

Optimizing the creative economic potential of tourism villages: The impact of financial inclusion and Pentahelix partnerships

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Abstract

This study aims to analyze the effect of financial inclusion on the development of creative economic potential in tourist villages and evaluate the role of Pentahelix partnership as a moderating variable. A quantitative approach was used through a survey method of 193 creative economy businesses in Tana Kuning Tourism Village, North Kalimantan. Data analysis was conducted using the Structural Equation Modeling-Partial Least Squares (SEM-PLS) technique. The results showed that financial inclusion has a positive and significant effect on creative economic potential. Meanwhile, the interaction of Pentahelix partnership and financial inclusion has a positive but limited significant effect, indicating that the partnership plays a moderating role that is not yet optimal. The limitation of the study lies in the statistically limited measurement of Pentahelix partnership as a moderating variable, which indicates the need for further exploration of non-technical factors such as social dynamics, culture, and regional regulations. The practical implications of the findings highlight the importance of cross-sector collaborative policies to encourage local wisdom-based financial inclusion. The originality of this research lies in the integration of the resource-based view and stakeholder theory in building an empirical model of financial inclusion, strengthened by Pentahelix partnership synergy in the context of the creative economy of tourist villages in border areas.

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Keywords: Financial inclusion, Creative economy, Tourism village, Pentahelix partnership, Stakeholder collaboration

1. Introduction

Tourism villages symbolize great economic potential in local economic development. With their unique culture, nature, and traditions, tourist villages are able to attract the attention of local and foreign tourists and generate various opportunities [1, 2]. In this context, the creative economy plays an important role in stimulating economic growth and increasing the competitiveness of tourist villages in the region. The creative economy and tourism sector influence each other and can synergize if managed well [3, 4]. The creative economy includes various sectors, such as arts and culture, handicrafts, traditional culinary, tourism, and others [5, 6]. The role of the creative economy in the context of tourism villages is not only as a driver of economic growth,

but also as a link between local cultural heritage and modern industry, as well as a medium to strengthen local identity and identity [7, 8]. At the national level, the creative economy has become a key pillar of Indonesia's economic growth, with significant contributions to GDP, job creation, and innovation and competitiveness [9, 10].

In 2024, the Creative Economy Value Added reached 55.65% of the target, with a contribution of Rp641.82 trillion or 7% of GDP, and growth of 5.76% [11]. In addition, in 2024, the creative economy sector is estimated to be able to absorb a workforce of 26.47 million people in Indonesia [12].

One of the regions with great potential in creative economy development is North Kalimantan. As an area directly bordering Malaysia and Brunei, North Kalimantan has strategic opportunities in cross-border cooperation, especially in the tourism and creative economy sectors. The development of tourism villages in this area is one of the main steps in encouraging local economic growth based on cultural wisdom. For example, Pulau Sapi Tourism Village in Malinau Regency offers a variety of creative economy products, such as culinary specialties, weaving, batik, and Dayak Lundayeh cultural arts [13]. Meanwhile, Tanah Kuning Beach Tourism Village in Bulungan Regency, which is included in Indonesia's 75 Best Tourism Villages 2023, is a leading destination with marine tourism and culinary specialties [14]. The potential of these tourist villages not only strengthens the local economy but also increases North Kalimantan's competitiveness at the national and international levels, making it one of the growth centers of the tourism-based creative economy on the Indonesian border.

Creative economic growth that supports tourism development must be supported by adequate financial resources. Within the framework of the resource-based view (RBV) theory, financial resources are one of the strategic assets that can become a competitive advantage when managed effectively and sustainably. RBV theory emphasizes the importance of ownership and utilization of resources that are valuable, rare, inimitable, and non-substitutable (VRIN) [15]. In this context, financial resource support can be obtained through access to financial services, known as financial inclusion, for communities and creative economic actors in tourist villages [16-18]. In the context of North Kalimantan, according to OJK data in 2022, it was recorded to have a fairly high financial inclusion index, which reached 91.69% [19]. A high level of financial inclusion does not necessarily mean that everyone has equal access to financial services. Disparities can occur between different groups of people, such as people in remote areas may have more limited access compared to people in urban areas [20, 21]. In line with this, based on the results of the identification of the regional office of the Directorate General of Treasury of North Kalimantan, it shows that access to financial institutions for MSME actors, the majority of 89% have never made a credit with banks and non-banking financial institutions [22]. This is due to several reasons, such as requirements that are difficult to fulfill, business actors are not interested, concerns related to the ability to repay credit, and other reasons.

The potential of the creative economy sourced from local wisdom in North Kalimantan's tourist villages has a great opportunity to sustain tourism development. However, the empowerment of the creative economy is still hampered by inadequate financial inclusion for creative economy actors in North Kalimantan. For this reason, a strategy is needed that can overcome the limitations of creative economy business actors in obtaining access to finance in financial institutions or banks. According to stakeholder theory, social problems require multi-stakeholder partnerships [23, 24]. The implication of this theory is the need to build strategic partnerships with a Pentahelix approach, including government, financial institutions, tourist village communities, academics, and information media. Some previous studies show that active collaboration between key stakeholders such as government, local communities, local organizations, tourism companies, and tourists is necessary for the development of the creative economy and sustainable tourism [25, 26].

