

Frugal Resilience in Supply Chains with Sectoral Institutional Duality: Toward a Theory of Emerging Markets

Abstract.

Research on supply chain resilience has, almost without exception, taken for granted the presence of formal institutional prerequisites (enforceable contracts, financial intermediaries, functioning regulatory architectures) as necessary conditions for resilience capacity. This assumption amounts to what we call a *formalization bias*: an epistemological constraint, largely unexamined, that renders canonical resilience frameworks structurally ill-suited to the realities of emerging markets, where the informal economy predominates and absorbs the vast majority of the workforce (ILO, 2023; World Bank, 2022). We address the following research question: *How does resilience emerge in an FMCG supply chain characterized by a structural formal–informal interface, in the absence of dominant institutional prerequisites?* The article advances three nested theoretical contributions. First, we conceptualize Sectoral Institutional Duality (SID) as a meso-organizational construct designating supply chains in which formal and informal institutional layers coexist in a structurally stable, non-substitutable, and functionally interdependent manner, a configuration fundamentally distinct from both institutional voids (Khanna & Palepu, 2010) and macro-level hybrid institutions (Aoki, 2001). Second, we develop Frugal Resilience as a three-phase sequential process (anticipatory relational governance, distributed robustness, and inter-layer adaptation) through which organizations sustain supply continuity without formal institutional prerequisites. Third, we formalize Systemic Functional Substitution (SFS) as the central mechanism linking SID to frugal resilience, inverting the complementarity logic of Poppo and Zenger (2002) under conditions of structural institutional asymmetry. Five propositions, each paired with observable indicators, anchor a rigorous empirical research agenda. An analytical vignette drawn from the Moroccan FMCG sector illustrates the framework's empirical plausibility.

Keywords: frugal resilience · sectoral institutional duality · formal–informal interface · systemic functional substitution · relational governance · institutional voids · emerging markets · FMCG

1.1 Introduction

The disruptions of recent years have thrown into sharp relief a paradox that mainstream supply chain management scholarship still struggles to theorize: certain supply chains operating within supposedly “deficient” institutional environments have demonstrated resilience capacities superior to those of formally structured chains in advanced economies (Essuman et al., 2026). This is no isolated curiosity. It exposes a deep theoretical lacuna at the heart of the supply chain resilience literature, one that this article sets out to address through a rigorous conceptual contribution.

The canonical resilience frameworks, from Christopher and Peck (2004) through Kamalahmadi and Parast (2016) to Ivanov (2020), share a foundational presupposition that typically goes unacknowledged: resilience rests on formal institutional prerequisites such as legally enforceable contracts, standardized information systems, accessible financial intermediaries, and functioning regulatory mechanisms. We term this presupposition the *formalization bias*. It constitutes an epistemic constraint that renders these frameworks

structurally unfit for analyzing contexts in which the informal economy accounts for a considerable share of economic activity and where most commercial transactions take place outside formal registries. The literature itself has begun to recognize this mismatch. Essuman et al. (2026) identify the weakness of formal institutions combined with the strength of informal ones as one of seven distinctive contextual factors shaping operations and supply chain management research in Africa, and they explicitly call for theorizations that account for the continent's institutional realities, stressing that existing OSCM theories and concepts have been developed largely without incorporating the unique characteristics of informal organizations.

The fast-moving consumer goods (FMCG) sector in emerging markets, particularly in North Africa, offers a paradigmatic illustration. Companies such as BevCo Morocco distribute their products through networks where formally registered distributors coexist structurally with informal retail networks — neighborhood grocery shops (*hanouts*), weekly market resellers (*souks*) — that handle a substantial share of distributed volume. This coexistence is not a transitional state on the path toward formalization, an implicit assumption pervading the institutional voids literature (Khanna & Palepu, 2010). It is, rather, a stable and functional institutional architecture that we conceptualize as Sectoral Institutional Duality (SID).

To the best of our knowledge, the existing body of work neither conceptualizes intra-chain institutional duality as a stable architecture, nor formalizes its central substitution mechanism, nor formulates propositions capable of sustaining a cumulative research program. This is precisely the theoretical space that the present article occupies: furnishing the systematic theorization of what Andrews and Luiz (2024, 2025) observe empirically without yet fully conceptualizing.

Our central research question is therefore the following: ***How does resilience emerge in an FMCG supply chain characterized by a structural formal–informal interface, in the absence of dominant institutional prerequisites?***

We offer three interlocking theoretical contributions. First, we conceptualize Sectoral Institutional Duality (SID) as an autonomous meso-organizational construct, distinct from institutional voids (Khanna & Palepu, 2010) and from macro-sectoral hybrid institutions (Aoki, 2001). Second, we develop frugal resilience as a three-phase sequential process. Third, we formalize Systemic Functional Substitution (SFS) as the central mechanism, accompanied by five falsifiable propositions and their observable indicators.

