# Growth, Inequality, and Poverty Reduction in Indonesia


## Abstract

Poverty and inequality remain persistent challenges in Indonesia, despite significant progress in economic growth and development. While the country has made remarkable strides in reducing poverty rates, inequality remains high, and the impact of economic growth on the poor is often uneven. This article aims to analyse the relationship between economic development, government policies, and the well-being of the poor, focusing on Indonesia's poverty and inequality trends. By examining infrastructure development policies, social protection policies, food security policies, the diffusion of digitalization and climate-resilient policies, this study explores how these factors intersect with poverty alleviation strategies.

Using literature review on various time-series analysis studies on poverty and inequality statistics, we assess the effectiveness of various government programs targeting poverty reduction, such as social protection initiatives, education policies, and agricultural development. Additionally, we analyse the role of export-orientation in improving worker incomes and the importance of food security to reduce dependence on imports. The relationship between GDP per capita and poverty incidence is also examined, with a focus on how economic growth translates into poverty reduction for marginalized populations.

This review further emphasizing the role of digital transformation and climate resilience in addressing the needs of the poor. Finally, the research investigates the implications of smart technologies and the importance of inclusive economic policies for long-term poverty reduction.

The findings highlight the need for a comprehensive approach to poverty alleviation that integrates economic, social, and environmental factors. This article concludes with policy recommendations aimed at fostering inclusive growth, improving labour productivity, and ensuring the long-term sustainability of poverty reduction efforts.


## Introduction

Indonesia, the largest economy in Southeast Asia, has made substantial progress in addressing poverty over the past few decades. According to Indonesia's Central Bureau of Statistics (BPS), poverty rates have steadily decreased over the past decades, from around 24% in 1999 to approximately 8.75% in September 2024 or the equivalent of 24.6 million people as can be seen in Diagram 1. This is a decrease of 0.17% compared to September 2021. The basis of the BPS calculation is to use the national poverty line based on expenditure, which is around IDR 595.242 rupiah (USD 39.35) per capita per month. This improvement reflects the country's impressive economic growth, driven by sectors such as manufacturing, agriculture, and services. Despite this, around 24.06 million people still live below the national poverty line, which represents a significant proportion of the population in a country with more than 270 million people. Poverty

is particularly concentrated in rural areas, where people depend heavily on agriculture, an industry that faces challenges like climate change, limited access to markets, and the underdevelopment of infrastructure. The significance of addressing poverty and inequality cannot be overstated. Poverty not only affects the well-being of individuals but also hinders the broader economic and social development of the country. Inequality exacerbates social tensions and hampers the potential for inclusive growth, limiting access to education, healthcare, and economic opportunities for large segments of the population.

Economic growth is often cited as one of the primary mechanisms for poverty reduction. Theoretical models, such as the "inverted U" curve, suggest that as economies grow, income inequality first increases and then decreases after reaching a certain threshold. In Indonesia, this has been evident as the rapid economic growth of the early 2000s led to initial increases in income disparity, but as the country reached higher stages of industrialization and services-based economic growth, poverty levels started to reduce.

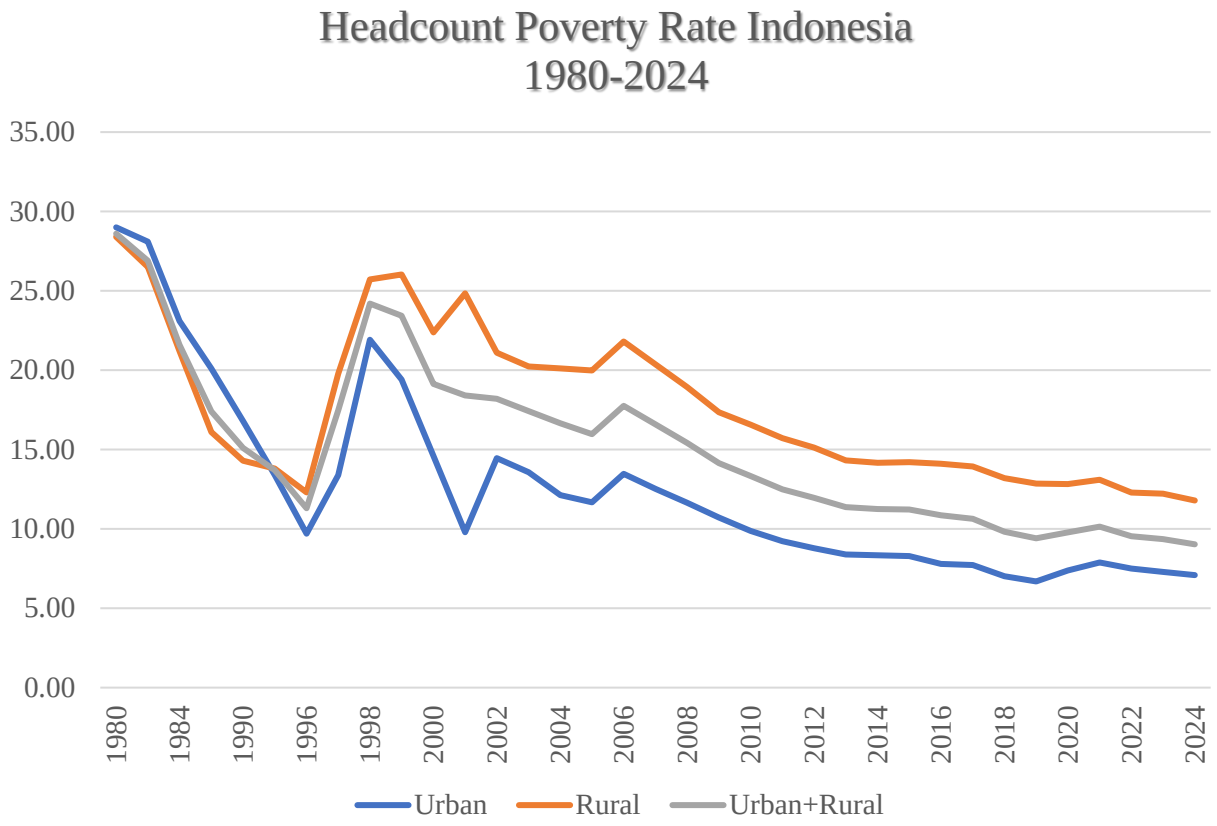
However, this trend is not uniform across all sectors. In urban areas, rapid industrialization and the expansion of the services sector have led to improved incomes, while rural areas have seen slower progress. The shift from agriculture to manufacturing and services in urban centres, coupled with improvements in education and healthcare, has played a crucial role in poverty reduction.

Indonesia's poverty landscape is shaped by various structural factors, including geographic disparities, low labour productivity, limited access to education, and the vulnerability of rural populations. While the country has experienced periods of robust economic growth, the benefits of such growth have not been evenly distributed. Inequality in Indonesia is a critical issue, as reflected by the country's Gini coefficient, which has hovered around 0.39 in recent years, indicating a moderate to high level of income inequality. The rural-urban divide is also stark, with poverty rates significantly higher in rural areas, where access to services and infrastructure is limited.

Several factors have historically contributed to high poverty rates in Indonesia. These include an over-reliance on agriculture, limited industrialization in rural areas, and unequal access to education. The Asian financial crisis of 1997-98 significantly reversed poverty reduction efforts, as millions of people were pushed below the poverty line. In recent years, however, the Indonesian economy has largely rebounded, though poverty levels remain stubbornly high in certain regions, particularly in Eastern Indonesia.

According to BPS data, Indonesia has made notable progress in reducing both absolute and relative poverty. In the early 1990s, the poverty rate was much higher, but the rapid industrialization and economic liberalization since the mid-1990s helped to reduce poverty by improving income levels and employment opportunities in urban areas. However, the relative poverty rate, which compares income levels across the population, has been more difficult to reduce, reflecting growing income inequality.

**Diagram 1: Headcount Poverty Rate Indonesia 1980-2024**




The government of Indonesia has implemented numerous policies over the years to reduce poverty and inequality. These policies range from social protection programs such as conditional cash transfers (Program Keluarga Harapan, or PKH) to broader initiatives aimed at boosting economic growth, such as infrastructure development, agricultural modernization, and investment in education. However, the efficacy of these policies in reaching the most marginalized populations remains a subject of debate. For instance, while social protection programs have been successful in lifting millions out of poverty, they have often struggled to address the root causes of inequality, such as access to quality education, healthcare, and economic opportunities.

Economic development is often seen as the primary vehicle for poverty alleviation. Theories of economic growth, such as the Kuznets curve, posit that as economies grow, income inequality initially worsens but later improves as a result of higher wages and more equitable distribution of wealth. In the context of Indonesia, this theory suggests that economic growth may have led to increased inequality in the early stages but could eventually lead to a more equitable distribution of wealth in the long term. However, the real-world application of this theory is more complex, as Indonesia's economic growth has not always been accompanied by significant reductions in inequality. Indonesia's GDP per capita has grown steadily over the past few decades, reflecting an expanding economy driven by exports, manufacturing, and services. However, the benefits of this growth have not been equally distributed across regions or income groups. The disparity

between urban and rural areas, as well as between different provinces, remains a significant challenge. While the capital city, Jakarta, and other major urban centers have seen considerable improvements in living standards, many rural areas continue to face high levels of poverty and limited economic opportunities.

As for policy implication, the public policy is crucial. Investment in infrastructure, education, and healthcare significantly reduces inequality. Effective social assistance balances growth and equity. The promoting of inclusive growth is also important in which digital economy and SMEs should be strengthened to ensure equitable growth, informal sector workers need better protection and also the need of preparing for Technological and Climate Disruptions. The Fourth Industrial Revolution increases productivity but may widen inequality if skills gaps persist. Climate change affects agriculture and fisheries, requiring adaptive policies.

Is Indonesia's redistribution policy effective in reducing inequality? In terms of Conditional cash transfers (PKH, BLT), it improved access to education and healthcare, KIS (Health card) & KIP(Education Card) enhanced basic services for low-income groups, Village funds accelerated development in remote areas.

But the challenges are subsidy inefficiencies e.g., fuel subsidies benefit the middle class more than the poor. Low tax-to-GDP ratio (~9–10%) limits redistribution efforts and asset and capital concentration remains high, limiting upward mobility. In conclusion, redistribution helps but is insufficient. More progressive taxation and asset redistribution are needed. So how can progressive taxation address inequality in Indonesia? Among the Potential Benefits is the Reduces of wealth gaps by funding social programs, increases government revenue for redistribution, curbs of excessive wealth concentration. The implementation challenges includes, low tax compliance. Only 1% of Indonesians pay significant income tax. The tax loopholes. The wealthy evade taxes through offshore accounts. And heavy reliance on VAT which burdens low-income households more. The author recommendations is to increase tax rates for ultra-high earners, reform property taxation for fairness and Strengthen transparency and enforcement.

Will digitalization reduce or worsen inequality in the future? It can reduce inequality if internet and technology access become more widespread, digital platforms (e-commerce, fintech) empower SMEs and the poor, E-government improves social welfare distribution. But it may worsen inequality if digital divide remains high (only ~62% have stable internet access), automation replaces low-skilled jobs and tech monopolies dominate markets, benefiting large corporations. The author recommends to expand digital access and skills training, regulate platform monopolies for fairer competition and strengthen protections for gig economy workers.

Indonesia's inequality follows an Inverted U-Curve but it driven by structural changes in the economy. While recent policies have helped stabilize inequality, more inclusive strategies are needed to sustain equitable growth.

One of the most pressing concerns in the fight against poverty is the relationship between economic growth and the creation of quality jobs. The majority of the poor in Indonesia are employed in informal or low-wage sectors, where job security and benefits are limited. Furthermore, workers in rural areas often face challenges related to low productivity, lack of access to technology, and

inadequate education and skills training. In this regard, government policies aimed at improving labor productivity, expanding access to education and healthcare, and providing targeted support for small businesses are critical for ensuring that economic growth translates into meaningful poverty reduction.

Human capital, the skills, education, and health of the population plays a crucial role in driving economic growth and reducing poverty. Scholars like Amartya Sen and Megnad Desai have emphasized the importance of human development in understanding poverty. Sen's concept of "development as freedom" highlights the idea that true development goes beyond economic growth and must involve expanding individuals' capabilities to lead lives they value. For Indonesia, this perspective underscores the importance of investing in education, healthcare, and social services to ensure that all citizens have the opportunity to improve their well-being.

Human capital is also closely linked to the issue of labor productivity. According to traditional measures, labor productivity is often used as an indicator of economic development, but its relationship with poverty is more complex. Improving labor productivity, particularly in rural areas, can lead to higher incomes and better living standards for the poor. However, for this to happen, it is essential to equip workers with the skills and tools necessary to adapt to changing economic conditions, including digitalization and climate resilience.

In addition to economic growth, human development, digitalization, export oriented growth, climate resilience has become an increasingly important factor in poverty reduction. Indonesia is highly vulnerable to climate change, particularly in rural areas where agriculture is the main source of livelihood. Climate change exacerbates food insecurity, natural disasters, and environmental degradation, all of which disproportionately affect the poor. As such, policies aimed at promoting climate resilience, such as sustainable agricultural practices and disaster risk management, are essential for addressing the long-term challenges faced by poor communities.

Digitalization is another key area where Indonesia has made significant strides. The proliferation of digital technologies, such as mobile phones, internet access, and e-commerce platforms, has created new opportunities for the poor to access services, information, and economic opportunities. However, the digital divide remains a major barrier, particularly in rural areas where access to technology is limited. Government initiatives aimed at expanding digital infrastructure and promoting digital literacy are essential for ensuring that the benefits of digitalization are equitably distributed.

Poverty has declined quickly in response to accelerated economic growth. However, inequality has risen significantly for much of the past quarter century. As a result, poverty has become less responsive to growth, which has slowed since the late 1990s. The government has also begun to establish a rudimentary social welfare net, but in other respects, the effects of various policy interventions have been mixed.

This article aims to provide a comprehensive analysis of poverty and inequality in Indonesia, focusing on the role of economic development, the relationship between GDP per capita and

poverty incidence, government policies, human development, food securities, export orientation industries, digitalization, and climate resilience in poverty reduction. The motivation for studying this topic is straightforward. As Nobel Laureate Angus Deaton (2013, 23) put it, "the greatest escape in human history is the escape from poverty and death." Yet, as one of the world's leading poverty analysts lamented, "the teaching of economics seems to have become strangely divorced from its applications to real world problems such as poverty" (Ravallion 2016, xxiii).

Studies by economists such as Dollar and Kraay (2002) suggest that economic growth generally benefits the poor. In Indonesia, the growth of the manufacturing and services sectors in urban areas has led to increased job creation and wage growth. However, rural poverty has been slower to decrease, as agriculture remains underdeveloped and vulnerable to external shocks, such as climate change and market fluctuations.

By analysing time-series data on poverty and inequality, reviewing existing research, and considering the policy implications of these research findings, this article aims to evaluate the effectiveness of policies implemented by the Indonesian government and to offer practical recommendations for reducing poverty in Indonesia. The policy recommendations will contribute to a better understanding of the complex relationship between economic growth, human development, digitalization, food security and climate resilience provide insights into how Indonesia can build a more inclusive and sustainable economy.

## General And Specific Government Policies On Poverty

The Indonesian government has implemented a variety of policies aimed at reducing poverty and inequality, targeting both structural issues and immediate relief for disadvantaged communities. These policies are rooted in the government's broader development agenda, which seeks to promote inclusive economic growth and social welfare. These policies can be categorized into four main areas: social assistance programs, economic empowerment initiatives, education and healthcare improvements, infrastructure development and sector-specific policies, each of which plays a role in poverty alleviation.

### Social Protection Programs

One of the most notable government interventions in poverty alleviation is the establishment of social protection programs. Programs such as the *Program Keluarga Harapan* (PKH), which provides conditional cash transfers to low-income families, have been instrumental in improving the welfare of the poorest segments of society. The PKH program, introduced in 2007, targets families living in poverty and aims to improve their living standards through direct financial assistance, conditional on investments in health and education (Kusuma & Aryati, 2018). Evaluations of the PKH program have shown that it has successfully reduced poverty rates by providing immediate support while encouraging long-term investment in human capital (Aisyah, 2020). In 2023, PKH reached over 10 million beneficiary families, improving access to education and healthcare for children from low-income households. However, the impact of such programs

on inequality remains contentious, as they are often not enough to address the structural causes of inequality, such as unequal access to education and job opportunities (Purnomo & Oktaviani, 2021).

**Table 1. Constrain and Solution Social Protection Program**

| Constraints | Solutions |
|---|---|
| **Targeting Errors & Data Inaccuracy** – Many beneficiaries are wrongly included/excluded due to outdated DTKS (Integrated Social Welfare Data). | **Improve Data Accuracy** – Update DTKS regularly using AI, big data, and real-time digital systems. Ensure cross-checking between local and central governments. It is also propose to transfer the BLT or cash directly to the bank account of the low income recepient based on their National Identification Number (NIK) |
| **Leakage & Corruption** – Cases of fund mismanagement and fraudulent claims. | **Enhance Transparency & Monitoring** – Implement blockchain-based distribution for social aid and increase independent audits. |
| **Dependency on Aid** – Some recipients rely on aid instead of working. | **Encourage Economic Independence** – Link aid programs with vocational training and entrepreneurship support. |

Other notable programs include the *Bantuan Pangan Non-Tunai* (BPNT) or non-cash food assistance, aimed at improving food security for low-income families. Provides electronic food vouchers for purchasing basic necessities such as rice and eggs. This helps low-income families meet their nutritional needs while also boosting local food markets. In 2022, BPNT benefited over 18 million households, ensuring food security for disadvantaged communities.

The third program is Bantuan Langsung Tunai (BLT). It is an unconditional cash transfers given during economic crises, such as during the COVID-19 pandemic, to help poor families cope with financial difficulties. During the COVID-19 crisis, BLT was distributed to millions of households to counter economic shocks and maintain household consumption.

The government regulations supporting the abovementioned programs are Regulations Law No. 13/2011 on Handling of the Poor-Establishes social assistance programs, Presidential Regulation No. 63/2017 on Distribution of Social Assistance that Regulates data accuracy and targeting mechanisms and Ministry of Social Affairs Regulation No. 1/2018 that governs Program Keluarga Harapan (PKH) and Bantuan Pangan Non-Tunai (BPNT).

The latest updated program “Makan Bergizi Gratis (MBG)” or Free Meals Program is a significant initiative by the Indonesian government aimed at combating malnutrition and reducing poverty. Launched in January 2025 under President Prabowo Subianto's administration, the program intends to provide free nutritious meals to children and pregnant women of approximately 83 million people across the country. An average meal is expected to cost Rp10,000 per day, and the total $28bn cost is expected to include setting up the kitchens and other operational costs. Indonesia has budgeted Rp.107 trillion ($1.94bn) the programme,is set to be one of the largest global welfare programs. As comparison, the US National School Lunch Program (USD 18.7

billion) and India's Mid-Day Meal Scheme (USD 1.39 billion). The program operates under the auspices of the National Nutrition Agency, which oversees its implementation. The program's execution involves collaboration between various governmental bodies, including the National Economic Council (DEN). This council plays a pivotal role in monitoring and assessing the program's impact on economic growth and poverty alleviation.

**Economic Empowerment Initiatives**

These programs focus on increasing job opportunities and supporting micro, small, and medium enterprises (MSMEs). The programs includes, Kartu Prakerja (Pre-Employment Card Program). It is a workforce training program that provides cash incentives and access to online or offline vocational training for job seekers and informal workers. By 2023, more than 16 million participants had benefited from training in various sectors, increasing employability and entrepreneurial skills.

Other programs includes Ultra Micro Financing (UMi) and Kredit Usaha Rakyat (KUR). These government-backed microfinance programs provide low-interest loans to MSMEs to support business expansion and job creation. KUR disbursed over IDR 350 trillion in 2022 to MSMEs, boosting economic activity and financial inclusion for small entrepreneurs. And the last program is the Padat Karya Program (Labor-Intensive Public Works). Government projects that employ low-income individuals in rural areas for infrastructure and agricultural development. In 2021, this program provided jobs for more than 1.5 million workers in rural communities, reducing unemployment and increasing local incomes.

**Table 2. Constrain and Solution Economic Empowerment Initiative.**

| Constraints | Solutions |
|---|---|
| **Limited Access to Capital for MSMEs** – Many small businesses struggle to access **KUR loans** due to complex bureaucracy. | **Expand Financial Inclusion** – Simplify loan applications, allow alternative credit assessments (e.g., transaction history instead of collateral), and strengthen Islamic microfinance. Empowering KUR (People's Business Credit): Low-interest loans for MSMEs to boost entrepreneurship |
| **Mismatch Between Training and Job Market Needs** – Kartu Prakerja training is not always aligned with industry demands. | **Enhance Vocational Training Quality** – Partner with private companies to design job-relevant training. Focus on high-demand skills (e.g., digital economy, green jobs). |
| **Informal Sector Challenges** – Many workers lack formal employment benefits. | **Formalization Incentives** – Provide tax breaks and simplified registration for small businesses to encourage formalization. Expand **BPJS Ketenagakerjaan** for informal workers. |

The government regulations supporting the abovementioned programs are Regulations Law No. 20/2008 on MSMEs that Supports micro, small, and medium enterprises, Presidential Regulation No. 82/2016 on KUR (People's Business Credit) that governs subsidized loans for MSMEs and Presidential Regulation No. 36/2020 on Pre-Employment Card (Kartu Prakerja) that establishes skill training and incentives for job seekers.

