

Tea Industry Competitiveness, Regional Branding, and Sustainable Upgrading in Asia: An Integrative Literature Review

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Abstract

This integrative review examines how competitiveness in the tea industry is being reshaped by sustainability requirements, digital platforms, organizational change, and regional trade arrangements. Rather than treating competitiveness as a result of production or export volume alone, it traces how regional resources are converted, or fail to be converted, into reliable quality, market recognition, farmer income, and environmental legitimacy. The review brings together selected Chinese-language and comparative Asian studies on regional upgrading, trade standards, organizational coordination, green production, e-commerce, public branding, and cross-country development. It finds that the literature is rich in indicators and case descriptions but less clear about the mechanisms linking firm capabilities, institutional coordination, market access, and consumer trust. On this basis, the article proposes a multi-level framework and identifies priorities for further work on value-chain relations, firm-level change, farmer behavior, carbon accounting, platform governance, and comparative theory.

Keywords

Tea industry; competitiveness; regional public brand; sustainable upgrading; global value chains; technical barriers to trade; e-commerce adoption; Asia.

1. Introduction

Tea occupies an unusual position in the agro-food economy. It is an agricultural commodity, a culturally meaningful product, and a traded good whose value depends on standards, processing, brands, and market institutions. This combination makes the industry a useful setting for examining how traditional agricultural sectors respond to globalization and sustainability pressures. Digital platforms and regional trade agreements add further complexity. In China, the key question is no longer whether tea production can expand. It is whether production scale can be converted into reliable quality, stronger brands, higher farmer income, and more resilient export performance.

Existing work approaches this question from several directions. Trade studies measure comparative advantage and export performance, while regional research examines specialization, production conditions, and industrial upgrading. Other studies address technical barriers, green production, low-carbon development, or the adoption of e-commerce by tea businesses. Research on regional public brands focuses on perceived value and consumer trust. Comparative work on India, Sri Lanka, Southeast Asia, Nepal, and Vietnam adds an institutional dimension by showing how auctions, domestic markets, certification systems, export brands, and local organizations shape different development paths.

These strands do not yet form a sufficiently connected explanation. Many studies describe regional conditions or propose policy measures, but fewer show how trade performance relates to organizational coordination and to the decisions of farmers, firms, and consumers.

Competitiveness is consequently often treated as an outcome measured by export or production indicators; its development as a multi-level process receives less attention. The central analytical task is to explain how geography, productive capability, institutional arrangements, sustainability practices, and market recognition interact.

This review addresses that problem through a critical integrative reading of selected Chinese-language and comparative Asian studies. It focuses on three issues: how competitiveness has been measured and explained, which organizational, environmental, and market mechanisms connect local production to value creation, and where the evidence remains too weak to support general conclusions. These questions guide the multi-level framework and the research agenda developed below.

2. Review Method and Evidence Boundary

This review uses an integrative design because the relevant evidence comes from several disciplines and takes different forms. Some studies rely on trade indicators or regional statistics; others examine firms, farmers, institutions, consumer responses, or sustainability practices. Bringing these strands together makes it possible to identify relationships that are difficult to see within a single method. The review is conceptual and critical. It does not aim to estimate a pooled effect size as a meta-analysis would.

Table 1. Evidence Map of the Reviewed Literature

Research stream	Representative sources	Synthesized contribution
Regional development and production upgrading	Zhao (2013); Wang et al. (2012); Zhao and Guo (2025)	Regional competitiveness depends on ecology, processing capacity, market access, and place-based specialization.
International competitiveness	Fu et al. (2022); Li et al. (2024); Zhao and Guo (2025)	RCA, scale, and export-trade indicators show competitiveness, but often under-measure quality, brand, and governance capabilities.
Technical barriers to trade	Sheng (2017)	Standards, residues, certification, and destination-market rules affect firm export performance and upgrading incentives.
Organization and market coordination	Wang et al. (2012); Langford (2021); Mohan (2016)	Industry performance is shaped by coordination among farmers, firms, standards, auctions, associations, and state institutions.
Green and low-carbon transition	Hu et al. (2025); Yang (2025); Deka and Goswami (2022); Tran and Goto (2019); Mol and Oosterveer (2015)	Sustainability is increasingly studied through carbon sinks, green production behavior, certification, traceability, and income effects.
Digitalization and e-commerce	Chen (2024); Klerkx et al. (2019); Wolfert et al. (2017)	E-commerce adoption may raise income, but effects depend on capabilities, platform access, data governance, product differentiation, and trust.
Comparative Asian experience	Wang et al. (2012); Deng et al. (2014); Langford (2021); Mohan (2016); Tran and Goto (2019)	Tea-sector upgrading differs across auction systems, domestic markets, certification regimes, institutions, and branding strategies.

