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INCOME DYNAMICS OF MICRO-TRADERS AMIDST CLIMATE CHANGE AND ECONOMIC PRESSURES: A QUALITATIVE STUDY OF MICRO-TRADERS IN KEMBANGBAHU DISTRICT, LAMONGAN REGENCY

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Abstract :

Climate change and economic pressures pose challenges to the business sustainability of micro-traders, primarily due to erratic weather patterns, rising raw material costs, and declining public purchasing power. These conditions cause fluctuations in the income of micro-traders in Kembangbahu District, Lamongan Regency, necessitating an examination of the influencing factors. This study aims to describe the income dynamics of micro-traders, analyze the impact of climate change and economic pressures on income, and identify the adaptation strategies employed by traders to sustain their businesses. The study employs a qualitative approach with a descriptive design. Data were collected through in-depth interviews, observation, and documentation involving micro-traders as key informants, and subsequently validated using source and technique triangulation. The results indicate that micro-traders' income fluctuates, influenced by climate change, which leads to a reduction in the number of consumers and disruptions in the distribution of goods. Furthermore, economic pressures manifesting as rising raw material prices, increased operational costs, and declining public purchasing power further reduce traders' profits. To sustain their businesses, traders implement various adaptation strategies, such as adjusting operating hours, diversifying products, cutting operational costs, and utilizing social media for marketing. The study concludes that climate change and economic pressures significantly impact the income dynamics of micro-traders. Therefore, government support is required through business capacity building, access to capital, and business digitalization. Future research is encouraged to expand the study area to obtain more comprehensive results.

Keywords : *income dynamics, micro-traders, climate change, economic pressures, adaptation strategies.*

INTRODUCTION

Climate change has developed into one of the global issues that is not only related to changes in environmental conditions, but also has consequences for the social and economic lives of communities. Rising temperatures, changing rainfall patterns, and increasingly frequent extreme weather events can affect economic activities that depend on environmental conditions. The Intergovernmental Panel on Climate Change (Climate, 2023) emphasizes that human-induced

climate change has affected various extreme weather and climate events throughout the world. Its impacts are increasingly visible through losses to livelihoods, income, infrastructure, and various economic activities of communities (Climate, 2023).

The impacts of climate change are becoming increasingly important for communities that depend on small-scale economic activities and the informal sector for their income (Indriyani, 2024). These groups generally have limited resources, resulting in a relatively lower capacity to cope with external disruptions compared with businesses that have stronger capital capacity and protection. Such vulnerability can increase when climate change occurs simultaneously with economic pressures. The (Organization, 2023) indicates that economic slowdowns and various crises occurring simultaneously have consequences for employment opportunities, job quality, and the productivity of workers.

Micro traders are one of the groups of economic actors that play an important role in supporting economic activity at the local level. The presence of street vendors, market traders, small shops, food vendors, and various forms of simple trading businesses not only provides goods and services needed by the community but also serves as a source of household income for business operators (Meliza, 2025). Although they have an important economic role, micro businesses are generally operated with limited resources, making them more sensitive to changes in consumer demand, operating costs, and environmental disruptions. This condition makes business sustainability highly dependent on traders' ability to adjust their business activities to changing circumstances.

Limited capital, access to technology, business networks, and other resources can restrict micro traders' ability to cope with external changes. When there are increases in raw material prices, distribution disruptions, declines in consumer numbers, or changes in people's purchasing power, traders must adjust their business activities according to the resources available. This vulnerability becomes more complex when traders operate in open spaces that are directly affected by weather conditions. Thus, internal business conditions and changes in the external environment can interact in determining the sustainability of micro trading businesses.

Changes in weather conditions, particularly high rainfall, can disrupt trading activities because they affect the mobility of traders and consumers (Suadnyani et al., 2023). Traders operating in open spaces may experience a decline in the number of buyers when rain occurs, while the distribution process may face obstacles due to transportation disruptions and infrastructure conditions. (Gatti et al., 2024) found that extreme weather shocks can affect firm performance, with stronger impacts on smaller firms and firms in developing countries. This indicates that climate change can be an external factor that needs to be considered when understanding changes in the performance of small-scale businesses.

In the context of micro traders, income is relatively fluctuating because it is strongly influenced by daily market conditions. The number of consumers,

commodity prices, weather conditions, people's purchasing power, and operating costs are among the factors determining the amount of income earned (Yolanda et al., 2024). When weather conditions do not support trading activities, the number of consumers may decline, resulting in lower sales volume. At the same time, traders must continue to bear certain costs required to operate their businesses. The imbalance between revenues and expenditures can ultimately narrow the profits earned by traders.