**Education and Healthcare Improvements**

Policies in this category aim to ensure equal access to quality education and healthcare for all citizens. The programs includes Kartu Indonesia Pintar (KIP)-Smart Indonesia Card-A scholarship program that provides financial aid for students from poor families to continue their education. KIP benefited over 20 million students from elementary to university levels in 2023, preventing school dropouts due to financial constraints. Other program is Kartu Indonesia Sehat (KIS) - Universal Health Coverage. A government-subsidized health insurance program that provides free or low-cost medical services to low-income families. As of 2023, more than 96% of Indonesians were covered by the BPJS health insurance scheme, improving healthcare access for millions. And also the Stunting Prevention Programs which the government has implemented nutrition and maternal health initiatives to reduce stunting rates among children. By 2024, stunting prevalence was reduced from 27% (in 2019) to 14%, thanks to targeted interventions such as free vitamins and improved maternal healthcare.

**Table 3. Constrain and Solution Education and Healthcare Improvements**

| Constraints | Solutions |
|---|---|
| **Education Inequality Between Regions** – Rural areas lack qualified teachers and proper school infrastructure. | **Improve Education Access** – Offer financial incentives for teachers in remote areas. Expand internet subsidies for online learning. |
| **Health Service Gaps** – Overcrowded hospitals in cities, lack of healthcare professionals in rural areas. | **Strengthen Healthcare Infrastructure** – Deploy mobile health clinics in rural areas, partner with private hospitals to expand BPJS coverage. |
| **High Stunting Rates in Poor Regions** – Malnutrition remains a serious issue. | **Reduce Stunting Through Localized Programs** – Implement community-based nutrition initiatives. Provide cash incentives for maternal health care. |

The government regulations supporting the abovementioned programs are Regulations Law No. 20/2003 on National Education System that Guarantees free primary education, Law No. 24/2011 on BPJS Kesehatan that Regulates national health insurance, and Presidential Regulation No. 72/2021 on Stunting Reduction Acceleration that establishes programs to combat malnutrition.

## Infrastructure Development

Improving infrastructure helps reduce regional disparities and supports economic development in underdeveloped areas. The implementation of the program includes, Village Fund (Dana Desa) that allocates direct funding to villages for local economic development and infrastructure projects. Since 2015, over IDR 400 trillion has been distributed to villages, funding roads, irrigation, and community centers. The other program is the Affordable Housing Programs. It is the initiatives such as the Sejuta Rumah Program aim to provide affordable housing for low-income families. More than 1.2 million affordable housing units were constructed in 2023, improving living conditions for disadvantaged groups. Other program includes Expansion of Transportation Networks. This is the investments in roads, bridges, and public transportation to improve connectivity and access to economic opportunities. The construction of Trans-Java and Trans-Sumatra highways has enhanced trade and economic growth in previously isolated regions.

**Table 4. Constrain and Solution for Infrastructure Development**

| Constraints | Solutions |
|---|---|
| **Funding Limitations** – Infrastructure projects require massive investments that exceed government budgets. | **Diversify Funding Sources** – Expand Public-Private Partnerships (PPP) and issue infrastructure bonds to attract investment. |
| **Slow Project Implementation** – Bureaucracy and land acquisition disputes delay construction. | **Streamline Regulations** – Improve one-stop integrated services (PTSP) to speed up approvals. Introduce clearer land compensation policies. |
| **Unequal Development Distribution** – Java gets more infrastructure investment than Eastern Indonesia. | **Balance Regional Development** – Prioritize projects outside Java, increase special autonomy funds for underdeveloped regions like Papua. |

The implementation includes, Trans-Sumatra Toll Road that improves connectivity in Sumatra and New Capital City (IKN) to relocating the capital to Kalimantan to balance regional development.

## Economic Growth and Labor Market Policies

Economic growth, when harnessed properly, can create jobs, raise income levels, and reduce poverty. The Indonesian government has focused on various policies to stimulate economic growth, including investment in infrastructure, agricultural modernization, and industrialization. Infrastructure development has been central to these efforts, as it aims to connect underdeveloped regions to the national economy, fostering economic opportunities in previously isolated areas. The construction of roads, bridges, and energy infrastructure has been essential for creating markets for rural agricultural products, thereby raising income levels in rural communities (Indrawati, 2017).

The labor market is another critical area for poverty alleviation. With a large portion of the population employed in informal or low-wage sectors, the Indonesian government has implemented labor market reforms to promote formalization and improve worker protections (ILO,

2020). This includes expanding vocational training programs to improve the employability of youth and women, both of whom face higher levels of unemployment and underemployment (Suryahadi et al., 2019). Indonesia has recently implemented several labour market policies aimed at improving employment conditions, protecting workers' rights, and enhancing job matching efficiency. In 2023, the Indonesian government enacted Law No. 6 of 2023, which amended the previous Job Creation Law. Significant changes include Termination Entitlements, Notice of Termination Procedure, Outsourcing, Minimum Wage Calculation, Expatriate Employeee, Fixed-Term Employment, and Job Loss Security Program and in October 2024, Indonesia's Constitutional Court mandated revisions to certain labor regulations in response to petitions from workers' unions. Labor unions anticipate that these changes will lead to higher wages and improved working conditions in the coming years.

To enhance job matching and address unemployment, the Indonesian government introduced Presidential Regulation No. 57 of 2023 on Mandatory Reporting of Job Vacancies. This regulation establishes Mandatory Reporting, Labor Information System: A centralized online platform managed by the Ministry of Manpower where job vacancies are published, facilitating efficient matching between employers and job seekers, Reporting Details and Sanctions. This system aims to streamline job searches and placements, benefiting employers, job seekers, and government labour planning. These policy developments reflect Indonesia's efforts to balance economic growth with the protection of workers' rights and the enhancement of labour market efficiency.

**Digitalization and Climate Resilience in Government Policies**

The government has increasingly recognized the role of digital technologies in poverty alleviation. Digitalization opens new avenues for poor and marginalized communities including those in remote area to access services, participate in the economy, and improve their living standards. The government’s initiatives to build digital infrastructure and provide digital literacy training aim to close the digital divide that leaves rural and low-income households behind (Pratama, 2020). Furthermore, the government’s support for e-commerce and digital entrepreneurship has enabled small businesses in rural areas to access broader markets, thereby increasing income opportunities and reducing dependency on traditional agricultural activities (Aisyah, 2020).

However, digitalization also presents challenges, particularly regarding access to technology and digital literacy. While urban areas have benefited from digital innovations, rural populations often face barriers such as limited internet access, lack of digital literacy, and inadequate infrastructure (Suryahadi et al., 2019). To ensure that digitalization effectively reduces poverty, policies must focus on improving digital infrastructure and providing training for the poor to enhance their digital skills (Indrawati, 2017).

Indonesia has experienced a steady increase in internet penetration over recent years. Here's a summary of the available data:

**Table 5. Internet Penetration Rate 2018-2024**

| Year | Internet Penetration Rate |
|---|---|
| 2018 | 64.0% |
| 2021 | 62.10% |
| 2022 | 66.48% |
| 2023 | 78.1% |
| 2024 | 79.5% |

Source: BPS and Antara News

The data for 2021 and 2022, sourced from BPS-Statistics Indonesia, indicate a slight decrease in 2021 compared to 2018, followed by an increase in 2022. Overall, the trend shows a consistent rise in internet usage across the country. The overall trend indicates a growing adoption of internet services in Indonesia over the past several years.

The government has introduced several policies to enhance digital access and economic participation among low-income groups. Some key policies include National Digital Literacy Movement (GNLD Siberkreasi) aims to improve digital skills, particularly among marginalized communities, through training programs in digital literacy, cybersecurity, and entrepreneurship. Palapa Ring Project that Expands broadband access to remote areas to bridge the digital divide and provide internet access for education, health services, and e-commerce. Digital Financial Inclusion Programs that promotes mobile banking, e-wallets (e.g., Gopay, OVO, LinkAja), and digital payment systems to help rural populations access financial services without traditional banking infrastructure. Smart Villages Initiative that uses IoT, AI, and big data to enhance rural productivity, particularly in agriculture, by integrating smart irrigation systems, digital marketplaces, and online education.

The implementation of digitalization policies includes expansion of 4G and 5G networks to underserved areas, collaboration with private tech firms (e.g., Google, Microsoft) for digital education, and E-government services to simplify business licensing, social welfare distribution, and healthcare access.

The constraints in digitalization includes limited digital infrastructure. Many rural areas lack stable electricity and internet connectivity. Low Digital Literacy. Many low-income groups lack the necessary skills to fully utilize digital services. Affordability. Smartphones, internet subscriptions, and digital devices remain costly for the poorest populations. Cybersecurity Risks. Increased reliance on digital systems exposes vulnerable groups to fraud, data breaches, and misinformation.

Solutions for digitalization constraints includes public-private partnerships to expand digital infrastructure at a lower cost, subsidized internet programs for low-income households, strengthening cybersecurity policies and digital education in schools and community-based digital literacy workshops targeting older and less tech-savvy individuals.

Besides digitalization, climate resilience policies are becoming more prominent as the country faces increasing vulnerability to climate change, particularly in rural agricultural areas (Setiawan & Budiyono, 2020). The government has invested in sustainable farming techniques, disaster risk management, and adaptation strategies to help rural populations cope with environmental shocks.

The promotion of climate-resilient crops, water management systems, and disaster preparedness is crucial for ensuring that poverty alleviation efforts are sustainable in the face of climate challenges (Junaidi et al., 2021)

To enhance climate resilience, the government has launched policies focusing on agriculture, disaster risk reduction, and sustainable resource management such as National Action Plan on Climate Change Adaptation (RAN-API) which integrates climate adaptation into development planning, particularly in agriculture, infrastructure, and disaster response. Climate-Smart Agriculture (CSA) Program which promotes drought-resistant crops, precision farming, and organic farming techniques to protect farmers from climate shocks. Disaster Risk Reduction (DRR) Strategies which strengthens early warning systems, disaster shelters, and climate insurance schemes for vulnerable communities and Mangrove Restoration & Water Conservation Projects which helps protect coastal communities from rising sea levels and floods.

The implementation of Climate Resilience Policies includes adoption of AI-based weather prediction tools for farming, promotion of agroforestry and reforestation programs to enhance carbon sequestration and soil fertility, climate-resilient housing programs for flood-prone and disaster-prone regions and investment in decentralized renewable energy solutions (e.g., solar microgrids) for off-grid communities.

The constraints in Climate Resilience Policies includes limited funding. Climate adaptation projects require substantial financial investments, often exceeding available budgets. Lack of Coordination due to different government agencies often work in silos, delaying policy implementation. Resistance from Traditional Farmers due to some farmers are reluctant to adopt new techniques due to risk perception and high initial costs. Unpredictable Climate Variability that despite adaptation efforts, extreme weather events can still cause significant economic losses.

The solutions for Climate Resilience Constraints includes establishing green financing mechanisms such as climate bonds and carbon credits to attract private investment, strengthening inter-agency coordination through integrated policy frameworks, providing subsidies and incentives for farmers to adopt climate-smart agricultural practices and investing in community-based climate education to enhance awareness and preparedness.

Government policies on digitalization and climate resilience play a crucial role in poverty alleviation by providing economic opportunities and strengthening environmental sustainability. However, constraints such as infrastructure gaps, financial limitations, and lack of awareness must be addressed through collaborative efforts between the government, private sector, and local communities.

**Climate Resilience Policies And Poverty Reduction**

Climate change poses a significant threat to the poor in Indonesia, particularly in rural and agricultural communities that are highly vulnerable to environmental shocks. The government has recognized the need for climate-resilient policies that support sustainable livelihoods and reduce the vulnerability of the poor to climate risks. Climate-resilient policies focus on promoting sustainable agriculture, improving disaster preparedness, and enhancing water management. For

example, the government has invested in drought-resistant crops and improved irrigation systems to help farmers cope with climate-related challenges (Setiawan & Budiyono, 2020). Additionally, policies aimed at reducing deforestation and promoting reforestation have created new opportunities for communities to benefit from sustainable natural resource management (Junaidi et al., 2021).

The integration of climate resilience into poverty reduction strategies is critical for ensuring that the poor are not left behind in the face of climate change. However, the success of these policies depends on the ability to balance environmental sustainability with economic development, ensuring that the poorest communities can both adapt to climate change and improve their living standards.

Through presidential instruction, the government has issued a policy to eradicate extreme poverty in full in 2024. Indonesia has implemented several recent regulations and initiatives aimed at alleviating extreme poverty. Notable among these are, first, Presidential Instruction Number 4 of 2022 on Acceleration of Extreme Poverty Alleviation which issued on June 8, 2022, this instruction underscores the government's commitment to eradicating extreme poverty in 2024. It mandates ministries, institutions, and regional governments to synchronize programs, ensure accurate targeting, and foster community involvement in poverty reduction efforts. The key Directives includes Program Integration, Aligning initiatives across sectors to prevent overlaps and enhance efficiency, Community Participation by engaging local communities in designing and implementing poverty alleviation strategies. And targeted Interventions that Focusing resources on regions and populations most affected by extreme poverty. The implementation Challenges includes data accuracy by ensuring up-to-date and precise data to identify beneficiaries and inter-agency Coordination by facilitating seamless collaboration among various governmental bodies. The solutions proposed by the author is by first, enhancing data systems by developing robust mechanisms for real-time data collection and analysis and coordinated Frameworks by establishing clear protocols for inter-agency cooperation.

Second, fiscal incentives for regional governments. In August 2024, the government announced fiscal incentives for regional administrations demonstrating significant progress in reducing extreme poverty. These incentives are designed to fund empowerment programs that boost incomes among the extremely poor. The challenges is to ensure equitable distribution: that ensuring that incentives reach the most deserving regions without bias. The author recommend to setting clear and fair benchmarks for incentive eligibility and conducting periodic reviews to monitor progress and outcomes.

The third program is free nutrition meal program launched in January 2025, this nationwide initiative aims to combat malnutrition by providing free meals to school children and pregnant women, targeting approximately 83 million beneficiaries. The program seeks to improve health outcomes and stimulate local economies by sourcing food locally.

These regulations and programs reflect Indonesia's comprehensive approach to eradicating extreme poverty, focusing on coordinated efforts, regional empowerment, and addressing fundamental needs such as nutrition.

Considering the findings of multidimensional poverty, the government's steps are considered to be in line. Government policies, both central and local, to improve the quality of housing and community slums are quite diverse and cross-sectoral, for example through programs provision of one million houses and repair of uninhabitable houses. Unfortunately, the achievements during the implementation process to the evaluation of these programs are not presented openly and comprehensively to the public.

On the other hand, we see that in poverty alleviation efforts so far, the government still tends to prioritize old and instant ways with providing subsidies and various forms of cash assistance (Bansos) which is only effective in the short term. Fuel subsidies, for example, are slowly being reduced due to rising global prices. As a result, wage subsidies and cash transfers are considered unable to compensate for the impact of increasing prices for other basic needs. The government needs to have awareness and strong political will to be able to prioritize the use of evidence that is strong, effective, and trustworthy.

The multidimensional poverty calculation that describes the condition of Indonesia has been available since at least 2015. This indicator should be maximized wisely to focus and prioritize development based on aspects that can reduce the poverty level of the community without being too wasteful of budget for short-term programs. With limited fiscal capacity, when non-monetary poverty can be mapped with reliable data, the government to the sub-district level also knows what kind of development policy priorities can significantly reduce poverty in the region in the long term.Multidimensional poverty need not replace monetary calculations. However, it is necessary to complement each other in the priority of poverty measurement by the government at all levels so that the formulation of poverty alleviation policies is more effective and efficient.

## Poverty and inequality statistics – time series

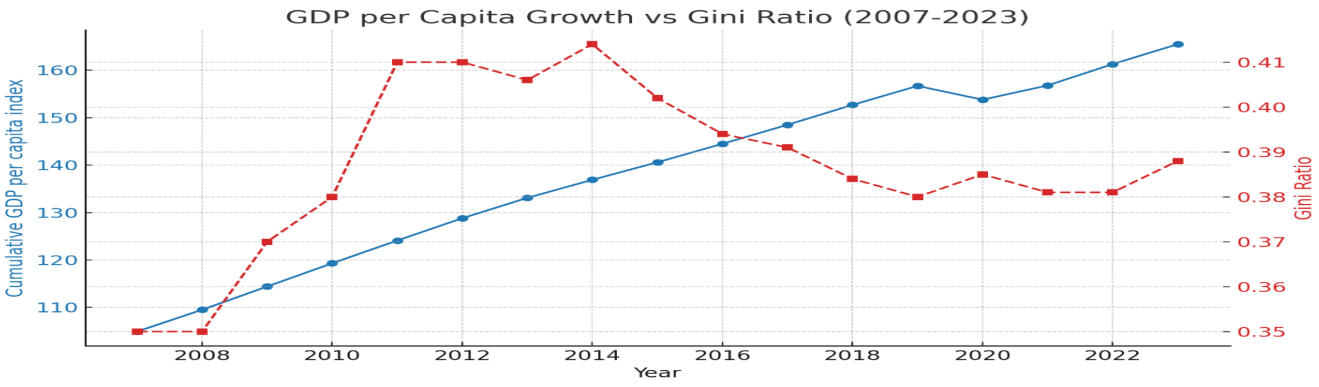
**Table 6. Indonesian Poverty and Inequality Statistics:**

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| **GDP per Capita Growth** | 4.0 | -2.9 | 3.0 | 4.5 | 4.2 | NA |
| **Relative Poverty** (% of population) | 9.22 | 10.19 | 9.71 | 9.57 | 9.36 | 9.03 |
| **Absolute Poverty** (in millions) | 24.78 | 27.55 | 26.50 | 26.36 | 25.90 | 25.22 |
| **Gini Coefficient/ Gini Ratio** | 0.380 | 0.385 | 0.381 | 0.381 | 0.388 | 0.379 |
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** |
| **GDP per Capita Growth** | 4.3 | 3.8 | 3.7 | 3.9 | 4.0 | 4.2 |
| **Relative Poverty** (% of population) | 11.47 | 10.96 | 11.13 | 10.70 | 10.12 | 9.66 |
| **Absolute Poverty** (in millions) | 28.55 | 27.73 | 28.51 | 27.76 | 26.58 | 25.67 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Gini Coefficient/ Gini Ratio** | 0.406 | 0.414 | 0.402 | 0.394 | 0.391 | 0.384 |
| | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** |
| **GDP per Capita Growth** | 4.9 | 4.6 | 4.9 | 4.9 | 4.8 | 4.7 |
| **Relative Poverty** (% of population) | 16.6 | 15.4 | 14.2 | 13.3 | 12.5 | 11.7 |
| **Absolute Poverty** (in millions) | 37 | 35 | 3.25 | 31.0 | 30.0 | 28.7 |
| **Gini Coefficient/ Gini Ratio** | 0.35 | 0.35 | 0.37 | 0.38 | 0.41 | 0.41 |

**Source: Badan Pusat Statistik Indonesia(BPS)**

**Diagram 2: GDP Per Capita Growth and Gini Ratio**




## Different Definitions Lead to Different Outcomes

What is interesting is that BPS uses a low poverty threshold, which makes the poverty statistics of Indonesia look better than they actually are. The threshold BPS uses is set at IDR 582,932 (or approx. USD $36.0) per capita, per month. This equals (roughly) USD $1.19 per day.

Even by Indonesian standards, that is quite a low standard. For comparison, the World Bank defines “extreme poverty” as those who live on less than USD $2.15 per day. And so, if we would apply the World Bank’s standard, Indonesia’s poverty statistics are bound to deteriorate quite significantly. Perhaps dozens of millions would then fall in the poverty group as Indonesia has a large group of people who live just above BPS' poverty line.

However, despite this progress, the absolute number of people living in poverty remains high, with over 27 million Indonesians still living below the poverty line in 2020 (BPS, 2020).

Poverty rates vary significantly across regions, with rural areas consistently showing higher poverty levels than urban areas. For instance, in 2020, poverty rates in urban areas were below 7%, while rural areas had poverty rates closer to 13% (BPS, 2020). This disparity underscores the

challenge of addressing spatial inequality, where poorer regions, particularly in eastern Indonesia, face significant barriers to development (Suryahadi et al., 2019).

**Indonesian Poverty and Geographical Distribution**

One remarkable characteristic of Indonesian poverty is that there is a major difference in terms of relative and absolute poverty in relation to geographical distribution.

While in absolute terms over half of the total Indonesian poor population lives on the island of Java (located in the more populous western half of Indonesia), in relative terms the provinces of eastern Indonesia show far higher numbers of poverty. The table below shows the top five of Indonesian provinces regarding highest incidences of relative poverty. All these provinces are located outside the more developed western-located islands of Java, Sumatra and Bali.

**Table. 7 Indonesian Provinces with Highest Relative Poverty (in 2024):**

| Province | Poor People[1] |
|---|---|
| Highland Papua | 32.97% |
| Central Papua | 29.76% |
| West Papua | 21.66% |
| East Nusa Tenggara | 19.48% |
| Southwest Papua | 18.13% |

[1] as percentage of total provincial population

**Source: Badan Pusat Statistik (BPS)**

These eastern provinces of Indonesia, where farmers lead a largely subsistence existence, contain very high rates of rural poverty. In these regions, indigenous communities have been living on the margins of development processes and government (or international) programs. Migration to urban areas is often the only way to find employment and thus escape poverty. However, contrary to relative poverty in eastern Indonesia, the table below shows that absolute poverty in Indonesia is mainly clustered on the islands of Java and Sumatra. These two islands are the most populous islands in Indonesia.

