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Conditional Pathways of Support: Sustainability of Coastal Women's Enterprises through QBL and ToC

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Abstract: The blue economy is widely promoted as a pathway to sustainable development, yet women's enterprises remain marginalized by structural barriers. This study investigates whether support systems directly influence the sustainability of coastal women's businesses in Bulukumba South Sulawesi, Indonesia, while applying the Quintuple Bottom Line (QBL) and Theory of Change (Toc) frameworks. A quantitative design using survey data from women-led micro, small, and medium enterprises (MSMEs) was analyzed through structural equation modeling (SEM). The model assessed the reliability of constructs and tested the hypothesized effect of support systems including access to finance, social support, and public policy on sustainability outcomes. Findings reveal that although the measurement model demonstrated reliability and validity, support systems showed no significant direct effect on sustainability. This result contrasts with much of the existing literature but aligns with recent studies emphasizing mediation through financial literacy, managerial capacity, and institutional scaffolding. The study thus adds nuance by demonstrating that external interventions, in isolation, are insufficient for sustaining women's enterprises in coastal contexts. The research contributes theoretically by extending QBL and Toc to gendered coastal entrepreneurship and practically by highlighting the need for integrated, gender-sensitive policies. Future research should examine mediating and moderating mechanisms that translate support into long term sustainability.

Keywords: Blue Economy; Quintuple Bottom Line; Sustainability; Theory of Change; Women Entrepreneurs.

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1. Introduction

The blue economy has increasingly been framed as a promising paradigm for reconciling ecological resilience with socio-economic growth in coastal regions. Globally, its economic potential is projected to reach trillions of dollars by 2030; however, this promise can only be realized if inclusivity and equity are genuinely embedded within its practices (Evans et al., 2023). Within this discourse, women emerge as a critical yet persistently marginalized group. Despite their substantial involvement in fisheries, aquaculture, and tourism-related enterprises, their contributions often remain undervalued, relegated to secondary or informal activities that rarely translate into recognition or long-term security. As Baker et al., (2024) argue in the Indian case, gendered exclusions are rarely accidental; rather, they are reinforced by interlocking socio-cultural, economic, institutional, environmental, and even psychological barriers that continue to hinder women's meaningful participation.

Marine fishing provides a particularly telling example. While the sector remains a cornerstone of livelihoods in coastal communities, women are frequently excluded from the most profitable segments of the fisheries value chain a pattern deeply entrenched in socio-cultural norms. This exclusion is not only unjust from a gender perspective but also unsustainable in the long run. Interestingly, evidence from Kerala demonstrates that such

trajectories can be reimagined. Matovu et al. (2024), synthesizing insights from 60 studies, highlight how marine fishing may act as a driver of empowerment when systemic barriers are addressed. Their Transforming Cultures for Marine Fisherwomen Empowerment Pathway (TCMFEP) provides a structured framework that shows how inclusive policies and institutional reforms can reshape sustainability narratives in the blue economy.

Broader debates in sustainability science reinforce this need for more holistic approaches. For example, while community-based tourism is often celebrated as empowering, critical evaluations reveal that women are too often positioned as symbolic participants rather than decision-makers, thus reproducing internal inequalities (Reed, 1997; Salazar, 2012). Similarly, tools such as participatory mapping and Public Participation GIS (PPGIS) may democratize planning on the surface, yet without careful attention to power relations and representation, they risk perpetuating inequities rather than dismantling them (Fagerholm et al., 2022; Sieber, 2006; Ståhl et al., 2022). Such insights suggest that piecemeal or fragmented interventions, however well-intentioned, remain insufficient for addressing the layered challenges faced by coastal women.

