



Jugaad as Scarcity-Induced Ingenuity at the Bottom of the Pyramid

Jayashree Sutar* and Srabanti Mukherjee

Indian Institute of Technology Kharagpur, India

Abstract

Purpose: This paper aims to reconceptualize jugaad, the colloquial Indian notion of an improvised fix, as a manifestation of consumer scarcity-induced ingenuity, extending its conceptualization beyond firm-level frugal innovation to the everyday adaptive practices of bottom-of-the-pyramid (BOP) consumers. By doing so, it fills a significant theoretical gap in understanding improvisation as a survival-oriented consumer capability in the context of chronic resource scarcity. **Design/Methodology/Approach:** Drawing on scarcity theory and consumer vulnerability research, and the nascent literature on informal circular economies, we develop a theoretically grounded process model. The model articulates structural antecedents, adaptive mechanisms, and dual-level outcomes of consumer jugaad, accompanied by formal propositions. **Findings:** Chronic resource constraints, including poverty, market exclusion, institutional distrust, and urgent unmet needs, trigger a repertoire of ingenuity mechanisms: cognitive reframing of deficits, functional repurposing of objects, informal social exchange, risk recalibration under desperation, and labor substitution. These practices yield individual-level benefits (immediate utility, enhanced self-efficacy, and skill accumulation) but simultaneously reinforce systemic informality and structural exclusion. Jugaad is further shown to constitute a grassroots enactment of circular economy principles, preceding and often outpacing formal sustainability interventions. **Originality/Value:** This paper makes the first explicit theoretical integration of scarcity theory and consumer ingenuity at the BOP, repositioning poor consumers as strategic cognitive agents rather than passive beneficiaries. Implications are drawn for inclusive market design, BOP-oriented marketing strategy, circular economy policy, and financial inclusion.

Keywords: Jugaad, Scarcity-induced ingenuity, Consumer vulnerability, Informal economy, BOP consumer behaviour

1. Introduction

Across the Global South and other structurally marginalized regions, hundreds of millions of households navigate daily life under conditions of chronic material constraint. Consumers at the bottom

of the pyramid (BOP), those subsisting on incomes below \$8 per day in purchasing power parity terms, face not merely low incomes but compounding structural vulnerabilities: restricted access to formal credit and insurance, physical distance from retail infrastructure, limited product experience and literacy, and deep-seated institutional distrust (Mukherjee et al., 2020; Hill & Sharma, 2020). These structural conditions generate a particular form of consumer behavior that is simultaneously creative and constrained, a mode of consumption that requires constant improvisation to transform inadequate resources into acceptable outcomes.

The colloquial Hindi concept of *jugaad* captures something essential about this lived reality. Literally meaning a workaround or improvised fix, *jugaad* has gained considerable scholarly and practitioner attention over the past two decades, primarily as a metaphor for frugal innovation and grassroots entrepreneurship (Radjou et al., 2012; Singh et al., 2012). Business literature celebrates it as a strategy for creating cost-effective products and services in resource-constrained environments, and the term has been adapted into management frameworks for emerging markets and even developed-economy settings (Escudero-Cipriani et al., 2024). However, this dominant framing is decisively firm-centric: it treats *jugaad* as a production and innovation phenomenon rather than examining how ordinary consumers routinely improvise to navigate scarcity in their daily consumption.

Notably, this firm-centric framing has developed largely in isolation from adjacent literatures that theorize improvisation and resourcefulness directly at the household or individual level. Household production economics (Becker, 1965) formally models how households substitute their own time and labor for purchased market goods when income is constrained, a mechanism directly analogous to *jugaad*'s labor-substitution behaviors but developed without reference to BOP consumption or chronic scarcity. The anthropology and organization theory of bricolage (Lévi-Strauss, 1967; Baker & Nelson, 2005) independently theorize how actors recombine whatever materials are at hand to solve problems, capturing the same cognitive logic as *jugaad*'s reframing of deficits as resources. Yet, this tradition has been applied almost exclusively to firms and entrepreneurs rather than to individual consumers or households under survival-level constraints. Because neither literature has been connected to BOP consumer research, or to each other, the specific mechanisms they formalize, time-for-goods substitution and resource recombination, have not previously been assembled into a unified account of everyday consumer *jugaad*, a disconnect this paper aims to repair.

