

# THE IMPACT OF FINTECH LENDING ON INDONESIA'S MACROECONOMIC PERFORMANCE

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**Abstract.** The existence of Financial Technology (Fintech) has experienced rapid growth in the financial landscape in developing countries, including the type of Fintech lending, often called Peer to Peer (P2P) Lending. Adapting Fintech lending with digital financing innovation offerings can support sustainable national economic growth. This study aims to analyze the impact of Fintech lending on three leading macroeconomic indicators in Indonesia during the post-COVID-19 pandemic period. This study aims to analyze the impact of Fintech lending on four leading macroeconomic indicators in Indonesia during the post-COVID-19 pandemic period by panel data. The methods used is analysis and regression with four analysis models. The results show that Fintech lending significantly drives Indonesia's economic growth, poverty alleviation, and unemployment rates but not with inequality. Fintech lending has a significant favorable influence on economic growth. A negative relationship was found between poverty and unemployment, indicating the potential of fintech lending to increase financial inclusion and reduce economic disparities. This study concludes that if appropriately managed, Fintech lending can catalyze the Indonesian economy. Policy implications include strengthening regulations for consumer protection and mitigating risk management in using Fintech lending.

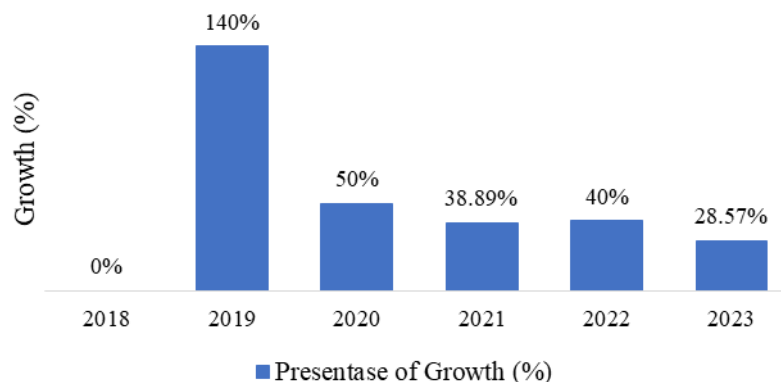
**Keywords:** *fintech lending, economic growth, poverty, unemployment, inequality, Indonesia*

## Introduction

The development of financial technology has become a phenomenon that has grown quite significantly in the financial landscape in Indonesia (Pratiwi et al., 2021; Silalahi, 2021). Fintech lending, or peer-to-peer (P2P) lending, has emerged as a significant innovation in financial services, facilitated by non-bank financial technology-based companies that connect lenders and borrowers through online platforms (Usanti et al., 2019). The emergence of fintech lending, especially in the form of peer-to-peer lending, has been associated with its ability to offer a faster and more accessible loan process, serving a variety of borrowers, including young people, small businesses, and the self-employed (Thahirah and Kasri, 2023). Fintech Lending provides an alternative credit option that provides easy access and efficient loan disbursement and reaches several segments of society that have not been reached by banking services (Maulana and Wiharno, 2022; Najaf et al., 2022; De Roure et al., 2016). In addition, the demand for Fintech Lending is increasingly reflected in a dynamic and innovative business environment, thus driving an increase in the volume and expansion of the reach of Fintech Lending (Maulana and Wiharno, 2022; Oh and Rosenkranz, 2022). The existence of Fintech-lending growth is motivated by the development of digital technology so that the creation of financial access innovations is developing rapidly and can support sustainable national economic growth and increase financial inclusion (Arseto and Soemitra, 2022). Fintech lending has proven to be a significant innovation in the financial industry that continues to grow and adapt amidst regulatory and competitive challenges. Meanwhile, sustainable existence is demonstrated through

market growth, technological innovation, and contributions to financial inclusion. Adapting to technological developments, especially using digital finance, including Fintech lending, stimulates the community's economic productivity, consumption, and behavior patterns (Nopiah et al., 2024).

