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Critical Review Article

Socio-Cultural Capital and Endogenous Growth in Coastal Capture Fisheries: A Study of Sangihe, North Sulawesi

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Abstract

This study examines the role of socio-cultural capital as a driver of endogenous economic growth in coastal capture fisheries, focusing on the Sangihe Islands in North Sulawesi, Indonesia. Based on qualitative fieldwork, including interviews, participant observation, and community profiling, the research identifies six key mechanisms through which social and cultural factors support local economic development: intergenerational knowledge transfer, customary resource governance, trust-based labor and credit systems, communal risk management, cultural identity as economic motivation, and internal differentiation within social structures. These findings show that economic growth in Sangihe is deeply embedded in informal institutions and cultural practices, which function as productive assets. By framing growth as an internally driven process rooted in local relationships and values, the study offers a more holistic and context-sensitive understanding of development in small-scale fisheries. The results carry significant implications for policy, highlighting the need to recognize, protect, and integrate socio-cultural capital into strategies for sustainable and inclusive coastal development.

Keywords: Socio-cultural capital; Eendogenous growth; Capture fisheries; Coastal communities; Sangihe Islands.

1. Introduction

The Sangihe Islands, located at Indonesia's northern maritime frontier near the Philippines, are home to a vibrant coastal community whose economy and identity are deeply shaped by capture fisheries [1]. In this remote archipelago of North Sulawesi, small-scale and artisanal fishers dominate local production, relying on traditional gear, indigenous ecological knowledge, and inherited cultural practices. Fishing is not merely an occupation but a way of life that structures time, labor, and social relationships. For generations, communities in Sangihe have developed intricate systems of cooperation, knowledge sharing, and informal governance that sustain both their livelihoods and their identity as sea people [2].

Despite the centrality of fishing to the region's economy, most development strategies have focused on increasing productivity through material investments providing boats, modernizing gear, or improving infrastructure. While these interventions have contributed to short-term gains, they often overlook the deeper, intangible drivers of economic performance embedded in the community's social and cultural life. Many of the most resilient and productive fishing communities do not rely solely on external inputs but rather on internal systems of trust, reciprocity, and cooperation [3]. These social arrangements, although not always captured in economic indicators, form a kind of capital socio-cultural capital that facilitates coordination, reduces transaction costs, and supports innovation from within [4].

Endogenous growth theory offers a useful framework for understanding this phenomenon. Unlike exogenous models that emphasize external investments or policy shocks, endogenous growth focuses on internal mechanisms such as human capital, institutional quality, and local innovation. In the context of Sangihe's capture fisheries, these mechanisms take the form of shared ecological knowledge, intergenerational learning, communal labor systems, and customary sea tenure practices. Socio-cultural capitals become a productive asset, enabling communities to adapt, evolve, and sustain growth through their own capacities [3]. The localized nature of this capital allows for continuous feedback and reinforcement, creating a self-sustaining loop of development that does not depend entirely on external intervention [4].

However, the role of socio-cultural capital in shaping fisheries-based economic growth remains underexplored, particularly in peripheral island regions like Sangihe. Most studies in fisheries economics prioritize quantifiable variables such as investment levels, output volumes, or export revenues, often neglecting the embedded cultural systems that make economic activity possible. Furthermore, top-down policies frequently fail to integrate local wisdom or social structures, leading to interventions that may disrupt rather than strengthen community resilience [5]. Understanding the socio-cultural dimension is therefore essential not only for analyzing growth but also for designing policies that are culturally grounded, inclusive, and sustainable [6].

This study seeks to examine how socio-cultural capital contributes to endogenous economic growth in the capture fisheries of Sangihe. It investigates the mechanisms through which social norms, cultural practices, and local institutions influence productivity, cooperation, and resilience in coastal fishing communities. By framing socio-cultural life not as background context but as a central component of development, this research offers a more holistic perspective on fisheries economics. The Sangihe case provides a compelling example of how communities on the margins geographically distant but socially cohesive can drive their own economic futures from within, using the capital of culture, memory, and mutual trust as a foundation for sustainable growth.