Studies on the importance of financial inclusion to the growth of the creative economy and tourism sector in the context of North Kalimantan are limited. Previous studies have focused more on the impact of financial inclusion on MSMEs in general, such as research by Lakuma et al. [27], Ratnawati [28], Sukmana and Trianto [29], Mishra et al. [30], or on aspects of community-based creative economic empowerment, as shown in the studies of Layaman et al. [31], Lee et al. [32], Syauqi et al. [33], without considering the role of strategic

partnerships in strengthening these relationships. In addition, although the Pentahelix approach has been studied in the context of creative economic development and sustainable tourism [26, 34], research examining its role as a moderating factor in strengthening the impact of financial inclusion on creative economic development in tourist villages is still very limited.

This research gap is crucial given the fact that the high financial inclusion index in North Kalimantan (91.69%) does not automatically reflect ease of access for all creative economy actors, especially in tourist villages that still face various structural and administrative obstacles in utilizing formal financial services [19, 22]. Without support from various stakeholders, these limitations risk hampering the optimization of the creative economy's potential as the main pillar of tourism village development. Therefore, to address the financial inclusion gap in creative economic empowerment in North Kalimantan's tourist villages, an empirical model that integrates the penta helix strategic partnership as a moderating factor is needed. The Pentahelix partnership does not directly create growth in the creative economy; rather, it functions to strengthen or weaken the effectiveness of financial access. For instance, even if the residents of tourism villages have access to banking services, this potential can only be fully realized if supported by the government through policies, by academics through capacity building, by communities through active participation, by businesses through innovation, and by the media through promotion. Without cross-actor synergy, financial inclusion often remains formal access without producing tangible impacts. Therefore, the Pentahelix partnership is more appropriately positioned as a moderating variable, serving as a catalyst that determines the extent to which financial inclusion can generate added value in the development of the creative economy in tourism villages.

This research aims to build a conceptual model to understand the extent to which strategic collaboration between the government, financial institutions, businesses, academics, and information media can strengthen the impact of financial inclusion on creative economic potential. This approach is in line with the principle of sustainable tourism development [35, 36], which emphasizes the importance of the involvement of various stakeholders in achieving development goals [37, 38].

This research contributes to developing a conceptual model that places Pentahelix partnership as moderating the relationship between financial inclusion and creative economic development based on tourism villages. By referring to the resource-based view and stakeholder theory, this model highlights the importance of access to finance and synergy between stakeholders. The results revealed that financial inclusion has a positive and significant impact on the development of creative economic potential. However, the role of Pentahelix partnership as a moderating factor in the relationship is still limited, although it shows a positive direction. This indicates that the synergy in the Pentahelix partnership has not been fully optimized in strengthening the influence of financial inclusion on the creative economy sector.

1.1. Literature review and hypothesis development

1.1.1. Resource-based view (RBV) theory

The resource-based view (RBV) theoretical perspective emphasizes that sustainable competitive advantage is not solely determined by external conditions, but instead comes from the ownership and management of internal resources that are unique and difficult to imitate. According to Barney [15], resources capable of generating competitive advantage must meet four main criteria known as the VRIN concept: valuable, rare, inimitable, and non-substitutable. Organizations that possess and utilize resources that meet these characteristics are likely to be able to build a solid competitive position and survive in the long term [39, 40]. In this framework, resources are not only viewed as operational inputs but as strategic foundations that determine success.

One form of resource that is very crucial is financial resources. Access to and ability to manage finance effectively can be an important differentiator in supporting the process of innovation, product development, and market expansion, especially in the creative economy and tourism sectors [41, 42]. However, many small businesses, cooperatives, and creative communities still face structural barriers to formal financial services. Therefore,

strengthening financial inclusion is a strategic step to expand ownership and utilization of financial resources among economic actors who have been marginalized. Effective financial inclusion can help create access to resources characterized by VRIN, thereby supporting the creation of a more equitable and sustainable competitive advantage [43].

1.1.2. Stakeholder theory

Stakeholder theory argues that social problems can be solved with a managerial approach that emphasizes the importance of considering the interests of all parties involved in an organization [44]. In addition, stakeholder theory explains that the active involvement of stakeholders is very important in driving the innovation process. As stated by Echeverría and Estankona [45], the creative sector often generates solutions to social problems through collaboration between various relevant actors.

