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INFLUENCE OF FAMILY TYPOLOGY AND LIVELIHOOD ADAPTATION STRATEGIES TO FAMILY ECONOMIC RESILIENCE IN FACING CLIMATE CHANGE ON THE FARMER FAMILIES

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ABSTRACT
Climate change has a significant impact on sustainability, especially for farming families who depend on the weather for their livelihoods. Family typology is one of the bases for carrying out livelihood adaptation strategies to achieve economic resilience. This study aimed to analyze the influence of family characteristics, family typologies, and livelihood adaptation strategies on family economic resilience. The method used was a quantitative approach, with purposive random sampling of 60 farmers in Bogor City during January-February 2024. Results show that most respondents are in the high category of the family typology. More than half of them are in the low category of livelihood adaptation strategy, and half have not achieved a high category of family economic resilience. Therefore, these areas still need improvement. The results of the multiple linear regression show that husband's education, type of climate change, family hardiness, and dual-income strategy have a significant positive effect on family economic resilience. The implication of this research is to highlight the importance of personal skills and family hardiness as a basis for adapting to climate change and achieving resilience, and to underscore the importance of guidance and mentorship from the government's agriculture department and/or NGOs for farmers' economic resilience.

Keywords: climate change; family economic resilience; family typology; farmer families; livelihood adaptation strategies.

INTRODUCTION

Families require the appropriate means of adjustment to cope with various changes and sustain life. One phenomenon currently affecting society is climate change. According to the National Geographic Society (2025), climate change is a long-term shift in global or regional climate patterns, specifically the rise in global temperatures. Apart from being an environmental issue, climate change has far-reaching social consequences arising from human behavior (Baldwin, 2017). Therefore, the issue becomes an urgent concern in human life, with an impact on social and environmental aspects.

The impact of climate change is significant, yet its effects can often be intangible, and, according to Mortons (2014), this is called the hyperobject phenomenon. Because the impact caused is less realized, even though it has prolonged affected human life for centuries (Raditasani & Wahyuni, 2020). In portraits of family life, the effects of climate change are also evident among families with livelihoods that interact directly with nature, such as in the agrarian sector.

The agricultural sector is the most vulnerable to the impacts of climate change, especially for food security and healthy nutrition (Sorgho et al., 2020). Indonesia, as an agricultural country, has more than 40 million farmers. Based on research by Mariyani et al. (2019), examples of the relationship between climate change and farming include crop failure due to drought and flooding, decreased horticultural production due to climate variability, forest fires that affect forest production and products, and failure of aquaculture production due to water scarcity.

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In addition, the Food and Agriculture Organization (2023) states that climate change is predicted to reduce agricultural production by 5 percent in 2025 and 10 percent in 2050. In addition to the decline in food production, other challenges stem from land narrowing and land-use change, which have not been fully effective. Therefore, many families in Indonesia are threatened by their sources of income due to climate change.

Regarding family life, research indicates that the most felt impact of climate change is a decrease in income (Defina et al., 2023). McCubbin and McCubbin (1987) formulated the T-ABCX Double model, which shows the family's ability to deal with sources of stress or crisis through family typology. Adaptation is seen as the family's effort to respond to the crisis and achieve a new level of balance. According to McCubbin et al. (2001), family typology is a basic attribute of the family system, characterized by a set of characteristics that describe family traits in judging and behaving. Then, this family typology, according to Sunarti (2013), is one measure of the family's high and low resilience. Nezhad and Besharat (2010) found a positive relationship between family resilience and achieving sustainability. This study emphasizes family resilience as understood through how families deal with crises and the sources of challenge in adapting (Weiss et al., 2013). Hence, family coherence and family hardiness, as dimensions of family typology, are important for enhancing family resilience. Especially by identifying challenges to be overcome and their correlation with quality of life, and by alleviating the negative effects of stress and crises to improve family resilience (Brebahama et al., 2019).