The urgency of these issues has been further underscored by recent global crises. During the COVID-19 pandemic, for instance, access to natural resources and livelihood opportunities was sharply divided along gender and class lines, exacerbating existing vulnerabilities (van Eeden et al., 2023). In Southeast Asia, climate change has similarly forced small-scale farmers and fishers into fragmented adaptation strategies in the absence of robust institutional support, thereby heightening their exposure to both environmental shocks and socio-economic risks (Nor Diana et al., 2022). Notably, emerging research from Indonesia shows that the adoption of green economic capabilities among coastal MSMEs can enhance financial stability yet only when such initiatives are underpinned by consistent government support and tailored policy frameworks (Sharon et al., 2025).

These global dynamics find resonance in the Indonesian context, particularly in Bulukumba, South Sulawesi, Indonesia where the coastal economy is heavily reliant on micro, small, and medium enterprises (MSMEs). As of 2023, there were 52,579 MSMEs recorded in the district, many of them led by women (Badan Pusat Statistik Kabupaten Bulukumba, 2023). Local experiences highlight both the constraints and potentials of women's enterprises. On one hand, small-scale businesses such as pindang fish processing remain vital to household income and cultural continuity (Agribisnis UMButon, 2023). On the other, success stories like that of Ebi Sulastri whose smoked-fish business expanded from local sales to international markets through empowerment initiatives and digital tools demonstrate what can be achieved when supportive ecosystems exist (Victory News, 2023). At the institutional level, initiatives such as PIM Bulukumba have begun to integrate gender-sensitive training, while grassroots organizations like the Serikat Perempuan Bajiminasa are actively linking women's participation to environmental conservation (PPID Bulukumba, 2023; Suara.com, 2025). These cases suggest that while structural barriers remain deeply entrenched, localized opportunities for empowerment are also emerging.

To meaningfully engage with these complexities, it is essential to look beyond conventional economic and environmental indicators. The Quintuple Bottom Line (QBL) expands the widely known triple bottom line by embedding cultural values (purpose) and spatial-technological dimensions (place) into sustainability analysis, thereby offering a more context-sensitive framework (Carayannis et al., 2012; Panneels, 2023). In parallel, the Theory of Change (ToC) provides a logical framework for mapping causal pathways from inputs such as training and financial access, to long-term sustainable impacts. Yet, despite their conceptual richness, applications of QBL and ToC to women's coastal enterprises remain limited, leaving an important empirical gap.

Beyond national and local evidence, global research also highlights that women entrepreneurs face persistent structural constraints, particularly in accessing finance, networks, and institutional support. Women Entrepreneurs Finance Initiative (We-Fi), (2023) underlines that while support programs are widespread, their impacts are often fragmented and uneven unless designed with a systemic and gender-sensitive perspective. Building on these insights, the present study contributes to this growing body of knowledge by applying the Quintuple Bottom Line (QBL) and Theory of Change (ToC) frameworks to coastal women's enterprises in Indonesia. In doing so, it bridges global debates with local realities,

offering an empirical lens on how support systems may or may not translate into sustainable outcomes.

Against this backdrop, the present study examines the influence of support systems on the business sustainability of women entrepreneurs in Indonesia's blue economy, focusing on Bulukumba as a case study. By integrating insights from gendered livelihood research, participatory governance debates, and emergent sustainability frameworks, this study not only contributes to academic discussions but also offers practical implications. Ultimately, it argues that strengthening support systems is not simply a matter of technical intervention; rather, it constitutes a transformative strategy to advance gender equality (SDG 5) and marine sustainability (SDG 14).

Women MSMEs are central to the coastal economy of Bulukumba, yet many remain concentrated in low-margin segments of fisheries and marine-related services. Multiple support programs operate locally, but sustainability outcomes continue to vary across firms. The literature frequently presumes a direct and positive link between support systems and enterprise sustainability. Recent work in coastal and crisis-prone settings suggests that this link may be conditional and mediated by firm capabilities and institutional context. In Bulukumba alone, 52,579 MSMEs were recorded in 2023, with a substantial share led by women. Persistent exposure to climate risks, constrained market access, and gendered norms continue to challenge continuity and growth. This study addresses a concrete empirical question in this setting : do support systems that encompass access to finance, social support, and public policy exert a direct effect on the sustainability of coastal women's enterprises in Bulukumba, South Sulawesi, Indonesia ?