One key aspect of fintech lending is the use of technology to streamline credit transactions without the need for physical interaction between lenders and borrowers (Usanti et al., 2019). This digitalization of the lending process has increased efficiency and raised concerns about consumer protection and the legal framework governing these transactions (Priskarini and Tejomurti, 2019). The regulatory landscape surrounding fintech lending, especially peer-to-peer lending, has been the subject of scrutiny, with studies focusing on legal principles, collateral requirements, and the implications of financial architecture regulations on the fintech lending ecosystem (Rachmawati et al., 2023; Fithria, 2022; Sitompul, 2018). In Indonesia, fintech lending, especially peer-to-peer lending, signifies the impact of the fourth industrial revolution on the country's economic dynamics (Disemadi et al., 2020). The increasing Internet and smartphone users and the relative penetration of traditional banking services further accelerate this shift to digital financial services. As a result, fintech lending has become a leading player in Indonesia's financial ecosystem, providing an alternative way for individuals and businesses to access financing. In addition, the role of fintech lending in supporting micro, small, and medium enterprises (MSMEs) has become a focal point, emphasizing the potential of these digital financial services to drive economic growth and entrepreneurship in Indonesia (Simamora and Muda, 2022). *Figure 1* shows that the growth of Fintech lending in Indonesia tends to fluctuate. In 2019, Fintech lending grew significantly, reaching 140 percent. This is thought to be due to the transition from traditional financial services to digital services due to the COVID-19 pandemic. However, in 2020, there was a contraction until Fintech lending growth reached 50 percent. This is also due to the impact of the pandemic. Although digital financial services were used, loan disbursements decreased due to sluggish economic activity. The contraction in the growth of Fintech lending loan disbursements occurred until 2021 and increased again in 2020 by 40 percent. However, it fell again by 28.57 percent in 2023. Fintech lending has the potential to contribute to the Indonesian economy by reducing poverty, inequality, and unemployment and increasing economic growth.



**Figure 1.** Fintech lending growth in Indonesia 2018-2023.

Several studies show that online loan access helps communities, especially small-scale agricultural sectors, increase productivity and income (Huang et al., 2021). In

addition, Fintech lending also impacts increasing household and MSME savings to improve economic status (Adbi and Natarajan, 2023; Ozili, 2023; Putri and Christiana, 2021; Venet, 2019). Fintech lending has succeeded in reaching segments of society that do not have access to formal financial loans, especially in rural areas and low-income communities (Kisin and Setyahuni, 2024; Nopiah et al., 2024). However, Fintech lending is only sometimes positive for reducing poverty. Although fintech lending can increase financial access, without proper regulation and adequate financial education, it can also pose a risk of over-indebtedness, which can worsen borrowers' economic conditions (Bateman et al., 2019). In addition, easy access to credit can lead to irresponsible lending, increasing the risk of bankruptcy for inexperienced borrowers (Lee and Shin, 2018). By utilizing digital technology, big data, and advanced algorithms, fintech lending can expand financial access and increase the efficiency of resource allocation, which is thought to contribute to economic growth. This is because Fintech lending allows more individuals or business actors to participate in formal economic activities, encouraging economic growth (Ozili, 2023). In addition, Fintech lending users can increase efficiency in model allocation to productive sectors (Fuster et al., 2019). In the MSME sector, Fintech lending shows higher income growth and job creation (Sheng, 2021). Fintech lending has increased competition and encouraged innovation so that it can stimulate economic activity to be better (Sgro et al., 2019). The speed and flexibility of Fintech lending can accelerate the business cycle, ultimately driving economic growth (Jagtiani and Lemieux, 2018). The positive role of Fintech lending on economic growth also brings challenges and risks that need to be considered. The rapid growth of Fintech lending can cause shocks to financial stability if not regulated properly to avoid predatory practices and the digital divide (Cornelli et al., 2020; Claessens et al., 2018; Gabor and Brooks, 2017).