One form of adaptation carried out by farmers is a livelihood adaptation strategy, as climate change directly impacts their work, which depends on weather and climate (Aldi et al., 2021). Some forms of adaptation to this livelihood include regulating the number of workers, halting production, finding alternative livelihoods, and adopting new technologies. Alternative livelihoods are a priority adaptation when crop yields are insufficient, namely by finding alternative jobs (Aldi et al., 2021). For developing countries such as Indonesia, the impact of climate change will significantly threaten economic resilience if appropriate adaptation is not carried out (International Monetary Fund, 2022). Economic factors have become an important aspect in shaping family resilience, related to other dimensions such as physical, social, and psychological resilience (Alie & Elanda, 2019).

Various studies have shown the relationship between climate change and economic resilience. Aldi et al. (2021) show that climate change increases uncertainty about the source of livelihood, especially for farmer families, because resilience enables adaptation and maintenance of livelihood strategies. On the other hand, climate change has also led to farmer families migrating and changing their livelihoods, affecting their economic resilience (Raditasani & Wahyuni, 2020). Specifically, Ichdayati (2014) shows that climate change affects (1) crop failure due to drought and floods; (2) decline in horticultural production; (3) forests that affect forest production; and (4) aquaculture production failures due to water scarcity. These findings are also similar to research in other countries, such as Africa and Latin America, suggesting that climate change increases vulnerability to economic resilience (Andersen et al., 2016; Sorgho et al., 2020).

Based on research from The Cross Dependency Initiative (XDI) (2023), climate risk to economic damage is experienced by four provinces in Indonesia, namely East Java, West Java, Central Java, and DKI Jakarta, which are included in the global top 100 regions with the highest risk of economic damage, with West Java ranked 24th globally. Bogor City, in West Java, faces a high risk of extreme weather events due to its climate, which can trigger hydrometeorological disasters such as floods and landslides (Bogor City Regional Planning and Development Agency, 2022). This extreme weather will affect the land area and agricultural productivity. The two areas in the city of Bogor with the largest land area are South Bogor (2,549.53 km^2) and West Bogor (2,261.99 km^2). According to climatic conditions recorded in December 2022, the average wind speed was 2 m/s, the average temperature was 25.6 degrees Celsius, and the rainfall was 225.5 mm (Central Statistics Agency, 2022).

Unwanted changes that create crisis conditions, such as climate change, will put farming families under economic stress (Brigita & Sihaloho, 2018). Given the risks farmers face in Indonesia, the economic resilience of farming families is one of the most impactful factors. Climate

change creates uncertainty in the livelihoods of farming families, affecting their income and economic resilience (Aldi et al., 2021). Therefore, farming families are very vulnerable due to climate change because they depend on natural resources that are being hit by climate uncertainty.

Previous research has shown that family typology influences family resilience (Brebahama et al., 2019; Nezhad & Besharat, 2010; Weiss et al., 2013), yet no specific studies have used family typology in farmer families. In addition, previous research shows that the better the families' adaptation strategy to income, the greater the increase in family resilience (Aldi et al., 2021; Sorgho et al., 2020; Wasito et al., 2011). According to Walsh (2016), resilience is the ability to rise from crises and overcome life's challenges. Adaptations made by farming families will determine the level of resilience in response to climate change. Later, typology was also considered important because it served as the basis for the family's power to carry out its adaptation (McCubbin et al., 1983). Based on this description, the objectives of this study are 1) Identify the characteristics of farming families, family typology, livelihood adaptation strategies, and family economic resilience; 2) Analyze the relationship between family characteristics, family typology, and livelihood adaptation strategies with family economic resilience; 3) Analyze the influence of family characteristics, family typology, and livelihood adaptation strategies on the level of family economic resilience.

Previous studies have examined stress, coping strategies, or marital quality separately in various populations. However, empirical research focusing on families of female prisoners remains limited, particularly in the Indonesian correctional context. The novelty of this study lies in its integrated analysis of stress symptoms, coping strategies, and marital quality within families of female prisoners. This population has received limited empirical attention. Therefore, this study aims to analyze the relationship between stress symptoms, coping strategies, and marital quality among families of female prisoners.