Sources were selected for their direct relevance to tea-industry development, competitiveness, sustainability, trade, organization, digitalization, regional branding, consumer trust, certification, or Asian comparison. Where two records addressed substantially the same research topic, overlapping versions were consolidated. Doctoral dissertations were retained only when they offered evidence that was both topic-specific and difficult to obtain from the available journal literature. Descriptive materials with incomplete bibliographic information were not treated as primary evidence.

The evidence boundary is deliberate. This review does not claim to cover all Chinese or international research on tea. Its purpose is to connect research streams and develop a usable research agenda. The selection principles and the main contribution of each stream are summarized in Table 1. Sources with incomplete or unverifiable metadata were excluded from the final reference list and were not used to support the proposed framework.

3. Analytical Lenses from International Literature

Four strands of international research help interpret the tea literature, although they do not contribute equally to the present argument. Global value-chain theory provides the starting point. Gereffi, Humphrey, and Sturgeon (2005) explain chain governance through transaction complexity, codification, and supplier capability, while Humphrey and Schmitz (2002) show that participation in global value chains can support or restrict upgrading in local clusters. Applied to tea, this perspective shifts attention from export volume to the distribution of value across processing, certification, branding, distribution, and retail. Ponte and Gibbon (2005) sharpen this point by showing that standards and certification are not simply neutral descriptions of quality. They help define quality and influence where control is exercised along the chain.

This value-chain perspective needs to be read alongside work on sustainable supply chains. Seuring and Muller (2008) describe sustainability as a coordination problem involving multiple actors and competing pressures. Bocken et al. (2014) extend the discussion to business-model design by showing how environmental and social value can be incorporated into commercial activity. For tea, the implication is straightforward but not trivial: low-carbon production, ecological certification, and tea-garden carbon sinks create competitive value only when governance is credible, costs can be shared, market returns are available, and consumers accept the claims.

Research on brand equity, relationship marketing, and place branding supplies a demand-side complement. Keller (1993) links brand equity to the effect of brand knowledge on consumer response, whereas Morgan and Hunt (1994) emphasize trust and commitment in durable market relationships. Hanna and Rowley (2011) show that place brands also require stakeholder participation, supporting infrastructure, clear articulation, and continued communication. These contributions suggest that a tea region's origin, history, or cultural reputation is only a potential asset. It becomes economically useful when it is recognized, trusted, and repeatedly exchanged. Kavaratzis and Hatch (2013) make the identity dimension more explicit: a place brand evolves through interaction among actors instead of functioning as a fixed promotional label. This helps explain why regional public brands depend on the continuing conduct of producers, public institutions, and consumers.

Digital-agriculture research adds a further institutional layer. Klerkx, Jakku, and Labarthe (2019) draw attention to data ownership, access, skills, power, and governance. In tea markets, e-commerce, livestreaming, traceability, and platform ratings therefore affect more than sales. They influence who becomes visible, who controls information, and who absorbs compliance costs. Wolfert et al. (2017) similarly show that data infrastructures can alter roles and power relations across the food chain. Klerkx and Rose (2020) warn that Agriculture 4.0 may widen

access for some actors while excluding others. The review consequently treats digitalization as part of the governance of competitiveness, not as a separate technical add-on.

Table 2. International Theoretical Lenses Used in the Review

Analytical lens	Key references	Use in this review
Global value chains and upgrading	Gereffi, Humphrey, and Sturgeon (2005); Humphrey and Schmitz (2002); Ponte and Gibbon (2005)	Connect export competitiveness with governance, buyer requirements, value capture, and upgrading constraints.
Sustainable supply-chain management	Seuring and Muller (2008); Bocken et al. (2014)	Frame low-carbon tea as a supply-chain and business-model problem, not only an agronomic practice.
Brand equity, relationship marketing, and place branding	Keller (1993); Morgan and Hunt (1994); Hanna and Rowley (2011); Kavaratzis and Hatch (2013)	Explain how origin image, trust, identity, and stakeholder engagement turn regional reputation into market value.
Digital agriculture and platform transformation	Klerkx, Jakku, and Labarthe (2019); Wolfert et al. (2017); Klerkx and Rose (2020)	Position e-commerce and traceability as governance infrastructures that redistribute data, visibility, and bargaining power.