Fintech lending can contribute to other macroeconomic indicators, such as unemployment rates. Fintech lending creates new jobs in the digital financial technology industry (Cornelli et al., 2020). Fintech lending has helped develop micro, small, and medium enterprises (MSMEs). With the development of MSMEs, it has the potential to open up jobs and reduce unemployment rates (Wang et al., 2021). Fintech lending has encouraged the growth of entrepreneurship and self-employment. Individuals previously unemployed can start their own businesses with capital obtained through the fintech lending platform (Bernstein et al., 2017). In addition, companies that obtain capital through Fintech lending increase their business productivity (Jagtiani and Lemieux, 2018). However, the growth of fintech lending can disrupt jobs in the traditional financial sector, causing short-term unemployment (Sgro et al., 2019). In addition, there is a risk of a skills gap where the existing workforce may not have the skills needed for jobs in the fintech industry (Claessens et al., 2018; Gabor and Brooks, 2017). In addition, Fintech lending is also thought to have an impact on income inequality (Haddad and Hornuf, 2019). Several studies show that Fintech lending has a positive impact on reducing income inequality (Ozili, 2023; Fuster et al., 2019; Sgro et al., 2019; Jagtiani and Lemieux, 2018). However, other studies show the opposite. Fintech lending can cause digital exclusion, potentially exacerbating inequality (Gabor and Brooks, 2017). In addition, a moral hazard practice of fintech lending actors impacts bankruptcy (Claessens et al., 2018) and a point of concentration of wealth in certain groups (Zetzsche et al., 2017). Based on this background, an analysis of the magnitude of the influence of Fintech lending on the Indonesian economy, along with several macroeconomic indicators, is needed.

### *Literature review*

Fintech lending is known as marketplace lending and is a rapidly growing product innovation in the global digital financial industry. Fintech lending offers easier and faster access to credit than traditional financial institutions, especially for people whom the conventional banking system has underserved. Several studies have shown a relationship between Fintech Lending and a country's economy. In this context, fintech lending is seen as having the potential to contribute to increasing economic growth, poverty alleviation, and reducing unemployment and income inequality. Poverty remains a complex global challenge, with access to formal financial services being a key factor in poverty alleviation efforts. Fintech lending has been shown to play an important role in poverty alleviation. Accessibility to financial services through fintech platforms allows individuals and small businesses to obtain previously unaffordable funding, allowing them to invest in their businesses and improve their economic situation (Pramaishshella and Fisabilillah, 2022; Simamora and Muda, 2022). Research highlights that drivers of fintech adoption among MSMEs can lead to increased financial inclusion, which is essential for poverty reduction (Afandi and Amin, 2023). In addition, research conducted by Pramaishshella and Fisabilillah (2022) shows that the rapid expansion of fintech lending is correlated with a decline in poverty rates, as it provides financial resources to those who are usually excluded from the traditional banking system (Pramaishshella and Fisabilillah, 2022). Study from (Huang et al., 2021) found that Fintech lending positively impacts poverty reduction in rural China. Access to Fintech lending as adopting digital financial services increases productivity and income. In addition, Study (Ozili, 2023) shows that Fintech lending can reduce poverty by increasing access to credit for small and medium enterprises (SMEs). However, the effectiveness of Fintech lending in alleviating poverty will depend on adequate digital infrastructure (Ozili, 2023) and proper regulation and adequate financial education to avoid the risk of over-indebtedness, which can worsen the economic conditions of borrowers (Bateman et al., 2019; Lee and Shin, 2018).