**Table.8 Indonesian Provinces with Highest Absolute Poverty (in 2024):**

| Province | Poor People (in millions) |
|---|---|
| East Java | 3.98 |
| West Java | 3.85 |
| Central Java | 3.70 |
| North Sumatra | 1.23 |
| East Nusa Tenggara | 1.13 |

**Source: Badan Pusat Statistik (BPS)**

**Rural and Urban Poverty in Indonesia**

Just like the trend around the world, Indonesia has been experiencing a process of rapid and structural urbanization for many decades. Ever since the mid-1990s the number of Indonesians living in the rural areas has been declining. Today, more than half of Indonesia's total population lives in urban environments (whereas in the mid-1990s approximately one-third of Indonesia's population lived in urban societies).

With the exception of a few provinces, the rural populations of Indonesia are poorer than the urban ones (in relative terms). Indonesia's rural poverty rate (percentage of the rural population living below the rural poverty line) dropped to around 20 percent in the mid-1990s but suffered at the hands of the Asian Financial Crisis that ravaged the country between 1997 and 1998, causing the number of poor people in the rural areas to rise again to 26 percent. When the recovery from the Asian Financial Crisis kicked in, a significant decline in rural poverty in Indonesia emerged, although - just like the overall poverty rate - the pace of decline goes increasingly slow.

**Table 9. Rural Poverty in Indonesia:**

| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** |
|---|---|---|---|---|---|---|---|
| **Rural Poverty[1]** | 13.20 | 12.53 | 12.36 | 12.22 | 11.79 | | |
| **Urban Poverty[2]** | 7.88 | 7.60 | 7.53 | 7.29 | 7.09 | | |
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** |
| **Rural Poverty[1]** | 14.42 | 13.76 | 14.09 | 13.96 | 13.47 | 13.10 | 12.60 |
| **Urban Poverty[2]** | 8.52 | 8.16 | 8.22 | 7.73 | 7.26 | 6.89 | 6.56 |
| | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** |
| **Rural Poverty[1]** | 21.8 | 20.4 | 18.9 | 17.4 | 16.6 | 15.7 | 14.3 |
| **Urban Poverty[2]** | 13.5 | 12.5 | 11.6 | 10.7 | 9.9 | 9.2 | 8.4 |

[1] % of people living below the rural poverty line

[2] % of people living below the urban poverty line

**Source: Badan Pusat Statistik (BPS)**

The urban poverty rate is the percentage of the urban population living below the national urban poverty line. Urban poverty in Indonesia shows a similar pattern as Indonesia's rural poverty rate, namely an increasingly slow pace of reduction as it becomes increasingly difficult to push the poorest urban residents out of poverty. The Gini ratio (or coefficient), which measures income distribution inequality, is an important indicator to assess the degree of 'righteousness' in a country (although this indicator does have its flaws). A Gini coefficient of 0 indicates perfect equality, while a coefficient of 1 indicates perfect inequality. It is interesting to note that a sharp rise in income distribution inequality occurred in Indonesia in the post-Suharto era. Thus, the period of democracy and decentralization in the post-Suharto era created an environment that allowed for rising inequality in Indonesian society: while in the 1990s Indonesia's Gini ratio stood at an average of 0.30, it rose to an average of 0.39 in the 2000s, and remained stable at an average of 0.395 in the 2010s before easing to 0.38 in the early 2020s.

Therefore, it is actually painful that growing inequality in Indonesia emerged during a period when the Indonesian economy expanded from a USD $140 billion economy (GDP, current prices) into a USD $1.37 trillion economy in 2023 (World Bank data). The Gini ratio data from BPS also suggest that the 2000s commodities boom (which gave the Indonesian economy great momentum) triggered an increase in inequality in Indonesia (as the richer segments of society benefited more from high commodity prices than the poorer segments).

However, the methodology of the Gini coefficient can be questioned as it divides the population in five baskets, each containing 20 percent of the population: from the 20 percent richest to the 20 percent poorest. Subsequently, it measures the (in)equality between those five baskets. The problem when using this coefficient for Indonesia, however, is that the country is characterized by extreme inequality within each basket, making the outcome of the Gini coefficient less in tune with reality.

**Table 10. Asian Countries with the Highest Average Gini Ratio:**

| Country | Gini Ratio in the 1990s | Gini Ratio in the 2000s | Difference |
|---|---|---|---|
| China | 0.34 | 0.45 | +0.11 |
| Indonesia | 0.30 | 0.39 | +0.09 |
| Laos | 0.32 | 0.38 | +0.06 |
| India | 0.34 | 0.39 | +0.05 |
| Vietnam | 0.37 | 0.37 | 0.00 |
| Cambodia | 0.39 | 0.38 | -0.01 |
| Philippines | 0.45 | 0.44 | -0.01 |
| Malaysia | 0.49 | 0.47 | -0.02 |
| Thailand | 0.46 | 0.41 | -0.05 |

**Source: World Bank**

In Indonesia the Gini ratio is also closely related to the movement of commodity prices. The rising trend of the nation's Gini ratio in the 2000s came amid the commodities boom, while the Gini ratio stabilized after commodity prices collapsed in 2011. Therefore, one could argue that rising (or falling) commodity prices particularly affect the top 20 percent of the Indonesian population (lower commodity prices weakens this group's incomes and purchasing power).

A high degree of inequality in society is a threat because it not only jeopardizes social cohesion but it also jeopardizes political and economic stability. Moreover, research conducted by the World Bank shows that countries with more equal wealth distribution tend to grow faster and more stably compared to those countries that exhibit a high degree of inequality.

Besides overall nationwide inequality in Indonesia, there also exists a high degree of inequality among the various regions within the country. For example the island of Java, particularly the Greater Jakarta region, contributes nearly 60 percent to the total Indonesian economy. Direct investment realization has also been concentrated on this island (thus facilitating rising inequality between Java and the outer islands). Only recently do we see a more balanced spread between direct investment on and outside Java.

What can the government do to combat income distribution inequality in Indonesia? Key strategies would be to increase employment opportunities for Indonesians by encouraging the development of labor-intensive sectors (particularly the agriculture sector and manufacturing industry). To achieve this, it is important to attract direct investment in these labor-intensive industries (implying the government needs to continue its focus on improving Indonesia's investment environment).

Meanwhile, the government needs to focus on the development of new economic growth centers outside the island of Java in order to reduce inequality (structurally) among the various regions. Infrastructure development in the remote regions is one strategy to achieve this (which will cause the so-called multiplier effect). Lastly, education and health should also be improved nationwide as higher education and healthy lifestyles tend to lead to higher incomes. Moreover, if we return to poverty, key reasons why people are poor include lacking access to education, healthcare and infrastructure. And so, the government needs to continue its focus on these areas, making sure existing programs become increasingly effective

Suyahadi, Hadiwijaya and Sumarto (2012) studied the relationship between poverty reduction and economic growth in Indonesia before and after the Asian financial crisis. The annual rate of poverty reduction slowed significantly in the post-crisis period. However, the trend in the growth elasticity of poverty indicates that the power of each percentage point of economic growth to reduce poverty did not change much between the two periods. In both, service sector growth made the largest contribution to poverty reduction in both rural and urban areas. Industrial sector growth largely became irrelevant for poverty reduction in the post-crisis period even though the sector contributed the second-largest share of GDP. Agricultural sector growth, mean-while, remained important, but in rural areas only. The findings suggest the need to formulate an effective strategy to promote sectoral growth in order to speed up the pace of poverty reduction.

**Policy Influence on Inequality Trends**

Indonesia’s policy approach has, to some extent, exacerbated inequality, either directly through specific measures or indirectly by failing to proactively address structural disparities. Six key policy areas have significantly influenced both income inequality and poverty alleviation efforts, though their precise impacts remain difficult to quantify.

Over the past few years, Indonesia’s Gini coefficient has stabilized around 0.39 (World Bank, 2021). Although this marks an improvement from the 1990s, when inequality exceeded 0.40, it still signifies a moderate-to-high level of disparity. The persistence of income inequality, despite sustained economic expansion, suggests that the benefits of growth have not been equitably distributed. Higher-income groups, particularly in urban centers, have reaped most of the economic gains, whereas rural and low-income populations have seen limited progress in their standard of living (Hastuti & Setiawan, 2020).

Economic theories, such as Kuznets' (1955) inverted U-curve hypothesis, propose that inequality initially rises with economic growth before eventually declining as wealth becomes more evenly distributed. However, Indonesia's recent data does not fully align with this theory, as income inequality has remained relatively stable despite rising GDP per capita (Suryahadi et al., 2019). This calls for a more comprehensive examination of the relationship between economic development and inequality—one that accounts for factors like access to education, healthcare, and employment opportunities (Sari, 2020).

**Patterns of Income Disparity**

Disparities in income levels play a crucial role in shaping poverty dynamics. Systematic efforts to gauge income inequality in Indonesia commenced with the Susenas household surveys in the mid-1960s, though these early attempts lacked precision. It was not until the 1970s that estimates became more dependable. For years where no direct data exist—primarily in the 20th century—researchers have relied on linear interpolation to fill the gaps.

Historical estimates suggest that Indonesia maintained relatively low income inequality during the early 1980s, with its Gini coefficient fluctuating between 30% and 35%, placing it in a similar range as India. This set Indonesia apart from countries like the Philippines and Malaysia, which had inherited substantial inequality from colonial rule and had not implemented major redistributive policies. Conversely, Thailand, despite traditionally low levels of inequality, saw a sharp increase in income disparity beginning in the 1960s, particularly along geographic lines. Meanwhile, China experienced a rapid surge in inequality following its economic liberalization in 1978.

Indonesia's trajectory of inequality took an upward turn around 1990, continuing until the 1997–98 Asian financial crisis. During the crisis, the Gini coefficient saw a sharp decline, briefly dipping below 30%. This drop reflected the disproportionate impact of the crisis on wealthier individuals engaged in modern industries and services, while those working in agriculture—especially outside Java—were relatively shielded from the downturn.

As the economy rebounded and Indonesia transitioned into a democratic era, inequality resumed its upward trend, climbing by approximately 10 percentage points over the next decade—a significant increase by regional standards (Kanbur, Rhee, and Zhuang, 2014). More recently, however, the Gini index has stabilized and even exhibited a slight decline, contributing to the varied patterns observed across different subperiods. Despite this stabilization, Indonesia is now categorized as a nation with moderate-to-high income inequality.

Measuring inequality accurately remains a challenge due to a lack of reliable cross-referencing data. Some researchers argue that official estimates may either understate or overstate actual inequality levels. A common concern is the underrepresentation of high-income individuals in surveys, either due to deliberate non-disclosure or the inaccessibility of certain communities (e.g., those residing in gated areas). Given Indonesia's relatively low tax revenue collection—only about 11% of GDP—taxation records provide little insight into potential underreporting among the wealthy.

Similarly, studies focusing on top-income groups may not offer definitive answers if they rely on data sources that systematically underreport the highest earnings. However, indirect indicators—such as sales of luxury properties and high-end vehicles—suggest that wealth concentration may be more pronounced than official statistics indicate. Another methodological issue involves the exclusion or underestimation of in-kind income and self-consumption, which disproportionately affects both the highest and lowest income brackets. Research by Nugraha and Lewis (2013) using alternative estimates from the Susenas survey indicates that when non-market income is properly accounted for, Indonesia's Gini coefficient for 2008 drops from 0.41 to 0.21, with a notable increase in the income share of the lowest deciles.

There is no singular framework for fully explaining Indonesia's inequality patterns, and researchers have instead relied on a combination of statistical breakdowns, inferential analysis, and comparative international studies. Theil decomposition, for instance, has been employed to examine various dimensions of inequality. The World Bank (2017) highlights persistent gaps in education and public services, estimating that disparities in educational attainment alone account for over a quarter of Indonesia's overall inequality. The Asian Development Bank's (ADB) 2012 report on spatial inequality placed Indonesia in an intermediate position within Asia, with geographic factors accounting for 26% of its inequality—lower than China's 54% but comparable to India (32%) and the Philippines (21%).

## The Relationship Between Export-Oriented Industrialization and Real Industrial Wages in Indonesia

Export-Oriented Industrialization (EOI) refers to the strategy adopted by countries to promote industries that primarily produce goods for export markets. This economic model has been crucial in developing countries like Indonesia to foster industrial growth, improve employment, and raise wages. By focusing on exports, Indonesia has been able to stimulate domestic industries, attract foreign investment, and integrate its economy into global supply chains. However, the impact on real industrial wages has varied over time, influenced by the types of industries involved and external factors. From 1990 to 2024, the primary industries involved in Indonesia's export-oriented industrialization have been textiles and garments. Indonesia's textile and garment industries have been a significant part of its export-driven growth. These industries were among the earliest beneficiaries of EOI and contributed substantially to industrial employment and wages, especially during the 1990s and early 2000s.

Electronics and Electrical Equipment. Over the past few decades, Indonesia has seen substantial growth in its electronics sector, particularly in the production of semiconductors, electrical equipment, and consumer electronics. This industry has been crucial for Indonesia's exports to global markets, including to developed economies in North America and Europe.

Automobiles and Automotive Parts. The automobile industry in Indonesia began to take off in the late 1990s, with many global automotive companies establishing production plants in the country. These industries, which also include parts and components, have contributed to export growth and wage increases for skilled labor.

Agricultural Products. Indonesia is a significant exporter of agricultural products, such as palm oil, coffee, cocoa, and rubber. These industries have a substantial presence in Indonesia's export sector, providing jobs primarily in rural areas, although the wage levels in these industries are typically lower than those in more capital-intensive industries like electronics or automobiles.

Minerals and Mining. Indonesia's mining sector, particularly for coal, copper, and nickel, has grown significantly as part of its export-led industrialization strategy. While mining provides fewer jobs than manufacturing, it has generated significant revenues for the country, indirectly contributing to higher wages in other sectors.

Furniture and Handicrafts. Indonesia's export market also includes a significant amount of furniture, wood products, and handicrafts. This sector is labor-intensive, involving a considerable number of small and medium-sized enterprises (SMEs), which offer employment in both urban and rural regions.

**Trends Between Export-Oriented Industrialization and Real Industrial Wages**

**1990s: Early Stages of EOI**

In the early 1990s, Indonesia began to transition from an import-substitution model to an export-driven growth strategy. The textile and garment industries, in particular, benefitted from increased global demand, especially from the U.S. and Europe. Real industrial wages saw a steady increase, particularly in labor-intensive industries such as textiles. However, wages remained relatively low compared to countries like Malaysia and Thailand. The textile industry employed a large number of low-skilled workers, particularly women, who received modest wages. In 1995, the real average wage in the garment sector was around USD 1,200 annually.

The electronics sector started to develop, with factories producing components for global firms like Samsung and Sony. These workers earned higher wages, with real industrial wages averaging USD 2,000 annually by the end of the decade.

**2000s: Recovery and Stagnation After the Asian Financial Crisis**

The Asian Financial Crisis of 1997-1998 severely impacted Indonesia's economy, causing a sharp depreciation of the rupiah and wage stagnation. The textile industry, which had previously been a major driver of export growth, suffered due to a drop in demand and a loss of competitiveness. However, other industries such as electronics and automotive parts gradually started recovering by the early 2000s.

Textiles and Garments: The wages in this sector stagnated due to global competition and rising production costs. Average wages remained at USD 1,500 annually, below pre-crisis levels.

Electronics and Automotive: Wages in electronics and automotive parts started to rise again. The electronics sector saw wages rise to USD 2,500 annually by 2005, while the automotive sector reached USD 3,000 annually, driven by foreign investment and technological advancements.

**2010s: Growth and Structural Changes in the Export Sector**

In the 2010s, Indonesia's export-oriented industrialization strategy matured. Real industrial wages began to increase more rapidly, especially in high-tech sectors like electronics, machinery, and automotive. At the same time, Indonesia became more integrated into global value chains (GVCs), particularly in electronics and automotive production.

Electronics: Indonesia's electronics exports surged, and average wages in this sector grew to USD 4,000 by 2015. This growth was attributed to foreign direct investment (FDI) and technological upgrades that increased labor productivity. Automobile Industry: The automotive sector continued to grow, with major companies like Toyota, Honda, and Nissan increasing their production. Workers in this sector saw real wages increase to USD 4,500 annually by 2015. Agriculture: While agriculture continued to be a significant contributor to exports, wages remained stagnant, averaging USD 1,800 annually for workers in palm oil plantations, coffee, and cocoa farming.

**2020s: COVID-19 Impact and Post-Pandemic Recovery**

The COVID-19 pandemic caused disruptions in global supply chains, affecting the export-driven industries in Indonesia. However, with the recovery in global demand and Indonesia's growing participation in global manufacturing networks, wages in certain sectors have shown positive growth.

Electronics and Automotive: Both sectors saw a rebound in 2021-2022. Real wages in electronics and automotive manufacturing reached USD 5,000 annually by 2024, aided by high global demand and technological advancements.

Agriculture and Textiles: While the agricultural sector has been slower to recover, wages for workers in the textile industry increased modestly, reaching USD 2,200 in 2024.

The primary impact of export-oriented industrialization on real industrial wages has been an increase in wages for workers in higher-value-added industries like electronics, automobiles, and machinery. However, this increase in wages has not been uniform across all sectors. Industries such as textiles, garments, and agriculture have seen slower wage growth, often due to the low value-added nature of the work and high competition in global markets.

Positive Impacts includes Job Creation. EOI has created a substantial number of jobs, particularly in manufacturing. The export sector has absorbed millions of workers, raising their income levels compared to pre-industrialization periods. Wage Growth in High-Tech Sectors such as electronics, automotive, and machinery have experienced substantial wage increases due to technological advancements and foreign investment. Overall, Indonesia's industrial wages have seen steady growth, reflecting the positive impact of export-oriented industries on the national economy.

Negative Impacts includes Wage Disparities. While some sectors have seen significant wage increases, others, particularly textiles and agriculture, have lagged behind.

Vulnerability to Global Shocks. Indonesia's dependence on global demand for exports makes the country vulnerable to fluctuations in global markets. Events such as the Asian Financial Crisis and COVID-19 have led to wage stagnation and increased uncertainty for workers in export industries.

On the Strengths sides, export-oriented industrialization has significantly contributed to Indonesia's economic growth, job creation, and wage increases in certain sectors. Industries such as electronics, automotive, and machinery have benefited from technological advancements and foreign investment, leading to higher wages for workers.

On the weakness side, wage growth has been uneven, with certain sectors, especially textiles and agriculture, seeing slower wage increases. The economy's dependence on global demand makes it vulnerable to external shocks, which can disrupt wage growth in the export sector.

The author recommended to invest in education and training in order to bridge wage disparities, Indonesia should invest in vocational training and education programs that equip workers with skills for higher-value industries, diversify export products in which Indonesia should further diversify its export products to reduce dependence on specific markets and industries and enhance technological innovation. By focusing on technological innovation, Indonesia can move up the value chain in industries like electronics and machinery, leading to higher wages.

By addressing these challenges and capitalizing on its strengths, Indonesia can foster a more inclusive and sustainable industrialization process that benefits workers across all sectors.

