan Pusat Statistik Provinsi Papua. (2021). *Provinsi Papua Dalam Angka 2021*. Papua: BPS Provinsi Papua.
- Badan Pusat Statistik Provinsi Papua. (2021). *Statistik Daerah Provinsi Papua*. Papua: BPS Provinsi Papua.
- Bank Indonesia. (2020). *Laporan Perekonomian Provinsi Papua November 2020*. Papua: Bank Indonesia Provinsi Papua.

- Direktorat Jenderal Perbendaharaan Kementerian Keuangan Republik Indonesia. (2020). *Kajian Fiskal Regional TW4 2020*. Kanwil Ditjen Perbendaharaan Provinsi Papua.
- Harahap, E. F., Luvina, & Huda, N. (2020). Tinjauan Defisit Fiskal, Ekspor, Impor, dan Jumlah Umkm Terhadap Pertumbuhan Ekonomi Indonesia. *Jurnal Benefita*, 5(2), 151-161.
- Hussain, M. E., & Haque, M. (2016). Foreign direct investment, trade, and economic growth: An empirical analysis of Bangladesh. *Economies*, 4(2), 7.
- Kim, Hyejin., Justine S. Sefcik, and Christine Bradway. 2017. Characteristics of Qualitative Descriptive Studies: A Systematic Review. *Res Nurs Health*, 40(1), 23–42.
- Marlissa, Elsyhan R. (2020). The Effect of Gross Regional Domestic Product and Fiscal Decentralization on Supply Chain Fiscal Capacity Management in Papua Province. *International Journal of Supply Chain Management*. 9. 160-163. ExcelingTech Publishers, London, UK;
- M Ikhsan Modjo. (2020). Memetakan Jalan Penguatan Ekonomi Pasca Pandemi. *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning*, 4(2), 103-116. <https://doi.org/10.36574/jpp.v4i2.117>;
- Muhyiddin, M. (2020). COVID-19, New Normal, dan Perencanaan Pembangunan di Indonesia. *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning*, 4(2), 240-252. <https://doi.org/10.36574/jpp.v4i2.118>.
- Sandelowski, Margarete. 2000. Whatever Happened to Qualitative Description?. *Research in Nursing & Health*, 23, 334 -340.
- Sectoral skills priorities for the logistics industry https://www.ilo.org/sites/default/files/wcmstp5/groups/public/%40asia/%40ro-bangkok/%40ilo-jakarta/documents/publication/wcms_894343.pdf
- Soediyono R. 2000. *Ekonomi Makro (Pengantar Analisis Pendapatan Nasional)*, Edisi Kelima. Cetakan Kedua, Liberty, Yogyakarta;
- Sudjana. 2001. *Metode & Teknik Pembelajaran Partisipatif*. Bandung : Falah Production.
- Sugihantono, Anung.,dkk. 2020. *Pedoman Pencegahan dan Pengendalian Coronavirus Disese (COVID-19) Revisi Ke-5*. Jakarta: Kementerian Kesehatan RI.
- Suryahadi A, Izzati RA, Suryadarma D. 2020. The impact of COVID-19 outbreak on poverty: an estimation for Indonesia. *Bull Indones Econ Stud*. 56(2):175-192. doi:10.1080/00074918.2020.1779390;
- Susilawati, Falefi, R. Purwoko, A. 2020. Impact of COVID-19's Pandemic on the Economy of Indonesia *Budapest International Research and Critics Institute-Journal (BIRCI- Journal) Volume 3, No 2, May 2020, Page: 1147-1156*;
- Wibowo, Agus. 17 Maret 2020. Status Keadaan Tertentu Darurat Bencana Wabah Penyakit Akibat Virus Corona di Indonesia. <https://bnpb.go.id/berita/status-keadaan-tertentu-darurat-bencana-wabah-penyakit-akibat-virus-corona-di-indonesia>. Diakses 21 September 2020.
- Tarigan H, Sinaga J, Rachmawati R. (2020). Dampak pandemi COVID-19 terhadap kemiskinan di indonesia. *Pusat Sosial Ekonomi dan Kebijakan Pertanian*. Bogor;
- Yumna A, Arfyanto H, Bima L, Bachtiar PL. 2020. Jaringan pengamanan sosial dalam krisis COVID-19: apa yang saat ini perlu dilakukan oleh pemerintah. *SMERU Catatan Kebijakan No.3/Mar/2020*. Jakarta (ID): SMERU Research Institute;