This analytical gap is significant for several reasons. First, it renders invisible the cognitive and behavioral sophistication embedded in everyday consumption for survival at the BOP, a phenomenon that is highly prevalent and theoretically rich. Second, by focusing on firms and entrepreneurs, extant scholarship implicitly portrays BOP consumers as the objects of frugal innovation rather than its agents. This reproduces problematic power asymmetries in the theorization of poverty in consumer research (Kaur, 2016; Landrum, 2020). Third, the mechanisms through which scarcity shapes consumer cognition, including tunneled attention, trade-off amplification, and creative reframing, remain underexplored in the context of informal and improvised consumption (De Bruijn & Antonides, 2021; Mullainathan & Shafir, 2013). Fourth, because *jugaad* routinely substitutes uncertified labor, repairs, and materials for regulated-market goods, it also raises safety and risk-governance questions that have been examined in the product-safety and informal-market regulation literature but have not been connected to consumer-level theorizing of *jugaad* itself.

This literature documents that formal consumer-protection frameworks are weakest precisely where informal markets are largest: a substantial share of UN member states still lack adequate legal frameworks for consumer product safety (United Nations Conference on Trade and Development, 2025), and in food markets specifically, the majority of foodborne-disease

burden in low- and middle-income countries originates in informal or unregulated channels (Grace, 2015). This means that the risks BOP consumers accept when they adopt improvised solutions, such as unlicensed medication, informal electrical repairs, or food from unregulated vendors, are not merely a matter of individual risk tolerance but occur within a documented, structural regulatory vacuum.

We address this gap by proposing a theoretically grounded reconceptualization: *jugaad* as consumer scarcity-induced ingenuity. This framing draws on scarcity theory and the consumer vulnerability literature to specify the antecedents, mechanisms, and outcomes of improvisational consumption at the BOP. In doing so, we advance three primary objectives: (1) to identify the structural and contextual conditions that give rise to consumer *jugaad*; (2) to articulate the cognitive and behavioral mechanisms through which poor consumers adapt under scarcity; and (3) to examine the outcomes of such acts.

The remainder of the paper proceeds as follows. Section 2 critically reviews the relevant literature on BOP consumption, scarcity, and consumer decision-making, and informal marketplace navigation, identifying key theoretical tensions and gaps. Section 3 discusses the methodology. Section 4 develops the conceptual framework, presenting structural antecedents, mechanisms, and outcomes of consumer *jugaad* along with formal research propositions. Sections 5 through 8 outline theoretical contributions, managerial and policy implications, and a future research agenda. Section 5 provides the conclusion.

2. Literature Review

2.1 BOP Consumer Research: Vulnerability, Constraint, and Creative Coping

The BOP concept, introduced by Prahalad & Hart (2002) and popularized through Prahalad's (2004) seminal work, originally framed the world's poorest consumers as an untapped commercial opportunity, a multi-trillion-dollar market awaiting corporate engagement. While this framing galvanized both academic and practitioner interest in low-income markets, it has since attracted sustained critical scrutiny for its tendency to misrepresent BOP consumers as a homogeneous market segment ready-made for corporate solutions (Landrum, 2020; Piacentini & Hamilton, 2013). A more nuanced body of literature has since emerged, foregrounding consumer vulnerability, structural exclusion, and the complex everyday strategies through which poor households manage constrained circumstances (Hill & Sharma, 2020; Mukherjee et al., 2020).