METHOD

This study used quantitative methods with a cross-sectional design. The research was conducted from January to February 2024 in Bogor City, West Java. The population in this study was farming families in Bogor City. The sampling technique used purposive sampling of two sub-districts in Bogor City with a higher number of farmers, namely West Bogor with 86 farming communities and South Bogor with 95 farming communities (Bogor City Food Security and Agriculture Office, 2023). With the selection of cluster areas, namely Sindang Item Village (West Bogor) through the Mekar Tani's KTD (*Kelompok Tani Dewasa*- Adult Farmers Club) and Mulyaharja Village (South Bogor) through the Lemah Dulur's KTD. The sample referred to the head of a family who works permanently in the agricultural sector, also known as a farming family, located in the selected West Bogor and South Bogor areas. The number of respondents was determined by the number of members available in purposively selected farmer groups, namely the Mekar Tani's KTD of 27 and the Lemah Dulur's KTD of 33. Thus, the number of respondents in this study was 60 people.

Regenerative typology is a basic attribute of a family system that has a series of characteristics, or family traits, in its behavior. Measured by the McCubbin (2001) instrument, which has been modified by Sunarti (2012) and consists of two indicators, namely family hardiness and family coherence. The two dimensions are divided into four categories, namely vulnerable family, secure family, durable family, and regenerative family. Each indicator consists of 10 questions with Yes (score=1) or No (score=0) answer choices. Index values are divided into two categories: low (≤50) and high (>50) . The reliability value is 0.547 (Cronbach's alpha).

Furthermore, the livelihood adaptation strategy is a form of family adjustment aimed at securing the means of life to meet basic needs. Measured using instruments that refer to the concepts of Scoones (1998) and Carswell (1997), which were adapted in Muflikhati et al. (2018). It consists of 12 questions across three dimensions: source of livelihood engineering, multiple

livelihood patterns, and spatial engineering. With answer choices Never (score = 1), Sometimes (score = 2), Often (score = 3), and Very often (score = 4), with three categories, namely low (0.0-33.3), medium (index 33.4-66.7), and high (index 66.8 -100.0). The reliability value obtained through Cronbach's alpha is 0.573.

Finally, family economic resilience was measured using instruments developed by the Central Statistics Agency and the Ministry of Women Empowerment and Child Protection (2016) for economic resilience indicators. Family economic resilience is the ability, tenacity, and resilience to face and overcome threats, challenges, obstacles, and economic disruptions originating within and outside the family. The total questions is nine items that elaborate the indicator in assets and financial capability, the questions are based on answer choices with Yes (score = 1) or No (score = 0), with the following index cut-off values: low (≤50), medium (50.01-75.00), and high (>75). The reliability value obtained through Cronbach's alpha is 0.525.

RESULTS AND DISCUSSION

The characteristics of the peasant family are seen through the age of the husband, the age of the wife, the length of the husband's education, the length of the wife's education, the size of the family, the amount of per capita income of the family, the wife's occupation, and the length of marriage. The results showed that most (>50%) farmers and their wives fall into the middle adult category. The average education level of husbands (58.3%) and wives (53.3%) is that of elementary school graduates. 46.7% of respondents were small families (≤ 4 people). Most families (83.3%) have a per capita income of < 500,000 IDR. Regarding sources of income, most families are single earners or have only one source of income, with the number of wives as housewives (80%), which is 48 people. Finally, the age of family marriage is quite diverse, but is dominated by the 41-50 years (21.7%) and 1-10 years (21.6%) age ranges.

Table 1: Distribution of examples based on family characteristics.

Variable	Weather		P-Value
	Rainfall	Drought	
Husband's age (years)	55.04	51.33	0.338
Age of wife (years)	44.00	38.27	0.246
Husband's education (years)	8.03	7.30	0.339
Wife's education (years)	6.62	6.63	0.994
Large family (people)	5.26	4.73	0.340
Per capita income (rupiah)	626.111	340.436	0.212
Length of marriage (years)	21.89	20.73	0.797

Source: Research Data, 2024.