Cross-sector collaboration involving government, communities, businesses, and academia is a key element in creating sustainable social innovation [46]. Within the framework of stakeholder theory, each party brings different but complementary perspectives and resources. For example, local communities often have deep contextual knowledge of the issues at hand, while businesses and governments can provide technical support and funding. This kind of synergy allows for solutions that are more adaptive and responsive to community needs [47, 48]. The application of stakeholder theory in cross-sector collaboration plays an important role in enhancing social innovation [49] and building a more inclusive and sustainable ecosystem [50, 51]. In the context of creative economy development and sustainable tourism village development, this theory is very relevant because it encourages the involvement of various parties, including the government, local communities, businesses, and academics [35, 49]. Cooperation between all these actors can create solutions that are more responsive to local challenges and support the sustainability of such initiatives.

1.1.3. Financial inclusion and creative economy potential

Financial inclusion is the accessibility of effective financial services to all segments of society, especially those who previously had no access [30]. However, financial inclusion is not only a matter of access, but also includes a deep understanding of how financial services are used by end consumers to support the achievement of sustainable development goals. In this context, financial inclusion can be a strategic tool in empowering micro, small, and medium enterprises (MSMEs) and contributing more effectively to local economic development, while addressing social challenges faced by communities [18].

Studies that specifically discuss the role of financial inclusion in creative economic empowerment are still relatively limited. The results of the literature review found that research conducted by Julita and Nainggolan [16] stated that financial inclusion plays an important role as a mediator in improving the performance of the creative industry. Meanwhile, a number of previous studies have highlighted the role of financial inclusion as a determinant of MSME performance, as shown in studies by [18, 27] and supported by additional evidence from [28, 33]. On the other hand, several studies have also shown that financial inclusion also boosts the economy of tourist villages and the performance of the tourism sector in a sustainable manner [52, 53]. In line with these findings, it is further explained that increasing financial inclusion can drive improvements in MSME performance through increased access to better financial services, as well as building positive interactions between financing institutions and small business actors [28]. The RBV reinforces this argument, placing access to financial resources as an internal asset with strategic value. When scarce, effectively managed, and difficult to replicate, financial resources become the foundation for creating sustainable competitive advantage [15, 39].

Financial inclusion not only acts as a means to obtain funding but also as a trigger for innovation in marketing strategies. When creative industry players have adequate access to financial resources, they are able to optimally adopt modern technology to improve competitiveness and business performance in a competitive market [16]. In the context of the tourism sector, financial inclusion contributes to the development of the tourism industry, both in developed and developing countries [54]. Easier access to financial products and services, such as

savings and loans, allows people to increase their purchasing power, including for tourism needs and activities. Thus, based on the explanation of the previous description, a hypothesis can be built:

H1: The higher the level of financial inclusion, the stronger the development of creative economic potential in tourist villages.

1.1.4. Pentahelix partnership in strengthening financial inclusion and the creative economy of tourism villages

Stakeholder theory emphasizes that the success of an organization or development program depends on the active involvement of all stakeholders who have an interest in the process and results of these activities [44, 55]. In the context of tourism village development, especially in developing the potential of the creative economy, this approach becomes very relevant. The Pentahelix partnership, which involves five key elements, namely government, academia, business, community, and media, creates a collaborative ecosystem that can encourage the achievement of more effective and sustainable development goals [24, 35], as supported by studies on stakeholder engagement [46, 47] and social innovation [49]. The Pentahelix model emphasizes the importance of synergies between these diverse sectors, each of which has a strategic role in creating and strengthening the conditions that support creative economic development in tourist villages.

Financial inclusion, which refers to greater access to financial services and products by previously underserved communities, has been shown to be a key factor in driving creative economy development [16, 33]. Easier access to financial services, such as savings, loans, and technology-based financing, enables creative economy actors in tourism villages to develop and manage their businesses more effectively.

Within the Pentahelix partnership framework, the role of each stakeholder is crucial. Government plays a role in creating inclusive policies and providing financial incentives [56]; businesses such as financial institutions provide microenterprise-friendly products [57, 58], and support local SME competitiveness through innovative financial solutions [59]; academics contribute relevant education and research [60, 61]; media disseminate financial information and awareness [62]; and communities serve as a direct bridge to local communities and businesses [36, 38]. This synergy has the potential to strengthen the capabilities of creative economic actors in tourist villages in utilizing financial services to develop their businesses in an innovative and sustainable manner. Collaboration between actors in the Pentahelix model can accelerate the strengthening of financial inclusion while supporting creative economic growth in tourist villages [63, 64], particularly through stakeholder collaboration in integrating tourism and creative economy development [65]. With a solid partnership, barriers to financial access, such as limited information, low financial literacy, and the digital divide, can be minimized. In addition, creative economic actors in tourist villages have greater opportunities to access sources of financing, develop their business capacity, and reach a wider market through technological support and digitalization. Based on this description, the hypotheses that can be formulated in this study are:

H2: The Pentahelix partnership encourages the strengthening of financial inclusion towards the development of creative economic potential in tourist villages.

From the development of the previous hypothesis, an empirical framework model can be made as follows.