2. Literature Review and Methodological Approach

The integration of socio-cultural capital into the analysis of economic growth, particularly in rural and coastal settings, reflects a growing recognition that development is not solely the product of physical investment or technological input. Instead, it is increasingly understood as an outcome shaped by human relationships, institutional arrangements, and the cultural frameworks that guide economic behavior. Within this broader shift, the concept of socio-cultural capital has emerged as a key analytical tool. It encompasses both social capital trust, norms, and networks that facilitate coordination and cultural capital shared knowledge, belief systems, and inherited practices that inform how communities interact with their environment. In the context of small-scale capture fisheries, these dimensions are deeply embedded in everyday life and play a crucial role in shaping economic performance and resilience [7].

Social capital, as developed in the works of Bourdieu, Coleman, and Putnam, refers to the ability of individuals and groups to act collectively based on shared norms and mutual trust. In fisheries communities, this manifests through informal labor-sharing systems, reciprocal credit arrangements, and collective decision-making structures. These systems often serve to reduce the cost of transactions, manage risks, and allocate resources efficiently in environments where formal institutions are weak or absent. Cultural capital, by contrast, includes the cognitive and symbolic assets inherited through socialization such as traditional ecological knowledge, cultural taboos, and moral codes related to the sea. These elements influence how resources are perceived, accessed, and conserved, shaping long-term sustainability as well as short-term productivity [8].

While conventional economic models often treat culture and social structure as exogenous or secondary variables, the endogenous growth theory provides a framework in which these factors become internal engines of development. Endogenous growth emphasizes the role of internal capacities particularly human capital, innovation, and institutions in generating sustained economic expansion. When applied to coastal fisheries, this framework invites us to consider how community-based knowledge systems, adaptive practices, and strong social ties contribute directly to productivity, innovation diffusion, and long-term resource stewardship. In this way, socio-cultural capital does not merely support growth; it produces growth by enabling communities to solve problems, coordinate labor, and respond to environmental and market changes [9].

Despite the theoretical convergence between socio-cultural capital and endogenous growth, empirical studies, especially in fisheries have not fully explored this relationship. Much of the existing literature on fisheries economics is dominated by biophysical assessments (stock analysis, catch volume), technical efficiency evaluations, or market integration studies. Meanwhile, research in anthropology and human ecology has documented the richness of social and cultural life in fishing communities but often without linking it to quantifiable economic outcomes. There is, therefore, a disciplinary divide: economics measures growth without culture; anthropology describes culture without measuring growth. This study seeks to bridge that gap by exploring how social and cultural assets function as productive capital within a community-led model of economic development [10].

The research focuses on the Sangihe Islands a group of volcanic islands in North Sulawesi that represent a relatively understudied periphery of Indonesia’s vast maritime geography. Sangihe is particularly suitable for this inquiry because it embodies many of the conditions where socio-cultural capital is likely to matter most: geographic isolation, limited infrastructure, dependence on marine resources, and a strong tradition of community-based resource management. In such contexts, where state presence is limited and market access is partial, the capacity of local communities to self-organize becomes a critical determinant of economic viability. Here, socio-cultural capital is not a supplement to development, it is the main structure that makes development possible [11].

To investigate this relationship, the study employs a qualitative case study approach rooted in ethnographic observation and participatory fieldwork. This methodological choice is justified by the need to capture nuanced and often intangible aspects of community life that standard surveys might miss. The research is based on selected coastal villages in the Sangihe archipelago, chosen for their variation in fishing practices, social organization, and exposure to modernization pressures. These include both more traditional settlements where customary practices dominate and more "hybrid" communities that are integrating modern technologies and market linkages [12].

Data collection involves three key components. First, in-depth interviews are conducted with a range of stakeholders: artisanal fishers, boat captains, crew members, local traders, community elders, religious leaders, and women involved in fish processing. These interviews explore perceptions of cooperation, norms of reciprocity, knowledge transmission, and community organization. Second, participant observation is carried out in daily fishing activities, community meetings, and local rituals to understand how socio-cultural norms are enacted in practice. Third, economic profiling is conducted using participatory tools (e.g., seasonal calendars, resource mapping, labor flow diagrams) to link social practices with livelihood outcomes.

The analysis seeks to identify recurring patterns and mechanisms through which socio-cultural capital contributes to economic performance. For example, does the existence of informal labor-sharing agreements lead to higher labor efficiency or lower costs? Do communities with stronger customary institutions exhibit more sustainable fishing practices or higher resilience to external shocks? How does the intergenerational transfer of ecological knowledge impact the ability to adapt to climate variability or changing fish stocks? These questions are addressed through thematic coding of interview transcripts, triangulation across data sources, and interpretive synthesis grounded in the conceptual framework of endogenous growth.