Consumer vulnerability at the BOP is multidimensional. It encompasses not only income poverty but also limited financial literacy, restricted access to formal retail and credit systems, and reduced capacity to evaluate market information, a composite of deprivations that Mukherjee et al. (2020) operationalize as poverty-induced vulnerability to marketplace deception. Volatile income streams (derived from daily labor, seasonal agriculture, or piece-rate work) render consumption planning extraordinarily difficult; any exogenous shock, illness, crop failure, or price spike can precipitate acute deprivation (Srivastava et al., 2025). Under these conditions, the household becomes a site of constant resource management, requiring sophisticated trade-off calculations that formal economic models of rational consumption systematically fail to capture.

The empirical literature documents a diverse repertoire of coping strategies among low-income households. These include unit-level disaggregation of purchases (buying single cigarettes, sachets of shampoo, or individual eggs rather than standardized quantities) to match consumption to available cash flows (Amendah et al., 2014); intensive repair and maintenance of durable goods to extend product life cycles beyond manufacturer-intended timelines; systematic substitution of inferior goods as income falls (switching from full meal to staple

carbohydrates in the final days of a pay cycle); and informal borrowing from shopkeepers, neighbors, or rotating savings clubs (Mukherjee & Datta, 2024; Yang et al., 2024). These are not isolated acts of desperation but rather structured, socially embedded adaptations that constitute what we term the everyday *jugaad* repertoire.

Critically, existing BOP consumer research has undertheorized the cognitive and behavioral architecture of these adaptations. While the empirical patterns are well documented, the theoretical mechanisms linking structural scarcity to specific improvisational behaviors remain underexplored. Moreover, as Coker et al. (2024) observe, consumer improvisation, despite being documented across contexts ranging from wartime rationing to pandemic-era stockpiling, remains a theoretically underdeveloped construct in the broad consumer behavior literature. Our framework explicitly fills this gap by theorizing the mechanisms through which structural scarcity gives rise to consumer *jugaad*.

2.2 Scarcity Theory and its Implications for Consumer Behavior

The psychology of scarcity has emerged as one of the most generative frameworks for understanding how resource constraints shape cognition, motivation, and decision-making. The foundational work of Mullainathan & Shafir (2013) establishes that the experience of having less than one needs, whether money, time, food, or social connection, induces a characteristic cognitive state: scarcity captures mental bandwidth, producing tunneled attention on the immediate deficit and impairing executive functions such as planning, impulse control, and abstract reasoning. This “bandwidth tax” helps explain apparently counterproductive behaviors among people experiencing poverty, such as high time-discounting rates, inattention to preventive healthcare, and susceptibility to predatory lending, which reflect cognitive load (Schofield & Venkataramani, 2021).

Subsequent empirical work has refined this framework. De Bruijn & Antonides (2021) demonstrate in their review paper that scarcity effects on decision-making are sensitive to whether scarcity is chronic versus temporary, anticipated versus unanticipated, and to whether the individual perceives any potential for escape. Chronic scarcity, the condition of BOP consumers, produces qualitatively different cognitive effects than acute or situational scarcity: rather than simply narrowing attention, it restructures cognitive heuristics, alters reference points for evaluating trade-offs, and reshapes time preferences in ways that may persist even when resources temporarily improve. A particularly important finding for our framework is that while moderate scarcity induces risk aversion (protecting the little one has), extreme scarcity crossing a perceived survival threshold can paradoxically increase risk tolerance, the “nothing to lose” effect documented by De Courson et al. (2025).

Critically, the scarcity literature has predominantly characterized these cognitive effects as impairments or deficits relative to a hypothetical unconstrained decision-maker. We argue that this framing needs further advancement. Scarcity does not merely impair cognition; it also redirects and intensifies it, fostering creative problem-solving and novel resource-allocation strategies. The “focusing effect” that Mullainathan & Shafir (2013) describe as a liability-tunneling attention on immediate concerns can equally function as an asset when applied to immediate survival needs: it concentrates cognitive resources on finding solutions to urgent problems with available materials, which is precisely the cognitive substrate of *jugaad*. Recent work by Zhu et al. (2025), examining decision-making during COVID-19 lockdowns, contexts of acute resource scarcity, provides indirect support for this dual-effect view, finding that perceived scarcity was associated with both cognitive impairment and heightened attention to resource management. Our framework builds explicitly on this adaptive dimension of scarcity cognition.

