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Fiscal Decentralization and Farmer Empowerment in Indonesia-Timor Leste Border: A Case Study of Village Fund

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Abstract

Farmers in the border areas often face challenges due to a lack of facilities and sufficient infrastructure. As a nation that shares borders with several countries, the Indonesian government aims to facilitate economic growth in these areas. One viable approach to achieve this objective is through the effective allocation of village funds. Therefore, this study aims to analyze the factors influencing the empowerment of farmers in the Indonesia-Timor Leste border using village funds. Data were collected using a survey method from 325 household heads, who served as respondents. The collected data were analyzed using the Structure Equation Model-Partial Least Square (SEM-PLS). The results showed that human, social and physical capital owned by farmers on the Indonesia-Timor Leste border had an indirect effect on the strength of empowerment programs funded through village funds. This indicated that apart from implementing policies, the community must also be involved in the planning and implementation of various programs. Furthermore, the central or regional government must play an active role during the designing stages as well as involve farmers and experts in the empowerment process in the Indonesia-Timor Leste border areas.

Keywords: empowerment; fiscal decentralization; marginal farmers; small farmers; village fund

INTRODUCTION

The border communities of Indonesia-Timor Leste are characterized by indigenous peoples with strong social interactions in the economic, educational and health sectors, which are deeply rooted in local customs. The border area between Indonesia and Timor Leste has long been considered an underdeveloped region. Consequently, the development of border areas is one of the priority programs of the Indonesian government, with the aim of improving welfare and human resources (Teturan et al., 2019). The people in this region currently lack the necessary skills and knowledge to manage their regional potential. Although several studies have highlighted the community's inability to manage their potential, there have been minimal efforts to induce behavioral changes among the people (Siregar, 2014; Suwartiningsih et al., 2018).

The Indonesian government has implemented several measures to address this problem, including its fiscal decentralization policy, which aims to promote equitable development and economic growth. According to Slavinskaite et al. (2020), an evaluation of this policy in 13 European countries showed that it had an association with economic growth. To measure the impact of fiscal decentralization, several variables were examined, including the ratio of investment to gross domestic product (GDP), economic structure, the amount of public

spending on education, technology, per capita income and unemployment. Furthermore, the assessment considered the local revenues, regional expenditures, transfers of funds from the central government and regional loans. Fiscal decentralization has a positive impact on economic growth and can increase state revenues. In several developing countries, it has become one of the instruments to reduce poverty. According to Agyemang-Duah et al. (2018), fiscal decentralization in Ghana has the potential to reduce poverty when the local governments effectively manage funds through transparent and measurable priority programs. However, the transfer process from the central to local governments has raised concerns due to the lack of transparency and measurability, leading to the indications of corrupt practices. Several studies have shown that fiscal decentralization policy can have positive impacts on the country's revenue, economic development and foreign investment when the local government is capable of managing funds (Bodman, 2011; Chygryn et al., 2018; Thanh and Canh, 2020). This policy appears to have a positive effect on vertical inequality, but a negative impact on horizontal inequality. In this context, an increase in regional revenue can be more effective in reducing inequality compared to an increment in the government's budget (Nursini and Tawakkal, 2019; Digdowiseiso et al., 2020).

The village fund is a fiscal decentralization program implemented by the Indonesian government, which grants autonomy to the village authorities to manage their respective area based on the specific needs of the community (Ministry of Finance, 2017). However, the effectiveness of this program in promoting economic and infrastructure development equality remains limited. Several studies have shown that the use of village funds has not led to significant economic progress (Teturan et al., 2019). The implementation only raised the number of institutions within the community but failed to increase people's income (Arifin et al., 2020). The success of managing village funds depends on the leadership pattern implemented by the government, which is often not open and accountable (Permatasari et al., 2021).