Based on the type of crop, all farmers are Rice and *Palawija* (secondary crops) Farmers. Then, based on their occupation, the largest type of farmer is a sharecropper (56.6%). The impacts of climate change felt are high rainfall (45%), drought or long drought (51.6%), and strong winds (3.3%). Another interesting thing found is that the impact of high rainfall is felt by West Bogor farmers, and drought or long drought is felt by farmers in South Bogor. Then, the length of farming experience ranges from 1-10 years (40%), followed by 11-20 years (20%), 21-30 years (20%), and the rest fall within the 31-62 years range. Then, there is no significant difference between farmers who face rainfall and drought in West and South Bogor in terms of their family characteristics. But Table 1 shows differences between the two categories, such as per capita income, where families with rainfall have higher incomes than those with drought.

In this study, the typology measured is regenerative, divided into two dimensions: family hardiness and family coherence. From these two dimensions, families can be grouped based on

four types, namely regenerative family, durable family, secure family, and vulnerable family, based on the high and low levels of both dimensions. Almost all families (91.7%) fall into the high category. This means that the family already has a fairly good regenerative typology.

Table 2: Distribution of family typology based on climate issues.

No.	Item	Rainfall	Drought	P-Value
Family Hardiness				
1.	Often, rethink the meaning of the marriage bond	63	58	0.678
2.	Often thinking about the potential/possibility of climate change problems in family life	70	76	0.646
3.	Often thinking about improving the relationship between parents and children	96	88	0.248
4.	Often thinking about improving marital harmony	93	79	0.141
5.	Feeling confident that they will be able to survive if they face family problems related to climate change	78	94	0.069
6.	So far, he feels that he does not need to plan for the future of his family because he is not sure he can achieve it	81	76	0.600
7.	Often feeling unsure that the effort made will succeed	74	58	0.189
8.	It's better to stay at home rather than go out	56	55	0.939
9.	Often feeling bored because of doing the same activity/activity over and over again	67	79	0.299
10.	Believing that life is not a mere coincidence or luck	33	45	0.349
Family Coherence				
1.	Able to accept the problems of climate change as part of family life	74	91	0.084
2.	Be able to accept differences of opinion between family members	85	88	0.765
3.	Able to see the advantages in each family member	93	82	0.229
4.	Able to understand how family members who have different views think	67	91	**0.019***
5.	Interpreting the climate change problem experienced by families in a positive way	78	52	**0.036***
6.	Viewing the issue of climate change as an attempt to grow	74	76	0.883
7.	Believing in God's intervention in family life	93	85	0.361
8.	Believing that humans can fully control life as they want it to be	41	45	0.720
9.	Feeling confident that every family member would not expect any difficulties	74	76	0.883
10.	Seeing that the difficulties of one family member are difficulties for all other family members	63	85	**0.053***

Source: Research Data, 2024.

To examine the relationship between family regenerative typology and other variables, a cross-tabulation is performed. The results showed that families classified as regenerative

families were almost equally divided between low-income adaptation strategies (48.3%). However, only regenerative families fall into the high category (1.6%) in livelihood adaptation strategies. This is in contrast to family economic resilience, regenerative families dominate in the high category (45%), followed by medium (25%), and low (8.3%). Another interesting thing that can be discussed from the table above is that families with vulnerable family typologies are also classified as low in income adaptation strategies (5%) and family economic resilience (3.3%).

Based on an independent-samples t-test, three items of family coherence show significant differences across the climate issues. It showed that, regarding the ability to understand family member arguments and to see one family member's problem with togetherness, the drought farmer had a higher mean score than the other one. But there is a difference with the item "valuing the climate change positively," as the rainfall farmer shows a higher score.

Table 3: Distribution of livelihood adaptation strategies and family economic resilience.