2. Literature Review

Conceptual Background and Framework: Quintuple Bottom Line (QBL) and Theory of Change (ToC).

QBL extends the triple bottom line by embedding purpose and place alongside people, planet, and profit. This expansion is well-suited to coastal entrepreneurship where livelihoods, cultural heritage, and spatial-technological constraints intersect. In this study, sustainability is read through five interlinked lenses: people, planet, profit, purpose, and place. People capture decent work and gender equity in value chains. Planet captures resource stewardship, waste reduction in fish processing, and climate adaptation. Profit captures cash flow stability and reinvestment capacity. Purpose captures cultural and ethical values that legitimate women's leadership. Place captures coastal geography, logistics, and access to digital and physical infrastructure. By design, QBL recasts sustainability as context-sensitive rather than purely economic. This is critical where environmental exposure and sociocultural norms shape entrepreneurial possibility.

ToC provides the causal scaffold that links inputs to outcomes. In this study, inputs consist of access to finance, social support, and enabling public policy. Outputs include training uptake, network participation, compliance readiness, and market linkages. Intermediate outcomes include financial literacy, managerial capability, and innovation adoption. The intended long-term impact is QBL-aligned sustainability across people, planet, profit, purpose, and place. This logic explains why external support can fail to show a direct effect if translation into firm capabilities is weak or if place-specific constraints remain binding. The ToC thus anticipates indirect pathways from support to sustainability. The empirical model tests whether a direct pathway holds in Bulukumba's context

Women in the Blue Economy: Barriers and Opportunities

The blue economy is often celebrated as a transformative pathway for fostering both ecological resilience and socio-economic development Evans et al. (2023). Yet, when examined through a gendered lens, this promise appears unevenly distributed. Women remain disproportionately marginalized, particularly in fisheries and coastal value chains where their roles are frequently confined to informal, low-income, and less visible activities. Evidence from India, for instance, highlights that entrenched socio-cultural norms and institutional exclusions continue to limit women's ability to participate in more profitable sectors of the industry (Baker et al., 2024).

Interestingly, however, recent scholarship suggests that the blue economy does not merely reproduce gender hierarchies it also carries the potential to challenge and transform them if structural barriers are systematically addressed. Matovu et al. (2024), drawing on the case of Kerala, India, propose the Transforming Cultures for Marine Fisherwomen Empowerment Pathway (TCMFEP), which illustrates how empowerment can extend across social, economic, institutional, and psychological domains. Their findings underscore that women should not be viewed as peripheral actors, but rather as central drivers of sustainability when embedded within supportive structures.

Community-Based Approaches and the Limits of Participation

Parallel discussions in the community development literature further complicate the picture. While community-based initiatives are often promoted as inclusive platforms, several studies reveal that such interventions may unintentionally reproduce existing power asymmetries. Salazar, (2012) and Reed, (1997), for example, demonstrate that community-based cultural tourism tends to position women as symbolic participants rather than genuine decision-makers.

Notably, similar concerns have emerged in participatory mapping research. Tools such as Public Participation GIS (PPGIS) are widely celebrated for their ability to democratize planning processes, yet empirical studies warn that without explicit sensitivity to representation and power, these tools risk reinforcing inequities rather than dismantling them (Fagerholm et al., 2022; Sieber, 2006; Ståhl Olafsson et al., 2022). Taken together, these insights highlight that participation, while necessary, is insufficient on its own; genuine empowerment requires attention to structural barriers and institutional design.