Community empowerment is a key focus of the village fund budget allocation. However, low human resource quality and corruptive behaviors have led to the government's inability to effectively manage the available resources (Arham and Hatu, 2020; Arifin et al., 2020; Ashar

and Agustang, 2020; Sipayung and Joka, 2021). In the context of the Indonesia-Timor Leste border area, the community empowerment program primarily focuses on the agricultural sector, considering that a significant portion of the local population are farmers. Several reports revealed that the implemented program was suboptimal as it was only designed by the village government without proper consideration of the people's aspirations. This has led to low community participation, as its importance was not perceived by the people (Ayustia and Situmorang, 2020). Innovative policies tailored to the unique needs of the border can enhance its acceptance (Bie et al., 2013). The success of a community development program hinges on various factors, including the active participation of the local population. Low participation is often caused by insufficient socialization efforts and low education levels (Tumbel, 2017; Permatasari et al., 2021).

The social characteristics of farmers play a vital role in their empowerment. Social capital has become a crucial factor in determining effective strategies to achieve the goal of empowering farmers (Ernanda et al., 2019). Mirzaei et al. (2022) reported that this factor significantly increased farmers' income, access to capital and involvement in the development of strategies. The results can contribute to the improvement of social capital, income and sustainable livelihoods (Babu and Sah, 2019; Nguyen et al., 2020). Therefore, this study aims to examine the empowerment of farmers in the Indonesia-Timor Leste border based on socio-economic characteristics and the impact of government development programs through village funds.

MATERIALS AND METHOD

Scope
This study was limited to the empowerment of farmers using village funds. Furthermore, the discussion in this study specifically focused on analyzing the factors affecting farmer's empowerment in the Indonesia-Timor Leste border areas.

Location
This study was carried out in six villages, namely Saenam, Manusasi, Inbate, Haumeni Ana, Napan and Faennake, in North Central Timor Regency, which was adjacent to Timor Leste (Figure 1). Saenam and Manusasi were widely known for horticultural farming, while Inbate,

Haumeni Ana, Napan and Faennake primarily focused on food crops and animal husbandry. Furthermore, Haumeni Ana and Inbate were located between 124°19'58.0"E to 124°24'23.3"E and 9°23'35.4"S to 9°30'45.1"S, and characterized by dry land, which was often used as a cattle breeding center. Saenam and Manusasi were situated between 124°16'24.6"E to 124°19'01.2"E and 9°30'06.3"S to 9°33'27.8"S at an altitude of 1,100 m above sea level. Napan and Faennake villages were located between 124°22'27.9"E to 124°26'49.2"E and 9°20'59.9"S to 9°24'51.7"S and characterized by dry land where most of the people were corn and cassava farmers. This study was conducted from January to March 2022 through interviews and observation using family heads as respondents.

Type of data and data collection technique

Primary data obtained from interviews and the questionnaire were used in this study. Secondary data were also collected from Statistics Indonesia and the Ministry of Village, Development of Disadvantaged Regions and Transmigration. Furthermore, the sample population consisted of 1,600 householders, which were selected using the accidental sampling method. This sampling technique was employed due to the working time of the farmers who served as respondents. The farmers typically worked from 05.00 a.m. to 06.00 p.m. The study sample was determined using the Isaac and Michael table with an $\alpha = 5\%$. This study involved 325 householders as participants across a total of six villages. The traditional farmers selected had a land area of < 2 ha with < 10 cattle.