**Export-Oriented Growth and Poverty.**

Research by Agosin (2007) argues that export-oriented growth can be an effective strategy for poverty reduction in developing countries, and Indonesia's experience supports this claim. Export sectors, particularly in agriculture, textiles, and mining, have contributed significantly to job creation and poverty alleviation in rural areas. However, challenges remain in diversifying export industries and ensuring that the benefits of export growth are more evenly distributed. Study by Tampubolon & Nababan (2018) found that increased exports increase the demands for raw materials, which for the case of North Sumatra is dominated by agricultural based natural resources in the forms of palm oil fresh fruit and raw latex. Increased demands will increase the prices and subsequently increase farmers' income and thereby reduce poverty. This mechanism leads to poverty reduction through higher export or import. Results of parameters estimation of the effect of trade on poverty reduction in North Sumatra, 2001-2016 with model: $Yi = \alpha i Xi \beta iui$ is presented below,

**Table 11. Trade on Poverty in Urban and Rural North Sumatera 2001-2016**

| Y | X | β | R2 |
|---|---|---|---|
| Poverty (Total) | Export | - 0.2524*** | 0.8114 |
| | Import | - 0.1829*** | 0.8515 |
| Urban Proverty | Export | - 0.0913* | 0.2025 |
| | Import | - 0.0611* | 0.1815 |
| Rural Proverty | Export | - 0.3676*** | 0.7535 |

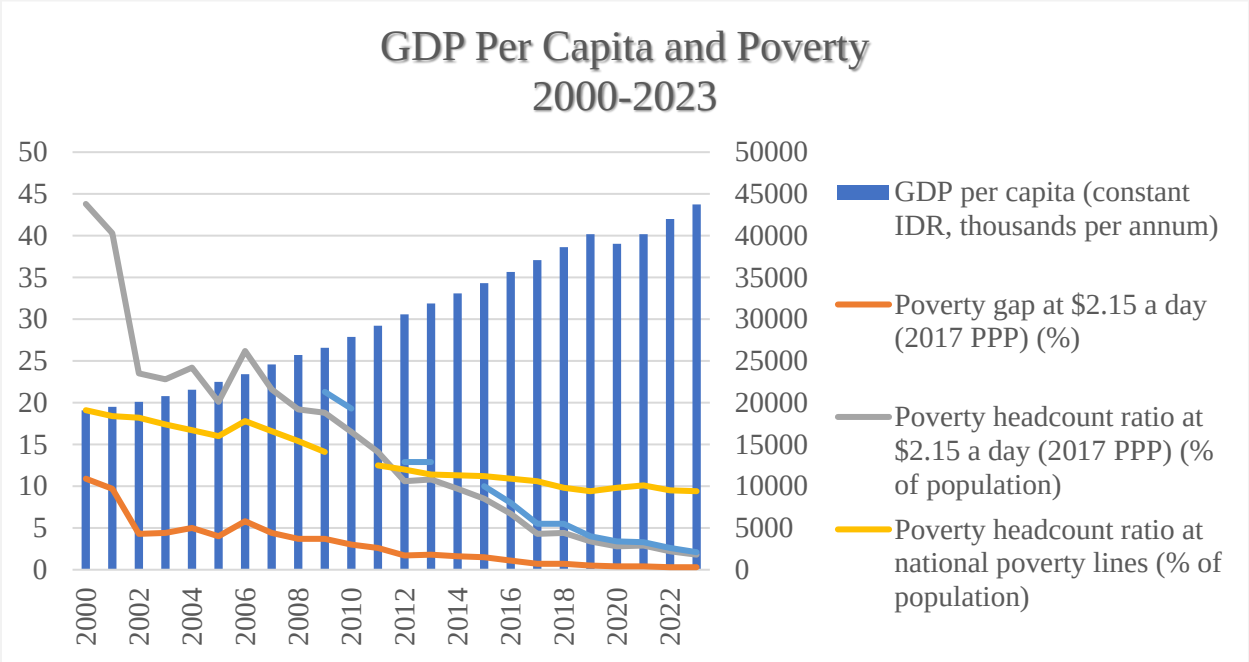
| | | | |
|---|---|---|---|
| | Import | - 0.2698*** | 0.8121 |

Source: Author's calculation
Note:
***) coefficient estimation significant at level of confidence 99 % (α = 0.01).
*) coefficient estimation significant at level of confidence 90 % (α = 0.10)

## Qualitative and Quantitative Relationship Between GDP Per Capita And Poverty Incidence

The relationship between GDP per capita and poverty reduction has been a central theme in economic development literature. GDP per capita serves as a proxy for overall economic prosperity, and its growth is often correlated with a decrease in poverty. However, this relationship is not always straightforward, and the impact of economic growth on poverty alleviation can be influenced by factors such as income inequality, employment opportunities, and social policies.

**Diagram 3: GDP Per Capita and Poverty 2000-2023**




In the case of Indonesia, economic growth has indeed contributed to a reduction in poverty over the past several decades. Since the 1990s, Indonesia has experienced rapid economic growth, with GDP per capita increasing from approximately USD 600 in 1990 to over USD 4,000 in 2020 (World Bank, 2021). This growth has translated into a decrease in the poverty rate from over 20% in the 1990s to less than 10% by 2020 (BPS, 2020).

However, the relationship between GDP growth and poverty reduction in Indonesia is not without its complexities. Although GDP per capita has increased significantly, poverty reduction has been uneven across regions, sectors, and demographic groups. For instance, while urban areas have benefited more from economic growth, rural areas, especially in the eastern provinces of Indonesia, continue to experience higher poverty rates (Hastuti & Setiawan, 2020). The uneven distribution of economic growth and the high concentration of wealth in urban areas suggest that GDP growth alone is not sufficient to address poverty comprehensively.

The link between GDP per capita and poverty incidence is also influenced by factors such as the quality of employment and access to social services. High levels of informal employment and underemployment mean that many individuals in low-income households are not fully benefiting from economic growth (ILO, 2020). Therefore, while GDP growth is an important driver of poverty reduction, it needs to be accompanied by targeted policies that address inequality and ensure that the benefits of growth are widely distributed

**The Inverted-U Curve in the Relationship Between Inequality and Economic Growth**

The inverted-U-shaped curve in the relationship between inequality and economic growth is often associated with the Kuznets hypothesis. Simon Kuznets (1955) proposed that as a country's economy develops, inequality initially increases, reaches a peak, and then declines as economic growth continues. There are three stages of the Inverted-U Curve. The Initial Stage (Early Growth – Rising Inequality). At the early stage of development, the economy begins to experience industrialization. The shift from the agricultural sector to industry leads to increased productivity in the industrial sector, but only a portion of society benefits early on (e.g., industrial workers and capital owners). Inequality rises because most people are still in the agricultural sector with lower incomes.

**At Middle Stage (Peak Inequality),** at a certain point, economic disparities reach their peak. A large portion of the workforce starts shifting to more productive sectors, but significant gaps between the rich and poor remain

**And the Advanced Stage (Declining Inequality).** At this stage, workers' incomes in the industrial and service sectors begin to rise. Governments adopt income redistribution policies, such as progressive taxation and social security. Better access to education and healthcare improves economic opportunities for lower-income groups. Inequality decreases as economic growth becomes more inclusive. The policy implications are Importance of Income Redistribution. Governments need to implement fiscal policies that reduce inequality in the early stages of economic growth. Access to Education and Healthcare requirying Investing in human capital accelerates the transition to the stage where inequality decreases, and Innovation and Digitalization enaalble technology can accelerate economic transitions, but if not managed well, it may exacerbate inequality. Countries like South Korea and Japan experienced an inverted-U pattern, where initial inequality rose before eventually declining as their economies advanced. However, in some developing countries, such as those in Latin America, inequality has remained high despite economic growth, indicating that institutional factors and policies play a crucial role

**The Inverted-U Curve of Inequality and Growth in Indonesia**

In Indonesia, the relationship between inequality and economic growth largely follows the Kuznets hypothesis. However, structural factors, policies, and globalization create some variations.

The stages of the Inverted-U Curve in Indonesia or the factors affecting inequality can be elaborated to four stages. First, Early Development Period (1970s–1990s): Rising Inequality. During the New Order era, Indonesia underwent large-scale industrialization through open economic policies and foreign investment. Rapid development occurred in the manufacturing sector, but most benefits were concentrated in major cities like Jakarta, Surabaya, and Medan. Inequality increased, particularly between urban and rural areas. The Gini Ratio (a measure of economic inequality) rose from 0.32 in the 1970s to 0.38 in 1996.

Second, crisis and recovery period (1998–2005) there is the temporary Decline in Inequality. The 1997–1998 financial crisis led to economic contraction, paradoxically reducing inequality because many wealthy individuals suffered significant investment losses. After the crisis, social assistance programs like Direct Cash Assistance (BLT) were introduced. Inequality temporarily declined, with the Gini Ratio dropping to around 0.31 in the early 2000s.

Third, rapid growth period (2005–2014) cause rising inequality again. The economy grew rapidly after the crisis, with an average annual growth of 5–6%. However, this growth was uneven. The service and industrial sectors expanded in large cities, while the agricultural sector lagged. Inequality rose again, with the Gini Ratio peaking at 0.41 in 2013, mainly due to the expansion of the upper-middle class and urbanization.

Fourth, redistribution and digitalization period (2015–Present) resulting in gradual decline in inequality. The government strengthened social protection programs, such as Indonesia Health Card (KIS), Indonesia Smart Card (KIP), and the Family Hope Program (PKH). Infrastructure development outside Java reduced regional disparities. Digitalization and platform-based economies created new income opportunities for lower-income groups, such as e-commerce-based MSMEs. Inequality began to decline, with the Gini Ratio reaching 0.38 in 2023, though it remains high compared to neighbouring countries like Malaysia and Thailand.

Considering the abovementioned facts, Indonesia need to accelerate infrastructure development to ensure more balanced growth beyond Java, enhance access to education and skill training to help workers compete in the formal and digital sectors., implement stronger progressive taxation, particularly targeting the super-rich, to improve income redistribution, and encourage innovation in agriculture and MSMEs to increase productivity and competitiveness in the global market. All in all, inverted-U curve in inequality and economic growth in Indonesia does not fully follow Kuznets' classical pattern, as some factors cause inequality to remain high despite economic growth. However, stronger redistribution policies and digitalization have started to reduce inequality since 2015.

**Empirical Data: Indonesia's GDP per Capita and Gini Ratio**

To understand the relationship between economic growth and inequality in Indonesia, below is historical data on **Gross Domestic Product (GDP) per capita and the Gini Ratio**:

**Table 12. Indonesia's GDP per Capita (USD) and Gini Ratio (1970–2023)**

| Year | GDP per Capita (USD) | Gini Ratio |
|---|---|---|
| 1970 | 80 | 0.35 |
| 1980 | 510 | 0.34 |
| 1990 | 610 | 0.32 |
| 2000 | 890 | 0.31 |
| 2010 | 3,000 | 0.38 |
| 2013 | 3,475 | 0.41 |
| 2020 | 3,870 | 0.38 |
| 2023 | 4,192 | 0.38 |

**Source**: Trading Economics & BPS

**Data Analysis**

1970–1990: GDP per capita rose from $80 to $610, while the Gini Ratio declined from 0.35 to 0.32, indicating that economic growth was accompanied by declining inequality.

1990–2010: GDP per capita increased significantly to $3,000, but the Gini Ratio rose from 0.32 to 0.38, reflecting increasing inequality during this period.

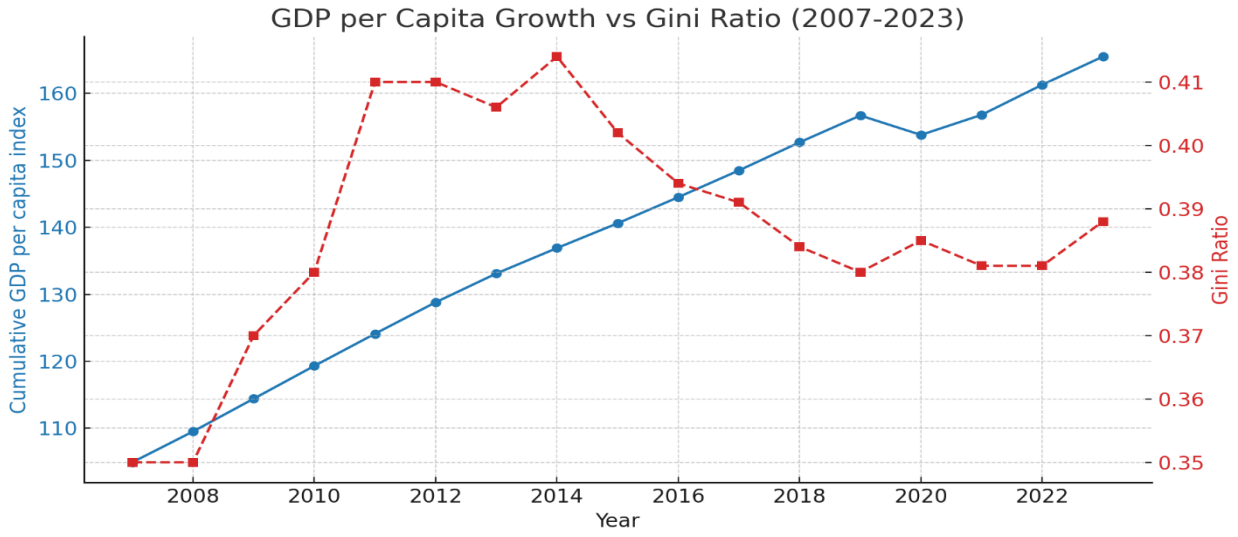
2010–2023: GDP per capita continued to rise to $4,192 in 2023. The Gini Ratio peaked at 0.41 in 2013, then declined to 0.38 by 2023 due to redistribution policies and digital economy expansion.

Indonesia has experienced an inverted-U pattern in the relationship between inequality and growth. While economic growth initially reduced inequality, industrialization and urbanization later increased it. Recently, redistribution policies and infrastructure development have started narrowing inequality, though challenges remain.

**Visualization of the Inverted U-Curve: Inequality vs. Growth in Indonesia**

To clarify the relationship between economic growth and inequality in Indonesia, the author will create a graph based on GDP per capita and the Gini Ratio from 2007 to 2023. The Inverted U-Curve graph will illustrate how inequality (Gini Ratio) changes alongside increasing GDP per capita.

**Diagram 4. GDP per Capita Growth and Gini Ratio (2007-2023)**




the graph showing the relationship between GDP per capita growth and the Gini Ratio from 2007 to 2023. The blue line (solid) represents the cumulative GDP per capita index, while the red dashed line represents the Gini Ratio. This visualization illustrates how inequality (Gini Ratio) has evolved alongside economic growth.

## Stages of the Inverted U-Curve in Indonesia (1970–2023)

**Early Stage (1970–1990):** Growth Reduces Inequality. GDP per capita increased, while the Gini Ratio declined so that Inequality decreased. The key factors are infrastructure development. The New Order government prioritized basic infrastructure, improving rural productivity, the Green Revolution by providing investment in agriculture (fertilizer subsidies, high-yield seeds) boosted farmers' welfare and expansion of Basic Education so that School programs reduced the urban-rural gap. As the impact, the economic growth was evenly distributed, leading to lower inequality.

Middle Stage (1990–2013): Industrialization Increases Inequality: GDP per capita continued to rise, but the Gini Ratio peaked in 2013 so that inequality widened. The key factors includes, rapid urbanization causing rural workers moved to cities, but many lacked access to quality jobs. Also the Wage Gap causing skilled workers benefited more from wage growth than unskilled workers. Then 1997–1998 Financial Crisis causing mass layoffs worsened inequality. And dominance of Informal Sectors causing many workers lacked social protection. As the impact, economic growth benefited specific groups, widening inequality.

Advanced Stage (2013–2023): stabilization and declining inequality. The GDP per capita kept growing, while the Gini Ratio declined slightly or stagnated causing inequality stabilized. The key factors includes social assistance programs such as Kartu Indonesia Pintar (KIP)/ Education Card, Kartu Indonesia Sehat (KIS)/ Health Card, and Program Keluarga Harapan (PKH) improved access to basic services, infrastructure Investment such as Development of toll roads, airports, and industrial zones expanded economic access, digitalization and creative economy enabling E-commerce and fintech helped lower-income groups access financial services. Other factor is

Minimum Wage Policy in which wage increases for low-income workers. As the impact, inequality declined slightly but remained above earlier levels.

**Indonesian Poverty and Geographical Distribution**

One remarkable characteristic of Indonesian poverty is that there is a major difference in terms of relative and absolute poverty in relation to geographical distribution.

While in absolute terms over half of the total Indonesian poor population lives on the island of Java (located in the more populous western half of Indonesia), in relative terms the provinces of eastern Indonesia show far higher numbers of poverty. The table below shows the top five of Indonesian provinces regarding highest incidences of relative poverty. All these provinces are located outside the more developed western-located islands of Java, Sumatra and Bali.

**3. Indonesian Provinces with Highest Relative Poverty in 2024**

| Province | Poor People[1] |
|---|---|
| Highland Papua | 32.97% |
| Central Papua | 29.76% |
| West Papua | 21.66% |
| East Nusa Tenggara | 19.48% |
| Southwest Papua | 18.13% |

[1] as percentage of total provincial population

**Source: Badan Pusat Statistik (BPS)**

These eastern provinces of Indonesia, where farmers lead a largely subsistence existence, contain very high rates of rural poverty. In these regions, indigenous communities have been living on the margins of development processes and government (or international) programs. Migration to urban areas is often the only way to find employment and - thus - escape poverty. However, contrary to relative poverty in eastern Indonesia, the table below shows that absolute poverty in Indonesia is mainly clustered on the islands of Java and Sumatra. These two islands are the most populous islands in Indonesia.

**Table 4. Indonesian Provinces with Highest Absolute Poverty in 2024**

| Province | Poor People (in millions) |
|---|---|
| East Java | 3.98 |
| West Java | 3.85 |
| Central Java | 3.70 |
| North Sumatra | 1.23 |
| East Nusa Tenggara | 1.13 |

**Source: Badan Pusat Statistik (BPS)**

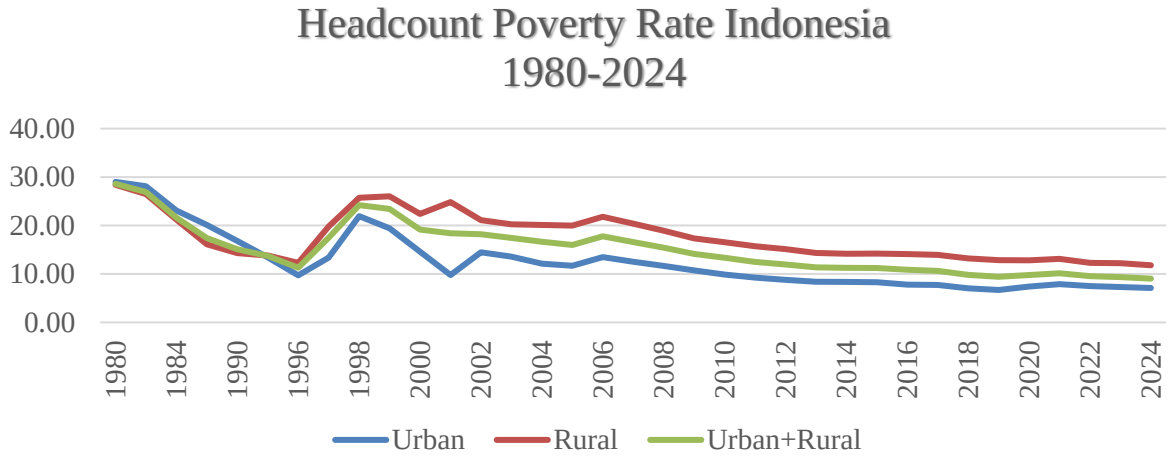
## Rural and Urban Poverty in Indonesia

Just like the trend around the world, Indonesia has been experiencing a process of rapid and structural urbanization for many decades. Ever since the mid-1990s the number of Indonesians living in the rural areas has been declining. Today, more than half of Indonesia's total population lives in urban environments (whereas in the mid-1990s approximately one-third of Indonesia's population lived in urban societies).

With the exception of a few provinces, the rural populations of Indonesia are poorer than the urban ones (in relative terms). Indonesia's rural poverty rate (percentage of the rural population living below the rural poverty line) dropped to around 20 percent in the mid-1990s but suffered at the hands of the Asian Financial Crisis that ravaged the country between 1997 and 1998, causing the number of poor people in the rural areas to rise again to 26 percent. When the recovery from the Asian Financial Crisis kicked in, a significant decline in rural poverty in Indonesia emerged, although - just like the overall poverty rate - the pace of decline goes increasingly slow.

The urban poverty rate is the percentage of the urban population living below the national urban poverty line. Urban poverty in Indonesia shows a similar pattern as Indonesia's rural poverty rate, namely an increasingly slow pace of reduction as it becomes increasingly difficult to push the poorest urban residents out of poverty.

**Diagram 5: Headcount Poverty Rate Indonesia 1980-2024**




.

**Table 4. Rural Poverty in Indonesia:**

| | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|---|---|---|---|
| **Rural Poverty[1]** | 13.20 | 12.53 | 12.36 | 12.22 | 11.79 | | |
| **Urban Poverty[2]** | 7.88 | 7.60 | 7.53 | 7.29 | 7.09 | | |
| | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** |
| **Rural Poverty[1]** | 14.42 | 13.76 | 14.09 | 13.96 | 13.47 | 13.10 | 12.60 |
| **Urban Poverty[2]** | 8.52 | 8.16 | 8.22 | 7.73 | 7.26 | 6.89 | 6.56 |
| | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** |
| **Rural Poverty[1]** | 21.8 | 20.4 | 18.9 | 17.4 | 16.6 | 15.7 | 14.3 |
| **Urban Poverty[2]** | 13.5 | 12.5 | 11.6 | 10.7 | 9.9 | 9.2 | 8.4 |

[1] % of people living below the rural poverty line

[2] % of people living below the urban poverty line

**Source: Badan Pusat Statistik (BPS)**

The Gini ratio (or coefficient), which measures income distribution inequality, is an important indicator to assess the degree of 'righteousness' in a country (although this indicator does have its flaws). A Gini coefficient of 0 indicates perfect equality, while a coefficient of 1 indicates perfect inequality. It is interesting to note that a sharp rise in income distribution inequality occurred in Indonesia in the post-Suharto era. Thus, the period of democracy and decentralization in the post-Suharto era created an environment that allowed for rising inequality in Indonesian society: while in the 1990s Indonesia's Gini ratio stood at an average of 0.30, it rose to an average of 0.39 in the 2000s, and remained stable at an average of 0.395 in the 2010s before easing to 0.38 in the early 2020s.

Therefore, it is actually painful that growing inequality in Indonesia emerged during a period when the Indonesian economy expanded from a USD $140 billion economy (GDP, current prices) into a USD $1.37 trillion economy in 2023 (World Bank data). The Gini ratio data from BPS also suggest that the 2000s commodities boom (which gave the Indonesian economy great momentum) triggered an increase in inequality in Indonesia (as the richer segments of society benefited more from high commodity prices than the poorer segments).

However, the methodology of the Gini coefficient can be questioned as it divides the population in five baskets, each containing 20 percent of the population: from the 20 percent richest to the 20 percent poorest. Subsequently, it measures the (in)equality between those five baskets. The problem when using this coefficient for Indonesia, however, is that the country is characterized by extreme inequality within each basket, making the outcome of the Gini coefficient less in tune with reality.