Economic pressure further intensifies these problems. Increases in raw material prices and operational needs can raise the costs that traders must bear, while their ability to increase selling prices is often limited because they must consider consumers' purchasing power and loyalty (Meliza, 2025). Under these conditions, traders are required to maintain prices so that they remain competitive while ensuring that business costs do not place an excessive burden on income. For informal economic actors, limited social protection can also increase vulnerability when economic shocks occur. The ILO identifies informal workers and economic actors as groups facing relatively significant social protection challenges when dealing with various shocks.

The relationship between climate change and economic pressure indicates that declining micro-trader income is not always caused by a single factor (Dewanti et al., 2024). Weather disruptions can reduce the number of buyers and hinder the distribution of goods, while economic pressure can increase business costs and reduce people's purchasing power. These two conditions can occur simultaneously, creating layered pressure on business sustainability. In the Indonesian context, climate change has also been associated with the need for more adaptive social protection because climate shocks can place pressure on workers and people's economic conditions (Sengupta et al., 2023)

Despite facing various limitations, micro traders are not always passive in responding to environmental and economic changes (Riset et al., 2023). Traders can make various adjustments, such as reducing production quantities, adjusting operating hours, changing product types or variations, and seeking alternative marketing channels. The use of digital technology and social media can also be an alternative for expanding consumer reach when direct sales face obstacles. Literature on business adaptation indicates that business actors can adjust through changes in resource allocation, technology adoption, and other strategies, although adaptive capacity is strongly influenced by resource limitations and market conditions (Goicoechea & Lang, 2026).

Another issue that needs attention is the unequal ability of micro traders to utilize various forms of adaptation. Traders with limited capital, skills, information access, and technology may have difficulty making rapid business changes (Sari et al., 2019). Therefore, the resilience of micro traders is determined not only by their individual ability to manage their businesses but also by support from the economic and institutional environment. Support in the form of access to capital, entrepreneurship training, business digitalization, social protection, and climate-risk-responsive policies can be an important part of strengthening the adaptive capacity of micro businesses (Fiona et al., 2026).

Based on this description, there remains an important research gap in examining climate change, economic pressure, and the income dynamics of micro traders simultaneously. Previous studies on climate change have largely discussed its impacts on agriculture, the environment, and community resilience, while studies on economic pressure have focused more on inflation, purchasing power, and market conditions. Research at the micro-business level that specifically examines the relationship between climate change and economic pressure with income dynamics and traders' adaptation strategies still needs to be strengthened. Therefore, this study is directed at understanding the empirical experiences of micro traders in facing changes in environmental and economic conditions.

This study aims to analyze the income dynamics of micro traders in Kembangbahu District, identify the effects of climate change and economic pressure on income, and examine the adaptation strategies used by traders to maintain business sustainability. This focus is expected to provide a more comprehensive understanding of how micro traders face pressures arising simultaneously from environmental and economic factors. Academically, this study is expected to enrich research on micro businesses, climate change, and community economic resilience, while practically, the findings can provide input for traders and government in designing strategies and policies that are more adaptive to climate change and economic pressure.

RESEARCH METHOD

This study uses a descriptive qualitative approach to obtain an in-depth understanding of the income dynamics of micro traders amid climate change and economic pressure in Kembangbahu District, Lamongan Regency. This approach was selected because the study focuses on exploring phenomena based on the actual conditions experienced by micro traders, particularly changes in business activities, income, and survival strategies when facing the rainy season. Qualitative research enables researchers to obtain data in the form of words, experiences, opinions, and descriptions of the phenomena being studied. The research focuses on the dynamics of micro-trader income, the impacts of climate change and economic pressure on business activities, and the adaptation strategies undertaken to maintain business sustainability. These research focuses were established so that the research process remained directed and the information collected was relevant to the research problem.

Research informants were selected based on the consideration that they possessed relevant knowledge and experience concerning the phenomenon under study. The informants consisted of Mr. Zari as the Head of Kembangbahu Village, Mr. Rimbad as the Head of Kembangbahu Market, Ms. Bunga as a city orange-juice vendor, and Ms. Atik as a kebab vendor. The selection of these informants was intended to obtain diverse perspectives, both from business operators and from parties who understand the social conditions and trading activities in the research area.

Data were collected through observation, semi-structured interviews, and

documentation. Observation was used to directly examine trading activities, business-environment conditions, the number of consumers, and changes in business patterns during the rainy season. Interviews were conducted directly to explore informants' experiences regarding changes in income, business constraints, the impacts of the rainy season, economic pressure, and the strategies used to maintain their businesses. Documentation and secondary data were used as supporting information to complement and strengthen the primary data obtained in the field.