Data analysis

The data were analyzed using Structural Equation Model-Partial Least Square (SEM-PLS) with SMARTPLS3 software. Partial least square (PLS) was used because it did not require normal data distribution and it could be used as a predictor model in developing a theory (Abdillah et al., 2020). Furthermore, the model used in this study included the variables of 1) human capital reflected by culture (MM_1), knowledge of village fund program (MM_2), education level (MM_3), motivation (MM_4), number of dependents (MM_5), number of capital (MM_6) and farming experience (MM_7); 2) social capital reflected by discipline (MS_1), farmer group activity (MS_2), ease of access to information (MS_3), commitment (MS_4), teamwork (MS_5), autonomy (MS_6), social control (MS_7), village head leadership (MS_8); 3) physical capital reflected by communication device mastery (MF_1), farmer group membership (MF_2), land ownership status (MF_3), technical tool availability (MF_4), land size (MF_5); 4) community empowerment in North Central Timor regency reflected by decision-making ability (P1), information on funding (P2), technical capacity improvement (P3) and community awareness of empowerment (P4), and 5) farmers' capacity reflected by ease of access to funding (K_1), cosmopolitanism (K_2), community welfare (K_3) and technical skill improvement (K_4) (Figure 2).
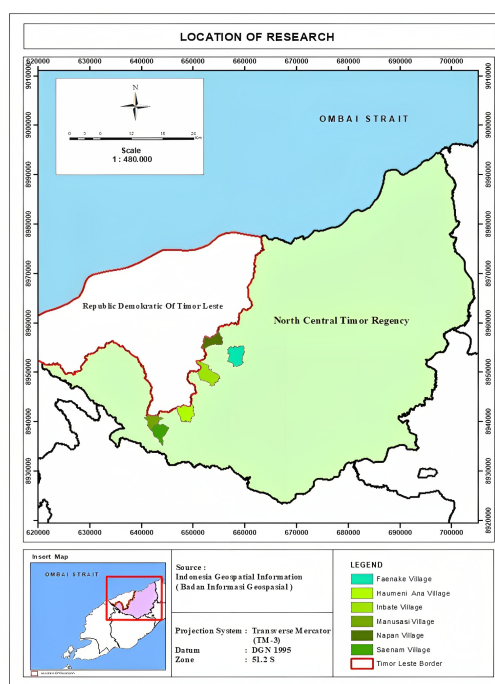

Figure 1. Map of border villages research locations

Outer model measurement

Validity test

The validity test was carried out as the primary criteria and the value obtained was used to determine the acceptability of the results, thereby necessitating the need for optimization (Ghozali and Latan, 2015; Hair et al., 2019). Furthermore, this study applied a reflective PLS model and the validity was determined using the outer loading value of each indicator. Indicators with a loading value of < 0.5 were removed from the latent variables. The minimum acceptable value ranged from 0.5 to 0.7 (Ghozali, 2021; Hair et al., 2021).

Reliability test

The reliability test was performed to determine the consistency and stability of an instrument used in measuring a concept. Furthermore, this evaluation was carried out after the validity test results were obtained. This study used a composite reliability value to determine the reliability of the construct. A construct was considered reliable when the value obtained was > 0.7 (Hair et al., 2019; Ghozali, 2021).

Inner model measurement

Coefficient of determination

The coefficient of determination referred to a value indicating the magnitude of response accounted for by the predictor. The coefficient used in PLS had several criteria, including weak (0.19), moderate (0.33) and strong (0.67) (Chin, 2010).

Effect size (f^2)

Effect size (f^2) denoted the magnitude of the effect of the endogenous latent variable on the exogenous latent variable. f^2 also had several criteria, including weak (0.02), moderate (0.15) and strong (0.35) (Chin, 2010).