**`Diagram 6: Gini Ratio Indonesia by Areas 2007-2024**

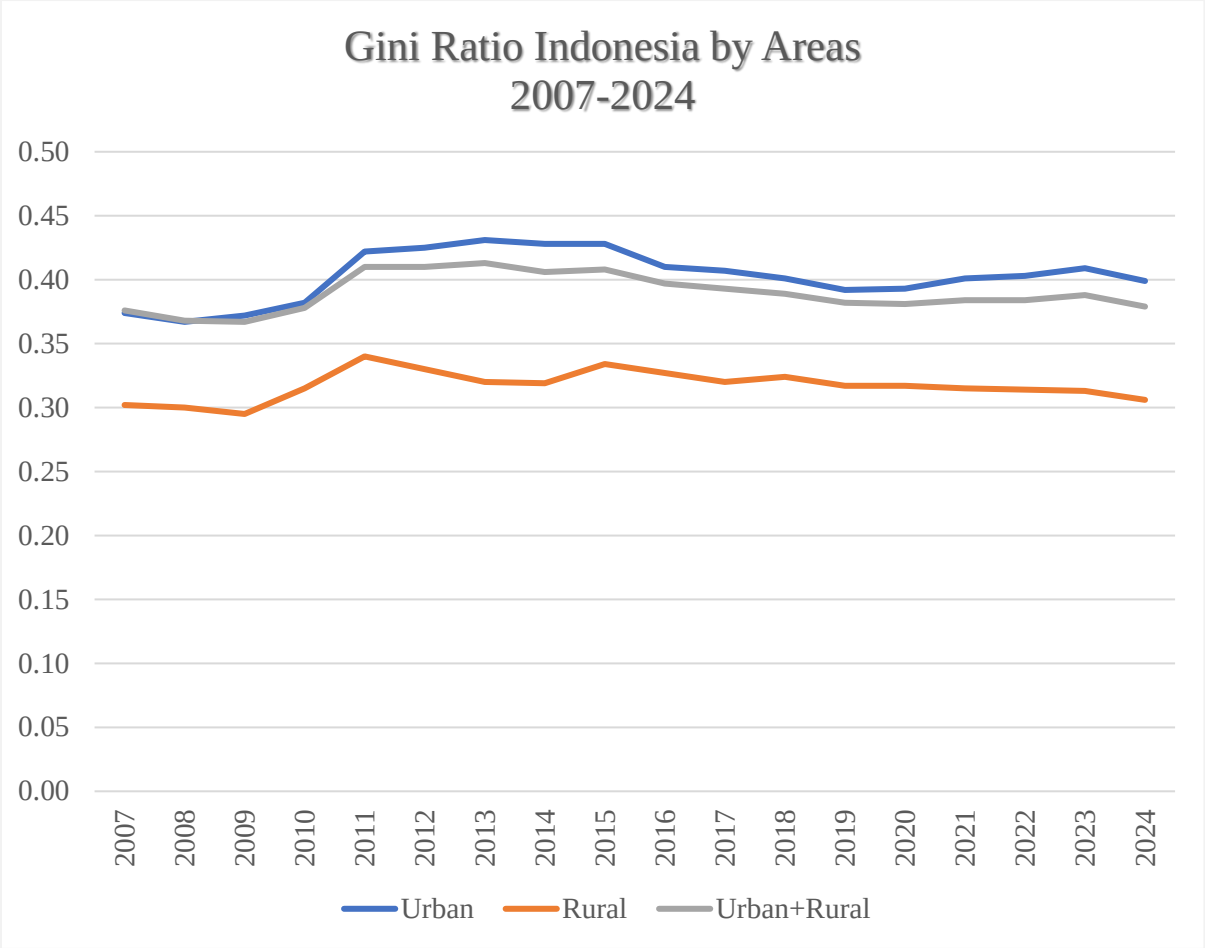



**Table 5. Asian Countries with the Highest Average Gini Ratio:**

| Country | Gini Ratio in the 1990s | Gini Ratio in the 2000s | Difference |
|---|---|---|---|
| China | 0.34 | 0.45 | +0.11 |
| Indonesia | 0.30 | 0.39 | +0.09 |
| Laos | 0.32 | 0.38 | +0.06 |
| India | 0.34 | 0.39 | +0.05 |
| Vietnam | 0.37 | 0.37 | 0.00 |
| Cambodia | 0.39 | 0.38 | -0.01 |
| Philippines | 0.45 | 0.44 | -0.01 |
| Malaysia | 0.49 | 0.47 | -0.02 |
| Thailand | 0.46 | 0.41 | -0.05 |

**Source: World Bank**

In Indonesia the Gini ratio is also closely related to the movement of commodity prices. The rising trend of the nation's Gini ratio in the 2000s came amid the commodities boom, while the Gini ratio stabilized after commodity prices collapsed in 2011. Therefore, one could argue that rising (or falling) commodity prices particularly affect the top 20 percent of the Indonesian population (lower commodity prices weakens this group's incomes and purchasing power).

A high degree of inequality in society is a threat because it not only jeopardizes social cohesion but it also jeopardizes political and economic stability. Moreover, research conducted by the World Bank shows that countries with more equal wealth distribution tend to grow faster and more stably compared to those countries that exhibit a high degree of inequality.

Besides overall nationwide inequality in Indonesia, there also exists a high degree of inequality among the various regions within the country. For example the island of Java, particularly the Greater Jakarta region, contributes nearly 60 percent to the total Indonesian economy. Direct investment realization has also been concentrated on this island (thus facilitating rising inequality between Java and the outer islands). Only recently do we see a more balanced spread between direct investment on and outside Java.

What can the government do to combat income distribution inequality in Indonesia? Key strategies would be to increase employment opportunities for Indonesians by encouraging the development of labor-intensive sectors (particularly the agriculture sector and manufacturing industry). To achieve this, it is important to attract direct investment in these labor-intensive industries (implying the government needs to continue its focus on improving Indonesia's investment environment).

Meanwhile, the government needs to focus on the development of new economic growth centers outside the island of Java in order to reduce inequality (structurally) among the various regions. Infrastructure development in the remote regions is one strategy to achieve this (which will cause the so-called multiplier effect). Lastly, education and health should also be improved nationwide as higher education and healthy lifestyles tend to lead to higher incomes. Moreover, if we return to poverty, key reasons why people are poor include lacking access to education, healthcare and infrastructure. And so, the government needs to continue its focus on these areas, making sure existing programs become increasingly effective

Suyahadi, Hadiwijaya and Sumarto (2012) studied the relationship between poverty reduction and economic growth in Indonesia before and after the Asian financial crisis. The annual rate of poverty reduction slowed significantly in the post-crisis period. However, the trend in the growth elasticity of poverty indicates that the power of each percentage point of economic growth to reduce poverty did not change much between the two periods. In both, service sector growth made the largest contribution to poverty reduction in both rural and urban areas. Industrial sector growth largely became irrelevant for poverty reduction in the post-crisis period even though the sector contributed the second-largest share of GDP. Agricultural sector growth, mean-while, remained important, but in rural areas only. The findings suggest the need to formulate an effective strategy to promote sectoral growth in order to speed up the pace of poverty reduction.

## The Relationship Between GDP per Capita and Poverty Incidence

The relationship between GDP per capita and poverty reduction has been a central theme in economic development literature. GDP per capita serves as a proxy for overall economic prosperity, and its growth is often correlated with a decrease in poverty. However, this relationship is not always straightforward, and the impact of economic growth on poverty alleviation can be influenced by factors such as income inequality, employment opportunities, and social policies.

However, the relationship between GDP growth and poverty reduction in Indonesia is not without its complexities. Although GDP per capita has increased significantly, poverty reduction has been uneven across regions, sectors, and demographic groups. For instance, while urban areas have benefited more from economic growth, rural areas, especially in the eastern provinces of Indonesia, continue to experience higher poverty rates (Hastuti & Setiawan, 2020). The uneven distribution of economic growth and the high concentration of wealth in urban areas suggest that GDP growth alone is not sufficient to address poverty comprehensively.

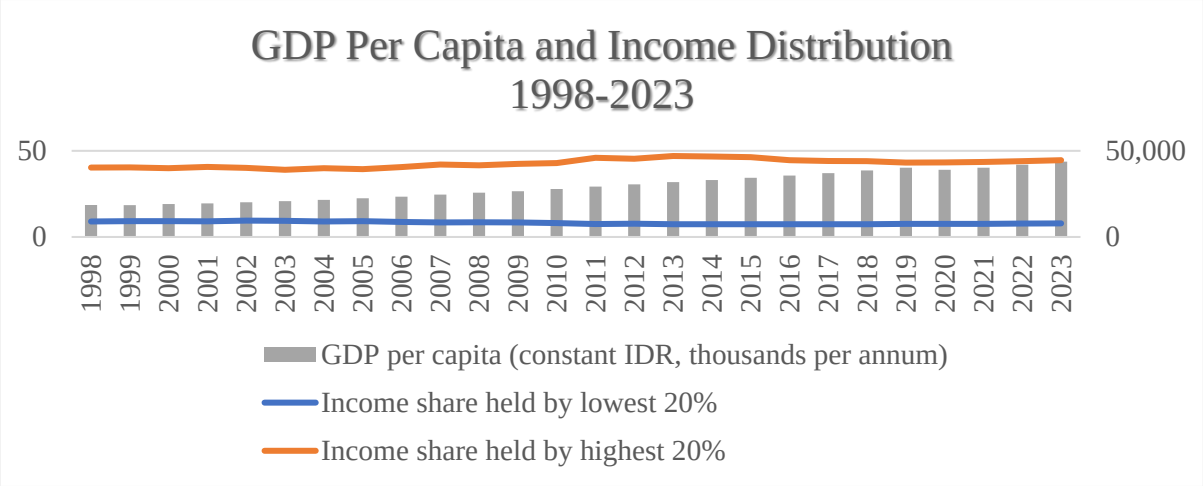
The link between GDP per capita and poverty incidence is also influenced by factors such as the quality of employment and access to social services. High levels of informal employment and underemployment mean that many individuals in low-income households are not fully benefiting from economic growth (ILO, 2020). Therefore, while GDP growth is an important driver of poverty reduction, it needs to be accompanied by targeted policies that address inequality and ensure that the benefits of growth are widely distributed.

## The Role of Income Distribution in Poverty Reduction

Research on the relationship between GDP and poverty reduction also highlights the importance of income distribution. The "trickle-down" theory of economic growth suggests that as the economy grows, the benefits will eventually reach the poor. However, this has been criticized for ignoring the role of inequality in shaping poverty outcomes. In Indonesia, income inequality has remained a persistent issue despite steady economic growth. The Gini coefficient, a measure of income inequality, has hovered around 0.39 to 0.40 in recent years, indicating moderate to high levels of inequality (World Bank, 2021).

The role of income distribution in poverty alleviation is particularly relevant in the context of rural-urban disparities. While GDP per capita has risen in urban areas, rural areas have lagged behind in terms of access to economic opportunities, education, and infrastructure. The rural poor, who rely heavily on agriculture, have not benefited as much from the growth of the manufacturing and service sectors in urban areas (Suryahadi et al., 2019). As a result, policies aimed at improving income distribution, such as improving access to education, healthcare, and job opportunities, are essential for ensuring that economic growth translates into poverty reduction.

**Diagram 7. GDP Per Capita and Income Distribution 1998-2023**




## Diffusion of Digital and Climate Resilient Policies in Indonesia: Impact on the Poor and Progress, Constraints, and Solutions

The diffusion of digital technologies and climate-resilient policies has emerged as a critical pillar in shaping the future of Indonesia's socio-economic landscape, particularly in addressing the needs of the poor. Indonesia, as an emerging economy in Southeast Asia, has seen a dramatic expansion in digital technology, while simultaneously grappling with the devastating impacts of climate change. For Indonesia's poor populations, the intersection of digital transformation and climate resilience is both an opportunity and a challenge. Understanding how these policies affect the most vulnerable groups is crucial to ensuring that progress is inclusive and sustainable.

We will explore the diffusion of digital and climate-resilient policies, focusing on their impact on the poor in Indonesia, the progress made, the constraints faced, and the potential solutions to enhance these efforts.

### The Role of Digital Policies in Indonesia's Development

The digitalization of Indonesia's economy and society has been pivotal in bridging the development gap, especially for low-income groups. Digital technologies provide access to information, financial services, education, and healthcare, which are essential to improve the quality of life for the poor.

#### Progress in Digital Diffusion

Indonesia's push for digital transformation is evident through significant programs such as the 100 Smart Cities and 1,000 Digital Villages initiatives, which aim to bring digital infrastructure to underserved regions. The government has also been investing heavily in building a broadband internet network, particularly under the Palapa Ring Project. As of 2023, approximately 60% of

Indonesia's rural population now has access to high-speed internet, a substantial increase from 22% in 2016. This has facilitated the growth of e-commerce, fintech services, and online education, which have benefitted millions of Indonesians, especially in rural areas.

The Go-Jek and Tokopedia platforms, two major digital players in Indonesia, have become powerful tools for small entrepreneurs in underserved communities, allowing them to expand their market reach. This has contributed to a 20% increase in e-commerce growth, which particularly benefits low-income individuals who are entrepreneurs or gig economy workers.

Despite these advancements, the digital divide remains a significant challenge. While urban areas have seen faster digital adoption, many rural areas still face barriers such as poor internet connectivity, lack of digital literacy, and insufficient devices. Approximately 34 million people in Indonesia—mostly from rural or remote areas—still lack reliable access to the internet, hindering their ability to take full advantage of the digital economy.

The primary constraint in digital diffusion for the poor is the limited infrastructure in rural areas. The high cost of internet-enabled devices and the lack of affordable data plans further exacerbate the divide. Additionally, many poor communities lack digital literacy, which limits the benefits they can derive from digital tools. Solutions to these constraints include subsidizing internet and device costs for low-income families, expanding community-based digital literacy programs, particularly in rural areas, through partnerships with local governments and NGOs, enhancing internet infrastructure by accelerating the rollout of 5G technology and expanding fiber-optic networks.

## Climate Resilience and the Poor in Indonesia

Indonesia, an archipelagic nation with over 17,000 islands, is highly vulnerable to the effects of climate change, including rising sea levels, extreme weather events, and changes in agricultural productivity. The poor, particularly those dependent on agriculture, coastal fishing, and informal sector work, are disproportionately affected by these risks.

Indonesia has made notable progress in climate resilience, with policies designed to mitigate and adapt to the challenges posed by climate change. The National Action Plan for Climate Change Adaptation (RAN-API) and the Indonesia Climate Change Trust Fund (ICCTF) focus on building resilience in vulnerable communities. As of 2022, approximately 10 million people have benefited from climate adaptation programs, particularly those aimed at disaster risk reduction and water resource management.

The Program Nasional Pemberdayaan Masyarakat (PNPM), an empowerment program targeting marginalized groups, has integrated climate resilience components, ensuring that the poorest can access the resources and knowledge needed to adapt to climate change. Additionally, the government has committed to achieving net-zero emissions by 2060 and has invested in sustainable energy, with solar power projects already reaching 150,000 homes in remote regions.

For Indonesia’s poor, the impact of climate change is felt in multiple ways such as agricultural productivity is declining due to unpredictable weather patterns, leading to food insecurity, coastal communities are facing increasing threats from rising sea levels, especially in regions such as

Jakarta Bay, where flooding is becoming more frequent and health risks, such as the spread of vector-borne diseases like dengue fever, are exacerbated by extreme weather events.

Farmers, for example, have experienced reduced crop yields, which leads to higher food prices and income instability for those dependent on agriculture. The World Bank estimates that up to 1.2 million people in Indonesia could be pushed into poverty by 2030 due to climate-related shocks.

The main constraint to effective climate resilience for the poor is the lack of financial resources and technical expertise in rural and coastal areas. The poor are often unable to access climate insurance or green financing options due to limited knowledge and capital. Climate insurance initiatives in Indonesia's agricultural sector aim to protect farmers from financial losses due to climate-related risks. Notable examples include Rice Farming Insurance Program (Asuransi Usaha Tani Padi - AUTP), launched in 2015 by the Indonesian government, AUTP provides indemnity-based insurance to rice farmers, covering losses from natural disasters, pest infestations, and diseases. The government subsidizes 80% of the premium, making it more accessible to farmers. Livestock Insurance Program (Asuransi Usaha Ternak Sapi/Kerbau - AUTS/K), introduced in 2016, this program offers indemnity insurance for dairy cattle, protecting farmers against losses from disease outbreaks and natural disasters. Similar to AUTP, the government subsidizes 80% of the premium. Weather Index Insurance Pilot Projects, Indonesia has explored weather index insurance (WII) as a tool to manage agricultural risks associated with climate variability. WII provides payouts based on specific weather parameters, such as rainfall levels, rather than actual crop losses. This approach aims to reduce administrative costs and expedite compensation to farmers. AXA Climate's Initiative for Smallholder Farmers, AXA Climate, in collaboration with PT Mandiri AXA General and local organizations like PT Jiva Agriculture and Yayasan Agri Sustineri Indonesia, has promoted climate risk insurance for smallholder farmers in Indonesia. This initiative focuses on enhancing farmers' resilience against natural disasters and climate change impacts.

Insured Program by IFAD. The International Fund for Agricultural Development (IFAD) has implemented the Insured program in Indonesia, aiming to make climate risk insurance accessible to small-scale coffee and cocoa producers. This initiative seeks to strengthen farmers' resilience to climate-related challenges. These programs represent significant steps toward safeguarding Indonesian farmers from the adverse effects of climate change, ensuring the sustainability of agricultural livelihoods.

Furthermore, informal sector workers, who represent a significant portion of Indonesia's poor, lack the safety nets needed during climate-induced shocks. Solutions to address these constraints include increasing access to climate financing for low-income communities, such as through micro-insurance and climate adaptation loans tailored to the needs of the poor, training local communities in sustainable agricultural practices, water management, and climate-resilient construction, expanding disaster relief efforts and providing emergency aid to vulnerable populations, ensuring they have access to immediate support during climate-related disasters.

As 60% rural internet access in 2023 up from 22% in 2016, 34 million people in Indonesia still lack internet access, 10 million people benefiting from climate adaptation programs and 1.2 million people at risk of falling into poverty due to climate change by 2030, these figures illustrate the

progress made and the challenges that remain in ensuring that Indonesia's most vulnerable populations benefit from the country's digital and climate resilience efforts.

The diffusion of digital and climate-resilient policies in Indonesia represents a critical step in reducing poverty and promoting sustainable development. However, significant challenges remain in ensuring that these policies benefit the poorest segments of society. Progress in digital access and climate adaptation has been made, but issues like infrastructure gaps, digital literacy, and financial constraints continue to hinder full inclusion.

To address these challenges, solutions must focus on improving infrastructure, subsidizing digital tools and services, providing climate financing, and expanding education programs. With continued investment and inclusive policy frameworks, Indonesia can ensure that its digital and climate resilience strategies have a positive impact on the poor, helping them to thrive in a rapidly changing world. By fostering a more inclusive approach, Indonesia can pave the way for a more equitable future that combines both digital empowerment and climate resilience, ensuring that the most vulnerable are not left behind in the nation's path toward sustainable development.

**Remittances and Their Role in Poverty Reduction**

A study by Nahar and Arshad (2017) revealed that an increase in remittances from Indonesian migrant workers led to a 2.56% reduction in poverty. However, factors such as inflation and exchange rate fluctuations had mixed effects on poverty levels. The limited impact of remittances on poverty alleviation may stem from migrants' low educational levels, low-paying jobs, high transfer costs, and a lack of access to formal financial institutions. To maximize the benefits of remittances, the government should enhance skills training programs to help workers secure better jobs, reduce remittance transaction costs, and establish dedicated financial agents at overseas Indonesian banks to facilitate money transfers.

Another study by Adams and Cuecuecha (2010) from the World Bank found that international remittances significantly reduced poverty in Indonesia. Households receiving remittances in 2007 allocated a greater portion of their funds to essential consumption, particularly food, rather than investments like housing. These households were generally poorer than non-recipient households, causing remittances to be spent primarily on immediate needs rather than long-term investments.

A broader analysis covering 39 countries between 1990 and 2014 examined the effects of foreign remittances, aid, inflation, GDP per capita, and human capital on poverty reduction. Various econometric methods, including panel unit root tests and FMOLS analysis, confirmed a long-term relationship among these variables. The study concluded that remittances had a statistically significant positive impact on poverty alleviation, particularly in upper-middle-income countries. Conversely, foreign aid showed limited effectiveness in reducing poverty, suggesting a need for policy adjustments.

The findings emphasize the importance of remittance inflows in promoting economic and social well-being in migrants' home countries. To sustain poverty reduction, policies should encourage remittance inflows and direct them toward productive investments rather than mere consumption. Moreover, the research indicates that foreign aid has not been as effective as expected in combating

poverty. For aid to make a real impact, donors must reassess their strategies and ensure funds are used more effectively. Policymakers should focus on reducing dependence on foreign aid while fostering conditions that encourage higher remittance inflows, ultimately leading to sustainable poverty reduction.

### The Impact of Foreign Aid on Education and Employment

Foreign aid has played a crucial role in advancing education and job opportunities in Indonesia. Since the late 20th century, institutions such as the World Bank and the Asian Development Bank have allocated financial resources to support education reforms and employment initiatives. These efforts have contributed to higher literacy rates, improved vocational training, and enhanced infrastructure—factors essential for long-term poverty reduction.