2.3 Household Production, Labor Substitution, and the Economics of Time

A body of literature largely absent from prior treatments of *jugaad* but directly relevant to it is the economics of household production and time allocation. Becker's (1965) theory of the allocation of time models the household as a production unit that combines purchased market goods with the household's own time and labor to generate the commodities from which it derives utility, rather than treating consumption and labor supply as separate, independent choices. This framework establishes that when market goods or the cash required to buy them are scarce, households can substitute their own time and labor as inputs, shifting the production of desired outcomes (meals, repaired equipment, transported goods) away from the market and into the home or the informal sector.

This literature is directly relevant to *jugaad*'s labor-substitution mechanism: what Becker's framework formalizes as a shadow-price trade-off between purchased goods and household time is, at the BOP, an intensified and often survival-driven version of the same allocation problem, in which the extremely low opportunity cost of labor relative to scarce cash makes labor substitution the economically rational path even at high physical or time cost. However, household production theory was developed primarily for relatively resourced households facing ordinary labor-leisure trade-offs; it does not, on its own, theorize the psychological state of scarcity (Mullainathan & Shafir, 2013) or the improvisational, materially creative dimension of BOP adaptation that *jugaad* captures. Integrating household production economics with scarcity theory, therefore, strengthens the theoretical grounding of the labor-substitution mechanism while clarifying what is distinctive about *jugaad*: it is not simply time-for-goods substitution under a standard budget constraint, but such substitution compounded by cognitive tunneling, urgency, and material improvisation.

2.4 Anthropology and Organization Theory of Bricolage

The concept of bricolage has developed largely independently of BOP consumer research, but it speaks directly to *jugaad*'s cognitive mechanism. Lévi-Strauss (1967) originally described the *bricoleur* as one who works with whatever materials are already at hand, repurposing and recombining available objects to solve a problem, in contrast to the engineer who designs a bespoke solution from purpose-selected materials. This concept was subsequently adapted into organization and entrepreneurship theory by Baker and Nelson (2005), who define entrepreneurial bricolage as "making do by applying combinations of the resources at hand to new problems and opportunities," documenting how resource-constrained firms recombine underutilized or discarded inputs to create novel value.

Both *jugaad* and bricolage describe the reinterpretation of the functional affordances of available materials rather than the acquisition of purpose-fit resources. However, bricolage research has been developed almost entirely at the level of firms and entrepreneurs operating under resource constraints, leaving open whether, and how, the same cognitive logic operates among individual consumers and households facing chronic, survival-level scarcity rather than organizational resource constraints. Drawing on this literature allows us to ground the cognitive-reframing mechanism in an established theoretical vocabulary while extending its application from organizational to everyday consumer contexts.

2.5 Informal Markets, Social Networks, and Necessity-Driven Circular Economies

Formal market structures systematically exclude large proportions of BOP populations. This exclusion, however, does not eliminate market activity; it displaces it into the informal economy, where BOP consumers constitute both the primary demand base and, frequently, significant supply-side participants

as micro-entrepreneurs, traders, and service providers (Narayanan, 2019; Horodnic et al., 2022). The informal economy, characterized by unregistered transactions, personalized trust-based exchange, and absence of formal contractual enforcement, is thus not a peripheral or transitional phenomenon but the primary marketplace for a substantial portion of the world's consumers.

Research on informal market behavior highlights the centrality of social capital as both a substitute for and complement to formal institutional infrastructure (Yang et al., 2024). In communities characterized by high social capital, informal labor-sharing arrangements, and tool-lending networks, these arrangements effectively pool scarce resources and reduce individual exposure to consumption risk. Horodnic et al. (2022), analyzing informal-economy purchasing behavior, find that it is motivated not merely by price but also by social norms, peer observation, and perceived failures of formal-market provision. This finding complicates simple rational-actor models and highlights the social embeddedness of informal consumption. The normative legitimacy of informal solutions such as *jugaad* is sustained through peer networks. When community members observe neighbors engaging in improvised consumption practices and receiving acceptable outcomes, informal solutions become collectively endorsed as rational responses to structural exclusion (Sutar & Mukherjee, 2026).