The data obtained were analyzed using descriptive qualitative analysis through the stages of data reduction, data presentation, and conclusion drawing. At the reduction stage, data from interviews, observations, and documentation were selected and focused on information related to income dynamics, the impacts of the rainy season and economic pressure, and the adaptation strategies of micro traders. The reduced data were then presented in narrative descriptions to facilitate the identification of patterns and relationships among the findings. Conclusions were subsequently drawn based on the patterns and findings obtained and verified against the available evidence. Data validity was ensured through triangulation, namely by comparing information obtained from different sources and data-collection methods. Triangulation was conducted by utilizing interview, observation, and documentation results and comparing information from different informants so that the research findings had stronger credibility.

FINDINGS AND DISCUSSION

1. Income Dynamics of Micro Traders

The findings show that the income of micro traders in Kembangbahu District is fluctuating and strongly influenced by external conditions, particularly weather, the number of consumers, raw material prices, and people's purchasing power. These findings were obtained through observation and in-depth interviews with micro traders and were strengthened by statements from the Head of the Market and the Head of the Village. The traders who served as research informants indicated that income could not be maintained at the same level every day. Under clear weather conditions, community activity tends to increase, creating greater opportunities for transactions. In contrast, when rain occurs, people's outdoor activities decline, which directly affects the number of buyers and sales turnover.

The fluctuation in income is clearly visible among city orange-juice vendors. The informant stated that under favorable weather conditions, daily income can reach approximately IDR 600,000–700,000, whereas when it rains, income is in the range of IDR 300,000–400,000. This difference indicates that changes in environmental conditions can produce substantial changes in daily trading income. Similar conditions are experienced by kebab vendors, who stated that when it rains, the number of buyers decreases and some of the products remain unsold. Findings from both traders are supported by the Head of the Market, who explained that traders' income is not fixed because it strongly depends on

the number of buyers, weather conditions, and commodity prices.

These fluctuations indicate that micro traders have a high level of dependence on daily market conditions. Unlike businesses with more planned sales systems, most micro traders in this study rely on direct transactions with consumers, so changes in people's mobility can immediately affect business revenue. This condition also indicates that traders' income is determined not only by their ability to sell products but also by the environmental and economic situation surrounding the business location. Thus, changes in the number of consumers become one of the main mechanisms connecting external conditions with changes in micro-trader income.

These income dynamics also show that traders must make flexible business decisions. When demand declines, traders cannot rely solely on increasing sales volume but need to adjust stock, operating hours, and marketing strategies. The findings show that some traders have made adjustments such as reducing stock, changing selling hours, increasing product variety, and utilizing social media to retain consumers. These findings demonstrate traders' adaptive capacity in responding to income uncertainty.

Thus, the income dynamics of micro traders in Kembangbahu District can be understood as an ongoing process resulting from interactions among environmental conditions, consumer behavior, and the economic situation. Fluctuating income not only indicates the vulnerability of micro businesses but also demonstrates traders' ability to adjust their business activities to the conditions they face. Therefore, adaptation strategies are an important component in maintaining business sustainability when external conditions change.

2. Impact of Climate Change on Income

The findings show that climate change, particularly increased rainfall intensity and unpredictable weather conditions, has a real impact on trading activities and the income of micro traders in Kembangbahu District. Based on observations, most traders operate in open spaces, such as roadside areas, around the market, and locations that serve as centers of community activity. This condition makes trading activities highly dependent on weather conditions. When rain occurs, the number of consumers tends to decrease because people reduce their outdoor activities. At the same time, traders must protect their merchandise and business premises from rainwater, making sales activities less optimal.

The impact of climate change is directly visible in consumer behavior. The city orange-juice vendor stated that rain causes the number of buyers to decrease and sometimes forces the vendor to close the stall earlier. Kebab vendors experience similar conditions. When heavy rain and strong winds occur, vendors choose to reduce operating hours because they must consider the safety of their tents and the risk of damage to their merchandise. In addition to reducing the number of consumers, weather conditions also make consumers less comfortable stopping and making purchases. Thus, weather changes operate through reduced community mobility and disruptions to transaction activities.

Climate change also has indirect impacts through the distribution process. The Head of the Market explained that heavy rain can discourage people from coming to the market and, at certain times, can delay the distribution of goods from suppliers. Such delays can cause stock shortages and increases in supplier prices, requiring traders to provide greater capital. This condition indicates that climate-change impacts occur not only on the demand side but can also affect the supply side through disruptions in goods distribution.

These findings show that traders operating in open spaces have a higher level of vulnerability to changing weather conditions. Observations indicate that when rain occurs, several business locations experience waterlogging, forcing traders to close part of their stalls to protect their merchandise. Wet road conditions and rapidly changing weather can also hinder consumer mobility and goods distribution. Therefore, climate change affects not only the number of buyers but also increases the operational risks borne by traders.