No	Item	Rainfall	Drought	P-Value
Livelihood Adaptation Strategies				
1.	Diversify the main source of livelihood	49	43	0.324
2.	Borrowing business capital	36	25	0.127
3.	Expanding business land	43	34	0.267
4.	Increase manpower/hours	48	61	0.069
5.	Using modern technology	37	76	**0.000***
6.	Have other/seasonal jobs	44	38	0.463
7.	There are other family members working	33	47	0.142
8.	There are family members who have more than one job	31	19	0.135
9.	All family members migrate to other areas	7	4	0.490
10.	The main breadwinner works in another area, but the rest of the family stays in the area of origin	7	4	0.490
11.	Have family members who work outside of their home region	19	11	0.330
12.	There are family members who are/have been working abroad (*TKW*- Female Workforce)	7	3	0.385
Family Economic Resilience				
1.	The family owns a house	96	79	**0.048***
2.	Husband and/or wife have a fixed income per person and per month of at least 500,000 IDR	63	21	**0.001***
3.	The husband and/or wife has a permanent job with any income	81	67	0.203
4.	The husband and/or wife have savings in the form of money of at least 500,000 IDR	41	27	0.279
5.	Family members have health insurance (or *BPJS*) or others, at least one person	100	85	0.035
6.	Families can afford electricity per month	93	94	0.839
7.	Families can afford to pay for their children's education at least up to the junior high school level	89	82	0.454
8.	The presence of children who drop out of school	67	55	0.349

9.	Family members who are aged 15 years and above have at least completed a junior high school education	63	45	0.182

Source: Research Data, 2024.

The livelihood adaptation strategy is the family's adjustment in the face of problems that hinder the search for livelihood sources to maintain basic needs. This strategy is divided into three dimensions, namely source of livelihood engineering, multiple livelihood patterns, and spatial engineering. The results showed that respondents' livelihood adaptation strategies were still low (65%), and the rest were medium (33.3%) and high (1.7%). When viewed by dimension, spatial engineering has the lowest percentage (96.7%), whereas the source of livelihood engineering dimension has the most medium categories (66.7%), accounting for almost half. This means that farmers have enough to diversify their livelihoods as an adaptation to climate change.

Based on question items in livelihood adaptation strategies, the vast majority (>75%) of respondents have never migrated. Such as migrating all family members, only the main breadwinner, having family members working outside, or being migrant workers. This is in contrast to items in other dimensions, such as diversifying the main source of livelihood, which 53.3 percent of them sometimes do. The source engineering dimension and the multiple livelihood pattern have items with more diverse responses than the spatial engineering dimension. Based on the T-test, using technology in farming shows significant differences across climate types. Farmers who face rainfall tend to use more technology than those who face drought.

Family economic resilience is defined as the family's ability, tenacity, and resilience in facing and overcoming economic challenges. Economic factors are important for achieving family resilience because they relate to the family's need to survive in a balanced way. The economic resilience of farming families is mostly in the high category (50%). However, some families classified as low (16.7%) and medium (33.3%) indicate they are not economically empowered enough due to several factors, including the source of income.

Based on 9 question items from the family economic security variable, almost all respondents (>90%) can pay for electricity each month and have health insurance for at least one family member. However, the percentage of children who drop out of school is still quite high, at 60 percent them. Although 53.3 percent have family members aged 15 years and over, and at least have a junior high school education. In addition, in terms of employment, only 40 percent have a fixed income, although 73.3 percent of respondents have a permanent job.

Table 4 Distribution of examples based on high-low typology of families, livelihood adaptation strategies, and economic resilience of families.

Family Typology	Livelihood Adaptation Strategies			Total (%)	Family Economic Resilience			Total (%)
	Low	Middle	High		Low	Middle	High	
Regenerative family	48.3	28.4	1.6	78.3	8.3	25.0	45.0	78.3
Durable family	10	1.6	0	11.6	3.3	5.0	3.3	11.6
Secure family	1.6	1.6	0	3.3	1.6	0	1.6	3.3
Vulnerable family	5.0	1.6	0	6.6	3.3	3.3	0	6.6
Total	65	33.4	1.6	100	16.6	33.4	50	100

Source: Research Data, 2024.

To examine the relationship between the regenerative family typology and other variables, a cross-tabulation was conducted and is presented in the following table. The results of the cross-tabulation show that regenerative families almost all use low livelihood adaptation strategies (48.3%). However, only regenerative families are included in the high category (1.6%) in livelihood adaptation strategies. This is different from family economic resilience, where regenerative families dominate in the high category (45%), followed by medium (25%), and low (8.3%). Another interesting thing that can be discussed from the table above is that families with vulnerable family typology are also classified as low in livelihood adaptation strategies (5%) and family economic resilience (3.3%).