In addition to qualitative insights, the study also employs basic comparative metrics to assess economic outcomes across communities. While not intended to be statistically generalizable, these comparisons help illustrate how variations in socio-cultural capital correspond with differences in catch stability, household income diversity, or investment in gear maintenance. For instance, one might compare two villages with similar access to fish stocks but differing levels of social cohesion or customary regulation to examine differential outcomes. These comparisons are not meant to "prove" causality in a positivist sense, but to provide evidence of plausible linkages between cultural variables and economic dynamics.

The research also considers potential tensions and contradictions within socio-cultural systems. Not all forms of tradition or social organization are necessarily growth-promoting. Some norms may inhibit innovation, reinforce inequality, or exclude marginalized groups such as women or migrants. Therefore, the analysis remains attentive to the ambivalence of socio-cultural capital its potential to enable as well as to constrain. By exploring these tensions, the study avoids romanticizing local culture and instead offers a balanced understanding of its developmental implications [13].

Ethical considerations are central to research design. Given the intimate nature of socio-cultural inquiry, informed consent, confidentiality, and cultural sensitivity are prioritized throughout the fieldwork process [14]. The research is conducted in collaboration with local facilitators and incorporates feedback from community members through regular debriefings and participatory validation of findings. The aim is not only to generate academic knowledge but also to contribute meaningfully to local understanding and capacity-building [15].

In summary, this study positions socio-cultural capital as a dynamic and productive force in the economic life of coastal fishing communities. It draws upon interdisciplinary theory to reframe growth as an internally generated process rooted in local relationships, knowledge, and norms. Methodologically, it combines qualitative depth with comparative insight to illuminate how communities like those in Sangihe build economic resilience not through external aid or capital alone, but through the strength of their social fabric and cultural memory. By doing so, the research aims to enrich both theory and practice in the field of fisheries development, offering a grounded model of endogenous, culturally embedded growth in a rapidly changing coastal world.

3. Results

3.1 Intergenerational Knowledge Transfer and Local Innovation

In the fishing communities of Sangihe, intergenerational knowledge transfer serves as a primary engine of innovation and local adaptation. Young fishers acquire not only technical skills such as navigation, gear handling, and seasonal forecasting from elders, but also tacit knowledge rooted in local cosmology and marine ecology. These teachings often occur informally, embedded in daily routines or community rituals. For example, knowledge about the migratory behavior of pelagic species is passed down through storytelling, seasonal markers, and customary calendars.

This body of inherited knowledge allows communities to innovate locally without dependence on formal research institutions. Fishers regularly adjust gear configurations, shift fishing zones, or reinterpret environmental signals based on shared experiential learning. The process is both cumulative and adaptive. As one elder noted, “We do not read manuals; we read the sea, just like our fathers did, but we also change with the currents.” Such learning systems ensure that innovation remains embedded in cultural continuity, making it both accessible and sustainable. In terms of economic growth, these practices reduce vulnerability, enhance efficiency, and encourage long-term investment in skills rather than in costly technology.

3.2. Customary Institutions and Resource Governance

Customary marine tenure systems *(hak ulayat laut)* play a vital role in structuring access, use, and conservation of fisheries resources in Sangihe. These locally recognized institutions regulate who can fish where, at what times, and using what methods. Access is often based on kinship, village affiliation, or participation in communal rituals. While not codified in national law, these customary rules carry strong social legitimacy and are enforced through social pressure rather than formal sanctions.

Such governance mechanisms prevent overexploitation by distributing fishing effort spatially and temporally. They also reduce conflicts between users and promote a sense of ownership over local marine resources. The economic implications are significant: stability in access rights encourages long-term investment, reduces enforcement costs, and facilitates informal cooperation. During fieldwork, several respondents emphasized that compliance with customary norms was not merely moral but also strategic "because if the sea is destroyed, we all lose." These institutions thus embody a form of socio-cultural capital that supports both ecological sustainability and economic predictability.