Climate Change, Crises, and Gendered Vulnerabilities

Global crises further magnify women's marginalization in coastal economies. Climate change has pushed many farmers and fishers in Southeast Asia toward fragmented and often unsustainable adaptation strategies, largely due to the absence of strong institutional support (Nor Diana et al., 2022). Similarly, during the COVID-19 pandemic, access to natural resources and livelihood opportunities was sharply stratified along gender and class lines, exacerbating pre-existing inequalities (van Eeden et al., 2023).

What is particularly striking is that even within resilience discourses, women's enterprises often remain sidelined. In the Indonesian context, for example, research by Sharon et al. (2025) indicates that strengthening green economic capabilities among coastal MSMEs can enhance financial stability. However, such benefits are highly contingent upon enabling policies and institutional scaffolding. This evidence reinforces the idea of a "double exposure," wherein women face simultaneous ecological precarity and socio-economic exclusion.

Emerging Frameworks: Quintuple Bottom Line and Theory of Change

In response to these challenges, scholars have sought frameworks that move beyond narrow economic metrics. The Quintuple Bottom Line (QBL) expands the traditional triple bottom line by adding two critical dimensions: purpose, which foregrounds cultural and ethical values, and place, which emphasizes spatial-technological contexts (Carayannis et al., 2012; Panneels, 2023). This expansion is particularly relevant in coastal settings where livelihoods are deeply interwoven with cultural heritage and ecological systems.

Complementarily, the Theory of Change (ToC) provides a structured way of tracing causal pathways from inputs such as financial access or training, through outputs and outcomes, to long-term sustainable impacts. However, despite their conceptual promise, it is noteworthy that empirical applications of QBL and ToC in women-led coastal enterprises remain scarce. This gap suggests a significant opportunity for research that not only theorizes but also operationalizes these frameworks in gender-sensitive contexts.

Local Context : Women Entrepreneurs in Bulukumba, South Sulawesi

Local realities in Bulukumba, South Sulawesi, Indonesia provide an illustrative case of how global patterns intersect with specific socio-cultural dynamics. As of 2023, the district recorded 52,579 MSME actors, a substantial number of whom are women engaged in coastal enterprises (Badan Pusat Statistik Kabupaten Bulukumba, 2023). Women-run businesses such as pindang fish processing have proven crucial not only for household income but also for cultural continuity (Agribisnis UMButon, 2023).

Equally noteworthy are success stories such as that of Ebi Sulastri, whose smoked-fish business evolved from modest word-of-mouth sales to international markets, supported by empowerment programs and digital tools (Victory News, 2023). At the institutional level, initiatives like PIM Bulukumba have begun to integrate gender-responsive training, while grassroots groups such as the Serikat Perempuan Bajiminasa are spearheading conservation and livelihood efforts that place women at the center (PPID Bulukumba, 2023; Suara.com, 2025). These developments reflect a dual reality: women continue to face systemic barriers, yet there are also concrete pathways of empowerment emerging within local ecosystems.

Research Gap and Contribution

Although the literature provides rich insights into gendered barriers and partial empowerment strategies, significant gaps remain. Much of the existing research emphasizes constraints or symbolic participation, yet rarely connects these issues directly to the role of systemic support structures in enabling business sustainability for women. Notably, studies that employ holistic frameworks such as QBL and ToC in this context are still limited, leaving a conceptual and empirical void.

Against this backdrop, the present study aims to bridge this gap by empirically examining the influence of support systems on the sustainability of women-led coastal enterprises in Bulukumba. In doing so, it not only contributes to ongoing debates in sustainability and gender studies but also offers practical insights for advancing SDG 5 (gender equality) and SDG 14 (life below water).