The relationship between fintech lending and economic growth has been well documented. Research shows that fintech lending contributes positively to Indonesia's GDP by increasing access to credit, especially for micro, small, and medium enterprises (MSMEs) (Maulana and Wiharno, 2022; Pramaishshella and Fisabilillah, 2022; Simamora and Muda, 2022). The study highlights that P2P lending directly correlates with macroeconomic indicators, including regional economic growth (GRDP) and unemployment rates (Wahyono et al., 2022). Fintech can reduce inflation and strengthen the national currency, encouraging a more conducive environment for economic growth (Narayan, 2020). This is supported by findings confirming that the growth of fintech lending can stimulate economic development by providing the necessary funding for underserved sectors (Maulana and Wiharno, 2022). The increasing development of financing transactions in P2P Lending will positively impact the Indonesian economy (Wajuba et al., 2021). P2P Lending as a digital economic financing platform triggers positive growth in various sectors, both financial markets, real, and capital markets (Oh and Rosenkranz, 2022). In a study by Ozili (2023), fintech lending has significantly increased financial inclusion in many developing countries. This allows more individuals and small businesses to participate in formal economic activities, which drives economic growth.

In addition, Fuster et al. (2019) showed that fintech lending can increase efficiency in capital allocation. Using technology and alternative data allows for more accurate and faster risk assessments so capital can be allocated to productive sectors more efficiently. The unemployment rate is also affected by the rise of Fintech Lending loans. Fintech loans allow businesses to grow and employ more employees, creating jobs (Pramaisshellah and Fisabilillah, 2022; Simamora and Muda, 2022). Study from Sari (2022) shows that the growth of entrepreneurial activities, supported by fintech, can lead to increased employment opportunities, which is very important to reduce unemployment rates. And then study by Sheng (2021) found that access to fintech lending has helped increase the productivity of Micro, Small, and Medium Enterprises (MSMEs). MSMEs that obtain loans through fintech platforms tend to show higher revenue growth and job creation. However, study by Nopiah et al. (2024) shows that Fintech lending can also increase unemployment. This is because many small businesses that receive financing from fintech lending cannot survive long term, resulting in increased unemployment. This business instability is often caused by a lack of managerial understanding and adequate skills among business owners, so they cannot manage loan funds effectively.

Studi Wang et al. (2021) shows that fintech lending has helped Micro, Small, and Medium Enterprises (MSMEs) to grow by providing easier access to capital. These growing MSMEs, in turn, create more jobs, potentially reducing unemployment rates. Studi by Jagtiani and Lemieux (2018) suggests that the speed and flexibility of fintech lending can accelerate the business cycle by providing quick access to capital when needed, allowing businesses to respond to market opportunities more quickly. Study by Bernstein et al. (2017) found that access to fintech lending has driven the growth of entrepreneurship and self-employment. Individuals who may have previously been unemployed can start their own businesses with capital obtained through fintech lending platforms. Although Fintech lending offers many benefits, it also raises legal issues that can affect consumer protection and employment stability in the sector (Suwandono et al., 2024).

## Materials and Methods

This study aims to analyze the impact of Fintech-lending development on three main sectors of macroeconomic indicators in Indonesia during the COVID-19 pandemic. It is descriptive, statistical, and explanatory. The statistical tool used is stata17 (Wooldridge, 2016). The data used is panel data from 2021 to 2022 and is distributed at the provincial level in Indonesia. Data sources are obtained from publication reports of the Financial Services Authority (OJK) and the Central Statistics Agency (BPS) of Indonesia. The independent variable used in this study is single: the amount of loan distribution as an indicator of fintech lending or peer-to-peer lending. Meanwhile, the dependent variables consist of 4 macroeconomic indicators: economic growth, poverty rate, unemployment rate, and income inequality. Economic growth indicators are proxied by the economic growth rate per province, poverty level indicators are the percentage of poverty levels per province, unemployment levels are proxied by the percentage of open unemployment rates (TPT) per province, and Income inequality indicators are the Gini ratio. The unit of analysis used is 34 provinces in Indonesia for the period 2021 to 2023. The analysis methods used are Granger Causality analysis and simple regression analysis with four (4) analysis models. In addition, a robustness test is included to

ensure the reliability of the estimation results. The regression analysis model can be written as follows:

Economic growth regression model  

$$Economic\ Growth_{it} = \beta_{0it} + \beta_{1it}Fintech\ Lending_{it} + \varepsilon_{it} \quad Eq. (1)$$

Poverty regression model  

$$Poverty_{it} = \beta_{0it} + \beta_{1it}Fintech\ Lending_{it} + \varepsilon_{it} \quad Eq. (2)$$

Unemployment level regression model  

$$Unemployment_{it} = \beta_{0it} + \beta_{1it}Fintech\ Lending_{it} + \varepsilon_{it} \quad Eq. (3)$$

Income inequality regression model  

$$Inequality_{it} = \beta_{0it} + \beta_{1it}Fintech\ Lending_{it} + \varepsilon_{it} \quad Eq. (4)$$

## Results and Discussion

Table 1 shows the statistical description used in this study. The description results show the number of research data observations of 102 observations with 34 provinces in Indonesia from 2021 to 2023. The average loan disbursement amounted to 6.11 trillion rupiah. The lowest amount of Fintech lending loan disbursement was 1.18 billion rupiahs in West Papua Province, and the largest was in West Java, reaching 6.53 trillion rupiahs. In addition, economic growth in Indonesia averaged 5.12 percent, with a minimum percentage of -2.46 percent and a maximum of 22.94 percent. The average poverty rate is 10.36 percent. The lowest poverty rate percentage is 4.25 percent, and the highest is 26.86 percent. In terms of the unemployment rate, the average is at 5.02 percent; the highest unemployment rate percentage reaches 9.91 percent, while the lowest reaches only 2.27 percent. In the Income inequality variable, the average value of the inequality index is 0.345. The highest Gini ratio index reaches 0.449, and the lowest is 0.236.

**Table 1.** Statistic descriptive of research data.

Variables	Obs	Mean	Std. Deviation	Minimum	Maximum
Fintech lending	102	6.11e+12	1.30e+13	1.18e+11	6.53e+13
Economic growth	102	5.119118	3.495059	-2.46	22.94
Poverty	102	10.3649	5.234412	4.25	26.86
Unemployment	102	5.02402	1.645271	2.27	9.91
Income inequality	102	0.3456765	0.0443437	0.236	0.449

Next, the regression results are shown in Table 2. The results show the contribution of Fintech lending to the economy in Indonesia through macroeconomic indicator aspects. Macroeconomic indicator aspects are measured by economic growth, poverty rate, open unemployment rate, and Income inequality. Model 1 (Eq. (1) shows that Fintech lending has a positive relationship with economic growth in Indonesia, which means that when Fintech lending loan distribution increases, it will also contribute to increasing economic growth. However, the regression results show significant results in the fixed effect model with a significance level of 10 percent. While not significant in the random effect model. In addition, Fintech lending shows a negative contribution to the poverty rate. This indicates that the greater the amount of Fintech lending loan distribution, the more it will stimulate a decrease in the poverty rate in Indonesia. Model

2 (Eq. (2) shows that both models show significant results below 1 percent. Furthermore, Fintech significantly reduces the unemployment rate using the fixed effect estimate rather than the random one. Model 3 (Eq. (3) shows a negative relationship in the coefficient value, indicating that the unemployment rate decreases when the amount of Fintech lending loan distribution continues to increase. However, Model 4 (Eq. (4) shows that Income inequality increases when the amount of Fintech lending loan distribution also increases. This is proven by the results of the random effect regression, which states that Fintech lending has a positive effect on Income inequality.