3.3 Trust-Based Labor and Credit Networks

A defining feature of Sangihe's coastal economy is the reliance on trust-based labor and credit arrangements. Fishing crews are typically composed of family members or close neighbors, recruited through long-standing relationships rather than market contracts. Compensation is often based on traditional share systems, where risks and rewards are distributed communally. This informal labor system provides flexibility and continuity, especially in environments where formal employment is scarce.

Equally important are informal credit systems that operate through social trust. Fishers often borrow fuel, bait, or food from traders or peers, with repayment made in kind or deferred until after a successful catch. These relationships are rarely written down but are enforced through reputation and reciprocity. This system allows even resource-poor households to participate in fishing activities and smooth consumption during lean periods. While such arrangements may be vulnerable to exploitation or breakdown, in practice they have functioned as a stabilizing force. They illustrate how social ties function as financial capital, enabling economic participation in the absence of formal institutions.

3.4 Communal Risk Management and Crisis Response

Sangihe communities have developed culturally embedded systems of risk management that buffer households against shocks such as storm damage, illness, or economic downturns. These systems include both reactive and proactive mechanisms. In times of need, extended families and community groups mobilize labor, food, or funds to assist affected members. Contributions are often voluntary but socially expected, forming a kind of informal insurance.

There are also proactive measures, such as shared ownership of boats or rotational fishing schedules, that spread risk across households. For instance, in several villages, boats are jointly maintained and used on a rotating basis by multiple families, reducing individual capital burdens. Such arrangements foster collective resilience and ensure continuity of economic activity even in adverse conditions. Unlike formal insurance schemes, these mechanisms are culturally embedded and costless in monetary terms. They reveal how socio-cultural capital substitutes for missing formal systems and acts as a shock absorber that sustains growth trajectories.

3.5 Cultural Identity and Economic Motivation

Economic behavior in Sangihe's fisheries is closely tied to cultural identity. Fishing is not seen solely as a means of income but as a practice that affirms one's role in the community, ancestry, and relationship with nature. Many respondents described fishing as "calling" or "inheritance," highlighting its symbolic importance. Cultural rituals tied to the sea such as tulude (harvest ceremonies), manisfestu laut (sea thanksgiving), or seasonal prayers foster a sense of responsibility and belonging.

This deep cultural meaning influences motivation, work ethic, and cooperation. It also supports long-term thinking, as stewardship is framed not only in economic terms but as moral obligation to future generations. In practical terms, this leads to behaviors such as voluntary fishing moratoriums, self-imposed gear restrictions, and adherence to taboo zones. These actions, while not externally enforced, contribute to resource regeneration and long-term productivity. The blending of economic rationality with cultural values creates a growth dynamic that is both material and symbolic what might be called “culturally sustainable development.”.

3.6 Differentiation and Inequality within Social Structures

While socio-cultural capital in Sangihe provides many benefits, it is not distributed equally nor is it free from tensions. Field observations revealed growing disparities between fishers with strong kinship ties or customary status and those who are newcomers or marginalized. For instance, migrants or those without lineage ties to certain coastal zones may be excluded from fishing grounds or informal credit networks. This can reinforce economic inequality and limit mobility.

Furthermore, younger generations, especially youth exposed to urban influences, sometimes express ambivalence about traditional obligations, viewing them as restrictive or outdated. As modernization accelerates, the authority of customary leaders and the cohesion of traditional networks may weaken, creating generational divides. These dynamics raise questions about the durability of socio-cultural capital and the need to adapt institutions without eroding their foundational strengths. Economic growth that depends on these systems must therefore be attentive to their internal tensions and evolving character.

4. Discussion and Implications

The findings from the Sangihe case study reveal a multidimensional view of economic growth—one that is not solely driven by material investments or market access, but is deeply embedded in social relations, cultural practices, and community institutions. Rather than functioning as peripheral or background variables, these socio-cultural elements constitute active components of endogenous growth within coastal capture fisheries. This section interprets the key findings in relation to the theoretical framework, compares them with broader literature, and outlines implications for development policy and future research.

4.1 Endogenous Growth through Socio-Cultural Mechanisms

The first insight that emerges from the study is that intergenerational knowledge transmission in Sangihe functions as a form of localized innovation. Unlike the typical understanding of innovation as technological or scientific breakthroughs, the communities in Sangihe innovate through experience-based learning, passed down informally. This model of innovation aligns with the endogenous growth framework, where human capital and knowledge play central roles. In this case, the knowledge is not generated by formal R&D institutions but by the collective memory of the community. The transmission of fishing techniques, seasonal timing, and resource signals through cultural rituals and oral tradition becomes a productive asset. This challenges the mainstream development paradigm that places formal education or technical training at the core of economic upgrading, suggesting that local epistemologies must be treated as valid and effective sources of innovation [16].