## Economic Development and Poverty Alleviation

### Poverty in Indonesia: Causes and Measurement

In Indonesia, poverty is assessed using both monetary and non-monetary metrics. The Indonesian Central Statistics Agency (Badan Pusat Statistik or BPS) defines poverty based on consumption levels, with the poverty threshold determined by the government as the minimum per capita expenditure required to meet fundamental necessities such as nutrition, housing, and education. Nonetheless, recent scholarly discussions suggest that this definition may not fully encapsulate the multidimensional nature of poverty, which extends beyond material deprivation to include limited access to essential services, healthcare, and education, as well as social marginalization.

This analysis primarily relies on poverty estimates generated by BPS, which constructs its poverty threshold by aggregating the expenditure necessary to fulfill an individual's basic needs. This benchmark consists of two components: a food poverty line and a non-food poverty line. The food poverty threshold represents the expenditure needed to acquire 2,100 kilocalories per capita per day, sourced from a diverse set of 52 food items. Meanwhile, the non-food poverty line encompasses essential expenditures on shelter, clothing, healthcare, and education. These data are collected through the National Socioeconomic Survey (Susenas), conducted biannually. While the BPS methodology for poverty estimation has remained largely stable over time, changes in measurement criteria and the composition of the consumption basket have occurred frequently. As Priebe (2014) notes, a more consistent and comparable approach has only been in place since 2007.

Poverty rates are calculated using two international benchmarks set by the World Bank: the low-income threshold ($1.90 per day) and the lower-middle-income threshold ($3.20 per day), both adjusted for purchasing power parity (PPP) based on 2011 prices. The data from 1970 are incomplete due to the nascent stage of Susenas at the time, while estimates aligned with international poverty lines have only been systematically recorded since 1984. A longitudinal analysis of these data reveals a significant reduction in poverty prevalence, from approximately

60% to below 10% over five decades. This decline is even more pronounced when considering the adjustments to the poverty threshold introduced by BPS in 1996 and 1998. If a simple extrapolation is applied—assuming a similar distribution of consumption between the earlier and revised thresholds—the estimated poverty rate in 2018 under the original measure would be approximately 7%. Indonesia's success in reducing poverty remains unequivocal despite methodological concerns and measurement adjustments.

**Table 13. Poverty Line for Urban and Rural**

| Region/Year | | Poverty Line | |
|---|---|---|---|
| | Food | Non-Food | Total |
| (1) | (2) | (3) | (4) |
| **Urban** | | | |
| March 2023 | 415.588 | 153.711 | 569.299 |
| March 2024 | 441.394 | 160.477 | 601.871 |
| **Rural** | | | |
| March 2023 | | | |
| March 2024 | 424.160 | 132.714 | 556.874 |
| **Urban + Rural** | | | |
| | | | |
| March 2023 | 408.522 | 141.936 | 550.458 |
| March 2024 | 433.906 | 149.026 | 582.932 |

Source: BPS 2024

To measure the poverty rate, a poverty threshold/line is required. The poverty line reflects the minimum expenditure value in rupiah needed by an individual to meet their basic living needs for a month, including both food and non-food necessities. As shown in Table 2, from March 2023 to March 2024, the national poverty line experienced an increase in both urban and rural areas. The national poverty line rose by 5.90 percent, from Rp550,458.00 per capita per month in March 2023 to Rp582,932.00 per capita per month in March 2024 or equivalent to US$37.1. As for the average minimum wage as of March 2024 is Rp.3.113.359,85 or equivalent to US$198.2. Therefore average minimum wage is 5.3 times of poverty line. Whereas in Malaysia, Philliphines and Thailand the ratio is respectively 0.68, 4.0 and 1.25. Meanwhile, the urban poverty line increased by 5.72 percent, while the rural poverty line grew by 6.06 percent.

Several additional insights emerge from these trends. Although the proportion of individuals classified as poor has declined, the absolute number of people living in poverty has decreased at a slower rate due to population growth. Moreover, periods of slower economic expansion and rising income inequality have tempered poverty reduction. The most notable exception to this trajectory was the 1997–1998 Asian financial crisis, which temporarily reversed gains in poverty alleviation.

Different poverty thresholds yield varying estimates of poverty incidence. The extent to which these estimates fluctuate in response to alternative poverty definitions depends on the distribution of consumption expenditures across the population. Since consumption levels tend to be concentrated around the national mean, even marginal adjustments to the poverty threshold can lead to substantial variations in recorded poverty rates. The question of which poverty estimate is most accurate hinges on the specific conceptual framework employed. The national poverty line established by BPS likely reflects societal preferences regarding minimum living standards within Indonesia. However, for cross-country comparisons, international benchmarks provide a more standardized measure. The sensitivity of poverty estimates to shifts in expenditure distribution means that comparative rankings can evolve over time.

For instance, in 1996, Indonesia's revised national poverty estimate fell below both international poverty benchmarks. The variability in poverty rates due to definitional shifts becomes evident when analysing the distribution of consumption expenditures. Three key observations emerge from this distributional analysis. First, the distribution is skewed, with the majority of the population positioned below the mean, which is inflated by a small number of affluent individuals. Second, the distribution has gradually shifted rightward over time, indicating that an increasing proportion of Indonesians have surpassed the poverty threshold. Third, a significant portion of the population remains clustered near the median income level, meaning that many individuals are either just above or just below the poverty line. This clustering effect explains why even minor adjustments to the threshold can generate large fluctuations in recorded poverty incidence.

Besides headcount ratio there are also two other indicators used by BPS to measure poverty which is implementation of Foster-Greer-Thorbecke (FGT) Poverty Measures. The first one is Depth of Poverty and the second is Severity of Poverty. Poverty Depth (Poverty Gap Index - P1) measures the average gap between the income or expenditure of poor individuals and the poverty line. This indicator shows how far the economic condition of the poor is from the poverty line. The higher the poverty depth index, the greater the average income shortfall of poor individuals compared to the poverty line. The formula is $P1=1/Nq\sum_{i=1}(Z-Yi)/Z$ where Z is the poverty line, Yi is the income of a poor individual, qis the number of poor individuals, and N is the total population. Poverty Severity (Poverty Severity Index - P2) measures the level of inequality among poor individuals. This indicator considers whether most of the poor are far below the poverty line or just slightly below it. The higher the severity index, the more unequal the income distribution among the poor, meaning that there is a group experiencing extreme poverty compared to others. The formula is $P2=1/Nq\sum_{i=1}((Z-Yi)/Z)^2$ This formula is similar to the poverty depth formula, but the income gap is squared to emphasize those in extreme poverty. The key difference is elaborate below.

Table 14. Poverty Depth & Poverty Severity

| Indicator | Poverty Depth (P1) | Poverty Severity (P2) |
|---|---|---|
| **Purpose** | Measures how far poor people's income is from the poverty line. | Measures inequality among poor individuals. |
| **Focus** | The average income gap of poor individuals relative to the poverty line. | How unequal the level of poverty is within the poor population. |

| Indicator | Poverty Depth (P1) | Poverty Severity (P2) |
|---|---|---|
| **Impact If High** | The higher the P1 value, the harder it is for the poor to escape poverty. | The higher the P2 value, the more people experience extreme poverty. |

If poverty depth (P1) is high, policies should focus on increasing income or providing greater assistance to the poor. If poverty severity (P2) is high, policies should focus on helping the extremely poor so they do not fall further behind compared to others in poverty. These indicators are often used together to provide a more accurate picture of poverty conditions in a region. Over the past ten years, the Poverty Depth Index (P1) and the Poverty Severity Index (P2) in Indonesia have shown a downward trend, reflecting improvements in economic conditions and the effectiveness of poverty alleviation programs. Although specific data for the entire period is not fully available, several sources provide insights into the development of these two indicators. Banjar Regency in 2024, the Poverty Depth Index decreased to 0.326, while the Poverty Severity Index declined to 0.067.

This reduction indicates that the average expenditure of the poor is approaching the poverty line, and inequality among the poor is decreasing.*(home.banjarkab.go.id)*. The Poverty Depth Index of North Kalimantan Province dropped from 0.816 in March 2024 to 0.495 in September 2024, indicating significant improvement during this period. The period from 2013 to 2022 of Magelang Regency showed a declining trend in both the number and percentage of poor people, although there were fluctuations in certain years such as 2015, 2020, and 2021.(*Pusaka Magelang Kabupaten)*

In general, the Poverty Depth Index (P1) tends to be higher than the Poverty Severity Index (P2). This is expected, as P1 measures the average income gap of the poor relative to the poverty line, while P2 measures inequality among the poor themselves. As a result, P1 typically has a higher value than P2.

The World Bank has updated its international poverty lines based on the 2017 Purchasing Power Parities (PPPs). It's important to note that in September 2022, the World Bank updated the International Poverty Line from $1.90 to $2.15 per day to reflect changes in the cost of living, based on 2017 purchasing power parity (PPP) prices. For middle-income countries, the poverty lines are now set at Lower-middle-income countries is $3.65 per person per day and Upper-middle-income countries at $6.85 per person per day. According to a World Bank study, if Indonesia adjusts its poverty line using the latest purchasing power parity (PPP) standard for middle-income countries, the poverty rate could increase from 9.57 percent or 26.36 million people (based on 2022 data) to 16 percent or 44 million people. The multidimensional poverty approach has already been used in measuring the SDGs (Sustainable Development Goals). What is currently being evaluated is the monetary approach we use through the basic needs poverty line. Poverty has long been seen in terms of inequality, as people generally feel poorer compared to others. Meanwhile, explanations of poverty differ considerably, with many calling for better policy measures. For decades, the Bank refused to address inequality, focusing instead on poverty. Efforts to improve poverty measurement have long been driven by the belief that policy cannot be improved without better estimating it.

Measuring or estimating cash incomes has inevitably been prioritised. But the focus on money incomes poses problems. Money measures of poverty can be helpful but also deceptive. For instance, many children from urban households with incomes above the poverty line remain undernourished.

However, incomes above any arbitrarily set poverty line do not necessarily ensure well-being. This has generated interest in poverty indicators other than money incomes.Such criticisms reflect a money fetish and the widespread practice of measuring welfare, well-being and poverty in cash terms. Recognising the value of other poverty indicators is now uncontroversial.

**Different of method of BPS and World Bank poverty line measurement**

The Central Statistics Agency (BPS) recorded that Indonesia's poverty rate had reached 8.57 percent as of September 2024, marking the lowest level in the history of Indonesian poverty. Although this figure was released some time ago, debates over the poverty line is considered too low and unrepresentative of real conditions on the ground so that continue to spark discussions.

Moreover, according to World Bank data, if Indonesia were to use the poverty standard for upper-middle-income countries of $6.85 per person per day in purchasing power parity (PPP), the percentage of Indonesia’s poor population would still be 61.8 percent in 2023, or approximately 60 percent in 2024.

The significant discrepancy between the BPS and World Bank data raises many questions. What are the actual methodologies used by BPS and the World Bank to measure poverty? How should these figures be interpreted? To measure poverty, BPS uses the basic needs approach, which defines poverty as the economic inability to meet basic food and non-food needs, measured through expenditure. BPS calculates the poverty line as the minimum amount of money an individual must spend to meet basic living needs and not be categorized as poor.

The poverty line is the sum of the Food Poverty Line (GKM) and the Non-Food Poverty Line (GKNM). GKM is the total expenditure value of 52 basic food commodities commonly consumed by the reference population, standardized to 2,100 kilocalories per capita per day and GKNM represents the minimum value of selected non-food commodities, including housing, clothing, education, and healthcare. This poverty line calculation is conducted separately for urban and rural areas in each province. People whose per capita monthly expenditure falls below the poverty line are classified as poor.

Meanwhile, the World Bank calculates the poverty line using consumption estimates converted to US$ PPP, rather than official exchange rates. The PPP conversion factor measures how much currency is required to purchase the same set of goods and services in different countries compared to the reference country, the United States.

In determining the poverty line, the World Bank uses the harmonized poverty line approach. This involves, first, matching each country’s national poverty level (as of 2017 or the nearest available year) with the World Bank’s consumption/income distribution data in PPP per capita.

Second, standardizing national poverty lines in PPP for each country. And third, determining a global poverty line by calculating the median of national poverty lines from 37 upper-middle-income countries.

This comparison highlights that BPS measures poverty based on actual household consumption, while the World Bank calculates a global poverty threshold for cross-country comparisons. The World Bank acknowledges that each country's national poverty line is unique and the responsibility of its National Statistics Office. National poverty lines can vary between urban and rural areas or across different regions due to differences in cost of living and consumption patterns. These poverty lines reflect local perceptions of essential needs to avoid being categorized as poor.

For this reason, national poverty measurements are more suitable for domestic poverty alleviation strategies and policy evaluations but are not ideal for cross-country comparisons—hence the World Bank's global poverty line approach. Criticism that Indonesia's poverty line is outdated is understandable. BPS's methodology has remained largely unchanged since 1998, despite significant shifts in consumption patterns, such as increased spending on prepared food and internet costs.

However, BPS has been planning a methodology update since 2020, with input from experts from Bappenas, the Statistics Society Forum (FMS), the World Bank, and others. Due to the complexity of Indonesia's consumption patterns and data limitations, this revision process is taking longer than expected. The government must be cautious, as the revised methodology will be used for at least the next decade, and any changes will inevitably affect the reported poverty rate.

A relevant example is Malaysia's 2020 revision of its national poverty line, raising it from RM980 (2005 method) to RM2,280, which increased the number of poor Malaysians by over 400,000 people in 2019. Malaysia's revision involved three key changes, first, conceptual shift from a "minimum" to an "optimum minimum" poverty line, updating food baskets based on Food Pyramid 2020 and the Malaysian Diet Guide 2020. For example, condensed milk was replaced with healthier powdered milk. Second, expansion of non-food commodities in the poverty basket, increasing from 106 to 146 items, reflecting increased non-food needs of the bottom 20% of households. Third, updated spending patterns and pricing adjustments compared to 2005.

The differing methodologies of BPS and the World Bank demonstrate that poverty statistics cannot be interpreted in isolation but must be understood within their respective frameworks. While revising Indonesia's poverty measurement requires time and careful planning, regular adjustments are necessary to reflect evolving socio-economic conditions. This ensures that poverty statistics better represent reality on the ground and serve as a stronger foundation for effective, long-term poverty reduction policies.

**The Multi-Dimensional Poverty Index (MPI)**

The Multi-Dimensional Poverty Index (MPI), developed by Oxford University, offers a more comprehensive measure of poverty that goes beyond income. The MPI considers factors such as

education, health, and living standards to provide a more holistic view of poverty (Alkire & Santos, 2010). In Indonesia, the MPI has highlighted the importance of addressing multiple deprivations in poverty reduction strategies, such as improving access to quality education, healthcare, and housing for the poor (Purnomo & Oktaviani, 2021).

**Alternative calculations and conditions for Indonesia**

Since 2010, the Oxford Poverty and Human Initiatives (OPHI) of the University of Oxford has been developing and providing alternative calculations Multidimensional Poverty Index (IKM). This index can be an alternative as well as provide an overview of the dimensions of poverty that can be targeted specifically by the government, as well as to compare poverty between regions or countries.

By emphasizing eligibility standards, IKM Global calculates poverty rates across three basic dimensions – health, education, and living standards – which compare situations and conditions across countries. Meanwhile, the national IKM is a development of the global IKM which is more relevant and flexible to determine the conditions and achievements of poverty alleviation in the country or regional scope so that it can be the basis of policy priorities.

Using Alkire-Foster method and data National Socio-Economic Survey (Susenas) BPS, the Prakarsa is calculating the national IKM based on the elaboration of five dimensions, namely health, education, housing, basic services, and social participation. Initial findings state that the number of poor individuals in households in Indonesia is 38,9 million or around 14,3% of the total population in 2021. This percentage of poverty has decreased drastically compared to 2020 and 2019 which were respectively 17.5 % and 23%.

The indicators of housing material and access to safe drinking water are the two biggest indicators that affect the number of multidimensional poverty in this household. This result is also in line with data from the Ministry of Public Development and Public Housing that there are still almost 30 million unfit homes in Indonesia by 2021 and 57.15% of villages throughout Indonesia also do not have access to drinking water in 2022.

Findings also show that by province, Papua, West Papua, and East Nusa Tenggara are the three provinces with the largest multidimensional poverty rates, namely 27,1%, 21,8%, and 20,7% of the total population, respectively.

Although the number of poor people in a multidimensional manner is relatively larger than monetary, of course the trend of decreasing the quantity and quality of poverty in a multidimensional manner in society is a good signal of an improvement in the quality of life of the poor.

The calculations by PRAKARSA indicate that using a multidimensional approach, the number of poor people will increase compared to the monetary approach. However, the rate of poverty reduction using the multidimensional approach can actually be more significant.

For instance, multidimensional poverty affected more than 34 million people (13.53 percent) in 2015, decreasing to 30 million people (12 percent) in 2016, 24.9 million people (9.56 percent) in 2017, and 21.5 million people (8.17 percent) in 2018.

Meanwhile, according to BPS data, the number of people living in monetary poverty was 28.51 million (11.13 percent) in 2015, decreasing to 27.76 million (10.7 percent) in 2016, 26.58 million (10.12 percent) in 2017, and 25.6 million (9.66 percent) in 2018.

According to data from the United Nations Development Programme (UNDP) in 2017, approximately 3.6% of Indonesia's total population (9.5 million people) experienced multidimensional poverty, while another 4.7% (12.8 million people) were vulnerable to multidimensional poverty. A report from The PRAKARSA shows that the number of people experiencing multidimensional poverty declined from 48.98% (120.1 million people) in 2012 to 14.34% (38.95 million people) in 2021.

The difference in figures between the UNDP and The PRAKARSA reports is likely due to differences in methodology, indicators used, or the time period of data collection. However, overall, the data indicate a downward trend in multidimensional poverty in Indonesia. Thus, the ratio of poor people to the total population in Indonesia, based on the Multidimensional Poverty Index, ranges from 3.6% to 14.34%, depending on the data source and methodology used.

Currently, data collection through the Social and Economic Registration (Regsosek) also employs a multidimensional data-gathering approach. The rate of poverty reduction using the multidimensional approach can actually be more significant.

In addition to the Multidimensional Poverty Index (MPI), the government will continue using the previous approach, which measures basic needs costs, including food and non-food components. The methodology will be refined and updated based on current consumption patterns, as the existing measurement standards have been in use for the past 25 years. The last field survey conducted by the government was in 1998. The improvement of the monetary approach will also consider regional differences in consumption patterns. For example, poor areas in East Nusa Tenggara and East Java will have different calculation methods, as the food commodity

**How Responsive is Poverty to Economic Growth?**

Poverty dynamics are influenced by the overall rate of economic expansion and the extent to which economic growth translates into poverty alleviation. The growth elasticity of poverty (GEP) quantifies this relationship by measuring the proportionate change in poverty relative to changes in per capita income over a given period. In this context, the analysis focuses on the correlation between fluctuations in the poverty headcount ratio and GDP per capita growth. The GEP metric also accounts for the role of income and wealth distribution in poverty reduction—more equitable distribution patterns enhance the impact of economic growth on poverty alleviation. Given that household expenditures are largely concentrated around the mean, even small changes in

expenditure levels can substantially influence poverty metrics, though conventional inequality measures such as the Gini coefficient may not fully capture these shifts. For instance, fluctuations in staple food prices can have a pronounced impact on poverty rates, despite only modest effects on overall income inequality.

Mathematically, GEP is expressed as:

$$\Delta P = \Delta Y \times (\Delta P \Delta Y)$$

where P denotes the headcount poverty rate, and Y represents per capita GDP. Annual GEP estimates have been calculated for the period 1970-2018. Theoretical perspectives offer limited guidance on anticipated trends in GEP. One hypothesis suggests that poverty responsiveness to economic growth was lower under Indonesia's centralized, authoritarian governance during the Soeharto era compared to the post-1999 democratic transition, which introduced modest social welfare interventions. However, previous research (Hill, 2000; 2018) has argued that many policies under the Soeharto administration were in fact pro-poor. Furthermore, political economy theories caution that democratic governance does not inherently prioritize the welfare of the bottom 10–20% of the income distribution.

Sectoral policies, particularly in agriculture and labor markets, also exert a substantial influence on GEP, as do regional and gender-based poverty disparities, which are not always responsive to aggregate economic growth. More broadly, in the early stages of economic development, broad-based economic expansion serves as a powerful, albeit blunt, instrument for poverty alleviation. However, as development progresses, more targeted interventions are required to address persistent poverty among vulnerable populations.

Table 15 presents GEP estimates over the analyzed period. It includes annual BPS poverty headcount figures alongside their percentage changes, real GDP per capita, and corresponding growth rates, culminating in the computed GEP values. These findings underscore the nuanced interplay between macroeconomic trends and poverty reduction, reaffirming the importance of both sustained economic growth and targeted social policies in achieving long-term poverty alleviation. The table assembles the BPS head count poverty estimate and its percentage change for that year (columns 2 and 3) and real GDP per capita and its percentage change (columns 4–6). The implied growth elasticity is calculated in column 7.