Table 5. Regression test of family characteristics, family typology, and livelihood adaptation strategies to family economic resilience.

Variable	Family Economic Resilience		Sig
	B is not standardized.	B standardized	
Constant	21.034		0.243
Family Characteristics			
Husband's Age	-4.611	-0.169	0.550
Age of Wife	0.978	0.032	0.831
Husband's Education	4.832	0.252	**0.072***
Wife Education	-0.070	-0.004	0.976
Great Family	-3.322	-0.141	0.327
Family Per Capita Income	-2.344	-0.110	0.436
Length of Marriage	-0.109	-0.094	0.694
Long Farming Experience	0.160	0.147	0.378
Types of Climate Change (0=rainfall; 1=drought)	-16.582	-0.443	**0.001****
Family Typology			
Family Hardiness	0.291	0.250	**0.054***
Family Coherence	-0.009	-0.007	0.962
Livelihood Adaptation Strategy	0.502	0.291	0.041
Source of Livelihood Engineering	0.108	0.097	0.526
Dual Livelihood Pattern	0.212	0.262	**0.045***
Spatial Engineering	0.157	0.138	0.307
Adjusted R Square = 0.354 F = 3.313 Sig = 0.001*			

Source: Research Data, 2024.

From the results of the multiple linear regression test, the adjusted R-squared is 0.354. This means that family characteristics, family typology, and livelihood adaptation strategies affect family economic resilience by 35.4%. At the same time, the other 64.6% is influenced by other variables outside of this study. Based on Table 5, family characteristics, family typology, and livelihood adaptation strategies have a significant positive effect on family economic resilience.

In more detail, family characteristics through husband's education (β=0.252; p=0.072), family typology represented by the family hardiness dimension (β=0.250; p=0.054), and livelihood adaptation strategy through the dual livelihood pattern dimension (β=0.262; p=0.024)

have an influence on family economic resilience. Thus, every one unit increase in husband's education, family hardiness, and dual livelihood pattern will increase family economic resilience. Meanwhile, the type of climate change felt by farmers has a significant negative relationship with family economic resilience. This indicates that the phenomenon of climate change (β=0-.433; p=0.001), namely high rainfall experienced by farmers in West Bogor, has an effect on the economic resilience of farming families.

DISCUSSION

Based on the result above, the farmer families in this research are mostly small families, which consist of 2-4 family members. Most of the husbands and wives are classified into the middle adult group. The per capita income of the families is still below the poverty line, with an average of 468,990 IDR. Furthermore, the wives of the farmers generally work as Housewives. The average education level of the husbands and wives was elementary school or equivalent. Based on the type, the farmers in this study are tenant farmers or sharecroppers, who own or rent land and also work in the farming process. The impacts of climate change experienced include high rainfall in the West Bogor area and extended droughts in the South Bogor area.

Family hardiness is an important construct for a person or group of people in understanding how to solve a crisis and have good resilience. Research conducted by Nezhad and Besharat (2010) shows a positive relationship between family typology and family resilience. This is in accordance with the results of research that found a positive relationship between family hardiness and family economic resilience. Family hardiness as part of family typology can significantly predict a family's ability to manage the challenges and difficulties that have a direct relation with resilience, as in farmer families, economic strength is a key factor in resilience.

Then, Sorgho et al. (2020) stated that without the right livelihood strategy, farming families will not be able to maintain their economic resources, which is related to the economic resilience of farming families. Likewise, the results of Brigita and Shihaloho's (2018) research show that the livelihood strategy determines the resilience of farming families and the vulnerability of livelihoods. Because farmers are very dependent on natural conditions and the surrounding weather, farmers really need the right adaptation strategy in maintaining and increasing their sources of income so that their family's resilience conditions can be maintained, such as having other jobs, both permanent and seasonal, or involving other family members to join work, particularly in the item of knowledge and ability to manage finances or income management from the agricultural sector, which needs to be accounted for. Because there are still many farmers who have not implemented income management, agricultural yields, or other agricultural products, this accounting hopes to assist farmers in recapitulating their finances, as well as serve as a reference for making decisions related to family finances.