Similarly, the role of customary marine tenure systems highlights how informal institutions regulate resource access and promote sustainability. These systems offer governance mechanisms that are socially legitimate, cost-effective, and ecologically grounded. Their success in coordinating fishing effort and preventing conflict provides evidence that collective rulemaking rooted in culture can outperform formal state regulation in certain contexts. From an endogenous growth perspective, these institutions reduce uncertainty, lower transaction costs, and provide a stable platform for investment [17]. In other words, the rules of the game are culturally generated but economically functional. Such institutions exemplify how endogenous development can emerge from culturally embedded governance rather than externally imposed systems.

The existence of trust-based labor and credit arrangements further illustrates how social capital substitutes for financial capital in marginal economies. In the absence of formal credit or employment contracts, communities rely on reputation, kinship, and mutual aid to organize production and manage liquidity [18]. These arrangements not only enhance access and inclusion but also improve the efficiency of resource allocation under conditions of scarcity. This finding resonates with broader economic literature on the role of informal institutions in rural economies but adds the nuance that such systems are not simply coping mechanisms they are productive systems, capable of supporting investment and growth over time.

Additionally, the communal risk-sharing systems observed in Sangihe show how cultural norms support resilience and continuity in the face of shocks. Instead of formal insurance or safety nets, communities rely on informal support networks rooted in social obligation and collective identity. This adaptive capacity reinforces the idea that socio-cultural capital is not static or merely historical, it is dynamic, evolving through practice and response to external pressures. In terms of growth, these systems ensure that productivity and livelihoods are maintained even in periods of environmental or market stress, thereby smoothing growth trajectories and preventing collapse.

The cultural framing of fishing as a moral and ancestral duty also reveals how motivation for economic behavior is shaped by identity and values. Work ethics, cooperation, and conservation are not simply rational calculations but expressions of meaning [16]. This adds an important cultural dimension to theories of endogenous growth, suggesting that internalized values and belief systems can shape the incentives and behaviors that underpin economic performance. The concept of culturally sustainable development is thus not only ethical but also economically functional, especially in small-scale sectors like artisanal fisheries [19].

However, the final set of findings on internal differentiation and inequality cautions against an overly romantic view of socio-cultural capital. While such capital provides many benefits, it is also subject to asymmetries and exclusion. Access to customary rights, participation in labor networks, and influence in decision-making are often mediated by status, age, or lineage. Migrants, women, and youth may be marginalized within these systems, raising concerns about equity and intergenerational sustainability. Moreover, the tension between tradition and modernity, especially among younger generations, suggests that socio-cultural capitals must adapt if it is to remain relevant and inclusive. In the language of development theory, this points to the need for institutional flexibility: the ability of traditional systems to evolve while maintaining their core functions.

4.2 Comparison with Broader Literature

The findings from Sangihe align with and expand upon existing research in several domains. In economics development, there is growing recognition that institutions matter—particularly informal, community-based institutions. The case of Sangihe provides empirical grounding for this claim by demonstrating how customary governance and trust-based exchanges function as economic infrastructure. In fisheries research, the importance of traditional ecological knowledge (TEK) and community-based management is well-documented, especially in the Pacific and Southeast Asia. This study contributes by linking these insights explicitly to economic growth, showing how TEK and cultural governance influence not just sustainability but also productivity, innovation, and investment behavior [20].

In the broader discourse on social capital, the Sangihe case exemplifies both the strengths and limits of dense, cohesive networks. On one hand, they enable cooperation, reduce costs, and foster resilience. On the other, they can reinforce exclusion and inhibit adaptation [2]. This duality is consistent with critiques in the social capital literature that warn against assuming that cohesion always leads to positive outcomes. The Sangihe experience thus provides a grounded, balanced view: socio-cultural capital is productive, but not unproblematic.

What sets this study apart is its attempt to bring together the cultural, institutional, and economic dimensions within a single analytical frame. Rather than treating culture as context, or institutions as constraints, the study sees them as drivers of growth. This interdisciplinary synthesis responds to the gap in fisheries literature where economics and anthropology often operate in silos.