The article proceeds as follows. Section 2 lays the theoretical foundations and diagnoses the formalization bias. Section 3 develops the conceptual framework. Section 4 sets out the propositions and the research agenda. Section 5 discusses implications. Section 6 concludes.

1.2 Theoretical Foundations and Diagnosis of the Formalization Bias

1.2.1 Supply Chain Resilience: A Body of Work Built on an Implicit Formalization Assumption

Since the foundational work of Christopher and Peck (2004), supply chain resilience has been defined as the ability of a supply chain system to return to its original state or to reach a more desirable one following

a disruption. Ponomarov and Holcomb (2009) extended this definition to encompass the adaptive capacity of a chain to prepare for unexpected disruptions, respond to them, and recover. Kamalahmadi and Parast (2016) synthesized the literature by identifying core resilience principles (redundancy, flexibility, agility, and collaboration among them) whose implementation presupposes formal coordination and financing mechanisms. Ivanov (2020) proposed the viable supply chain model, integrating agility, resilience, and sustainability within a systemic framework, yet without theorizing heterogeneous institutional configurations. Wieland and Durach (2021) introduced a consequential distinction between engineering resilience (bouncing back to an equilibrium state, measured by recovery time) and socio-ecological resilience (persistence, adaptation, and transformation in the face of change), offering an epistemic foundation more compatible with institutionally complex systems. Ruel et al. (2026) put forward a taxonomy of supply chain resilience without explicitly integrating the institutional dimension.

The formalization bias pervades this entire corpus along four principal lines. Coordination mechanisms presuppose enforceable contracts (Poppo & Zenger, 2002). Information systems presuppose a formal digital infrastructure accessible to all actors. Financial mechanisms presuppose access to bank credit and formal insurance instruments. Inter-organizational governance presupposes institutional symmetry between partners. All four assumptions are structurally incompatible with the reality of markets where informality is the norm rather than the exception.

1.2.2 Institutional Voids: Foundational Contribution and Limitations for SID

North (1990) laid the conceptual groundwork by distinguishing formal institutions (laws, regulations, contracts) from informal constraints (norms, conventions, self-enforcing codes of conduct) and their respective enforcement mechanisms. The notion of institutional voids, popularised by Khanna and Palepu (2010), refers to the absence or dysfunction of market intermediaries that facilitate transactions in advanced economies. Mair and Martí (2009) demonstrated how social entrepreneurship can fill such voids in countries like Bangladesh. Andrews and Luiz (2024) conceptualized institutional voids in terms of severity and showed how the country of origin shapes the perception of these voids by multinationals operating in Africa. In a complementary study, Andrews and Luiz (2025) examined how dynamic capabilities are mobilized to manage institutional voids during intra-African internationalization, revealing how distinct capabilities are deployed in response to different consequences of voids. More recently, Domingues et al. (2026) investigated the intersection between institutional voids and digital transformation in supply chains, observing that digitalization can both fill and reproduce voids depending on the implementation context.

The institutional voids framework, however, presents three fundamental limitations for our purposes. It is static: it conceptualizes voids as states to be filled through progressive formalization, without theorizing the stable and functional coexistence of formal and informal layers. It is exogenous: it analyses voids from the perspective of outside actors seeking to penetrate supposedly deficient markets, not from the standpoint of internal actors who operate from within these configurations. And it is scalar: it operates at the macro-institutional level without theorizing intra-chain duality.

1.2.3 SID versus Hybrid Institutions

The notion of hybrid institutions from comparative institutional theory (Aoki, 2001) may appear to approximate SID. Aoki conceptualizes institutional equilibria combining formal and informal elements, but at the macro-sectoral national scale, as the outcome of a strategic game among macroeconomic actors. SID operates at a fundamentally different level: the meso-organizational, intra-chain level, theorizing the coexistence of institutional logics within a single dyadic relationship or a single distribution network. Aoki's hybrid institutions, moreover, are Nash equilibria emerging from long-term strategic interaction among national economic actors, whereas SID is a configuration deliberately managed by organizational actors at the chain level. The distinction is at once scalar, ontological, and operational.

1.2.4 Relational Governance: From Complementarity to Substitution

Relational governance (the non-contractual mechanisms governing inter-organizational exchanges) was theorized as a complement to formal contracts by Poppo and Zenger (2002), who showed that in advanced economies, formal and informal governance tend to reinforce one another. This finding, however, is conditioned by institutional symmetry between partners. Under conditions of structural institutional asymmetry, the picture changes considerably. Macaulay (1963) demonstrated that commercial relationships can be established and sustained without formal contracts, grounded instead in reputation, trust, and social norms. Macneil (1980) theorized relational contracts as governed by implicit norms of social integration. Fafchamps (2004) empirically documented, in sub-Saharan Africa, how informal networks functionally substitute for deficient market institutions, creating alternative mechanisms for dispute resolution and commitment enforcement. Uzzi (1997) theorized the embeddedness paradox in inter-firm networks: strong ties grant access to critical resources but simultaneously generate structural dependence. Dyer and Singh (1998) conceptualized relational resources as sources of durable inter-organizational competitive advantage. Wieland and Wallenburg (2013) demonstrated the influence of relational competencies on resilience within environments where formal governance is available (a context that SID structurally inverts). In economic sociology, Portes and Haller (2005) analyzed the informal economy as a set of economic activities that, while operating outside state regulation and taxation, fulfil functions analogous to those of formal markets. This analysis directly anticipates our concept of SFS, which we extend to the supply chain level.