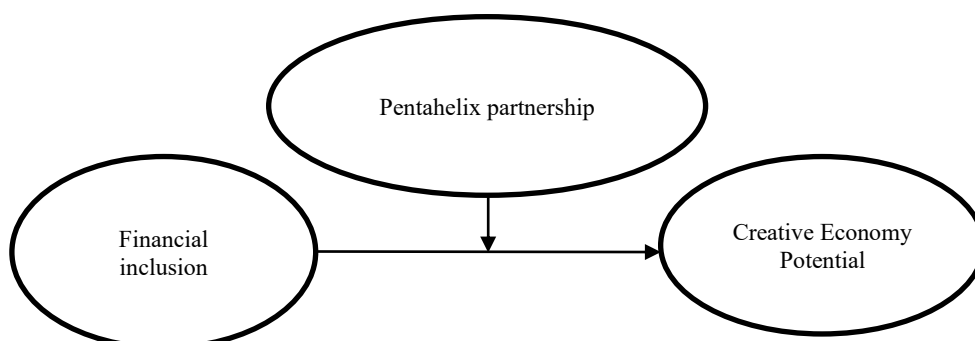


Figure 1. Empirical framework model

2. Research method

This study used a quantitative approach with a survey method to analyze the relationship between financial inclusion, Pentahelix partnership, and creative economic potential in creative economy actors in Tana Kuning Tourism Village, Bulungan Regency, North Kalimantan. The sample was determined purposively with the criteria of business actors who have been operating for at least two years and are actively innovating. In the context of this study, “actively innovating” is defined as the efforts of creative economy actors in rural areas of North Kalimantan—operating in crafts, fashion, or food and beverage—to develop or enhance their products and services, improve product quality or packaging, utilize new marketing channels (e.g., social media or online marketplaces), and adapt production processes to be more efficient and sustainable. From the results of these criteria, 193 respondents were collected. The sample size of 193 respondents is considered adequate for SEM-PLS analysis, considering that this number has exceeded the minimum requirement, which is 10 times the largest number of indicators in one construct [66].

The selection of Tana Kuning Tourism Village as the locus is based on its status as one of Indonesia's 75 Best Tourism Villages in 2023, which shows high potential in tourism and creative economy development. In addition, the village is located in a strategic area of national green industry development, which is one of the National Strategic Projects in Indonesia [67], making it representative for examining the integration of financial inclusion, pentahelix partnerships, and creative economy empowerment. Such characteristics enable generalization of the findings to other tourist village contexts in developing countries with similar challenges and opportunities [14].

Data was collected through a structured questionnaire with a 5-point Likert scale, covering the variables of financial inclusion, pentahelix partnership, and creative economy potential. In addition to the quantitative survey, this research was also complemented by in-depth interviews with key stakeholders such as the government, banking institutions, creative economy businesses, media, and academics. These interviews were used to strengthen the quantitative findings while providing a deeper contextual understanding.

The operational definitions of variables and research indicators developed from previous literature are described as follows.

1. Financial inclusion refers to the extent to which creative economy and tourism businesses have access to, utilize, and benefit from banking and financial services. Indicators were developed based on previous studies on accessibility, usage, and impact of financial services, as well as awareness and institutional capacity [68, 69]. Specifically, the indicators include:
 - a. Access: ease of reaching financial services.
 - b. Use: frequency and variety of services utilized.
 - c. Impact: economic benefits derived from financial services.
 - d. Awareness: understanding and knowledge of financial products.
 - e. Financial service capacity: ability of financial institutions to meet the needs of the community [70].
2. The Pentahelix partnership is defined as a form of strategic cooperation involving five key development actors: government, academia, business, community, and media. Indicators were derived from prior research on collaboration effectiveness and synergy measurement [27, 71]. The six indicators include:
 - a. Commitment: seriousness and dedication in cooperation.
 - b. Communication: effectiveness of information exchange.
 - c. Coordination: integration of actions among stakeholders.
 - d. Benefits: added value obtained from collaboration.
 - e. Trust: mutual trust between involved parties.
 - f. Sustainability: long-term continuity and impact of the partnership.

3. Creative economy potential reflects the ability of regional businesses to develop sectors based on creativity and local wisdom. Indicators were adapted from previous studies that focused on creative sector capacity, resource accessibility, networking, and economic impact [72, 73]. The indicators include:
 - a. Capacity of creative economy actors.
 - b. Access to access resources.
 - c. Cooperation networks.
 - d. Creative products development.
 - e. Utilization of local wisdom.
 - f. Economic impact: increased income and job creation.