4.3 Implications for Policy and Development Practice

The implications of these findings for development policy in coastal and fisheries contexts are substantial. First, development interventions must recognize and support existing socio-cultural systems, rather than override or bypass them. This means engaging with customary institutions, supporting local knowledge systems, and respecting community-based governance arrangements. Where possible, formal policy frameworks should integrate with local norms, creating hybrid governance structures that enhance legitimacy and effectiveness [21], [22], [23].

Second, there is a need to invest in cultural capital as a development resource. This includes documenting and validating traditional knowledge, facilitating intergenerational learning, and creating platforms for cultural expression that strengthen identity and cohesion. These investments are often neglected because they do not produce immediate economic returns, but they are crucial for long-term development capacity.

Third, development programs must address internal inequalities within communities. Support for socio-cultural systems must be accompanied by efforts to ensure that women, youth, and marginalized groups can participate meaningfully. This may involve facilitating dialogue across generations, adapting customary rules, or creating new institutions that blend tradition with principles of equity and inclusion.

Fourth, fisheries development policy should shift its orientation from a purely resource-based approach to a people-centered approach. This includes valuing social relationships, collective organization, and cultural meaning as part of the productive apparatus. In practice, this means designing programs that enhance community collaboration, support local leadership, and build capacity from within, rather than relying solely on external inputs or technologies.

Lastly, the concept of culturally embedded growth has broader relevance beyond fisheries or Sangihe. In many peripheral regions of the Global South, similar dynamics can be found informal institutions, deep cultural traditions, and social networks that function as economic infrastructure. Developing frameworks that ignore these dimensions risk being ineffective or worse, disruptive. Conversely, policies that understand and work with cultural realities are more likely to produce sustainable, resilient, and inclusive outcomes.

5. Conclusions

This study has explored how socio-cultural capital contributes to endogenous economic growth in the capture fisheries sector of the Sangihe Islands, a peripheral maritime region of Indonesia. Through six key findings, the research has demonstrated that the foundations of economic vitality in Sangihe's fishing communities are deeply embedded in social networks, cultural practices, and customary institutions. From intergenerational knowledge transfer to trust-based labor systems, from collective risk management to culturally framed resource governance, the mechanisms of growth in Sangihe are internally generated, locally adapted, and rooted in long-standing traditions. Rather than functioning as passive background elements, these socio-cultural features actively structure how people work, share, innovate, and survive.

By applying an endogenous growth perspective, the study reframes community life in Sangihe not as a context for development, but as its primary driver. The findings show that economic performance in coastal fisheries is shaped not only by material inputs or market access but by the depth and strength of social relations and cultural meaning. In particular, the existence of customary marine tenure, informal credit systems, communal ownership, and moral economies of labor underscores how productive activity is sustained through non-market mechanisms. These systems enable the efficient allocation of resources, promote resilience in the face of shocks, and foster innovation that is culturally appropriate and environmentally responsive. Thus, the research confirms that socio-cultural capital functions as an engine of endogenous growth, especially in regions where formal institutions are weak or underdeveloped.

The practical implications are clear: development policies targeting small-scale fisheries particularly in remote or underserved areas must engage with and invest in the social and cultural assets of communities. Infrastructure development, technological intervention, and financial support will be most effective when designed to complement and reinforce existing social institutions rather than displace them. Programs that support intergenerational learning, strengthen customary governance, and facilitate inclusive participation can enhance not only economic outcomes but also social cohesion and long-term sustainability. Likewise, development frameworks should move beyond extractive metrics of growth and incorporate cultural sustainability, equity, and local legitimacy into their goals and measurements.

Looking ahead, there is a need to further investigate the conditions under which socio-cultural capital can be maintained, transformed, and scaled in the context of modernization and global change. As Sangihe's communities face increased pressures from migration, climate change, and commercial exploitation, the resilience of their social systems will be tested. Future research should examine how traditional systems evolve in response to these pressures, and how policies can be designed to support adaptive rather than rigid forms of socio-cultural capital. Ultimately, this study contributes to a more holistic understanding of growth one that places people, culture, and cooperation at the heart of economic development, and affirms the capacity of local communities to shape their own futures from within.

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