1.2.5 Frugality as an Organizational Logic Extended to Resilience

Frugality, theorized in the product innovation field by Radjou et al. (2012) under the rubric of *Jugaad Innovation*, denotes a logic of value creation at low resource intensity, one that exploits constraints as sources of creativity. Malik et al. (2021) documented how digital labour platforms create functional solidarity networks within institutional voids in Pakistan. Wieland (2021) proposed reconceptualizing supply chains as socio-ecological systems, arguing that resilience cannot be theorized without integrating social dimensions and open adaptive dynamics. Building on these foundations, we propose extending frugality from product innovation to inter-chain organizational resilience, defining it as a coordination logic of low

formal institutional intensity, grounded in relational proximity, community solidarity, and lightweight digitalization.

2.6 Critical Synthesis and Gap Identification

Table 1 synthesizes the contributions and limitations of the theoretical currents mobilized, as they bear on the structural formal–informal interface.

Table 1: Critical Synthesis of Theoretical Currents

Theoretical current	Principal contribution	Limitation for SID
Canonical SCM resilience (Christopher & Peck, 2004; Kamalahmadi & Parast, 2016)	Formal resilience capabilities	Structural formalization bias
Socio-ecological resilience (Wieland & Durach, 2021)	Open adaptation, adaptive cycles	No theory of heterogeneous intra-chain institutions
Institutional voids (Khanna & Palepu, 2010; North, 1990)	Macro institutional failures	Static, exogenous, not intra-chain
Hybrid institutions (Aoki, 2001)	Stable formal–informal coexistence	Macro-national level, not meso-chain
Institutional voids and dynamic capabilities (Andrews & Luiz, 2024, 2025)	Documented substitution and capabilities	Individual firm level; no meso-chain theorization
Formal governance (Poppo & Zenger, 2002)	Contract–relation complementarity	Requires institutional symmetry
Informal economy (Portes & Haller, 2005; Fafchamps, 2004)	Functions analogous to formal markets	Macro-economic level, not inter-organizational SCM
Frugal innovation (Radjou et al., 2012)	Low-resource-intensity logic	Not applied to inter-organizational resilience

Source: Authors.

The gap is threefold: the absence of a construct theorizing the stable coexistence of formal and informal institutional logics at the meso-intra-chain level (a structural gap); the absence of a process model of resilience adapted to this context (a dynamic gap); and the absence of falsifiable propositions with observable indicators linking these constructs (an empirical gap).

1.3. Conceptual Framework: SID, Frugal Resilience, and Systemic Functional Substitution

1.3.1 Sectoral Institutional Duality (SID)

We define SID as a structural configuration in which a supply chain simultaneously and non-substitutable integrates two distinct institutional layers: a formal layer (enforceable contracts, invoices, bank payment systems, regulatory registries) and an informal layer (social norms, relational trust, community solidarity, undocumented transactions). SID departs from institutional voids in that it does not conceptualize informality as a deficient state requiring correction but rather as a functional and structurally stable institutional layer. It departs from Aoki's (2001) hybrid institutions by operating at the meso-organizational intra-chain scale rather than the macro-sectoral national scale. And it departs from Lewis's (1954) classical economic dualism (which analyses dualism at the macroeconomic sectoral scale) by theorizing institutional coexistence within a single value chain.

Four existence conditions allow SID to be identified empirically. Condition C1 stipulates that more than 50% of transactional volume passes through the informal layer on a durable basis. Condition C2 requires that this configuration has persisted for a minimum of ten years, thereby excluding conjunctural adaptations. Condition C3 requires that access to formal institutions is asymmetric: some actors have structural access while others do not. Condition C4 demands that the two layers maintain a non-substitutable interdependence, such that the elimination of either would structurally degrade chain performance.

SID exhibits four dimensions of institutional voids alongside their substitution mechanisms, synthesized in Table 2.

Table 2: Dimensions of Institutional Voids within SID and Substitution Mechanisms

Void dimension	Manifestation within SID	Substitution mechanism
Informational	Absence of market data on informal retailers	Relational information networks, reputation signals
Contractual	Absence of enforceable contracts with informal retailers	Reciprocity norms, iterative trust (Macneil, 1980)
Financial	Limited access to formal credit for informal actors	Relational trade credit
Systemic	Absence of formal traceability and coordination systems	Frugal communication platforms (WhatsApp, SMS groups)

Source: Authors.