A conceptually important strand of this literature concerns the intersection of informal consumption with circular economy (CE) principles. Korsunova et al. (2022), in a theoretically rich analysis, introduce the concept of the “necessity-driven circular economy,” a system of locally embedded practices in low-income communities that retains and restores value in goods through intensive repair, reuse, repurposing, and informal remanufacturing practices driven by economic necessity rather than environmental consciousness. This analysis reveals a significant theoretical tension: BOP communities routinely enact CE principles (reduce, reuse, repair, recycle) at a scale and intensity that would be celebrated if undertaken by formal sustainability initiatives, yet they remain largely invisible to mainstream CE scholarship and policy, which focuses on firm-level and technological interventions. Our framework explicitly bridges this gap by positioning consumer *jugaad* as a form of bottom-up circular-economy practice with both individual- and systemic-level implications.

2.6 Consumer Safety and Risk Regulation in Informal Consumption

Because *jugaad* routinely substitutes uncertified repairs, unregulated substitutes, or informal service provision for regulated-market goods and services, it intersects directly with the literature on product safety and informal-market regulation. This literature documents that formal consumer-protection and product-safety frameworks are systematically weaker where informal markets are largest: United Nations Conference on Trade and Development (2025) estimates that a substantial proportion of UN member states still lack adequate legal frameworks for consumer product safety, a gap concentrated in the low- and middle-income countries where informal and second-hand markets are most prevalent. In the specific domain of food safety, Grace (2015) shows that the bulk of the foodborne disease burden in low- and middle-income countries originates in informal markets that escape effective health and safety regulation, precisely the channels through which BOP consumers meet everyday needs when formal provision is inaccessible. Safety-regulation research has, however, been conducted almost entirely from a regulatory or public-health perspective, treating informal-market risk as a governance failure to be corrected rather than as an input into consumer decision-making under scarcity.

2.7 Circular Economy Consumer Research

Beyond the necessity-driven CE literature discussed in Section 2.5, a substantially larger body of mainstream circular economy consumer research has developed around consumers' reduce-

reuse-repair-recycle behaviors in formal, typically higher-income markets. Systematic reviews of this literature (Vidal-Ayuso et al., 2023) identify consumer behavior, purchase intention toward sustainable and remanufactured products, product lifetime and reparability, and engagement with recycled materials as the dominant research streams, generally framing CE participation as a discretionary, values- or incentive-driven choice undertaken by consumers who could otherwise purchase new, formally provisioned products.

This body of work stands in instructive contrast to necessity-driven CE practice at the BOP. Where mainstream CE consumer research treats repair, reuse, and repurposing as pro-environmental or cost-saving choices layered onto an otherwise adequately resourced consumption pattern, *jugaad* enacts as non-discretionary survival responses to structural exclusion from formal markets altogether. The two literatures have developed largely without reference to one another, despite describing overlapping behavioral repertoires under very different motivational and structural conditions. Bringing mainstream CE consumer research into dialogue with the necessity-driven CE and *jugaad* literatures clarifies that circularity outcomes can arise from opposite ends of the resource spectrum, an insight with direct implications for how policymakers and firms interpret, measure, and support circular consumption practices across income segments.

2.8 Critical Gaps in the Existing Literature

While the informal economy literature has extensively examined supply-side actors, its treatment of demand-side behavior, who buy from informal markets and why, and how consumer choices sustain and transform informal value chains, remains underdeveloped. Integrating a consumer-centered perspective with institutional analyses of the informal economy opens important theoretical territory for understanding how poor consumers both depend on and reproduce the structural conditions of their own marginalization, what we term the systemic entrenchment pathway in our outcome model.