The analysis technique used is Structural Equation Modeling - Partial Least Squares (SEM- PLS) using the WarpPLS 8.0 application, which allows testing direct, mediation, and moderation relationships simultaneously. The selection of WarpPLS 8.0 for our SEM-PLS analysis is justified by its superior ability to handle the specific characteristics of our dataset. This software is particularly well-suited for our study, which utilizes primary, Likert-scale data from 193 MSME respondents. WarpPLS is robust in analyzing non-normal and ordinal data, a common feature in social research [74], and is highly effective with small-to-medium sample sizes [75]. Most importantly, it excels at detecting and modeling complex relationships, including non-linear effects and moderation [74]. This ensures that our analysis of the moderating role of pentahelix partnerships is both accurate and comprehensive. According to Sholihin and Ratmono [76], the stages of analysis using PLS-SEM must at least go through five stages processes including model conceptualization, determining the algorithm analysis method (outer model and inner model). Determine the resampling method, draw a path diagram as described in the empirical research model, and evaluate the model.

The research model equation can be written as follows:

$$CEP = \alpha + FI\beta_1 + PP * FI\beta_2 + e \quad (1)$$

Where, α = constant, CEP = Creative Economy Potential, FI = Financial Inclusion, PP = Pentahelix Partnership, PP*FI = interaction of Pentahelix Partnership and Financial Inclusion (moderation), β_1 = coefficient for direct effect of FI on CEP, β_2 = coefficient for interaction effect of FI*PP on CEP, and e = error term.

Model evaluation in PLS-SEM consists of two main stages: measurement model evaluation (outer model) and structural model evaluation (inner model). The first stage assesses the validity and reliability of latent constructs through indicators such as convergent validity, discriminant validity, composite reliability (CR), and Cronbach's alpha. After the measurement model meets the criteria, the analysis proceeds to the structural model to test the relationship between latent constructs, through the Adjusted R^2 value, predictive relevance (Q^2), goodness of fit, as well as the significance of direct and moderation relationships through the P-value.

3. Results and discussion

3.1 Sample profile

Based on observations of creative economy actors in Tanah Kuning Tourism Village, Bulungan, 193 respondents were collected, with detailed profiles as follows:

Table 1. Respondent profile details

Variables	Respondent Profile
Gender	Male 34%, Female 66%
Age	20-29 years old: 23%, 30-39 years: 39%, 40-49 years: 28%, and 50-59 years:10%
Education	Elementary school 11%, junior high school 11%, high school 50%, diploma

Variables	Respondent Profile
	2%, bachelor degree 26%
Respondent Status	Business owner 33%, Manager 34%, Employee 28%, Other 5%
Business Type	Craft 47%, fashion 38%, Food and Beverage 15%
Number of Workers	0-2 people 14%, 3-5 people 47%, 6-12 people 25%, above 12 people 14%
Length of business	0-2 years 5%, 3-5 years: 33%, 6-7 years 22%, 8-12 years 17%, above 12 years 23%
Asset Value	≤ 2 million 14%, 3-5 million 23%, 6-10 million 23%, 11-15 million 19%, 16-25 million 10%, >25 million 7%

Source: Primary data processed (2024)

Based on data from 193 respondents of creative economy actors in Tana Kuning Tourism Village, the majority of actors are women (66%) with a productive age range of 30- 39 years (39%), indicating the important role of women and the younger generation in driving the creative economy sector in this village. Education is mostly at the secondary level (senior high school, 50%), and most business owners or managers (33% and 34% respectively), reflecting the dominance of micro businesses run independently.

The most dominant business types are craft (47%) and fashion (38%), followed by culinary (15%), with business scale mostly involving 3-5 workers (47%). The length of business also shows sustainability, where the majority of actors have been running their businesses for more than three years, and 23% of them have been operating for more than 12 years. In terms of assets, most entrepreneurs are in the micro category with business assets between Rp3 to 10 million (46%). This profile reflects the great potential in the development of the local wisdom-based creative economy sector, which requires the support of strategic partnerships and financial inclusion to drive sustainable growth.

3.2 Evaluation of the measurement model

Evaluation of the measurement model is carried out to assess the reliability and construct validity of each latent variable indicator. The values of loading factor, composite reliability, and average variance extracted (AVE) for each variable are presented in detail in Table 2.

Table 2. Loading factor value of research variable indicators

Variables	Indicator	Loading Factor	Composite Reliability	AVE
Financial Inclusion	Access	0.790	0.939	0.719
	Usage	0.928		
	Impact	0.834		
	Awareness	0.833		
	Financial Services Capacity	0.885		
Pentahelix Partnership	Commitment	0.783	0.938	0.715
	Communication	0.901		
	Coordination	0.857		
	Benefits	0.835		
	Trust	0.846		
	Sustainability	0.848		

Variables	Indicator	Loading Factor	Composite Reliability	AVE
Creative Economy Potential	Capacity of Economic Actors	0.855	0.948	0.751
	Access to Resources	0.871		
	Cooperation Network	0.896		
	Creative Products	0.856		
	Local Wisdom	0.855		
	Economic Impact	0.864		

Source: Primary data processed (2024)

Based on Table 2, all indicators that make up the financial inclusion, pentahelix partnership, and creative economy potential variables show adequate validity with loading factor values ≥ 0.7 . This indicates that each indicator has high reliability. In addition, AVE values exceeding 0.5 indicate the fulfillment of convergent validity, while composite reliability values above 0.7 confirm good internal consistency in each variable. Furthermore, the square root analysis of AVE compared to the correlations between constructs is presented in Table 3 to assess discriminant validity.