RESULTS AND DISCUSSION

Respondent characteristics

The characteristics used in this study were length of education, number of dependents, farming experience, and land size (Table 1). The majority of farmers in the Indonesia-Timor Leste border areas had a low education level. Furthermore, farmers with low education tended to be uncreative and made less effort to increase productivity due to their limited ability to access information. This led to low adoption of technology and reliance on farming solely based on experience. The results showed that the respondents in the Indonesia-Timor Leste border areas, particularly in North Central Timor Regency, tended to lack proper farming management skills. Farmers with low educational
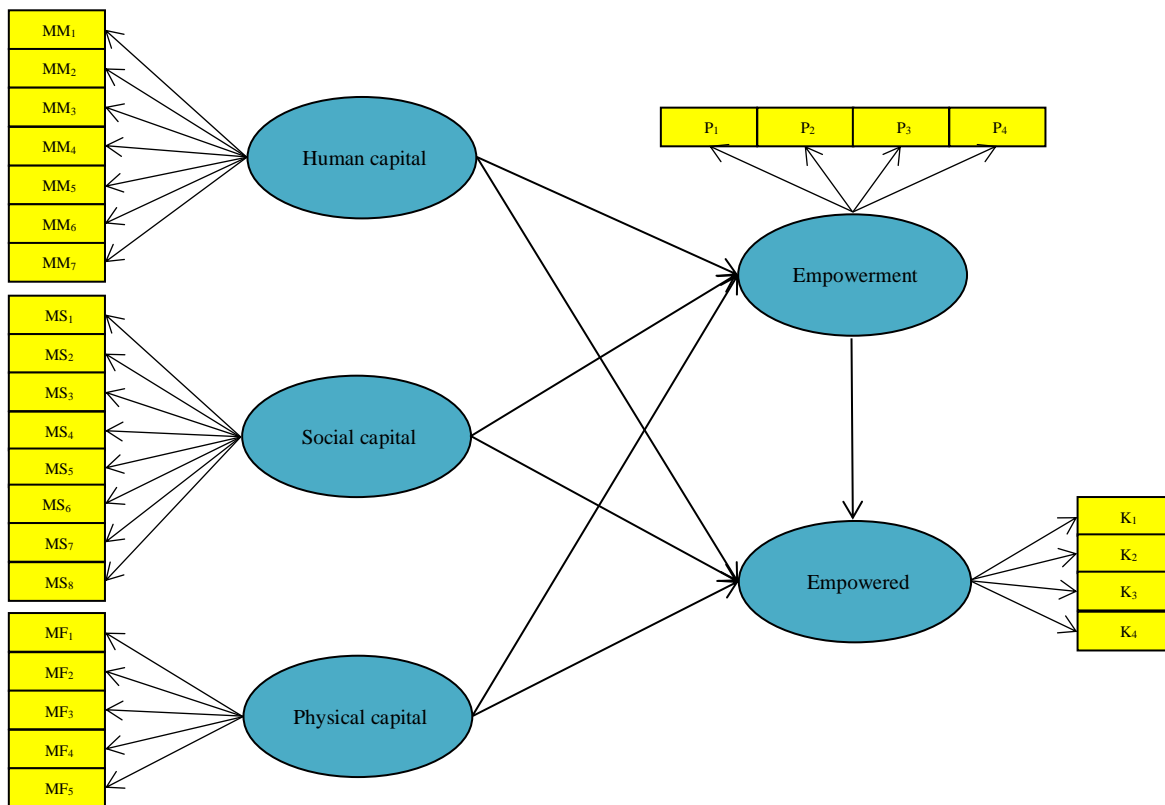

Figure 2. The analysis model of farmer empowerment using village fund in border villages in North Central Timor Regency

Table 1. Respondent characteristic

Demographic characteristics	Level	Number of respondents	Percentage (%)
Length of education (years)	≤ 6 (elementary school)	247	76.0
	7-12 (junior high school)	78	24.0
Number of dependents (people)	4 ≤	264	81.0
	≥ 5	61	19.0
Farming experience (year)	10-20	111	34.0
	21-30	107	33.0
	31-40	68	21.0
	41-50	34	10.5
	≥ 51	5	1.5
Land size (are)	0-50	146	45.0
	51-100	147	45.2
	101-200	27	8.3
	≥ 200	5	1.5

levels had low incomes due to their inability to adopt technology, leading to reduced work productivity (Mlenga, 2015; Abate et al., 2019).

The majority of farmers in Timor Island, specifically in Indonesia-Timor Leste border area used family labor to run their farming to minimize production costs. However, the productivity of these employees was often compromised due to the absence of a boundary between relationships and work activities. The workers often imitated the performance of the head of the family, who commonly had low productivity. A similar trend was also observed in Bangladesh, as reported by Chowdhury (2016), where the family head had high productivity, leading to high commitment among other members.

Agriculture still served as the way of life for most people living on the Indonesia-Timor Leste border. The results showed that the respondents in this study had more than ten years of farming experience and understood the workflow of their occupation. However, farmers in the border area persistently engaged in the sample practices without incorporating any changes. Respondents with high farming experience often experienced difficulties while adopting technology and accessing relevant information. Similar findings were also obtained in Uganda and China, where experience negatively affected productivity (Ainembabazi and Mugisha, 2014; Yu and Luo, 2022).

The majority of people in the Indonesia-Timor Leste border villages were small farmers with a land size of < 1 ha. Due to the limited land area and prevailing dry climate conditions dry land, farmers in this region only engaged in farming activities once a year depending on rainfall.

Furthermore, land size was one of the important factors in improving productivity, as reported by Makate et al. (2019).

Outer model measurement

Convergent validity

The study indicator had an outer loading value of > 0.7 and the validity test result showed that the indicators used in this study represented the latent variables. This was consistent with Chin (2010) and Hair et al. (2021), that the outer loading value was > 0.7 and represented the model used. The outer loading value of valid indicators is presented in Table 2.