4. Thematic Synthesis

4.1. Regional Foundations and Production Upgrading

Tea production in China follows distinct regional paths and cannot be reduced to one national pattern. Ecological conditions, varieties, processing capacity, local culture, and market access combine differently across regions. Zhao (2013), in a study of Shaanxi, shows that a late-developing tea region cannot rely on ecological resources alone; it also needs processing capacity and a clear market position. Wang, Zhu, and Zheng (2012) reach a related conclusion in their comparison of Anxi, India, and Sri Lanka: ecological tea gardens, branding, quality control, and the organization of production and sales matter when local firms seek to internationalize.

These studies are useful because they look beneath aggregate output. They help explain why some regions develop recognizable brands and processing clusters while others remain dependent on primary production. What they do not fully establish is how the conversion occurs. The missing link lies between regional resources and durable advantage: public policy, firm strategy, standards, and market institutions may each matter, but their interaction is rarely observed in the same study. That unresolved link motivates the discussion of competitiveness measurement and export performance.

4.2. Measuring Competitiveness and Meeting Export Standards

Trade research commonly uses the revealed comparative advantage index and related measures of scale or export performance. Fu et al. (2022) find that China retains a stable competitive position among RCEP economies, while Vietnam and Indonesia show strong advantages in some periods. Zhao and Guo (2025) distinguish among green, black, oolong, dark, and jasmine tea, adding a product-level dimension. Li et al. (2024) compare provincial competitiveness and show that China's production capacity is substantial but unevenly

distributed. These studies provide useful benchmarks, but they say less about the distribution of value within the chain.

The limitation becomes clear when export performance is considered alongside market requirements. Volume and comparative advantage do not capture certification, traceability, pesticide-residue rules, destination-market regulation, logistics, brand reputation, or bargaining power. Sheng (2017) examines a case in Zhejiang and connects technical barriers with firm behavior. Standards can restrict access, but they can also encourage standardization, quality management, and product upgrading. Competitiveness measurement should therefore include both the external requirements faced by firms and the internal capabilities they develop in response. In this sense, standards are not neutral technical requirements; they also encode market definitions of quality and influence how value-chain coordination is organized (Ponte & Gibbon, 2005).

4.3. Organization, Coordination, and Institutional Governance

The organization of the industry determines whether regional resources and export opportunities can be used effectively. Producers, processors, traders, cooperatives, associations, public agencies, and consumers are connected through standards and market arrangements. The Anxi case links internationalization to ecological production, branding, quality governance, and the coordination of production and sales (Wang et al., 2012). Langford (2021) shows how domestic consumption and firm restructuring can alter the political economy of tea value chains. Mohan (2016) likewise demonstrates that value-chain upgrading can bring institutional change beyond higher output alone.

The comparison with Sri Lanka and India makes the institutional issue concrete. Sri Lanka's auction system, quality control, and internationally recognized Ceylon identity support price discovery and reputation. India represents a different model, built around CTC black tea, a large domestic market, and distinctive firm and labor arrangements. Neither model can simply be transferred to China. The more difficult task is to coordinate diverse products, smallholder production, processing firms, regional brands, and export requirements. That coordination problem also bears directly on the feasibility of a green transition.

4.4. Green Production, Low-Carbon Transition, and Stakeholder Governance

Sustainability research has become one of the most active areas in the tea literature. Hu et al. (2025) review low-carbon development in China and discuss ecological tea, certification, the carbon-sink function of tea gardens, and the connection with the dual-carbon strategy. Yang (2025) introduces a behavioral dimension through research on farmers' green production behavior. Studies from Assam and Vietnam extend the discussion beyond China. Deka and Goswami (2022) examine organic cultivation and sustainable value-chain development among smallholders in Assam. Tran and Goto (2019) find that certification can improve prices, sales value, and net farm income for specialty green-tea farmers in Vietnam, although it also raises labor costs.