3.2 Frugal Resilience: Definition and Conceptual Differentiation

We define frugal resilience as the capacity of an organization operating within a SID to maintain the continuity of logistical flows during disruptions by mobilizing relational governance, community solidarity, and frugal digitalization as systemic functional substitutes for absent or deficient formal institutional mechanisms. This definition draws on four foundational works, which we extend to the meso-chain level: Fafchamps (2004) for the functional substitution of market institutions, Portes and Haller (2005) for the analysis of analogous functions in the informal economy, Wieland and Durach (2021) for the socio-ecological perspective on resilience, and Radjou et al. (2012) for the organizational logic of frugality.

Table 3 differentiates frugal resilience from four cognate concepts with which it might be conflated, across three constitutive dimensions.

Table 3: Conceptual Differentiation of Frugal Resilience

Concept	Reference	Difference on permanence	Difference on level	Difference on temporality
Bricolage	Baker & Nelson (2005)	Episodic and tactical	Individual/organizational	Reactive, post hoc
Improvisation	Crossan & Vera (2004)	Unplanned, situational	Individual/group	Real-time response to the unexpected
Canonical resilience	Christopher & Peck (2004)	Presupposes formal institutions	Intra-organizational	Preventive + formally reactive
Transformative resilience	Wieland & Durach (2021)	Systemic global reconfiguration	Open global system	Long-term structural
Frugal resilience	This article	Structural and institutionalized	Meso-inter-organizational	Anticipatory + sequentially processual

Source: Authors.

The differentiating crux lies in the concept of Systemic Functional Substitution (SFS). Unlike improvisation and bricolage, SFS is a structural mechanism through which organizations within a SID proactively and institutionally develop functional equivalents to formal mechanisms as a permanent governance architecture, not as a conjunctural response.

1.3.3 Systemic Functional Substitution (SFS): The Central Mechanism

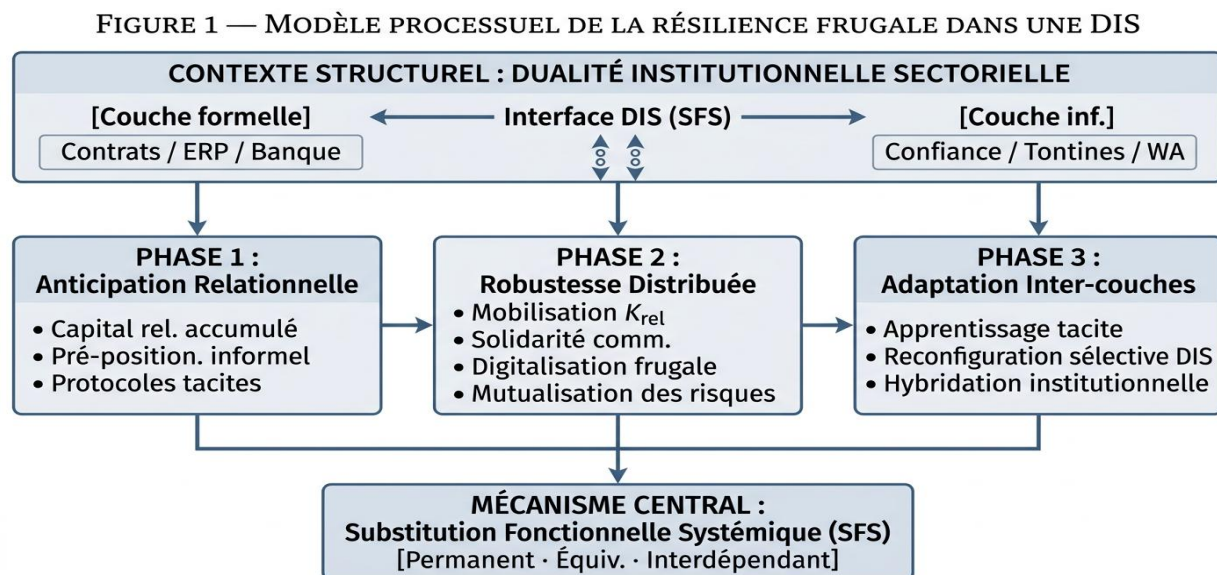
SFS is defined as the process by which organizations within a SID develop, institutionalize, and maintain functional equivalents to formal institutional mechanisms, drawing on relational, communal, and lightweight technological resources in a structural manner. SFS is set apart from ad hoc substitutions by three

necessary and jointly sufficient properties. Structural permanence means that the substitution mechanisms are institutionalized and anticipated, not improvised under duress. Functional equivalence means that they fulfil the same economic functions as the absent formal institutions (commitment enforcement, uncertainty reduction, coordination) without assuming their legal form. Systemic interdependence means that the substitution mechanisms are embedded in the chain's overall architecture, such that their removal would structurally degrade performance.