Table 3. AVE square root value and correlation between variables

Construct	Square root of AVE	Correlation		
		Financial Inclusion	Pentahelix Partnership	Creative Economy Potential
Financial Inclusion	0.848	-	0.842	0.591
Pentahelix Partnership	0.846	0.842	-	0.634
Creative Economy Potential	0.866	0.591	0.634	-

Source: Primary data processed (2024)

From the output results of Table 3, the AVE square root value of each variable is greater than the correlation between variables, so this indicates good construct discriminant validity.

3.3 Structural model evaluation

Evaluation of the structural model (inner model) is carried out to assess the strength of the causal relationship between latent variables and to identify the proportion of variance that can be explained by the model. In addition, significance testing based on the P value is used as a basis for testing the first and second hypotheses proposed in this study [77]. Before testing the structural relationship further, it is necessary to first assess the level of model fit (goodness of fit), as presented in Table 4.

Table 4. Goodness of fit structural model

Criteria	Parameters	Rule Of Thumb
Average path coefficient (APC)	0.391, $P < 0.001$	Acceptable $P < 0.05$
Average R-squared (ARS)	0.409, $P < 0.001$	Acceptable $P < 0.05$
Average adjusted R-squared (AARS)	0.392, $P < 0.001$	Acceptable $P < 0.05$
Average block VIF (AVIF)	1.181	Acceptable if ≤ 5 , ideally ≤ 3.3
Average full collinearity VIF (AFVIF)	2.818	Acceptable if ≤ 5 , ideally ≤ 3.3
Tenenhaus GoF (GoF)	0.571	Small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36
Sympson's paradox ratio (SPR)	1	Acceptable if ≥ 0.7 , ideally = 1
R-squared contribution ratio (RSCR)	0.902	Acceptable if ≥ 0.9 , ideally = 1
Statistical suppression ratio (SSR)	1	Acceptable if ≥ 0.7

Source: Primary data processed (2024)

Based on the goodness of fit test results in Table 4, the structural model shows excellent fit. The APC, ARS, and AARS values are each significant at $P < 0.001$, indicating the relationship between variables is strong and stable. The AVIF (1.181) and AFVIF (2.818) values are within reasonable limits, indicating there is no multicollinearity problem. The Tenenhaus GoF value of 0.571 is large, indicating high predictive power of the model. Other indicators, such as SPR and SSR, are 1, and RSCR is 0.902, indicating good contribution of independent variables and no statistical distortion. Overall, the model is suitable for further analysis.

Furthermore, to see the results of estimating the relationship between variables and the amount of variance can be seen in Table 5.

Table 5. Results of the estimation of the relationship between variables

Path Description	Path Coefficient	P value	R ²	Q ²
Financial Inclusion → Creative Economy Potential	0.653	<0.01	0.409	0.521
Pentahelix Partnership and Financial Inclusion Interaction → Creative Economy Potential	0.129	0.066		

Source: Primary data processed (2024)

The estimation results can also be seen in Figure 2.

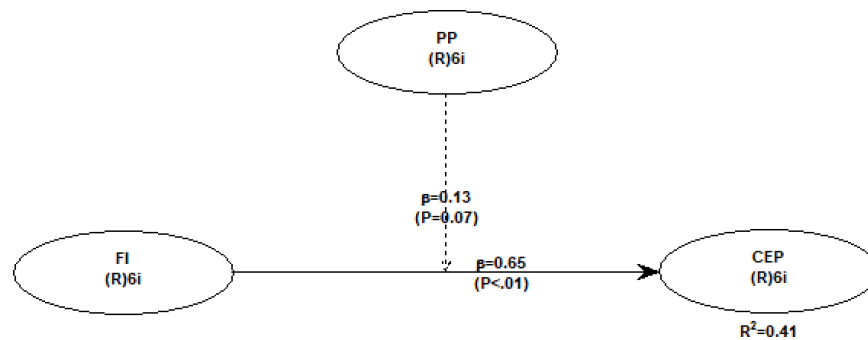


Figure 2. Estimated relationship between variables

Based on Table 5 and Figure 2, financial inclusion is shown to have a positive and significant effect on creative economic potential with a coefficient of 0.653 and p-value <0.01 . This finding remains practically and theoretically meaningful. The value suggests a marginal moderating influence; however, the direction of the coefficient, which aligns with the proposed hypothesis, provides support for the expected relationship. The weak level of significance may be attributed to several factors, such as respondent heterogeneity, a limited sample size, and the complex socio-economic context influencing the strength of relationships among variables.