Composite reliability

The composite reliability values of variables in this study were > 0.7 (Table 3), indicating that the instrument was consistent and could be used to measure the variables. Furthermore, the composite reliability value of a study instrument must be > 0.7 (Chin, 2010; Hair et al., 2021).

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Inner model measurement

Goodness of fit model (R-squared, F-squared and Q^2)

The model used for farmers' empowerment and power in the Indonesia-Timor Leste border area had R-square values of 0.508 and 0.528. The results showed that social, human and physical capital used in this study explained

50.8% of the respondent's empowerment. Furthermore, these variables along with empowerment explained the power of farmers by 52.8. Based on the predetermined criteria, the R-square of this model was classified as moderate (Chin, 2010). The F-square of physical and social capital in Table 4 showed a value of $0.02 < \text{F-square} > 0.15$. This finding indicated that these variables had a weak effect on the empowerment program of farmers through village funds. The F-square of human capital was $0.02 < \text{F-square} > 0.035$, indicating that it had a moderate effect. The F-square of physical, human, and social capital in Table 4 had a value of < 0.02, showing a weak impact on the empowerment of farmers. Empowerment F-square had a value of > 0.35 on the empowering of participants in the border areas, showing a major impact. The Q-square values owned by the model used in the article were 0.325 and 0.298. Furthermore, the values obtained were > 0, indicating that the exogenous variables used were appropriate to explain the endogenous variables, namely the empowerment and power of farmers in the border areas through the village fund program.

Effect of physical capital on the empowerment and farmer's power

Physical capital, reflected by land size, significantly affected the empowerment program and had an indirect effect on farmers' capacity in the Indonesia-Timor Leste border area. Furthermore, larger land size was associated with higher costs and willingness to improve productivity. Farmers with larger areas tended to be willing to participate in skill improvement programs to enhance their farming and obtain access to funding. Furthermore, the majority of farmers in the Indonesia-Timor Leste border area were willing to accept all programs that focus on funding and farming productivity improvement. Feola and Binder (2010) stated that these programs needed broader socialization to ensure the participants were aware of their benefits. Since most farmers in this area accepted the policy made by the village government, it was necessary to socialize the programs with them. The village government must also understand farmers' attitudes and behavior by designing an initiative that suits them (Zhang et al., 2021; Tien et al., 2022).

Table 2. The outer loading value of family empowerment through village fund in Indonesia-Timor Leste border areas

Variable	Indicator	Symbol	Outer loading value	Description
Empowered	Cosmopolitanity	K_1	0.757	Valid
	Technical knowledge improvement	K_4	0.859	Valid
Physical capital	Land size	MF_5	1.000	Valid
Human capital	Knowledge	MM_2	0.904	Valid
	Motivation	MM_4	0.933	Valid
Social capital	Discipline behavior	MS_1	0.812	Valid
	Commitment	MS_4	0.835	Valid
	Collaboration	MS_5	0.813	Valid
	Social control	MS_7	0.805	Valid
Empowerment	Access to funding	P_2	0.734	Valid
	Technical knowledge improvement	P_3	0.867	Valid
	Awareness	P_4	0.847	Valid

Table 3. The composite reliability value of farmer empowerment through village fund in Indonesia-Timor Leste border areas

	Composite reliability	Description
Human capital	0.915	Reliable
Physical capital	1.000	Reliable
Social capital	0.889	Reliable
Empowerment	0.858	Reliable
Empowered	0.792	Reliable

Table 4. Factor analysis result

	Standard deviation	T statistics	P values
Physical capital → Empowered	0.048	1.112	0.267
Physical capital → Empowerment	0.055	5.424	0.000[a]
Human capital → Empowered	0.050	0.013	0.990
Human capital → Empowerment	0.061	5.910	0.000[a]
Empowerment → Empowered	0.048	14.284	0.000[a]
Social capital → Empowered	0.052	1.554	0.121
Social capital → Empowerment	0.045	2.421	0.016[a]
Physical capital → Empowerment → Empowered	0.041	4.987	0.000[a]
Human capital → Empowerment → Empowered	0.047	5.355	0.000[a]
Social capital → Empowerment → Empowered	0.032	2.381	0.018[a]
	R-square	R-square adjusted	
Empowered	0.528	0.522	
Empowerment	0.508	0.503	
F-square			
Variable	Power	Empowerment	
Physical modal	0.008	0.045	
Human capital	0.005	0.195	
Social capital	0.007	0.064	
Empowerment	0.424		
Variable	Q-square		
Empowered	0.325		
Empowerment	0.298		