The product-safety/risk-regulation literature and the mainstream circular-economy consumer literature have each developed in isolation from BOP consumer research, despite both directly bearing on the risks and circularity outcomes that *jugaad* produces. Neither literature currently theorizes *jugaad* as a unifying construct linking regulatory risk exposure, circular resource use, and consumer-level scarcity cognition. Our framework closes this gap by drawing these four literatures: household production economics, bricolage theory, safety/risk regulation, and CE consumer research, into an integrated account of consumer *jugaad*, alongside the BOP and scarcity literatures already established as central to this domain.

3. Methodology: Conceptual Synthesis

This paper conceptualizes *jugaad* not as a firm-level strategy but as consumer-scarcity-induced ingenuity. As a conceptual study, the methodology centers on the critical integration of extant literature to develop a theoretically grounded process model. This is structured around four core methodological steps: specification of literature search scope and criteria, theoretical anchoring, literature synthesis, and proposition development.

3.1 Literature Search Scope and Criteria

To ensure methodological transparency, this section specifies the scope, sources, and criteria used to identify and select the literature synthesized in Section 2. Given that the paper's contribution is conceptual and integrative rather than a systematic review, the search was designed as a purposive, scoped narrative synthesis across the specific literatures judged

theoretically necessary to ground each component of the process model, rather than an exhaustive review of any single field.

Databases and sources. Literature was identified through Scopus, Web of Science, and Google Scholar, supplemented by targeted searches of leading journals in consumer research (e.g., *Journal of Consumer Research*, *Journal of Consumer Psychology*, *Journal of Public Policy & Marketing*), management and entrepreneurship (e.g., *Administrative Science Quarterly*, *Journal of Business Venturing*), development economics (e.g., *Economic Journal*, *World Development*), and sustainability/circular economy (e.g., *Journal of Cleaner Production*), as well as reports from relevant international bodies (e.g., United Nations Conference on Trade and Development) for regulatory and safety context.

Search terms. Search strings combined the focal construct with each literature domain, for example: “*jugaad*” OR “frugal innovation” AND “consumer”; “scarcity” AND “decision-making” OR “cognition”; “household production” OR “time allocation”; “bricolage” AND “entrepreneur” OR “resourcefulness”; “informal market” AND “consumer safety” OR “product safety” OR “risk regulation”; “circular economy” AND “consumer behavior” OR “reuse” OR “repair”; “bottom of the pyramid” OR “BOP” AND “consumer vulnerability.”

Timeframe. No fixed start date was imposed, given that several foundational sources (e.g., Lévi-Strauss, 1967; Becker, 1965; Baker & Nelson, 2005) are deliberately included as originating theory; empirical and applied sources were prioritized from the last decade (2015 onward), with more recent sources (2020 onward) emphasized wherever available to ensure currency.

Inclusion criteria. Sources were included if they (a) theorized or empirically examined resource-constrained decision-making, improvisation, or resourcefulness at the individual, household, or organizational level; (b) addressed BOP or low-income consumer behavior, informal markets, or informal economy participation; (c) addressed circular economy practices relevant to reuse, repair, or repurposing; or (d) addressed product safety or risk regulation in informal or low-income market contexts. Both conceptual/theoretical and empirical papers were included, given the paper’s theory-building objective.

Exclusion criteria. Sources were excluded if they addressed frugal innovation exclusively at the firm or product-design level without connecting to consumer- or household-level behavior, or were not accessible in English.

Selection and synthesis process. Titles and abstracts of records returned by the searches above were screened for relevance to the inclusion criteria; full texts of retained records were then read to assess theoretical fit with the process model’s antecedents, mechanisms, or outcomes. Given the integrative, multi-domain nature of the contribution, snowball sampling (tracing citations within highly relevant papers, e.g., from Baker & Nelson, 2005, to earlier bricolage sources; from Mullainathan & Shafir, 2013, to subsequent scarcity studies) was used to identify foundational and connecting sources not captured by keyword search alone. This scoped, purposive approach is consistent with established practice for theory-building and conceptual-integration papers, which prioritize theoretical relevance and coverage across the domains being bridged over exhaustive enumeration within any one domain.