Theoretical Framework & Hypothesis Development

Entrepreneurship ecosystem perspectives argue that outcomes emerge from interdependent resources, institutions, and networks rather than from linear input output relations. In coastal settings, the effectiveness of support systems depends on the translation of external resources into internal capabilities and on the fit with place-specific constraints. Prior studies report positive effects of support on women-owned businesses, yet recent evidence highlights mixed results when capability formation and institutional scaffolding are weak. Building on these debates and the QBL-ToC framing above, the present study specifies a direct-effect hypothesis for empirical test in Bulukumba:

Drawing from these theoretical foundations, the study proposes that support systems including access to finance, social support, and institutional or policy frameworks are expected to influence the sustainability of women coastal enterprises. Conventional entrepreneurship literature has often assumed a positive and direct relationship between external support and enterprise sustainability. However, recent findings suggest that this relationship may be more complex, with sustainability outcomes often mediated by internal capacities such as financial literacy, managerial competence, or innovation adoption (Mwesigwa et al., 2025; Turhan et al., 2023).

H1. Support systems access to finance, social support, and public policy, have a significant direct effect on the sustainability of coastal women's enterprises.

3. Research Method

This study adopted a quantitative research design to examine how support systems shape the sustainability of coastal women's enterprises in Bulukumba, South Sulawesi, Indonesia. A structural equation modeling (SEM) approach using Partial Least Squares (PLS) was chosen, not only because it enables the simultaneous estimation of complex relationships among latent constructs, but also because it remains robust when dealing with moderate sample sizes a condition that frequently characterizes field research in developing contexts (Hair et al., 2019).

The research population consisted of women entrepreneurs managing micro, small, and medium enterprises (MSMEs) in coastal sectors such as fish processing, aquaculture, and marine-related services. Respondents were selected purposively, with a total of 150 participants meeting the inclusion criterion of having operated their businesses for at least two years. This threshold was deemed important, since sustainability outcomes require some temporal continuity to be meaningfully assessed and to avoid the bias of short-lived enterprises that may distort findings.

Data were collected through structured questionnaires, administered both online and offline to accommodate varying levels of digital access among respondents. The instrument was divided into three parts. The first captured demographic and business characteristics; the second measured the adequacy of support systems covering financial resources, social support, and institutional or policy frameworks adapted from established scales (Vijay and Jayapal, 2025; Mwesigwa et al., 2025); and the third assessed business sustainability across economic, social, and environmental dimensions, following indicators developed by Evans et al. (2023). Each item was rated on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). Interestingly, a pilot test with 20 respondents prior to full deployment proved useful, ensuring clarity of items and cultural appropriateness in the coastal setting.

Importantly, ethical considerations guided the entire process. Participation was voluntary, informed consent was obtained, and confidentiality of responses was maintained, ensuring the study adhered to responsible research practices.

Data analysis followed a two-stage procedure. First, the measurement model was evaluated in terms of indicator reliability, composite reliability (CR), and average variance extracted (AVE). Second, the structural model was tested to assess the hypothesized direct effect of support systems on sustainability, focusing on path coefficients, t-values, and the explanatory power (R^2). This sequential approach not only strengthened statistical rigor but also enhanced theoretical validity, offering a more reliable interpretation of how external support interacts with business sustainability in a coastal context. The model specifies a direct effect of Support System (access to capital, social support, public policy and environment) on the Sustainability of coastal women's businesses.

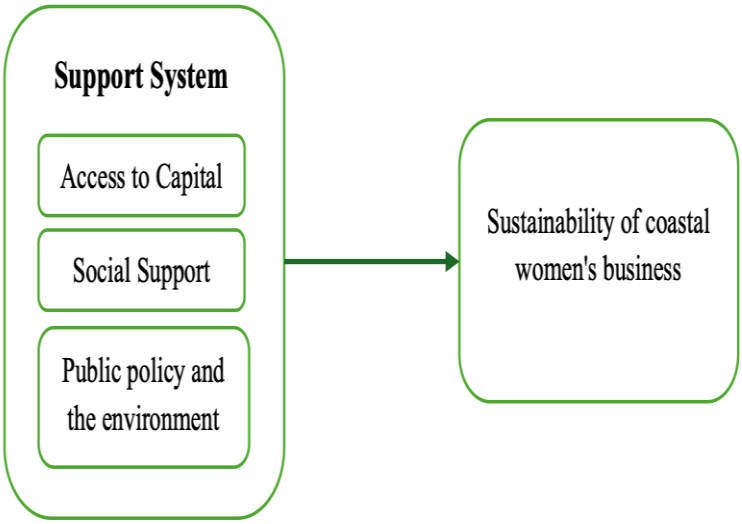

Figure 1. Conceptual framework of the study.
Source: Author's Illustration (2025)