Moreover, in social and management studies, moderating effects often emerge gradually or manifest as latent effects, meaning that their impact may not always be strongly detected in initial statistical testing. Consequently, this finding still contributes empirically to strengthening the theoretical model, particularly in explaining the contingency conditions that moderate the primary relationships among variables. Future research is therefore encouraged to expand the number of respondents and to include additional control variables—such as village size and population, average education level, per capita income, infrastructure access and digital connectivity, tourism activity intensity, and local institutional support. Controlling for these variables is expected to improve estimation precision, reduce potential bias arising from contextual heterogeneity among tourism villages, and provide a more comprehensive understanding of the dynamics between financial inclusion, Pentahelix partnerships, and the creative economic potential of tourism villages.

In addition, the R² value of 0.409 indicates that the financial inclusion variable is able to explain about 40.9% of the variation in creative economic potential. Meanwhile, the Q² value of 0.521 indicates that this model has good predictive power.

3.4 The role of financial inclusion in enhancing the potential of the creative economy

The results of statistical testing show that financial inclusion has a positive influence on the potential of the creative economy. The more financial inclusion increases, the stronger the potential of the creative economy to grow. These results align with the RBV theory, which posits that adequate financial resources—such as access to financial inclusion—serve as strategic assets that can create organizational advantage [15, 39]. Furthermore, the findings are consistent with previous studies that identified a strong correlation between increased financial inclusion and the performance of the creative industry [16, 33]. Similar evidence was also reported regarding the positive influence of financial inclusion on MSME performance across different contexts [18, 27], while other studies further confirmed its role in enhancing the performance of creative industry-based MSMEs [28, 33]. In addition, these findings reinforce earlier literature suggesting that financial inclusion contributes positively to the sustainable development of tourist villages [21, 52] and to tourism growth in general through enhanced accessibility and economic participation [53].

Financial inclusion, characterized by easy access to financial services and diversity of services used, can increase the effectiveness of creative economy actors in developing their capacity to produce creative, unique, and economically valuable products. In addition, the increasing awareness of creative economy and tourism business actors of the importance of access to financial and banking services also encourages more effective cooperation between creative economy actors, the government, and other parties that support business development in this sector.

Based on interviews with local businesses and financial institutions, there is concrete evidence to support the finding that better access to finance and digital transactions can improve the competitiveness and creativity of creative economy businesses in this tourism village. For instance, Homestay Gamping Resort in Tanah Kuning experienced a significant increase in rental sales following the presence of the National Strategic Project (PSN) KIPPI, utilizing non-cash transactions such as Quick Response Code Indonesian Standard (QRIS). This demonstrates that digital financial inclusion immediately provided a positive impact on business operations, even for those whose capital remains self-funded. Furthermore, the case of the culinary business "Akai-akai", which is a recipient of funding and mentorship from Bank Kaltimara, proves the direct benefit of financial access. Bank Kaltimara has gone further by expanding its services by opening a sub-branch office in Tanah Kuning and providing digital payment services through QRIS and mobile banking. Akai-akai is not only a recipient of financing but also received a significant boost to its market by being involved in exhibition activities.

Thus, financial inclusion has a real contribution in encouraging the development of creative economic potential, especially in tourist village areas. Wider access to financial services encourages businesses to be more innovative and adaptive. Initiatives from financial institutions such as Bank Kaltimara, which actively uses a "jemput bola" (proactive outreach) strategy for KUR credit, and the BRILian Village program by Bank Rakyat Indonesia (BRI) demonstrate the importance of collaboration in creating a more productive and sustainable business ecosystem.

3.5 The role of Pentahelix partnership strengthens the impact of financial inclusion on the potential of the creative economy

Based on the results of statistical tests, the interaction between pentahelix partnerships and financial inclusion is proven to be able to increase the potential of the creative economy, although its significance is still statistically limited at the 10% level ($p\text{-value} = 0.066$). It remains relevant in supporting the potential of the creative economy. These results indicate that the pentahelix partnership acts as a moderating variable that strengthens the positive influence of financial inclusion on the development of creative economic potential. This finding is in line with the view of stakeholder theory, which states that social problems can be solved through a managerial approach that considers the interests of all parties involved. The success of an organization or development program is highly dependent on the active involvement of all stakeholders [44, 55].

This research also strengthens previous studies highlighting that synergies in the Pentahelix model are able to form a collaborative ecosystem that supports the achievement of development goals more effectively and

sustainably [24, 35], particularly through well-designed decision-making processes and practical Pentahelix synergies [46, 47], and through structured stakeholder engagement frameworks for innovation and entrepreneurship [49]. Cross-actor collaboration within the Pentahelix framework has also been shown to accelerate the strengthening of financial inclusion while encouraging creative economic growth, especially in tourist village areas [63, 64], with additional evidence on integration between tourism and creative economy development [65].

Pentahelix partnerships built on the basis of commitment to cooperation, effective communication, integrated coordination, creation of mutual benefits, mutual trust between parties, and long-term sustainability will strengthen the positive impact of financial inclusion on the development of creative economic potential.