The concept draws theoretically on Dyer and Singh's (1998) relational resources (relation-specific assets, knowledge-sharing routines, effective governance, complementary resources), reinterpreted within the context of institutional asymmetry characteristic of SID. It extends and formalizes, at the meso-organizational supply chain level, the analysis by Portes and Haller (2005) of the functions performed by the informal economy. And it inverts the complementarity logic of Poppo and Zenger (2002), valid under institutional symmetry, to propose a substitution logic under conditions of structural asymmetry.

1.3.4 The Three-Phase Process Model

Frugal resilience emerges through a three-phase sequential process model, represented in Figure 1, with each phase activating mechanisms specific to the SID interface.



Source: Authors.

Phase 1 (Relational Anticipation). In the absence of formal early-warning systems and risk management protocols, organizations within a SID accumulate relational capital (a stock of mutual trust, reciprocal obligations, and shared norms across the inter-organizational network) as a strategic resilience reserve. This capital is built deliberately during periods of stability and drawn upon in times of crisis. Its concrete manifestations include the informal pre-positioning of stocks with trusted retailers, community-based relational alert systems, and tacit priority protocols for supply allocation during shortages. The critical

distinction from improvisation (Crossan & Vera, 2004) is that these practices are anticipatory and institutionalized, not conjured under pressure.

Phase 2 (Distributed Robustness). When a disruptive shock strikes, robustness is not centralized in formal buffer stocks or force majeure clauses; it is distributed across the informal network. Three mechanisms operate in concert. The mobilization of relational capital accumulated in Phase 1 leads informal partners to honor their tacit commitments beyond what any formal contractual obligation would require. Inter-layer community solidarity prompts actors in the informal layer to activate risk-pooling mechanisms grounded in communal, ethnic, or geographic belonging (Fafchamps, 2004). Frugal digitalization (WhatsApp groups, SMS, mobile money transfers) constitutes a substitute coordination infrastructure when formal logistics information systems are unavailable or inoperative (Malik et al., 2021), with the critical caveat that Domingues et al. (2026) emphasize: digitalization can reproduce institutional voids if it imposes transparency logics incompatible with informal norms.

Phase 3 (Inter-Layer Adaptation). The post-shock phase is characterized not by a return to the pre-disruption state (engineering resilience, in the terms of Wieland & Durach, 2021) but by a selective reconfiguration of the SID interface. Organizations extract tacit learning from the crisis (Nonaka & Takeuchi, 1995; Argote, 2012), strengthen relational ties that proved reliable during the shock, and reorganize the informal governance architecture to improve future anticipatory capacity. Argote (2012) demonstrated that the retention and transfer of organizational knowledge constitute the primary determinant of long-term adaptive capacity, a mechanism of particular consequence within SID environments where knowledge is tacit and embodied in persons. This phase may lead to deliberate institutional hybridization (partial, selective formalization of certain informal mechanisms) without converging toward total formalization.

1.3.5 Analytical Vignette: BevCo Morocco as an Existence Proof

To anchor the theoretical framework in empirically plausible terrain (in the sense of an analytical vignette serving as an existence proof; Eisenhardt & Graebner, 2007), we draw on BevCo Morocco. This Moroccan FMCG company distributes its products through a network combining formally registered regional distributors with a dense mesh of retailers accounting for a substantial share of distributed volume. This configuration satisfies all four SID conditions: structural permanence attested over several decades, asymmetric access to formal institutions between distributors and retailers, and non-substitutable interdependence between the two layers.

During the Al Haouz earthquake of September 2023, formal logistics infrastructure (regional warehouses, primary roads, electronic payment systems) was partially disrupted across the provinces of Marrakech-Safi and Al-Haouz. Documented observations from the Moroccan FMCG sector indicate that supply continuity in affected zones was ensured largely through informal networks: trusted retailers accepted deliveries on relational trade credit without formal invoices, community coordination groups enabled stock rerouting, and mobile communication tools substituted for disabled logistics information systems. This vignette illustrates all three phases of the model (pre-crisis relational anticipation, distributed robustness during the shock,

inter-layer adaptation in the aftermath) and constitutes an existence proof of the theorised phenomenon, not a validation of the framework.

1.4 Theoretical Propositions and Research Agenda

1.4.1 Five Propositions with Observable Indicators

We formulate five falsifiable theoretical propositions in the sense of Sutton and Staw (1995), each accompanied by observable indicators enabling empirical testing, a critical lacuna in prior contributions on cognate topics (Andrews & Luiz, 2024, 2025).

Proposition P1 (Process Sequentially). *In a supply chain characterized by SID, frugal resilience emerges through a three-phase sequential process (relational anticipation → distributed robustness → inter-layer adaptation), with each phase conditioned by the successful activation of the preceding one.*

Observable indicators: (i) Documented chronology of mechanisms activated during historical crises, reconstructed through retrospective interviews and archival records; (ii) positive correlation between pre-crisis relational capital intensity and mobilization speed in Phase 2; (iii) absence of a functional Phase 3 in the absence of a prior Phase 1. **Recommended method:** Process case study (Langley, 1999); longitudinal archival analysis.