**Table 2. Result of panel regression.**

Variables	Coefficient (Std. Error)		Interpretation
	Fixed effect [1]	Random effect [2]	
Dependent: Economic growth			Positive and significant in Eq. (1)
Fintech lending	1.08e-13* (6.27e-14)	2.36e-14 (3.65e-14)	
Constanta	32.53 (6.26)	4.97 (0.61)	
Dependent: Poverty			Negative and significant in both
Fintech lending	-4.65e-14*** (1.62e-14)	-4.87e-14*** (1.57e-14)	
Constanta	10.65 (0.11)	10.66 (0.897)	
Dependent: Unemployment			Negative and significant in Eq. (1)
Fintech lending	-9.57e-14*** (1.90e-14)	-9.56e-15 (1.54e-14)	
Constanta	5.61 (0.13)	5.08 (0.286)	
Dependent: Income inequality			Positive and significant in Eq. (2)
Fintech lending	3.82e-16 (3.02e-16)	6.93e-16*** (2.67e-16)	
Constanta	0.34 (0.002)	0.341 (0.007)	
	Total of observation		102
	Total of groups		34

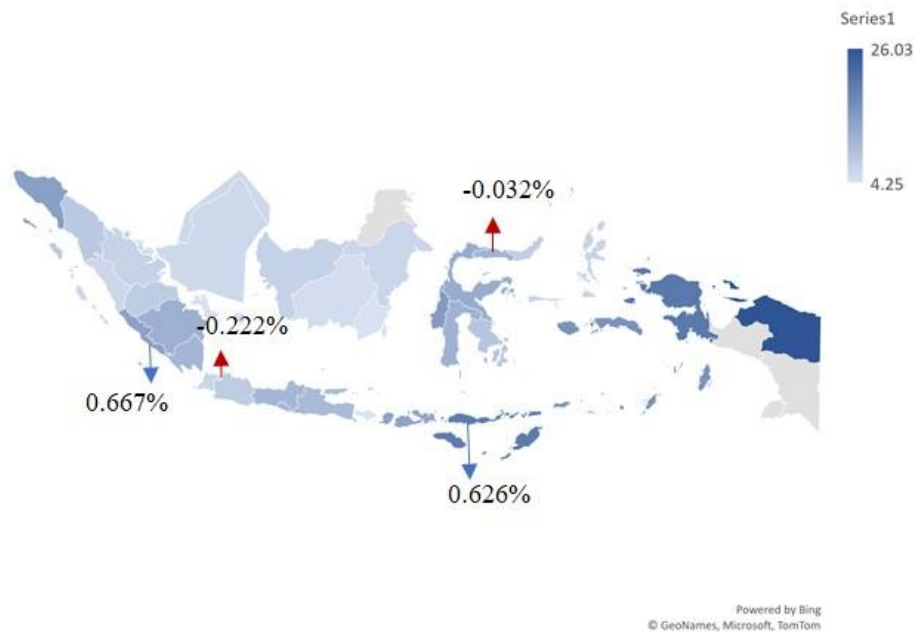
*Noted: Fintech lending indicator is total of loan distribution to borrowers; Significancy level at 1% (0.01)\*\*\*; 5% (0.05)\*\*; and 10% (0.1)\* with robustness test.*

Table 3 shows the results of the best model testing on panel data regression using the Hausman test. The results show that the use of panel data regression with a random effect model is chosen to estimate Model 1, Model 3 and Model 4, namely on the dependent variables of economic growth, open unemployment rate, and Income inequality. At the same time, using a fixed effect model on panel data regression is applied to estimate the Model 2 with the dependent variable of poverty level. Figure 2 shows the growth of Fintech lending loan distribution in Indonesia based on the distribution of poverty levels in Indonesia in 2023. The percentage of poverty levels that are getting higher is shown by the color moving towards dark blue and vice versa. In addition, the mapping shows that East Nusa Tenggara, with a fairly high poverty rate, is also followed by high growth in Fintech lending loan distribution, reaching 0.626 percent. Then, the Bengkulu region, which has the third highest poverty rate on the island of Sumatra, achieved Fintech lending loan distribution growth of 0.667 percent in 2023. The lowest fintech lending distribution, experiencing a decrease of -0.22 percent, was in the Jakarta area, with a poverty rate of 4.44 percent in 2023. Likewise, the Gorontalo region with Fintech lending loan distribution growth decreased to -0.032 percent.