4. Results and Discussion

Results

Table 1 presents the demographic and business characteristics of the respondents. The majority of women entrepreneurs were in the 31- 45 age group, had completed secondary education, and had operated their businesses for more than five years. Most enterprises were engaged in fish processing and marine based services, reflecting the strong dependence of Bulukumba's South Sulawesi, Indonesia coastal economy on fisheries and related sectors.

Table 1. Descriptive Statistics of Respondents.

No	Variable	Category	Frequencies (%)
1	Age	18 - 30 years	22 (18%)
		31 - 45 years	56 (45%)
		> 45 years	46 (37%)
2	Education	Primary	20 (16%)
		Secondary	72 (58%)
		Higher	32 (26%)
3	Business duration	< 3 years	28 (23%)
		3–5 years	36 (29%)
		> 5 years	60 (48%)
4	Business sector	Accommodation guest house	65 (52%)
		Fish processing (pindang, smoked) & Marine based services	39 (31%)
		Aquaculture & others	20 (17%)

Source: Author's survey data (2025)

Measurement Model (Outer Model)

The outer model was evaluated for convergent and discriminant validity following recommended PLS-SEM criteria (indicator loadings, CR, AVE, Fornell–Larcker, HTMT, and cross-loadings). The manuscript report's reliability evidence for both constructs; here we complete the construct validity tests in line with the reviewer's request and the analytic procedures stated in the paper.

Convergent validity

The initial four-indicator Support System construct (XS1–XS4) did not meet convergent validity thresholds (CR = 0.653, AVE = 0.326). After theory-consistent item purification retaining XS2 and XS4, Support System satisfied convergent validity (CR = 0.760, AVE = 0.616). Sustainability showed strong convergent validity (CR = 0.920, AVE = 0.697). All retained indicators loaded significantly on their intended constructs (Table 2a).

Table 2. Composite Reliability and AVE (convergent validity).

Construct	CR	AVE	sqrt(AVE)
Support System (final: XS2, XS4)	0.760	0.616	0.785
Sustainability (Y1–Y5)	0.920	0.697	0.835

Source: Author's data analysis (2025)

Table 3. Outer loadings and indicator reliability.

Indicator	Construct	Loading	p-value
XS2	Support System	0.679	< 0.001
XS4	Support System	0.878	< 0.001
Y1	Sustainability	0.750	< 0.001
Y2	Sustainability	0.882	< 0.001
Y3	Sustainability	0.849	< 0.001
Y4	Sustainability	0.835	< 0.001
Y5	Sustainability	0.852	< 0.001

Source: Author's data analysis (2025)

(For transparency, initial Support System values before purification were CR = 0.653 and AVE = 0.326; details available upon request.)

Discriminant validity

Discriminant validity was established using the Fornell–Larcker criterion, HTMT with 5,000 bootstrap resamples, and cross-loadings.

Table 4. Fornell–Larcker criterion matrix.

Construct	Support System	Sustainability
Support System	0.785	0.253
Sustainability	0.253	0.835

Source: Author's data analysis (2025)

Note: Diagonal entries are sqrt(AVE). Off-diagonal is the latent correlation (Support System–Sustainability = 0.253).

Table 5. HTMT ratio and 95% bias-corrected bootstrap CI.

Construct pair	HTMT	95% CI Lower	95% CI Upper	Decision
Support System – Sustainability	0.544	0.416	0.755	Valid (CI does not include 1)

Source: Author's data analysis (2025)

Table 6. Cross-loadings of indicators (excerpt).