Proposition P2 (Systemic Functional Substitution). *Within a SID, relational governance acts as a systemic functional substitute for absent formal institutional mechanisms, fulfilling equivalent functions of commitment enforcement, uncertainty reduction, and inter-organizational coordination, rather than serving merely as a complement to formal governance (contra Poppo & Zenger, 2002).*

Observable indicators: (i) Logistics continuity performance uncorrelated with formal contractual density but positively correlated with relational intensity; (ii) maintenance or improvement of continuity during formal mechanism disruptions compensated by activation of relational mechanisms. **Recommended method:** Regression analysis on panel data; comparative multi-site case study.

Proposition P3 (Conditional Amplifying Role of Frugal Digitalization). *Frugal digitalization amplifies frugal resilience when it aligns with the relational logic of the informal layer, but undermines it when it imposes transparency, traceability, or standardization logics incompatible with the norms of informal governance (Domingues et al., 2026).*

Observable indicators: (i) Comparison of logistics continuity in SID configurations with digitalization aligned versus misaligned with informal norms; (ii) sustained adoption rates versus abandonment rates of digital tools deployed by formal layers within the informal layer. **Recommended method:** Longitudinal multi-case study; comparative quantitative survey.

Proposition P4 (Shock Intensity Threshold). *There exists a shock intensity threshold I beyond which the relational governance of the informal layer is overwhelmed, triggering a failure of frugal resilience and a necessary dependence on formal emergency mechanisms. The position of I varies positively with the intensity of relational capital accumulated in Phase 1.*

Observable indicators: (i) Identification of historical events exceeding versus falling below the threshold, documented collapse of informal resilience, and measurement of their characteristics; (ii) moderating variables including social capital density, depth of community solidarity mechanisms, and shock magnitude. **Recommended method:** Survival analysis; regression discontinuity on historical data from sectoral crises.

Proposition P5 (Vulnerability of Tacit Relational Memory). *Frugal resilience rests on a tacit relational memory (non-codified routines, personal networks, implicit knowledge) that simultaneously constitutes its principal strength (flexibility, contextual adaptation) and its principal structural vulnerability (sensitivity to turnover of key actors, attrition of personal networks).*

Observable indicators: (i) Measurement of resilience degradation following turnover of key actors who carry relational capital; (ii) network mapping before and after the departure of central actors; (iii) correlation between tacit codification density (informally documented procedures) and resilience maintained after turnover. **Recommended method:** Social network analysis (Uzzi, 1997); longitudinal ethnographic study (Argote, 2012).

Table 4 synthesizes the propositions and their falsification conditions.

Table 4: Proposition Matrix: Indicators and Methods

Proposition	Central mechanism	Principal indicator	Priority method	Falsifiability
P1 — Sequentially	Conditional relational capital	Crisis chronology	Process study (Langley, 1999)	Yes: absence of P3 without P1
P2 — SFS	Relational substitution	Relational intensity / continuity correlation	Panel / Comparative cases	Yes: complementarity detected
P3 — Conditional digitalization	Digital institutional alignment	Tool adoption / abandonment rate	Longitudinal multi-case	Yes: null or negative effect
P4 — Threshold /	Informal capacity exceeded	Documented collapse	Survival analysis	Yes: threshold not identifiable

Proposition	Central mechanism	Principal indicator	Priority method	Falsifiability
P5 — Tacit vulnerability	Relational capital turnover	Post-departure degradation	Ethnographic / SNA	Yes: resilience maintained after turnover

Source: Authors.

1.4.2 Boundary Conditions

The model is bounded by three conditions in the sense of Whetten (1989). First, it applies to contexts of structural SID satisfying conditions C1–C4, not to configurations of conjunctural or transitional informality. Second, it operates at the meso-organizational scale and does not purport to theorize individual resilience or national macroeconomic resilience. Third, its validity is conditional on a minimal level of communal social capital: in SID contexts where social ties are fragmented, SFS cannot operate.

1.4.3 A Three-Program Research Agenda

Propositions P1–P5 open a research program structured in three stages. The first program aims to validate P1 through P3 via comparative FMCG case studies across varied SID contexts (Morocco, Senegal, Ethiopia, Bangladesh, Peru), mobilizing the Gioia (2013) methodology for inductive theory building and the Eisenhardt and Graebner (2007) method for cross-case comparison. The second program targets the quantitative modelling of threshold I in P4 through longitudinal studies combining secondary data on disruptions with primary data on pre-shock relational capital. The third program pursues the ethnographic exploration of tacit relational memory in P5, deploying social network analysis (Uzzi, 1997) and extended participant observation within informal distribution networks.

1.5. Discussion

1.5.1 Theoretical Contributions

This article advances three principal theoretical contributions, each positioned against the gaps identified in the existing literature.