The evidence points to a broader problem. Green upgrading is not a technical adjustment in cultivation alone. Farmers need knowledge, incentives, reliable returns, and institutional support. Firms need certification capacity and control over supply chains. Public agencies must combine regulation with services, monitoring, and appropriate support. Certification research also warns that environmental claims require traceability and credible verification (Mol & Oosterveer, 2015). Few studies connect farmer decisions, firm investment, consumer willingness to pay, and regional carbon accounting in one model. Digital systems may help make those connections, but they can also create new dependencies.

4.5. Digitalization, E-Commerce Adoption, and Income Effects

Research on e-commerce adoption among tea businesses, including Chen (2024), connects agricultural modernization with platform-based market access. Online channels can reduce distance between producers and consumers, improve information flows, and create new income opportunities. Adoption alone, however, does not guarantee better returns. Outcomes depend on digital literacy, logistics, platform rules, product standardization, brand communication, customer trust, and the ability to manage online reputation.

Compared with trade and production research, this literature remains limited. The issue is how platform participation changes bargaining power, not merely whether a tea business uses e-commerce. Visibility may help established brands while exposing small producers to sharper price competition. Traceability may improve quality control, but it can also impose costs that smaller firms cannot easily absorb. These tensions connect digital adoption to the question of how consumers recognize and value regional tea brands. Research on smart farming reinforces this concern by treating data ownership, infrastructure, and business models as governance issues instead of purely technical matters (Wolfert et al., 2017).

4.6. Regional Public Brands, Consumer Value, and Market Recognition

Regional public brands shift the analysis from production capacity to market recognition. They are collective signals attached to place, origin, quality expectations, and regional reputation. This is particularly important in China, where teas compete through firm brands as well as origin names, cultural narratives, ecological associations, and shared quality claims. Sun et al. (2022) find that awareness, perceived quality, and brand trust are associated with consumers' purchase intentions for agricultural products carrying regional public brands. The result suggests that production assets become market assets only when consumers can identify and trust them. An identity-based view of place branding adds an institutional point: regional public brands are interpreted and renegotiated by different stakeholders instead of being transmitted by a public authority (Kavaratzis & Hatch, 2013).

The demand-side perspective is still only weakly connected to sustainability or export competitiveness. A regional brand may communicate ecological quality, but its market effect depends on whether the claim is credible and whether consumers are willing to pay for it. Future empirical work could link origin image, certification, traceability, online reputation, repeat purchase, and price premiums. Cross-country comparisons may also show why these links take different forms across Asian tea economies.

4.7. Comparative Asian Development Paths

Research on India, Sri Lanka, Southeast Asia, Nepal, and Vietnam provides a useful comparison because it reveals different combinations of specialization, institutions, certification, branding, and market orientation. Wang, Zhu, and Zheng (2012) emphasize ecological tea-garden construction, quality control, branding, and production-sales coordination in their comparison of Anxi with India and Sri Lanka. Deng et al. (2014) identify Vietnam and Indonesia as regional competitors in their SWOT analysis. Mohan (2016) and Tran and Goto (2019) show, respectively, that value-chain upgrading and certification must be assessed in relation to local institutions and farmer income, not only export growth.

Comparison does not provide China with a ready-made model. It instead shows that export performance depends on the fit among product specialization, market institutions, labor arrangements, certification, and branding. China has important advantages in green tea, regional variety, cultural depth, and domestic demand. None of these advantages automatically produces global brand power. The unresolved comparative task is to identify the institutional conditions under which ecological and cultural resources become recognized economic value. This task provides the basis for the research gaps that follow.

5. Research Gaps

5.1. From Competitiveness Indicators to Value Capture

RCA and output indicators establish whether a competitive position exists; they do not show where returns accrue or why performance changes. Future work should join trade data to firm-level evidence on processing, certification, branding, distribution, and retail margins. Panel or longitudinal designs would be especially useful for tracing how firms respond to technical barriers, platform participation, green certification, and changing buyer requirements.

5.2. Connecting Green Practices with Market Returns

Green production and farmer behavior now appear more often in the literature, but their market consequences remain unclear. The next empirical step is to connect adoption decisions with certification costs, farm income, willingness to pay, and price premiums. Carbon sinks and low-carbon tea also require more precise accounting. Without a link between measured environmental performance and market outcomes, low-carbon tea remains a claim instead of demonstrated competitiveness.