In the Pentahelix model, each actor has a strategic role in encouraging creative economic empowerment through financial inclusion. The government is tasked with formulating inclusive policies and providing incentives [56]; financial institutions offer services that support microenterprises [57, 58]; academics contribute through research and education [60, 61]; the media builds public literacy and awareness [62]; while the community becomes a direct link with local businesses [36, 38].

Although the results of this study show a positive influence, its limited statistical significance is aligned with field observations and interviews that revealed limited strategic collaboration among stakeholders. From the business perspective, there is a clear demand for greater government involvement, such as the statement from the Homestay Gamping Resort owner who explicitly said they "have never received assistance or guidance from the local government Bulungan" and felt the business was "initiated independently". This perception indicates a gap in the Government (Helix) function. Conversely, the Tourism Office (Dinas Pariwisata) acknowledges its limitations, stating that it "has not specifically had cooperation activities with banking institutions" for creative economy actors. While the Industry, Cooperative, and MSME Office (Dinas Perindagkop) plays an active role in giving recommendations for Kredit Mesra financing and conducting financial literacy, both the Tourism Office and the Cooperative Office face the key obstacle of "remote location access and unstable internet networks" in providing effective guidance and fostering partnerships.

Despite these current limitations, there are concrete plans for future collaboration that reflect a positive orientation toward Pentahelix synergy. The Tourism Office is very keen to establish cooperation with banking institutions through business matching to boost financial inclusion for creative economy actors. Furthermore, Bank Kaltimara hopes the Tourism Office can provide "data on credit potential for business actors" in the tourist village to facilitate targeted financial inclusion. This mutual recognition of the need for data and structured meetings signals an emerging commitment to cross-sector synergy.

Thus, the Pentahelix partnership has great potential to become a collaborative foundation in strengthening the impact of financial inclusion on creative economy development, especially in rural areas such as tourist villages. However, for this role to be optimized, it requires strengthening institutional capacity, more supportive regulations, and active and sustainable involvement of all stakeholders. Going forward, cross-sector synergies need to be focused not only on the planning aspect but also on joint implementation and evaluation to ensure the creation of an inclusive, adaptive, and sustainable creative economy ecosystem.

4. Conclusions

This research confirms that financial inclusion plays a significant role in encouraging the development of creative economy potential in tourist villages, particularly in North Kalimantan. Greater access to financial services allows creative economy businesses to increase their capacity, innovation, and business competitiveness in a sustainable manner. The results of the analysis show that financial inclusion has a positive and significant influence on creative economic development, with a coefficient value of 0.653 and p-value <0.01.

In addition, strategic partnerships based on the Pentahelix model-including government, financial institutions, academia, community, and media, play a moderating role that strengthens the relationship between financial inclusion and creative economic development, although the effect is only significant at the 10% level (p -value = 0.066). This indicates that the synergy between actors is not optimal, but still relevant in supporting the achievement of locally-based creative economic development. This finding supports the Resource-Based View (RBV) theory in viewing access to finance as a strategic resource, as well as stakeholder theory in emphasizing the importance of cross-sector collaboration for development success. Practically, the results of this study underscore the importance of strengthening inter-stakeholder partnerships in promoting more effective financial inclusion in tourist village areas. Local governments need to design more adaptive and inclusive policies to bridge the needs of creative economy actors with formal financial services. Financial institutions are encouraged to develop products that are more in line with the characteristics of local wisdom-based businesses. Academics and the media also have a strategic role in building financial literacy and disseminating information in a sustainable manner.

Theoretically, this study contributes to expanding the conceptual model of the link between financial inclusion and creative economic development by considering the moderating variable of Pentahelix partnership. This model can be used as a reference for the development of further studies in the field of creative economy and community-based development.

5. Research limitations and suggestions

This study has several limitations. First, the use of purposive sampling limits the generalizability of the findings, as the selected sample may not fully represent all tourism villages. Second, the data were obtained through perception-based questionnaires (self-reported data), which are commonly employed in social and management research to capture respondents' views and experiences. Nevertheless, potential perception bias was minimized through the use of validated and reliable instruments, as well as consistency checks during data analysis. Third, this study did not include control variables that could explain contextual variations across villages, such as differences in education level, village size, or local economic capacity. Recognizing this limitation, future research is strongly recommended to incorporate relevant control variables such as education level, per capita income, village size, infrastructure access, digital connectivity, tourism intensity, and institutional support to improve model robustness and provide more comprehensive insights.

Declaration of competing interest

The authors declare that they have no known financial or non-financial competing interests in any material discussed in this paper.

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Author contribution

The contributions to this paper are as follows: Mohamad Nur Utomo, Irawati HM: conception and design of the study; Farid Helmi Setyawan: data collection; Mohamad Nur Utomo, Irawati HM: analysis and interpretation of results; Farid Helmi Setyawan: draft preparation. All authors approved the final version of the manuscript.

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