The first contribution is the conceptualization of Sectoral Institutional Duality (SID) as an autonomous meso-organizational theoretical construct. By distinguishing it from institutional voids (Khanna & Palepu, 2010), which conceptualize informality as a deficient state to be corrected through formalization, from Aoki's (2001) hybrid institutions, which operate at the macro-sectoral national level, and from Lewis's (1954) macroeconomic dualism, we offer a construct that is operationalizable at the supply chain scale, with precise and falsifiable existence conditions. This contribution responds to Essuman et al.'s (2026) call for an African grounding of operations and supply chain management theories and extends to the meso-chain

level the analyses of Portes and Haller (2005) on informal economies as functionally analogous institutional systems.

The second contribution is the development of frugal resilience as a theoretically distinct construct. By positioning it between engineering resilience (too anchored in the restoration of a formal equilibrium) and transformative resilience (too focused on global systemic reconfiguration), we identify an unoccupied theoretical space corresponding to the resilience of organizations operating within heterogeneous institutional interfaces. Table 3 formalizes this differentiation across three constitutive dimensions, meeting the demands of Sutton and Staw (1995) for theoretical precision. Frugal resilience theorizes and systematizes what Andrews and Luiz (2024, 2025) observe empirically without yet conceptually formalizing.

The third contribution is the formalization of Systemic Functional Substitution (SFS) as the central mechanism. By inverting the complementarity logic of Poppo and Zenger (2002) for contexts of structural institutional asymmetry, and by reinterpreting Dyer and Singh's (1998) relational resources within the SID context, we propose a precise mechanism (in the sense of Whetten (1989)) linking institutional context to resilience capabilities through observable processes. SFS extends and formalizes, at the meso-chain level, the analysis of Portes and Haller (2005) on the economic functions performed by the informal economy, thereby bridging a gap of some forty years between the economic sociology of informal economies and supply chain theory.

1.5.2 Managerial Implications

Three operational recommendations address managers of enterprises operating within SID contexts. The first is to invest strategically in relational anticipation during periods of stability, treating relational capital as a strategic asset to be built deliberately (through loyalty-building practices, community support, and reciprocity) on the same footing as formal safety stocks. The second is to manage tacit memory as a strategic asset, through deliberate practices of relational mapping, systematic mentoring, and partial documentation of informal coordination practices (Argote, 2012), without seeking to formalize the informal, which would destroy its adaptive flexibility. The third is to conceive frugal digitalization as a conditional amplifier (P3): to assess the institutional alignment of any digital tool with informal-layer norms before deployment, steering clear of tools that impose traceability or standardization incompatible with informal credit practices.

1.5.3 Policy Implications

Our principal caution is the following: policies of accelerated formalization targeting informal distribution circuits, often justified on fiscal or economic modernization grounds, risk destroying frugal resilience mechanisms without replacing them with equivalent formal ones. In the Moroccan context, policies aimed at formalizing retail trade (health regulations, fiscal registration of retailers) are liable to erode the relational capital accumulated in informal networks before formal institutional alternatives are sufficiently developed.

A more nuanced policy approach, grounded in deliberate institutional hybridization, ought to develop formal tools complementary to existing informal mechanisms rather than supplanting them.

1.5.4 Limitations

Three important limitations warrant candid acknowledgement. First, the article is purely conceptual: the propositions constitute theoretical hypotheses that remain to be tested empirically. The BevCo Morocco vignette is an analytical illustration of the existence-proof variety, not an empirical demonstration. Second, the model is developed principally from the literature on African and Moroccan contexts, which raises questions of transferability to other SID configurations (South Asia, Latin America, the Middle East). Third, the model is static in its structure: it theorizes frugal resilience mechanisms within a stable SID without theorizing the dynamics of SID evolution itself over the long term, a limitation that research program 2 and 3 of the agenda are designed to address.

1.6. Conclusion

This article has developed an original theoretical framework in response to a question that the mainstream supply chain resilience literature has not yet satisfactorily addressed: how does resilience emerge in supply chains structurally rooted in a formal–informal interface, in the absence of the institutional prerequisites that canonical frameworks take as given?

We have offered three interlocking theoretical contributions. Sectoral Institutional Duality (SID) provides an operationalizable meso-organizational construct for the study of supply chains in emerging markets, distinct from institutional voids (Khanna & Palepu, 2010), macro-national hybrid institutions (Aoki, 2001), and classical economic dualism (Lewis, 1954). Frugal Resilience occupies a hitherto unexplored theoretical space between engineering resilience and transformative resilience (Wieland & Durach, 2021), theorizing and systematizing what Andrews and Luiz (2024, 2025) observe empirically. Systemic Functional Substitution (SFS) specifies the central mechanism with sufficient rigor to meet the standards of theory construction (Whetten, 1989; Sutton & Staw, 1995), extending to the meso-chain level the analysis of Portes and Haller (2005).

The five propositions with their observable indicators constitute a structured research program whose empirical validation is indispensable. The call by Essuman et al. (2026) for an African grounding of operations management theories, and that of Wieland (2021) for a socio-ecological reconceptualization of resilience, converge on the need for a theoretical corpus capable of accounting for the institutional diversity of global supply chains. This article aims to contribute to that endeavor by offering a rigorous theorization of a phenomenon that billions of economic actors experience daily, and that the dominant theory, built on the implicit assumption of formalization, can neither yet apprehend nor adequately theorize.