**Table 15. Growth–Poverty Elasticities, 1970–2018**

| | | | **GDP per** | | | |
|---|---|---|---|---|---|---|
| | | **Change in** | **Capita** | **GDP per** | **Change in** | |
| | **Head Count** | **Head Count** | **(LCY, constant** | **Capita** | **GDP per** | **Implied** |
| | **Poverty Rate (%)** | **Poverty Rate (%)** | **Price 2010)** | **(1976** =100) | **Capita (%)** | **Growth** |
| **Year** | | | | | | **Elasticity** |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1970 | 60 | | 7,016,451 | 78.0 | | |
| 1976 | 40.1 | −33.2 | 8,992,523 | 100.0 | 28.2 | −1.18 |
| 1978 | 33.3 | −17.0 | 9,948,191 | 110.6 | 10.6 | −1.60 |
| 1980 | 28.6 | −14.1 | 11,188,870 | 124.4 | 12.5 | −1.13 |
| 1981 | 26.9 | −5.9 | 11,796,809 | 131.2 | 5.4 | −1.09 |
| 1984 | 21.6 | −19.7 | 12,564,051 | 139.7 | 6.5 | −3.03 |
| 1987 | 17.4 | −19.4 | 13,453,897 | 149.6 | 7.1 | −2.75 |
| 1990 | 15.1 | −13.2 | 15,522,805 | 172.6 | 15.4 | −0.86 |
| 1993 | 13.7 | −9.3 | 17,891,101 | 199.0 | 15.3 | −0.61 |
| 1996 | 11.3 | −17.5 | 21,434,872 | 238.4 | 19.8 | −0.88 |
| Average | | | | | | −1.46 |
| Median | | | | | | −1.13 |
| End-to-end, 1996–1976 | | −71.8 | | | 138.4 | −0.52 |
| | | | **GDP per** | | | |
| | | **Change in** | **Capita** | **GDP per** | **Change in** | |
| | **Head Count** | **Head Count** | **(LCY, constant** | **Capita** | **GDP per** | **Implied** |
| | **Poverty Rate (%)** | **Poverty Rate (%)** | **Price 2010)** | **(1976** =100) | **Capita (%)** | **Growth** |
| **Year** | | | | | | **Elasticity** |
| 1996 | 17.47 | | 21,434,872 | 110.0 | | |
| 1998 | 24.2 | 38.5 | 18,946,595 | 97.2 | −11.6 | −3.32 |
| 1999 | 23.43 | −3.2 | 18,831,293 | 96.6 | −0.6 | 5.23 |
| 2000 | 19.14 | −18.3 | 19,484,343 | 100.0 | 3.5 | −5.28 |
| 2001 | 18.41 | −3.8 | 19,915,014 | 102.2 | 2.2 | −1.73 |
| 2002 | 18.2 | −1.1 | 20,523,897 | 105.3 | 3.1 | −0.37 |
| 2003 | 17.42 | −4.3 | 21,208,867 | 108.9 | 3.3 | −1.28 |
| 2004 | 16.66 | −4.4 | 21,970,090 | 112.8 | 3.6 | −1.22 |
| 2005 | 15.97 | −4.1 | 22,903,436 | 117.5 | 4.2 | −0.97 |
| 2006 | 17.75 | 11.1 | 23,834,756 | 122.3 | 4.1 | 2.74 |
| 2007 | 16.58 | −6.6 | 25,004,283 | 128.3 | 4.9 | −1.34 |
| 2008 | 15.42 | −7.0 | 26,152,132 | 134.2 | 4.6 | −1.52 |
| 2009 | 14.15 | −8.2 | 26,998,988 | 138.6 | 3.2 | −2.54 |
| 2010 | 13.33 | −5.8 | 28,302,888 | 145.3 | 4.8 | −1.20 |
| 2011 | 12.49 | −6.3 | 29,659,799 | 152.2 | 4.8 | −1.31 |
| 2012 | 11.96 | −4.2 | 31,047,023 | 159.3 | 4.7 | −0.91 |
| 2013 | 11.37 | −4.9 | 32,362,911 | 166.1 | 4.2 | −1.16 |
| 2014 | 11.25 | −1.1 | 33,570,451 | 172.3 | 3.7 | −0.28 |
| 2015 | 11.22 | −0.3 | 34,794,095 | 178.6 | 3.6 | −0.07 |
| 2016 | 10.86 | −3.2 | 36,132,033 | 185.4 | 3.8 | −0.83 |
| 2017 | 10.64 | −2.0 | 37,549,519 | 192.7 | 3.9 | −0.52 |
| 2018 | 9.82 | −7.7 | | | | |
| Average | | | | | | −0.90 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Median | | | | | | −1.18 |
| End-to-end, 2017–2008 | | −36.3 | | | 43.6 | −0.83 |
| End-to-end, 2008–1998 | | −36.3 | | | 38.0 | −0.95 |
| End-to-end, 2017–1998 | | −56.0 | | | 98.2 | −0.57 |

GDP = gross domestic product, LCY = local currency.
Source Badan Pusat Statistik national accounts data (Unpublished)

The series are presented for all years for which there are Susenas data, with a break in 1996 to incorporate the revised BPS poverty definition. The estimates through 1996 generally span more than 1 year since the Susenas was not conducted annually for most of this period. Summary period averages (mean and median) are also presented. Several findings emerge. First, the elasticity has the expected negative sign for every year. That is, poverty declines with economic growth, and the converse holds for the aberrant 1997/98 Asian financial crisis period and also for 2006, the year of rising petroleum and rice prices. Second, on average, poverty was more responsive to growth over the period 1976–1996 than it was for the period 1996–2018. Third, not surprisingly, there are considerable year-to-year variations to the extent that one hesitates to draw major conclusions. But at least some general inferences may be drawn. One is that the transition to democracy has not had any appreciable impact in either direction. Another is that the commodity boom years of the 1970s and approximately 2005–2012 do not stand out as periods of highly responsive poverty declines. Furthermore, poverty responsiveness in the last 5 years of the review period appears to be low, with all but one observation being below unity. In fact, the one period when poverty appeared to be the most growth responsive was the 1980s, coinciding with the very strong growth in rice production and labor-intensive manufactured exports. However, these are at best tentative inferences since many factors influence these outcomes. The combined effects of growth and inequality may also be examined by estimating growth incidence curves (GICs), which show the annualized growth rate in per capita consumption or income for each group (e.g., percentile and decile) between two points in time. 15 The results are presented in Figure 2 for the period 1980–2017, both for the entire period and for key subperiods: 1980–1990, 1990–1996, 1996–2000, and 2000–2017. As noted, these coincide with fairly distinct episodes, which include, respectively, policy reform in the wake of the commodity boom, high growth prior to the 1997/98 Asian financial crisis, the 1997/98 Asian financial crisis and recovery, and slower growth during the democratic era.

Furthermore, poverty responsiveness in the last 5 years of the review period appears to be low, with all but one observation being below unity. In fact, the one period when poverty appeared to be the most growth responsive was the 1980s, coinciding with the very strong growth in rice production and labor-intensive manufactured exports. However, these are at best tentative inferences since many factors influence these outcomes.

As noted, these coincide with fairly distinct episodes, which include, respectively, policy reform in the wake of the commodity boom, high growth prior to the 1997/98 Asian financial crisis, the 1997/98 Asian financial crisis and recovery, and slower growth during the democratic era. High economic growth does not always reduce poverty at the same rate due to several factors such as income inequality. Growth often benefits higher-income groups more, leaving the poor with fewer

gains. Expanding sectors may require skilled labour, excluding the poor. If growth is concentrated in urban or formal sectors, its impact on rural or informal workers is limited. Redistribution may be insufficient for equitable benefits or slow trickle down effect. Economic growth can drive up prices, eroding the real income of the poor. Without education, healthcare, and basic infrastructure, the poor struggle to benefit from growth and Economic Dualism. Rapidly growing modern sectors may not integrate with stagnant traditional sectors where the poor work. To make growth more effective in reducing poverty, inclusive policies such as education subsidies, social protection, and SME empowerment are essential.

**Human Development and Poverty**

Megnad Desai's work on human development emphasizes the need to move beyond traditional measures of economic growth, such as GDP, and focus on broader indicators of well-being, such as health, education, and social inclusion. In the Indonesian context, human development has become an essential aspect of poverty alleviation strategies. Programs that focus on improving education, healthcare, and social protection have contributed to better human development and have helped reduce poverty (Suryahadi et al., 2019).

**Table 16. Percentage of Poor and Non-Poor Households, and Head Count Index by Household Head's Education Level and Region, 2024**

| | **Household** | | | **Household Not** | | | ***Head Count Index*** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Education** | **Poor** | | | **Poor** | | | **(HCI)** | | |
| | **U** | **R** | **U+R** | **U** | **R** | **U + R** | **U** | **R** | **U + R** |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Not Finishing Elementary | 19,50 | 29,44 | 24,86 | 9,33 | 19,67 | 13,50 | 11,18 | 13,56 | 12,59 |
| Finishing Elemen | 35,59 | 41,27 | 38,67 | 22,50 | 37,23 | 28,43 | 8,71 | 10,42 | 9,62 |
| Junior High Sch. | 19,66 | 15,21 | 17,25 | 16,06 | 18,62 | 17,09 | 6,87 | 7,89 | 7,32 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Senior High Sch. | 22,94 | 12,63 | 17,37 | 37,77 | 19,90 | 30,57 | 3,53 | 6,24 | 4,26 |
| University | 2,31 | 1,45 | 1,85 | 14,34 | 4,58 | 10,41 | 0,96 | 3,21 | 1,37 |

Source: Badan Pusat Statistik, National Social Economic Survey(Susenas) Maret 2024

Based on the highest level of education attained, the percentage of poor household heads with low education (not completing primary school or equivalent) is higher compared to non-poor households (Table 13). This finding shows that poor household heads generally have lower education levels than non-poor household heads. This pattern is similar in both urban and rural areas, indicating that low education levels are a common issue affecting poverty across different regions.

Additionally, Table 13 reveals that the Head Count Index for households whose heads have an education level of primary school or below is higher compared to the HCI for households whose heads have at least a junior secondary education. This suggests that poor households are more prevalent among groups with lower education levels. The low education level of household heads may hinder their opportunities to secure jobs with adequate income, thereby reinforcing the link between low education and the risk of poverty in the long term.

Amartya Sen's concept of freedom and capability also provides a valuable framework for understanding poverty in Indonesia. Sen argues that poverty should not just be seen as a lack of income, but as the deprivation of opportunities and freedoms that enable individuals to lead a fulfilling life (Sen, 1999). In Indonesia, policies that focus on enhancing human capabilities, such as expanding access to education and healthcare, are crucial for reducing poverty in the long term. Another debate focuses on whether to continue expanding access to education or to concentrate on improving the quality of education. Internationally comparable test scores show particularly low education quality in developing economies. This has led international institutions and economists increasingly to emphasize the need to prioritize quality to promote economic development. However, study by Amory Gethin of IMF in 2023 shows that education quantity, not quality, was at the center of global poverty reduction. From 1980 to 2019, the share of the world's citizens with no schooling declined from 35 percent to 15 percent, while the share of adults with at least some secondary education grew from 25 percent to 60 percent.

Meanwhile, education quality based on test scores stagnated. India's District Primary Education Program, implemented in 1994, is particularly illustrative. The University of California San Diego's Gaurav Khanna found that the program significantly expanded access to primary education, with no effect on education quality (Khanna 2023). Yet it generated a 13 percent increase in earnings per year of schooling. In a world where two-thirds of global poverty reduction since 1980 was driven by expanded access to schooling, it seems unlikely that focusing on quality alone will be enough to promote further inclusive growth.

Education accounts for 50% of global economic growth, 70% of income gains among the world's poorest 20% individuals, and 40% of extreme poverty reduction since 1980. It also explains over 50% of improvements in the share of labour income accruing to women. Combining indirect investment benefits from education with measures of direct government redistribution brings the contribution of public policies to extreme poverty reduction to at least 50%. (Gethin, 2023)

Study by Firmansyah & Khairunisa in 22 on percentage of poor people in 34 provinces in Indonesia between 2017-2022 using panel regressing econometric model shows that education proxied by length of study have a significant effect on reducing the percentage of the poor people in Indonesia.

Policymakers and economists sometimes do not evaluate education policy the way they do other economic factors, they assume that education has a average return of 10 percent. In the presence of technological progress, however, the returns are much larger. Failure to expand access to education would represent an enormous missed opportunity to enhance inclusive growth. Authorities should thus look to the future when it comes to education. Given the major developments in AI and other technologies that are coming, it is likely that expanded access to education will be particularly beneficial, perhaps even more so than in the past. This also means that policymakers should actively promote policies that encourage the adoption of these technologies. There is a close interdependence between education and other dimensions of any economy. Education alone is unlikely to be particularly useful unless linked with other complementary policies.

## Water Source

### Poor Households Have Lower Access to Safe Water Compared to Non-Poor Households

Access to safe drinking water is one of the key indicators in the SDGs, particularly Indicator 6.1.1*, which measures the percentage of households with access to safely managed drinking water services. Since 2019, this standard has followed SDG guidelines, defining access to safe drinking water as the use of primary water sources such as piped water, protected water sources, or rainwater. Protected water sources include boreholes/pumps, protected wells, and protected springs. Households using bottled water are also considered to have access to safe drinking water if the water source for bathing and washing meets these criteria.

Data shows that the percentage of non-poor households with access to safe water as a drinking water source reaches 93.01 percent, higher than poor households, which only account for 87.91

percent. Meanwhile, 12.09 percent of poor households lack access to safe drinking water, a higher proportion than non-poor households, which is only 6.99 percent.

The Head Count Index (HCI) reflects this disparity, where the HCI for households without access to safe water is 11.91 percent, higher than the 6.89 percent for households with access to safe water. This indicates that limited access to safe drinking water remains a significant issue for poor households. The lack of access to safe drinking water not only affects health but also potentially increases the economic burden and time constraints for poor households, as they may need to spend extra costs or travel longer distances to obtain clean water.

**Table 17. Drinking Water Poor Household and Non-Poor Household**

| **Drinking water** | **Poor Household** | | | **Non-Poor Household** | | | ***Head Count Index*** | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **(HCI)** | |
| | **U** | **R** | **U + R** | **U** | **R** | **U + R** | **U** | **R** | **U+ R** |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| No Access | 7,46 | 16,03 | 12,09 | 3,20 | 12,61 | 6,99 | 12,31 | 11,76 | 11,91 |
| Access availabl | 92,54 | 83,97 | 87,91 | 96,80 | 87,39 | 93,01 | 5,45 | 9,15 | 6,89 |

Catatan:
K = Urban D = Rural K + D = Urban + Rural
Source: Central Statisctic Buerau, National Social Economic Survey March 2024

## Critical Importance of Food Production, Reducing Dependence on Imports, and Food Security in Indonesia

Food security remains one of the most pressing issues for Indonesia, a nation that is both an agricultural powerhouse and a significant importer of food. As the fourth most populous country in the world, Indonesia faces the dual challenge of ensuring a sufficient and stable food supply for its growing population, while also addressing the broader economic impacts of food imports and climate change. The Indonesian government and various organizations have implemented numerous strategies to boost domestic food production and reduce reliance on imports, with varying degrees of success. This section explores the critical importance of food production, the nation's reliance on imports, and the current state of food security, underpinned by extensive research, studies, and policies aimed at achieving food sufficiency and resilience in the face of evolving challenges.

Food security is defined as the condition where all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs for an active and healthy life (FAO, 2021). In Indonesia, food security is a critical issue, as more than 20% of the population lives in poverty, with many relying on food assistance and government subsidies to survive (Suryahadi et al., 2020). According to the World Bank (2021), approximately 35 million people in Indonesia are classified as food insecure, primarily in rural and remote areas. These regions are heavily dependent on local agricultural production for both

livelihood and food supply, and any disruptions in these systems directly affect their vulnerability to food insecurity.

In 2021, Indonesia's food security index was reported at 56 out of 100, marking it as a country with moderate food security (FAO, 2021). This reflects a mixed scenario of relatively stable food production systems interspersed with localized challenges in food availability and access. Rural households face the most significant burden, where food consumption depends heavily on the harvest cycle. Families in these regions often face income volatility, as fluctuations in food prices and weather-related disruptions can significantly alter their ability to afford or access food (Purnomo & Oktaviani, 2020).

Food price stability (rice in particular) is vital for Indonesia in terms of poverty eradication as Indonesians spend a large proportion of their disposable incomes on rice (between 22-26 percent of disposable incomes). Other important food commodities consumed by the (near) poor are chicken eggs, chicken meat, instant noodles, sugar and bread. So, rice price pressures (for example due to bad harvests) can have serious consequences for those who are poor or near poor. In fact, modest inflationary pressures can push a significant number of near poor people into full-blown poverty.

Agriculture has long been a cornerstone of Indonesia’s economy. As of 2020, the agricultural sector contributed approximately 13% to the country’s GDP, employing around 33% of the workforce (World Bank, 2020). The sector encompasses various subsectors, including food crops (rice, maize, cassava), horticulture, fisheries, and livestock. Rice is the staple food of Indonesia, and the country is among the top ten producers globally, with nearly 50 million metric tons of rice produced annually (Indonesian Ministry of Agriculture, 2020).

However, despite the large-scale production of agricultural goods, Indonesia is still a significant importer of food products, particularly for non-rice staples such as wheat, sugar, and soybeans. In 2020, the country imported approximately 10 million tons of rice and other essential foods, costing billions of dollars (Ministry of Agriculture, 2020). This reliance on food imports leaves Indonesia vulnerable to international price fluctuations, which can significantly impact domestic food prices, making food less affordable for the poorest households.

The issue of food insecurity in Indonesia has been further exacerbated by climate change. According to research conducted by the Center for Climate Change and Policy Studies (2021), extreme weather events such as droughts, floods, and rising temperatures have disrupted agricultural production, particularly in key farming regions like Java and Sumatra. These weather shocks have led to crop failures, decreased yields, and increased food prices, which disproportionately affect low-income households that are less able to absorb such economic shocks (Suryahadi et al., 2019).

Reducing Indonesia’s reliance on food imports is crucial for enhancing food security and stabilizing prices. The Indonesian government has pursued various strategies to boost domestic food production and reduce dependence on imported goods, yet challenges persist. One of the key strategies has been the focus on increasing self-sufficiency in rice production.

Rice is the most important food crop in Indonesia, not only as a staple food but also as a significant cultural and political symbol. In 2015, President Joko Widodo announced a target for Indonesia to become self-sufficient in rice by 2017. The government implemented a series of measures, including expanding rice production areas, improving irrigation systems, providing subsidies for fertilizers and seeds, and supporting smallholder farmers with training and technical assistance (Ministry of Agriculture, 2017).

Although various measures have been implemented, Indonesia has yet to achieve full rice self-sufficiency. Despite a rise in rice production following policy reforms in 2015, the nation still relies on imports to bridge the gap between supply and demand, especially during harvest failures or when adverse weather conditions hinder output. By 2020, Indonesia had imported around 10 million tons of rice, which accounted for a significant share of its total consumption (Ministry of Agriculture, 2020).

According to Timmer (2021), while advancements in agricultural productivity have been notable, attaining complete self-reliance in rice production remains challenging. Rapid urban expansion, shrinking farmland due to land-use changes, and the persistent effects of climate change make self-sufficiency difficult to sustain. Furthermore, inefficiencies in logistics such as inadequate transportation networks and an underdeveloped rice milling sector, further exacerbate the nation’s dependence on imported rice.

Beyond rice, Indonesia has been making efforts to broaden its agricultural output to enhance food security and lessen reliance on foreign markets. However, key staple crops such as maize, soybeans, and wheat are still largely imported, exposing the country to fluctuations in global prices. For instance, approximately 80% of Indonesia’s wheat supply comes from imports, making it vulnerable to external market shocks (Indonesian Ministry of Agriculture, 2020).

To address this dependency, the government has introduced programs aimed at boosting local production of these essential crops. The "Swasembada Pangan" (Food Self-Sufficiency) initiative sought to expand maize and soybean cultivation, but the results have been modest at best (Purnomo & Oktaviani, 2021). Studies indicate that domestic output of these commodities continues to lag behind demand, leading to persistent import reliance and higher prices within the local market (Suryahadi et al., 2019).

Ensuring national food security goes beyond increasing crop yields, it also involves fostering a resilient and equitable food system capable of withstanding economic and environmental shocks. With climate change posing an increasing threat, sustainable agricultural practices have become a crucial component of Indonesia’s long-term food security strategy.

## Climate Resilience and Food Security

Indonesia is highly vulnerable to the impacts of climate change, particularly in terms of agriculture. Rising temperatures, more frequent and severe droughts, and erratic rainfall patterns have made it more difficult to predict harvests and maintain consistent agricultural output. Research by Purnomo & Oktaviani (2021) highlights that the effects of climate change have already led to crop failures in key food-producing regions, further intensifying food insecurity among the rural poor.

To address these challenges, the government has promoted climate-resilient agricultural practices, including the use of drought-resistant crops, the development of water-efficient irrigation systems, and the adoption of integrated pest management techniques. According to a study by the Asian Development Bank (2020), Indonesia's National Action Plan for Climate Change Adaptation (RAN-API) incorporates a focus on agricultural adaptation to climate change, with an emphasis on promoting sustainable land management and improving agricultural productivity while mitigating the impacts of extreme weather events.

Moreover, integrating climate resilience into the agricultural sector is seen as a way to safeguard food production for future generations. The government has partnered with international organizations, including the FAO, to improve climate-resilient farming techniques and increase food self-sufficiency. By strengthening agricultural systems, improving water management, and adopting climate-smart agriculture practices, Indonesia can build a more sustainable food system that will help mitigate the impacts of climate change on food security (FAO, 2021).