Indicator	Loading on Support System	Loading on Sustainability	Intended construct
XS2	0.679	−0.101	Support System
XS4	0.878	0.400	Support System
Y1	0.308	0.750	Sustainability
Y2	0.252	0.882	Sustainability
Y3	0.161	0.849	Sustainability
Y4	0.126	0.835	Sustainability
Y5	0.157	0.852	Sustainability

Source: Author's data analysis (2025)

Taken together, CR ≥ 0.70, AVE ≥ 0.50, sqrt(AVE) > inter-construct correlation, HTMT < 0.85 with CI not crossing 1, and cross-loadings all support strong construct validity of the final measurement model.

Structural Model (Inner Model)

The structural path from Support System to Sustainability is negative and not statistically significant, indicating that external support alone does not directly enhance business sustainability in this sample of coastal women-led MSMEs (Table 3). This aligns with the study's argument that external interventions require translation into firm-level capabilities and context-responsive mechanisms before QBL-aligned sustainability materializes, consistent with the Theory of Change logic articulated in the manuscript.

Table 7. Path coefficient and significance.

Relationship	Path Coefficient (β)	t-value	p-value	Significance
Support System → Sustainability	–0.103	1.125	0.261	Not Significant

Source: Author's data analysis (2025)

H1 (that Support System has a significant direct effect on Sustainability) was therefore not supported.

Discussion

The findings of this study indicate that support systems do not directly enhance the sustainability of coastal women's businesses. This outcome challenges the widely held assumption in entrepreneurship literature that financial assistance, community support, and institutional scaffolding automatically translate into sustainable business outcomes. Instead, the results suggest that external support, when not integrated with internal capacities, remains insufficient.

This conclusion stands in contrast to prior studies which reported consistently positive effects of institutional or community support on women's business sustainability. For example, Mwesigwa et al. (2025) found that institutional backing in Uganda significantly contributed to the survival of women-owned enterprises, particularly when combined with skill development. Similarly, Orobia et al. (2020) observed that financial training and assistance improved entrepreneurial performance. The current study therefore adds nuance to these debates by demonstrating that in coastal contexts, the relationship may not be as straightforward, and external supports may require translation into practical competencies before they become effective.

At the same time, the findings are in line with Sharon et al. (2025) who reported that green economic capabilities among Indonesian MSMEs had no direct impact on financial stability unless mediated by government support. Likewise, Turhan et al. (2023) stressed that inclusive financial systems must be coupled with financial literacy to produce sustainable outcomes. Taken together, these studies reinforce the present finding that support systems often operate through indirect pathways rather than direct causal links.

The results also extend the work of Al-Dajani, H., and Marlow, (2010), who argued that family and social support cannot secure women's business continuity without managerial competence and control over resources. This limitation becomes particularly evident in coastal communities, where structural vulnerabilities, limited market access, and cultural constraints create additional obstacles. Unlike much of the existing literature that treats women entrepreneurs as a homogeneous category, this study highlights the unique challenges faced by coastal women, thereby offering a novel perspective within entrepreneurship research.

Theoretically, the findings support ecosystem perspectives that conceptualize entrepreneurship as the outcome of complex interdependencies rather than linear cause-effect relationships (Brush, et al., 2019; Jennings and Brush, 2013). The absence of a significant direct effect empirically illustrates this complexity. By situating the analysis in a coastal setting, this research adds nuance to current debates and underscores the importance of context-specific factors' such as geography, institutional frameworks, and cultural norms in shaping the effectiveness of support mechanisms.

5. Conclusions

The findings of this study underscore an important paradox within women's entrepreneurship in coastal settings. Although support systems such as financial assistance, community networks, and institutional programs are often promoted as central enablers of sustainability, the evidence from Bulukumba, South Sulawesi, Indonesia suggests otherwise. The analysis revealed that such supports do not exert a significant direct effect on the sustainability of women's businesses. Instead, their influence appears conditional, depending on whether they are translated into concrete capacities such as financial literacy, managerial competence, and innovation capability.