**Table 3. Best model testing-Hausman test.**

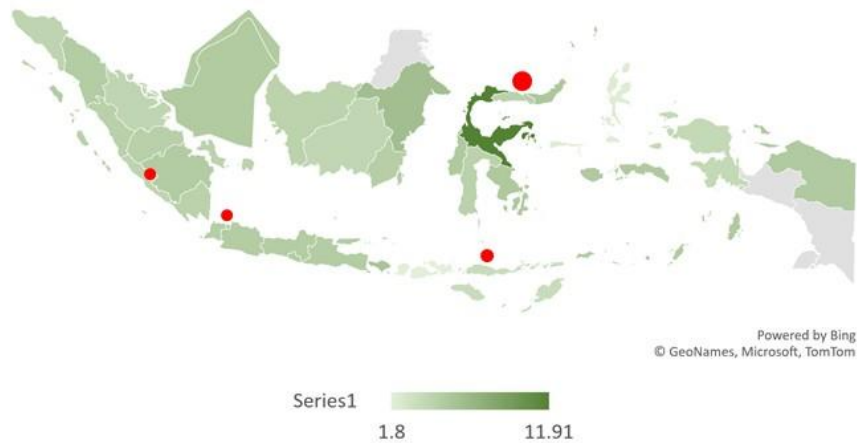
Type of model	P value (prob>chi <sup>2</sup> )	Interpretation
Dependent: Economic growth	0.0987	Random Effect
Dependent: Poverty level	0.5502	Fixed Effect
Dependent: Unemployment	0.0000	Random Effect
Dependent: Income inequality	0.0278	Random Effect

Noted: If  $p \text{ value} > 0.05$  (5%) =  $H_0$  is accepted and random effects is selected as the best model.