The integration of technology into agriculture is another critical factor in improving food security in Indonesia. Digital technologies, such as satellite mapping, precision farming, and blockchain for supply chain transparency, have the potential to revolutionize Indonesia's agricultural sector. According to a study by Suryahadi et al. (2019), technology adoption has been linked to higher productivity and more efficient farming practices. The use of drones for crop monitoring, mobile apps for market information, and digital platforms for direct farmer-to-consumer sales have already shown promise in improving food security by enhancing productivity and reducing food waste.

Moreover, the development of sustainable food technologies, such as vertical farming and aquaponics, could offer solutions to food production challenges in urban areas, where space for traditional farming is limited. These technologies can provide a reliable source of food with a lower environmental footprint, which is crucial for maintaining food security in urbanizing regions of Indonesia (Purnomo & Oktaviani, 2021

In Indonesia, a nation that is a large producer of staple crops, the expansion of food production can stimulate rural economies and reduce poverty. According to BPS (2022), the agricultural sector employs a significant portion of the Indonesian population, particularly in rural areas. Increased agricultural productivity allows for higher incomes among rural populations, reducing poverty levels in these areas (Bappenas, 2023). By expanding food production, Indonesia can also reduce its dependence on food imports, which can fluctuate in response to global market conditions. This has particular importance given Indonesia's vulnerability to global food price shocks, which can exacerbate poverty and inequality, especially in the poorest regions (OECD, 2022).

The Indonesian government has been focusing on increasing food production, with initiatives to boost rice, maize, and soybean production. According to Tambunan (2019), these efforts have been part of the broader agricultural reform program aimed at increasing food self-sufficiency. Higher domestic food production would not only boost local employment but also enhance national food security, making food more affordable and accessible, particularly for low-income households.

Moreover, the expansion of food production can have broader economic implications. Increased agricultural output can lead to the development of supply chains, infrastructure improvements, and the establishment of processing industries, all of which generate employment. This economic expansion can lead to higher incomes, which in turn contributes to the reduction of poverty (Bappenas, 2023). According to Atkinson (2015), economic growth that emphasizes agricultural productivity tends to reduce income disparities in developing countries by providing opportunities to lower-income groups that depend heavily on agriculture.

**Food Security: A Pathway to Reducing Inequality**

Food security is closely linked to both poverty reduction and the reduction of economic inequality. As Ravallion (2016) points out, a nation's food security is a key determinant of whether its poorest populations can escape poverty. If people cannot afford food, their productivity will remain low, and they will be trapped in a cycle of poverty. As such, food insecurity increases inequality, as it disproportionately affects low-income and vulnerable populations, including children and women (Wagstaff, Bales, & Bredenkamp, 2018).

Indonesia's current challenge is ensuring food security in the face of rapid urbanization, climate change, and an ever-increasing population. Hallegatte et al. (2016) argue that climate change poses significant threats to food security, as changes in temperature, rainfall patterns, and extreme weather events could reduce agricultural yields. The role of climate resilience, alongside food security, becomes particularly important in mitigating these impacts. For example, food production systems that integrate climate-resilient practices such as drought-resistant crop varieties, improved irrigation, and agroforestry are critical to ensuring food security, especially in Indonesia's most vulnerable regions (LIPI, 2022).

The government of Indonesia has already recognized the need for a multi-dimensional approach to food security, with policies aimed at enhancing domestic food production while also focusing on reducing inequality in food access. As the World Bank (2021) notes, policies aimed at improving food access among low-income groups are necessary for alleviating both food insecurity and inequality. This includes policies such as subsidies for basic food items, targeted cash transfers to poor households, and social safety nets designed to protect the most vulnerable groups from food price fluctuations.

**The "Makan Bergizi Gratis (MBG)" (Free Nutritious Meals) program** is a significant initiative by the Indonesian government aimed at combating malnutrition and reducing poverty. Launched in January 2025 under President Prabowo Subianto's administration, the program intends to provide free nutritious meals to children and pregnant women of approximately 83 million people across the country. An average meal is expected to cost Rp10,000 per day, and the total $28bn cost is expected to include setting up the kitchens and other operational costs. Indonesia has budgeted Rp.107 trillion ($1.94bn) the programme,is set to be one of the largest global welfare programs. As comparison, the US National School Lunch Program (USD 18.7 billion) and India's Mid-Day Meal Scheme (USD 1.39 billion).

The program operates under the auspices of the National Nutrition Agency, which oversees its implementation. The program's execution involves collaboration between

various governmental bodies, including the National Economic Council (DEN). This council plays a pivotal role in monitoring and assessing the program's impact on economic growth and poverty alleviation. The Free Nutritious Meals program is projected to have a notable effect on poverty reduction in Indonesia. The program is expected to stimulate economic growth by creating approximately 1.9 million new jobs, thereby enhancing the economic ecosystem and contributing to poverty reduction. Estimates suggest that the program could lower the poverty rate to 5.8% percent from the current poverty rate f 8.75%.

The MBG program is one of the largest social welfare initiatives globally, aiming to improve nutrition and reduce poverty through free meal distribution. Malnutrition challenges our understanding of well-being and its complex determinants. Many now suffer malnutrition, not only due to both macro and micro-nutrient deprivation but also due to the growing significance of diet-related non-communicable diseases.While the program's impact on GDP is positive albeit limited, it generates significant employment, particularly in agriculture and services. Simulations show a potential large reduction in poverty, especially in rural areas, and a decrease in income inequality as measured by the Gini coefficient.

In summary, while the Free Nutritious Meals program is primarily designed to address malnutrition, it also serves as a strategic measure to reduce poverty through job creation and direct assistance to vulnerable populations.

**The Link Between Food Security, Poverty, and Inequality in Indonesia**

Research has consistently shown that food security is a cornerstone of poverty reduction efforts. In a study on rural poverty in Indonesia, Yusuf & Resosudarmo (2019) found that rural poverty was significantly higher in areas where food insecurity was prevalent. They argue that expanding food production could help lower food prices, making food more accessible to poorer populations. Moreover, when agricultural productivity increases, there is a direct impact on rural income, providing a significant opportunity to reduce poverty in these areas. Besides food security, the latest government program

In Indonesia, poverty and inequality are compounded by spatial disparities in food security. Rural and remote areas tend to experience higher rates of food insecurity and poverty compared to urban areas (BPS, 2022). In these areas, food insecurity limits the economic potential of individuals, as they lack the resources to invest in health, education, and entrepreneurship. Expanding food production can help increase food availability in these regions, ultimately enhancing income opportunities and providing a more equitable economic environment (Gani & Budiharsana, 2021).

Furthermore, food security plays a role in gender inequality. According to Sen (1999), women's ability to access food directly impacts their health, productivity, and ability to participate in

economic activities. In Indonesia, where women in rural areas often engage in subsistence farming, food insecurity disproportionately affects women, reinforcing existing gender inequalities. By expanding food production and ensuring food security, women in rural areas can have more opportunities to improve their economic standing, which in turn helps reduce gender inequality (Wagstaff, Bales, & Bredenkamp, 2018).

**Policy Recommendation**

1.Promote Equitable Economic Growth. Policies should focus on inclusive growth that ensures the benefits of economic development are widely distributed across regions, sectors, and social groups. This includes investing in rural areas, enhancing access to education and healthcare, and improving social protection programs for vulnerable groups (Suryahadi et al., 2019).

2.Implement Multi-Dimensional Poverty Reduction Strategies. To effectively tackle poverty, Indonesia should adopt a multi-dimensional approach that goes beyond income and incorporates factors such as education, health, and living standards. This approach is aligned with the concepts of human development and capabilities proposed by Amartya Sen and Megnad Desai, emphasizing the need for policies that enhance individuals' opportunities to lead fulfilling lives (Sen, 1999; Desai, 2020).

3.Improve Food Security. Policies aimed at improving food production, ensuring stable food prices, and enhancing access to nutritious food are essential for reducing poverty in Indonesia. Increasing food self-sufficiency and promoting sustainable farming practices will help improve food security, particularly for vulnerable populations (Timmer, 2021). The launching of MBG or free meal programme by the government is part of the food security porgramme that estimated could reduce poverty to 5.8% and cerate employment for 1.9 million people.

4.Focus on the Vulnerable and Marginalized Groups: The poorest and most marginalized groups, such as those in rural areas, indigenous communities, and women, should be prioritized in poverty reduction efforts. Specific policies should be designed to address their unique needs, such as improving access to education, healthcare, and economic opportunities.

5. Support Smallholder farmers. Addressing food security as a means of combating inequality requires comprehensive and targeted government interventions. One important aspect of policy is the need to support smallholder farmers, who are crucial for Indonesia's food security. According to Dollar & Kraay (2002), agricultural policies that support smallholder farmers can help reduce poverty by increasing farm income and creating rural jobs. Policies should focus on improving farmers' access to technology, credit, and markets, which can lead to higher agricultural productivity.

6. Increase Investment in Climate-Resilient Agriculture. The government should continue to prioritize investment in climate-resilient farming practices to ensure the sustainability of food production in the face of climate change. This includes adopting drought-resistant crop varieties, improving irrigation systems, and promoting sustainable land management practices. Climate-resilient agricultural practices are crucial for long-term food security in Indonesia. By integrating sustainable farming techniques, such as agroforestry, crop rotation, and water-saving irrigation systems, the government can protect food production from the adverse effects

of climate change. LIPI (2022) emphasizes that building climate resilience in agriculture is vital for maintaining food security in the face of changing weather patterns. Policies that promote sustainable farming practices and invest in research and development of climate-resistant crops can ensure that food production remains stable even in the face of environmental challenges.

7. Promote technological innovation in agriculture. The adoption of digital technologies in agriculture can significantly improve productivity and food security. Policies should encourage the use of precision farming, satellite monitoring, and digital platforms that can connect farmers directly to markets. the role of digital technologies in food production should not be overlooked. The diffusion of digital technologies in agriculture, such as precision farming, could dramatically improve productivity and sustainability in the agricultural sector. As noted by Brynjolfsson & McAfee (2014), digitalization can transform industries by providing better access to information, improving supply chain efficiency, and enabling farmers to access global markets. These improvements can help lower food prices and increase farmers' incomes, contributing to both poverty reduction and the reduction of inequality.

8.Enhance Rural Development Programs. To reduce food insecurity in rural areas, the government should enhance programs that improve infrastructure, access to credit, and education for smallholder farmers. This would help increase productivity and reduce the vulnerability of rural communities to economic shocks.

9.Diversify Food Production. Indonesia must diversify its food production beyond rice to ensure self-sufficiency in other key staples such as maize, soybeans, and wheat. The government should provide incentives for the expansion of these crops, as well as support for the development of sustainable farming practices in these sectors.

10.Strengthen Domestic Supply Chain. Improving the efficiency of the domestic supply chain is essential for reducing food price volatility. Investments in transport infrastructure, storage facilities, and market linkages will help stabilize food prices and make food more affordable for the poorest households.

11.Food Accessibility. Finally, the Indonesian government should continue to focus on food accessibility through social safety nets, food subsidies, and cash transfer programs. As noted by Hallegatte et al. (2016), these policies help mitigate the impact of rising food prices on vulnerable populations, thus reducing food insecurity and poverty. By ensuring that the most vulnerable populations have access to sufficient, nutritious food, the government can directly address issues of inequality.

## Conclusion

The analysis of poverty, inequality, and government policies in Indonesia highlights several key points for future policy development. First, while economic growth has played a significant role in reducing poverty and have success in several areas, income inequality remains a persistent challenge. It is now going at a slow pace as it is the bottom base of Indonesia's poor

who now need to be alleviated (which is a more complicated affair). Living standards in Indonesia have risen more or less commensurately with economic growth. Although the majority of Indonesians are still poor or what may be termed “precariously nonpoor,” poverty incidence has fallen rapidly. It has generally fallen more quickly during periods of faster economic growth, with the converse also being true. However, the problem is that with the current pace it will take decades before poverty is erased altogether across Indonesia. And that's a tough prospect for the many millions of poor people. Policies that focus on equitable growth, improved access to services, and targeted interventions for marginalized communities are essential for reducing poverty in Indonesia. Addressing inequality will require more targeted interventions, particularly in rural areas where access to services and infrastructure is still limited. The government’s focus on infrastructure development and social protection programs has had positive effects on poverty reduction, but these policies need to be expanded and tailored to meet the specific needs of the poorest communities (Aisyah, 2020).

Second, the role of digitalization and climate resilience in poverty alleviation cannot be overstated. Digital technologies provide new opportunities for the poor to access services and improve their livelihoods, while climate-resilient policies help safeguard vulnerable communities from environmental shocks. Future policies must focus on closing the digital divide and promoting sustainable development to ensure long-term poverty reduction.

Third, The Indonesian government must continue to focus on policies that enhance food production and ensure food security, particularly for vulnerable populations. Supporting smallholder farmers, promoting digital technologies in agriculture, and addressing the impacts of climate change are crucial steps toward achieving long-term food security. Additionally, policies that focus on food accessibility through subsidies and social safety nets will help reduce inequality and poverty in the country. To address the critical issue of food production, food security, and their impact on poverty and inequality in Indonesia, we must explore how enhancing food security and expanding food production directly influence economic outcomes. These areas are interrelated with poverty alleviation, as food is an essential factor for survival and productivity, while food security ensures that individuals have reliable access to affordable, nutritious food. And to ensure that these policies are effective, the government must invest in research and development of climate-resilient agricultural practices, improve farmers' access to credit and markets, and provide targeted support for women and marginalized groups in rural areas. By addressing food insecurity as a key factor in poverty and inequality, Indonesia can create a more inclusive and sustainable economic future.

The challenges facing Indonesia's food security are multifaceted, involving issues of climate resilience, dependency on imports, agricultural productivity, and sustainable farming practices. While significant progress has been made in increasing domestic food production, the country remains vulnerable to global market fluctuations and climate-induced disruptions. To ensure long-term food security and reduce poverty, Indonesia must continue to focus on enhancing agricultural productivity, investing in climate-resilient technologies, and reducing dependence on food imports.

In conclusion, expanding food production and enhancing food security in Indonesia are crucial strategies for alleviating poverty and reducing inequality. By supporting domestic food production, ensuring that food is accessible to all, and addressing the impacts of climate change,

Indonesia can provide more equitable opportunities for its citizens, especially those in rural and impoverished areas. Food security policies that target smallholder farmers, integrate digital technologies, and promote climate-resilient practices are essential in building a more inclusive and prosperous society. The link between food security, poverty, and inequality is clear: when people have reliable access to nutritious food, they can invest in their health, education, and livelihoods, ultimately contributing to a more stable and equitable society.

Finally, addressing poverty requires a holistic approach that goes beyond income and includes factors such as education, health, and social inclusion. While economic growth and digitalization have the potential to reduce poverty, issues such as income inequality, food insecurity, and climate change remain significant barriers. Addressing these challenges requires policies that go beyond GDP growth and target the underlying factors that perpetuate poverty and inequality. By adopting a multi-dimensional approach to poverty reduction, Indonesia can create a more inclusive and sustainable path to development

**References**


- Amartya, S. (1999). *Development as Freedom*. Oxford University Press.
- Amory Gethin, (2023). "Distributional Growth Accounting: Education and the Reduction of Global Poverty," Working Papers halshs-04423765, HAL.
- Autor, D., Levy, F., & Murnane, R. J. (2003). The skill content of recent technological change: An empirical exploration. *The Quarterly Journal of Economics, 118*(4), 1279-1333.
- Atkinson, A. B. (2015). *Inequality: What can be done?* Harvard University Press.
- Asian Development Bank. (2020). *Indonesia's Healthcare System: Challenges and Reform Initiatives*. ADB Publications.
- Bappenas. (2023). *Indonesia's Labor Market Report 2023: Addressing Underemployment and Wage Disparities*. Jakarta: Bappenas.
- Basu, K. (2022). *Beyond the Invisible Hand: Economic Growth and the Struggle Against Poverty*. Princeton University Press.
- BPS. (2022). *National Socioeconomic Survey (SUSENAS): Education and Poverty in Indonesia*. Jakarta: Badan Pusat Statistik.
- Burke, M., Hsiang, S. M., & Miguel, E. (2015). Global non-linear effect of temperature on economic production. *Nature, 527*(7577), 235-239.
- Brynjolfsson, E., & McAfee, A. (2014). *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. W.W. Norton & Company.
- Card, D., Kluve, J., & Weber, A. (2018). What works? A meta analysis of recent active labor market program evaluations. *Journal of the European Economic Association, 16*(3), 894-931.
- Carneiro, P., & Heckman, J. J. (2003). Human Capital Policy. In J. Heckman & A. Krueger (Eds.), *Inequality in America: What Role for Human Capital Policies?* MIT Press.
- Deaton, A. (2013). *The Great Escape: Health, Wealth, and the Origins of Inequality*. Princeton University Press.

- Dollar, D., & Kraay, A. (2002). Growth is good for the poor. *Journal of Economic Growth, 7*(3), 195-225.
- Feenstra, R. C., & Hanson, G. H. (2003). Global production sharing and rising inequality: A survey of trade and wages. In K. Choi & J. Harrigan (Eds.), *Handbook of International Trade* (pp. 146-198). Blackwell Publishing.
- Frimasyah A, Khairunusa,(2023). *The Impact of Education on Poverty Alleviation in Indonesia Using Panel Data Analysis*. Emerging Statistics and Data Science Journal Vol 1, No.2, 2023
- Gani, A., & Budiharsana, M. (2021). Indonesia's Universal Health Coverage: Policy Successes and Challenges. *Health Policy Journal, 23*(2), 105-118.
- Hallegatte, S., Bangalore, M., & Vogt-Schilb, A. (2016). *Shock Waves: Managing the Impacts of Climate Change on Poverty*. World Bank Publications.
- Hanushek, E. A., & Woessmann, L. (2020). Education, knowledge capital, and economic growth. *Journal of Economic Perspectives, 34*(3), 85-106.
- Hill, H. (2020). Manufacturing and Economic Development in Indonesia: The Role of Export-Oriented Policies. *ASEAN Economic Bulletin, 37*(2), 245-269.
- ILO. (2022). *Informal Employment in Indonesia: Trends and Policy Recommendations*. International Labour Organization Reports.
- Khan, M.A, Hasseb, M, Samshudin, S.(2016).*The Impact of Foreign Remittances on Poverty Alleviation: Global Evidence*. Economics and Sociology 9(1):264-281. ISSN 2071-789X
- Krugman, P. (1994). Competitiveness: A dangerous obsession. *Foreign Affairs, 73*(2), 28-44.
- LIPI. (2022). *Climate Resilience and Poverty Alleviation in Indonesia*. Indonesian Institute of Sciences Research Reports.
- McKinsey. (2021). The Digital Revolution and Job Market Transformations in Southeast Asia. *McKinsey Global Institute*.
- Milanovic, B. (2019). *Capitalism, Alone: The Future of the System That Rules the World*. Harvard University Press.
- Molyneux, M. (2020). *Sustainable Development and Climate Resilience in Developing Economies*. Cambridge University Press.
- OECD. (2022). *Economic Inequality in Indonesia: Policy Implications and Solutions*. OECD Publishing.
- Oxfam. (2017). *Towards a More Equal Indonesia: How Reducing Inequality Could Boost Economic Growth*. Oxfam Reports.
- Piketty, T. (2014). *Capital in the Twenty-First Century*. Harvard University Press.
- Ravallion, M. (2016). *The Economics of Poverty: History, Measurement, and Policy*. Oxford University Press.
- Rodrik, D. (2018). *Straight Talk on Trade: Ideas for a Sane World Economy*. Princeton University Press.
- Sen, A. (1999). *Development as Freedom*. Oxford University Press.
- Stiglitz, J. E. (2012). *The Price of Inequality: How Today's Divided Society Endangers Our Future*. W.W. Norton & Company.
- Suryahadi, Hadiwijaya & Sumarto (2012)."Economic Growth and Poverty Reduction in Indonesia Before and After the Asian Financial Crisis" Bulletin of Indonesian Economic Studies.Vol.48(2):209-227.August 2012.

- Tambunan, T. T. H. (2019). Economic Growth and Poverty Reduction in Indonesia: Examining the Role of SME Development. *Journal of Economic Policy, 12*(1), 47-68.
- Tampubolon J., Nababan T.(2018).”International Trade and North-Sumatra’s Local Economy”. Journal of Economics and Policy. Vol 11 (2) (2018): 323-337,.Universitas Nomessen, Medan, Indonesia.
- Todaro, M. P., & Smith, S. C. (2020). *Economic Development*. Pearson.
- UNESCO. (2021). *Global Education Monitoring Report: Education Inequality in Indonesia*. UNESCO Publications.
- Wagstaff, A., Bales, S., & Bredenkamp, C. (2018). Universal Health Coverage and Economic Growth in Developing Countries. *The Lancet Global Health, 6*(2), 150-160.
- World Bank. (2021). *Indonesia’s Economic Outlook: Reducing Inequality and Boosting Growth*. World Bank Group.
- World Bank. (2022). *Education and Human Capital in Indonesia: Achievements and Challenges*. World Bank Group.
- Yusuf, A. A., & Resosudarmo, B. P. (2019). Reducing Unemployment and Poverty in Indonesia: The Role of Active Labor Market Policies. *Journal of Southeast Asian Economies, 36*(1), 45-72.