This outcome challenges the dominant narrative in entrepreneurship literature, which has consistently reported positive associations between institutional or social support and women's entrepreneurial performance (Mwesigwa et al., 2025; Orobia et al., 2020). At the same time, it aligns with more recent debates highlighting that fragmented or one-dimensional interventions often fail to produce lasting outcomes (Sharon et al., 2025; Turhan et al., 2023). By situating the analysis within the Quintuple Bottom Line and Theory of Change frameworks, this research adds nuance to these discussions: support is necessary, but not sufficient. Notably, it demonstrates that sustainability in coastal enterprises cannot be divorced from context-specific realities such as ecological vulnerabilities, cultural norms, and institutional architectures.

Theoretically, the study contributes in three ways. First, it questions the linearity assumption in entrepreneurship research by showing that external support does not automatically translate into sustainability. Second, it introduces coastal vulnerabilities and socio-cultural dynamics as critical moderators, extending ecosystem perspectives of entrepreneurship. Third, it advances the literature by empirically applying QBL and ToC to a rarely studied context coastal women-led enterprises. Practically, the study points to the urgent need for gender-sensitive, integrated interventions that combine external resources with capacity building. In doing so, it resonates with global insights from Women Entrepreneurs Finance Initiative (We-Fi), (2023), which also cautions against over-reliance on fragmented support mechanisms.

Ultimately, the study reaffirms that moving "from support to sustainability" is not a linear journey but a conditional pathway. Strengthening support systems must therefore be understood not as a technical fix, but as a transformative strategy that requires integration with financial literacy, innovation, and institutional scaffolding. This insight carries relevance not only for Indonesia but also for broader international debates on gender equality (SDG 5) and marine sustainability (SDG 14).

Like any empirical investigation, this study has limitations that offer scope for future inquiry. First, the analysis was restricted to a single district Bulukumba, South Sulawesi, Indonesia which inevitably limits the generalizability of the findings. Coastal women's enterprises across other regions may operate under very different socio-cultural, institutional, or ecological conditions. Second, the study examined only the direct relationship between support systems and sustainability. While this approach provided clarity, it risks overlooking critical mediating and moderating variables such as financial literacy, managerial competence, innovation adoption, and policy responsiveness that might explain why support sometimes succeeds and sometimes fails. Third, reliance on self-reported survey data introduces the possibility of perceptual bias, since respondents may have overstated or understated the value of support received.

Future research can advance this agenda in several directions. Comparative studies across multiple regions or even countries would enrich understanding of how context shapes the support sustainability nexus, particularly in diverse coastal economies. Incorporating mediating and moderating variables into more sophisticated models could illuminate the pathways through which support systems are translated into tangible business outcomes. Interestingly, mixed-methods designs combining quantitative analysis with in-depth interviews or participatory mapping would allow scholars to capture women's lived experiences more fully, revealing the cultural and institutional dynamics often hidden in survey responses. Moreover, longitudinal studies are needed to trace changes over time, offering stronger evidence of causality and showing how evolving support mechanisms interact with broader social and environmental transformations.

In closing, this study emphasizes that support systems for women entrepreneurs should no longer be evaluated solely on their presence but rather on how they are mobilized, mediated, and contextualized. By highlighting the conditional pathways from support to sustainability, it provides a foundation for scholars and policymakers alike to design interventions that are not only inclusive but also transformative.

Acknowledgments: In closing, this study emphasizes that support systems for women entrepreneurs should no longer be evaluated solely on their presence but rather on how they are mobilized, mediated, and contextualized. By highlighting the conditional pathways from support to sustainability, it provides a foundation for scholars and policymakers alike to design interventions that are not only inclusive but also transformative.

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