Livelihood in adaptation strategies refers to choices or actions taken in order to earn a living income and meet consumption needs, so that they can survive and be responsive to existing changes (Huynh et al., 2020). Economic resilience is one of the strengthening components of family resilience. Family economic resilience is the ability of families with all values and goals to manage economic resources and family problems or pressures in order to obtain a prosperous life (Sunarti, 2001). One of the things related to livelihood is capital. In research related to strategy, vulnerability, and resilience by Aldi et al. (2021), it was found that the level of resilience of farmer families is determined by the level of capital, which is part of the livelihood adaptation strategy (Brigita & Sihaloho, 2018). Capital is one of the elements in the dimension of source engineering, which is a dimension in the livelihood adaptation strategy. In addition to capital, the involvement of family members is also part of the economic allocation to maintain family resilience (Hasibuan, 2017). The involvement of family members is measured in one dimension of the livelihood adaptation strategy, namely the dual income pattern.

Then, based on the regression test, it also shows that the type of climate change has an influence on family economic resilience, especially regarding the rainfall phenomenon in West Bogor. Marseva et al. (2017) said that rainfall plays an important role in livelihood strategies in farmer families in facing climate variabilities. It is also related to data from the Bogor City Regional

Planning and Development Agency (2022) that Bogor has orographic rainfall that can occur from noon to evening throughout the year. This condition affects the pattern of farmers to adapt and be productive, which is why it also influences family economic resilience. The limitation in this study is the limitation in photographing the condition of farmers in each period of farming. This study was conducted during the post-harvest period, which is included in the main planting monsoon after the harvest. Thus, it cannot see the condition of economic resilience of farming families in each season specifically. Finally, because the type of farmer by region is urban farmer, it has the potential to be different from the conditions experienced by most farmers in Indonesia, who are located in rural areas with potential problems due to climate change that are quite diverse. Because in this study, the impact of climate change felt by farmers is only high rainfall and drought, or long drought. Other than that, some indicators and dimensions have no relationship with family economic resilience, which could be due to the limited number of respondents in this study.

From a global perspective, these findings highlight that climate variability, particularly changes in rainfall patterns, poses a significant challenge to the economic resilience of farming families beyond the local context. The importance of family typology and livelihood adaptation strategies identified in this study suggests that similar mechanisms may operate in farming communities worldwide that are increasingly exposed to climate change. Taken together, these results demonstrate that the theoretical assumptions regarding family typology and adaptation strategies proposed in the introduction are empirically supported among farmer families facing climate change.

CONCLUSION

Based on the results of this research, the better the husband's education level, the better the economic resilience of farmer families will be. High rainfall conditions have a more significant impact on family economic resilience compared to long droughts; the better the resilience of farmer families in facing crisis conditions, i.e., climate change, the better their economic resilience will be. Additionally, the better the income adaptation strategies employed by farmers, the better their sources of income will be, thereby affecting family economic resilience. So, the government in the Agriculture and Climate sector suggests enhancing support for farmers, both in conducting socialization and interactive counseling, involving farmers directly in every agricultural activity carried out as a preparation and adaptation. Additionally, the researcher also suggests that the government develop agricultural interventions or programs that can collaborate with other sectors to increase farmers' income and welfare to achieve better family resilience, such as non-formal education in assisting farmers to plan for their future and foster a growth mindset. Family hardiness also has a positive influence on the economic resilience of the family, and one of its items is also related to future planning and mindset towards the issues faced. Therefore, it is recommended for the government, especially the Ministry of Agriculture and the Department of Agriculture in the region, to facilitate farmers through MSME (Micro, Small, and Medium Enterprise) assistance so that farming families can have the appropriate dual livelihood strategy and build their economy. In addition, the government can also facilitate policies such as assistance to farming families or support for meeting agricultural sector needs. For future researchers, they can continue studies related to climate change in farming families in terms of other variables such as economic pressure, coping strategies, and stress, or conduct measurements on different types of farmers to enrich research on related topics.

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