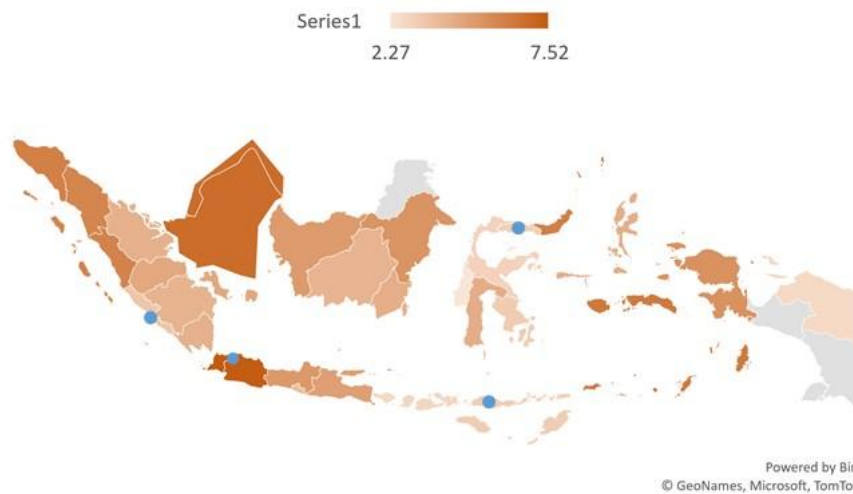


**Figure 2.** Highest and lowest Fintech lending growth based on poverty rate distribution in 2023.

The distribution of the highest and lowest Fintech lending loans in 2023 is the same as in *Figure 2*. *Figure 3* and *Figure 4* show that the highest fintech lending growth is in the East Nusa Tenggara and Bengkulu regions, while the lowest is in the Jakarta and Gorontalo regions. *Figure 3* shows that NTT and Bengkulu have relatively low economic growth of around 4-5 percent on average, as with Jakarta and Gorontalo. Meanwhile, *Figure 4* shows the highest and lowest Fintech lending growth in regions with an average unemployment rate of 2-4 percent for Bengkulu, NTT, and Gorontalo and 6 percent for the Jakarta region. The regression results show that fintech lending has a significant and positive impact on economic growth in Indonesia. This is in line with the study of Wahyono et al. (2022) which found that fintech lending contributes to increasing the Gross Domestic Product (GDP) and developing the business sector, especially for micro, small, and medium enterprises (MSMEs). One relevant study is research, which shows that every 1% increase in fintech loans can increase GRDP by 0.653%. This study emphasizes the importance of fintech in increasing financial access for MSMEs, which are Indonesia's main drivers of economic growth. By providing wider access to capital, fintech lending enables MSMEs to invest and expand their businesses, contributing to overall economic growth.



**Figure 3.** Highest and lowest Fintech lending growth based on the distribution of economic growth in 2023.



**Figure 4.** Highest and lowest Fintech lending growth based on unemployment rate distribution in 2023.

In addition, the study by Pramaishella and Fisabilillah (2022) also supports this finding by showing that fintech lending positively impacts Indonesia's Gross Domestic Product (GDP). This study highlights that increased loans channeled through fintech platforms can drive economic growth by increasing people's purchasing power and creating new jobs. Thus, fintech lending functions not only as a source of financing but also as a tool to improve people's economic welfare. The study by Kurniawan and Helen (2022) also added that the benefits of using fintech platforms contributed to increasing investment interest in this sector. This shows that fintech lending not only impacts economic growth through the provision of capital but also through increasing investor confidence in this sector. Higher investor confidence can accelerate the flow of funds to sectors in need, thereby strengthening economic growth. The study by Azhar et al. (2022) emphasized that MSMEs, which gain access to financing through fintech, play an important role in the Indonesian economy. With fintech support, MSMEs can operate more efficiently and contribute more to GDP. This shows that fintech lending is an

alternative financing and a catalyst for more inclusive and sustainable economic growth. Fintech lending can increase efficiency in the lending process, contributing to job creation (Agustin, 2023; Asi and Gularso, 2023). Fintech lending allows borrowers to obtain funds more quickly and easily, using technology so they can immediately start or expand their businesses. This is especially important in the context of a competitive job market, where speed and efficiency can be determining factors in business success. In addition, Study by Nopiah et al. (2024) shows that fintech lending can play a role in reducing poverty and increasing employment opportunities among communities underserved by traditional financial institutions. Fintech lending helps create new economic opportunities that can reduce unemployment rates. Fintech significantly reduces poverty and income inequality in developing countries (Nuryitmawan, 2023; Aba and Linardy, 2021; Ouechtati, 2020).

## **Conclusion**

Research on the influence of fintech lending on various economic indicators shows interesting results. Based on the research results, it can be said that fintech lending positively impacts economic growth, reduces poverty, and contributes to reducing unemployment in Indonesia. Fintech lending can encourage increased economic activity, provide financial access to people who were previously not served by the banking system, help low-income people to start or develop micro-businesses, and increase their income so that it has the potential to contribute to economic growth, poverty alleviation, and unemployment reduction. However, the results are different for income inequality. Integrating fintech into the financial ecosystem increases access to capital and encourages creating an environment that supports sustainable economic development. Considering these potentials and challenges, stakeholders must work together to ensure that fintech lending can contribute effectively to poverty alleviation while minimizing risks. This involves developing appropriate policies, improving financial literacy, and strengthening consumer protection. With appropriate and comprehensive policies, fintech lending can effectively encourage inclusive economic growth, reduce poverty, and create jobs. However, strict supervision and periodic evaluation are still needed to ensure the positive impacts can be felt widely and sustainably. In addition, this research is expected to be developed using a more comprehensive and in-depth approach.

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## **Conflict of interest**

The authors confirm that there is no conflict of interest.

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