1.7 References

Andrews, L. R. J., & Luiz, J. M. (2024). Conceptualizing institutional voids in terms of severity and how the home country affects this understanding. *Journal of Business Research*, 176, 114605.

- Andrews, L. R. J., & Luiz, J. M. (2025). Dynamic capabilities and the management of institutional voids: A case study of intra-African internationalization. *Thunderbird International Business Review*, 67(3), 313–327.
- Aoki, M. (2001). *Toward a comparative institutional analysis*. MIT Press.
- Argote, L. (2012). *Organizational learning: Creating, retaining and transferring knowledge*. Springer Science & Business Media.
- Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, 50(3), 329–366.
- Christopher, M., & Peck, H. (2004). Building the resilient supply chain. *International Journal of Logistics Management*, 15(2), 1–13.
- Crossan, M., & Vera, D. (2004). Theatrical improvisation: Lessons for organizations. *Organization Studies*, 25(5), 727–749.
- Domingues, I., Queiroz, M. M., & Wamba, S. F. (2026). Institutional voids in supply chains and digital transformation: Returning to the roots to reframe the future. *Management Review Quarterly*, 1–40.
- Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23(4), 660–679.
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50(1), 25–32.
- Essuman, D., Essien, A., Roehrich, J. K., Lam, H. K. S., Schleper, M. C., & Blome, C. (2026). Continental shift: Operations and supply chain management research from an African perspective. *International Journal of Operations & Production Management*, 46(13), 26–51.
- Fafchamps, M. (2004). *Market institutions in Sub-Saharan Africa: Theory and evidence*. MIT Press.
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15–31.
- Ivanov, D. (2020). Viable supply chain model: Integrating agility, resilience and sustainability perspectives — Lessons from and thinking beyond the COVID-19 pandemic. *Annals of Operations Research*, 319(1), 1411–1431.
- Kamalahmadi, M., & Parast, M. M. (2016). A review of the literature on the principles of enterprise and supply chain resilience: Major findings and directions for future research. *International Journal of Production Economics*, 171(1), 116–133.
- Khanna, T., & Palepu, K. G. (2010). *Winning in emerging markets: A road map for strategy and execution*. Harvard Business Press.

- Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management Review*, 24(4), 691–710.
- Lewis, W. A. (1954). Economic development with unlimited supplies of labour. *Manchester School of Economic and Social Studies*, 22(2), 139–191.
- Macaulay, S. (2018). Non-contractual relations in business: A preliminary study. In *The sociology of economic life* (pp. 198–212). Routledge.
- Macneil, I. R. (1982). *The new social contract: An inquiry into modern contractual relations*. *Ethics*, 93(1).
- Mair, J., & Martí, I. (2009). Entrepreneurship in and around institutional voids: A case study from Bangladesh. *Journal of Business Venturing*, 24(5), 419–435.
- Malik, K., Heeks, R., Masiero, S., & Nicholson, B. (2021). Digital labour platforms in Pakistan: Institutional voids and solidarity networks. *Information Technology & People*, 34(7), 1819–1845.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford University Press.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press.
- Ponomarov, S. Y., & Holcomb, M. C. (2009). Understanding the concept of supply chain resilience. *International Journal of Logistics Management*, 20(1), 124–143.
- Poppo, L., & Zenger, T. (2002). Do formal contracts and relational governance function as substitutes or complements? *Strategic Management Journal*, 23(8), 707–725.
- Portes, A., & Haller, W. (2005). The informal economy. In N. J. Smelser & R. Swedberg (Eds.), *The handbook of economic sociology* (2nd ed., pp. 403–425). Princeton University Press.
- Radjou, N., Prabhu, J., & Ahuja, S. (2012). *Jugaad innovation: Think frugal, be flexible, generate breakthrough growth*. John Wiley & Sons.
- Ruel, S., Zsidisin, G. A., & Blackhurst, J. (2026). A taxonomy of supply chain resilience. *International Journal of Production Research*, 1–24.
- Sutton, R. I., & Staw, B. M. (1995). What theory is not. *Administrative Science Quarterly*, 40(3), 371–384.
- Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42(1), 35–67.
- Whetten, D. A. (1989). What constitutes a theoretical contribution? *Academy of Management Review*, 14(4), 490–495.
- Wieland, A. (2021). Dancing the supply chain: Toward transformative supply chain management. *Journal of Supply Chain Management*, 57(1), 58–73.

Wieland, A., & Durach, C. F. (2021). Two perspectives on supply chain resilience. *Journal of Business Logistics*, 42(3), 315–322.

Wieland, A., & Wallenburg, C. M. (2013). The influence of relational competencies on supply chain resilience: A relational view. *International Journal of Physical Distribution & Logistics Management*, 43(4), 300–320.