5.3. Digital Platforms as Governance Systems

Current e-commerce research mainly records adoption and income effects. It says less about platform rules, data ownership, traceability, algorithmic visibility, online trust, and dependence on intermediaries. These issues matter because digitalization can improve coordination while shifting risk and compliance costs toward small producers. The relevant question is distributional: who gains access, who bears the costs, and who captures returns in platform-mediated tea markets?

5.4. From Regional Reputation to Measurable Consumer Outcomes

Studies of regional public brands have established the importance of awareness, perceived quality, and trust. The unresolved empirical task is to connect these concepts with observable outcomes such as repeat purchase, export prices, online reputation, certification recognition, and willingness to pay. Such work would also link consumer-side mechanisms with production-side upgrading. A regional brand should therefore be examined as an organizational and market arrangement, not as a slogan detached from quality control and traceability.

5.5. Building Comparative Theory across Asian Tea Economies

Comparisons among China, India, Sri Lanka, Vietnam, Indonesia, Nepal, and other Asian producers are still often descriptive. A stronger comparative design would examine how production systems, labor regimes, domestic consumption, market institutions, branding strategies, and sustainability governance interact. The aim would not be to transfer a presumed successful experience from one country to another, but to explain why a policy or institutional arrangement produces different results in different tea regions.

6. Proposed Framework: Multi-Level Sustainable Competitiveness

Across the reviewed studies, competitiveness appears less like a single performance score than an alignment problem. Regional resources set the initial conditions, but production practices determine reliability and environmental performance; organizations coordinate fragmented actors; and market institutions, brands, platforms, and trade standards shape access to buyers. Trust and sustainability legitimacy affect whether these arrangements yield durable returns. Table 3 translates this argument into six levels. It is intended as a map of mechanisms for future empirical work, not as a fully tested causal model. The resource-based view offers a related starting point: valuable and difficult-to-imitate resources can support sustained advantage

(Barney, 1991), but in tea regions they matter only when firms and institutions can organize and renew them.

Table 3. Multi-Level Framework for Sustainable Tea-Industry Competitiveness

Level	Core mechanism	Main research implication
Resource base	Ecology, varieties, culture, regional history	Explain why competitiveness differs by tea region.
Production system	Green behavior, processing, quality control	Connect farmer and firm practices with product reliability.
Organization	Cooperatives, firms, associations, government, auction systems	Study coordination and governance rather than isolated actors.
Market access	Branding, e-commerce, RCEP, technical standards	Trace how products enter and compete in domestic and export markets.
Consumer relationship	Regional public brands, perceived value, identity, trust	Explain how symbolic and relational assets become market value.
Sustainability legitimacy	Carbon sinks, certification, social responsibility	Assess whether green transformation creates long-term value.

7. Future Research Agenda

Better measurement is the most immediate need. Future studies should combine export and production indicators with firm-level and regional evidence on price premiums, certification capacity, brand recognition, and value-chain position. This would distinguish production scale from value capture and make it possible to assess whether technical compliance produces genuine upgrading.

Measurement alone will not resolve the sustainability question. Research needs to follow the relationship among farmer behavior, firm investment, certification, carbon accounting, and consumer demand. The issue is not whether sustainability is desirable in the abstract; it is whether green practices generate stable economic value under particular institutional conditions.

The same concern applies to the joint governance of platforms and brands. E-commerce, livestreaming, traceability systems, and consumer-review mechanisms reshape information and visibility. Studies should identify who benefits from these systems, who pays for compliance, and whether regional public brands improve trust and repeat purchase in domestic and export markets.

Comparative research can then test how China, India, Sri Lanka, Vietnam, Indonesia, Nepal, and Korea differ in product specialization, market institutions, consumption patterns, labor regimes, branding, and sustainability governance. The purpose should not be to rank national models. It should be to identify the institutional combinations that make upgrading more likely in particular regions.

8. Conclusion

Across the reviewed literature, tea-industry competitiveness emerges as a process of converting regional assets into recognized and defensible value. Output and export indicators capture only part of that process. The conversion also depends on firm capabilities, coordination among producers and institutions, standards, digital infrastructures, consumer

trust, and credible sustainability practices. The framework proposed here makes these links explicit, while the identified gaps show where the evidence remains thin. For China, the central challenge is not production scale alone; it is making ecological diversity, cultural depth, and regional specialization legible and valuable in domestic and international markets. Future studies should therefore specify actors, mechanisms, and measurable outcomes instead of stopping at isolated indicators or general policy recommendations.

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