The findings of this study are consistent with the study by (Silalahi, 2023) as discussed in the thesis, which indicates that high rainfall can reduce community mobility and ultimately decrease trading activity. The similarity lies in the relationship between rainy conditions, declining consumer numbers, and declining trader turnover. However, this study provides a broader picture by showing that the impact of climate change does not occur in isolation. Its effects become more complex when occurring together with increases in raw material prices, rising operating costs, and declining purchasing power.

Thus, climate change can be understood as one external factor causing income instability among micro traders. Its impacts mainly occur through three mechanisms: reduced consumer mobility, disrupted operations, and hindered goods distribution. These conditions demonstrate the importance of traders' adaptive capacity in dealing with changing weather, for example through adjustments to operating hours, stock management, and the use of alternative marketing channels to reduce dependence on direct transactions.

3. Impact of Economic Pressure on Income

In addition to climate change, the study found that economic pressure is an important factor affecting the income of micro traders in Kembangbahu District. The economic pressure experienced by informants mainly took the form of increases in raw material prices, rising operating costs, and declining consumer purchasing power. These conditions create pressure on traders' profits because the costs required to operate their businesses become greater, while consumers' ability to make purchases tends to decline. As a result, increases in costs cannot always be transferred to consumers through higher selling prices.

For example, the city orange-juice vendor stated that increases in the prices of oranges, sugar, and packaging have caused the capital required to operate the business to increase. However, the vendor cannot significantly raise prices because of the possibility of losing consumers. This condition indicates pressure on traders' profit margins. When input prices increase while selling prices are relatively maintained, the difference between revenue and costs becomes smaller. Thus, economic pressure does not always appear directly in the form of

business closure but can emerge through declining profits earned by traders.

Similar conditions were found among kebab vendors. The informant stated that increases in material and operating costs, including transportation expenses, have made the cost of running the business higher. Nevertheless, selling prices cannot be raised too much because traders consider competition and consumers' purchasing power. The Head of the Market also stated that increases in the prices of basic necessities make people more selective in their spending, while traders must face higher capital costs. This condition indicates that economic pressure occurs simultaneously on two sides: business costs and consumer demand.

From the traders' perspective, this condition creates a dilemma in determining prices. Raising selling prices too high may cause consumers to switch to other traders, while maintaining existing prices may cause profits to decline further. In other words, micro traders have limited room to pass increased costs on to consumers. This limitation is an important characteristic in understanding the economic vulnerability of micro businesses because traders must maintain relationships with customers while ensuring that the business continues to generate profits.

The findings also show that economic pressure becomes more severe when it occurs simultaneously with climate change. When rain reduces the number of buyers, traders experience a decline in turnover. At the same time, increases in raw material and operating costs cause business expenses to rise. This situation creates double pressure: traders face declining revenue while costs increase. These findings indicate that the income dynamics of micro traders cannot be understood based on a single factor but must consider the relationship between environmental and economic conditions.

The findings of this study were also associated in the thesis with the study by (Sofiyan, 2024), which shows that inflation, increases in raw material prices, and declining consumer purchasing power can contribute to declining micro-business income. The similarity lies in increased business costs and reduced trader profits. The difference is that this study places economic pressure in a broader context because it occurs simultaneously with climate change. Thus, economic pressure and climate change can reinforce each other's effects on micro-trader income.

Overall, the findings show that economic pressure affects micro-trader income through increased raw material costs, operating expenses, and weakening consumer purchasing power. These pressures limit traders' profits and increase uncertainty regarding business sustainability. When economic pressure occurs simultaneously with unfavorable weather conditions, traders' vulnerability becomes greater. Therefore, traders' ability to improve cost efficiency, manage stock, adjust prices proportionally, diversify products, and develop marketing strategies becomes important for maintaining their businesses under conditions of uncertainty.

CONCLUSION

Based on the findings, the income of micro traders in Kembangbahu District

is fluctuating due to the interaction between climate change and economic pressure. Rainfall intensity and unpredictable weather cause the number of consumers and trading activities to decline, particularly among traders operating in open spaces. Meanwhile, increases in raw material prices, operating costs, and declining consumer purchasing power further reduce traders' profits.

Micro traders respond to these conditions through various adaptation strategies, such as adjusting operating hours, managing stock, changing or adding product types, and utilizing social media for marketing. These findings show that adaptive capacity and resilience are important factors in maintaining the sustainability of micro businesses amid climate change and economic pressure.

Practically, it is necessary to strengthen traders' capacity through capital support, management and digital-marketing training, and the provision of business facilities that are better protected from weather conditions. This study is limited to micro traders in Kembangbahu District and uses a qualitative approach; therefore, future research can expand the research area and employ a quantitative approach to measure the relationships among climate change, economic pressure, and income more systematically.

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