Note: significant at $\alpha = 5\%$

Effect of human capital on empowerment and farmer's power

Human capital, reflected by knowledge and motivation, significantly affected the farmer empowerment program and had an indirect effect on farmer's power in Indonesia-Timor Leste border areas. The participant's knowledge of the village fund and its use for empowerment programs could facilitate participation. The farmers must also possess a proper understanding of the allocation of the village funds. Hyland et al. (2018) revealed that farmers were likely to pay no attention to the program if they do not understand its functions. Furthermore, the majority of participants with high farming experience and low education often lacked the motivation to change (Goeb and Lupi, 2021). This indicated that the government needs should be more active in socializing the programs and ensuring their participation (Bagheri et al., 2019; Dutton-Regester et al., 2019).

Effect of social capital on empowerment and farmer's power

Social capital, reflected by discipline, commitment, collaboration and social control, was found to significantly affect empowerment. Discipline, commitment and teamwork skills were crucial factors affecting farmers' empowerment in the Indonesia-Timor Leste border. The program organized must contain a pivotal social principle, namely togetherness. However, farmer groups in this study still had problems with their commitment and discipline in participating. The results showed that the respondents often asked for incentives from the village government when participating because they did not believe in the benefit of the programs for their farming. Zhang et al. (2020) and Nguyen and Drakou (2021) stated that the life of rural community members who worked as farmers required social control, thereby causing positive social perceptions aimed at increasing participation. Commitment was one of the factors affecting farmers' decision to participate in a program (Purnawan et al., 2021; Shao et al., 2022).

Effect of empowerment program on farmer's power

Empowerment programs reflected by access to funding, technical knowledge improvement and awareness had a significant effect on farmers' power. Based on the current human, social and physical capital, the participants experienced several developmental difficulties and required external assistance. Furthermore, the central

government's village fund policy did not necessarily improve the farmers' capacity in the Indonesia-Timor Leste border area. According to Adam et al. (2022), Indonesian farmers needed assistance and should be involved in designing the empowerment programs that suit their needs. The powerlessness observed in this study was caused by low education levels and limited access to information. The inability to access information and poor knowledge of the farmers led to the implementation of farming practices without adopting technological innovations (Sipayung et al., 2021).

Power of farmers at Indonesia-Timor Leste border

The results showed that empowerment programs funded by village funds on the Indonesia-Timor Leste border were ineffective. Furthermore, the low participation observed was due to differences in political views among the village heads. According to Rismayana (2021), the level of village community participation tended to decrease in programs led by leaders when there were different political views or a lack of support for the elected leader.

Leaders who were in the border areas between Indonesia and Timor Leste primarily used village funds to build infrastructure. Furthermore, infrastructure development was considered a top priority due to the ease of accountability. The fear of making reports on the use of these funds was caused by the lack of human resources who could plan empowerment programs. This was consistent with Mahmud (2022) that the village fund program was ineffective because the available human resources were insufficient.

Border village communities often had the capital to become empowered. The government must prioritize an approach that aligned with the social capital of the community while developing strategies aimed at increasing farmers' income through empowerment programs. This finding was in line with Taena et al. (2023), that border communities had socio-economic characteristics that affected their farming income.

CONCLUSIONS

The human, social and physical capital owned by farmers on the Indonesia-Timor Leste border had an indirect effect on the power of farmers through empowerment programs funded with village funds. Therefore, farmers should be involved in the planning and implementation of these programs. The central or regional governments must also play an active role during the designing stages and involve farmers as well as experts in the empowerment process in the Indonesia-Timor Leste border areas. Furthermore, village governments were advised to collaborate with research institutes to facilitate the adoption and provision of technical assistance.

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