3.2 Theoretical Anchoring

To address the theoretical lacuna regarding how marginalized consumers deploy *jugaad* as a survival repertoire, this paper anchors its conceptual development in distinct literature domains. Scarcity Theory and Consumer Vulnerability were utilized to understand how chronic resource constraints induce specific cognitive states, such as attentional tunneling, and dictate adaptive

consumption behaviors. In this regard, BOP Consumer Research was examined to identify the specific structural conditions, such as market exclusion, chronic poverty, and institutional distrust, that force everyday adaptive consumption.

3.3 Literature Synthesis and Gap Identification

The study systematically reviews and synthesizes research across BOP consumption, scarcity, household production, bricolage, informal marketplace navigation, and its safety implications, and circular economy consumer research to identify key theoretical tensions. By cross-examining these literature streams, the analysis reveals that existing business literature predominantly frames *jugaad* as a production and innovation phenomenon, thereby neglecting its role in everyday cognitive and behavioral consumer adaptation, and that literatures capable of illuminating this role (household production economics, bricolage theory, safety regulation, CE consumer research) have developed largely without reference to BOP consumer behavior. This synthesis justifies shifting the analytical focus away from the standard entrepreneurial lens toward the consumer's cognitive and behavioral processing, integrated with these adjacent literatures..

3.4 Model Construction and Proposition

Building on the identified theoretical gaps, the final methodological step is to construct a three-component process model. The conceptual framework logically connects the synthesized concepts by articulating the structural antecedents, adaptive mechanisms, and dual-level outcomes of consumer *jugaad*. To provide testable theoretical trails for future empirical research, these synthesized relationships are subsequently formalized into a series of formal proposition.

4. A process Model of Consumer *Jugaad*

We now develop a three-component process model linking structural antecedents, adaptive mechanisms, and dual-level outcomes of consumer scarcity-induced ingenuity at the BOP. The model is theoretically grounded in the literature reviewed above and is accompanied by formal propositions that specify the key relationships and their expected boundary conditions.

4.1 Antecedents: structural conditions enabling *jugaad*

Scarcity theory is unambiguous that the experience of resource insufficiency is not merely an objective economic condition but a psychological state with specific cognitive consequences (Mullainathan & Shafir, 2013). Translating this to the BOP context, we identify five structural antecedents that collectively create the conditions under which consumer *jugaad* emerges as a systematic behavioral repertoire.

4.1.1 Chronic Income Poverty and Income Volatility

When households consistently lack sufficient income to meet basic needs through formal market channels, and when income streams are unpredictable (as with day labor or seasonal agricultural work), the household faces not merely a budget constraint but a resource regime in which *jugaad* is continuously incentivized. De Bruijn and Antonides (2021) show that long-term scarcity alters human decision-making much more deeply than temporary shortages. This explains why BOP consumers are highly driven to adopt the resourceful behaviors proposed in our framework.

4.1.1.1 Market Exclusion and Formal Channel Inaccessibility

When formal retail, credit, healthcare, or service channels are physically inaccessible (due to distance, infrastructure deficits), financially inaccessible (due to minimum transaction requirements or collateral demands), or socially inaccessible (due to literacy requirements or discriminatory service provision), BOP consumers have no alternative but to improvise within the informal economy. This exclusion is not incidental but systemic, reflecting the structural organization of markets around consumer profiles that, by design, exclude the poor (Landrum, 2020).

4.1.2 Institutional Distrust

When consumers have accumulated experience with formal institutional failure through corrupt bureaucracies, predatory lenders, or exploitative formal retailers, they develop generalized distrust that preempts formal channels as viable options, regardless of their technical availability. Horodnic et al. (2022) find that low institutional trust is one of the strongest predictors of informal economy participation, and that this effect is amplified by perceived social norms around informality. In the context of our framework, institutional distrust functions as a cognitive permission structure that lowers the threshold for engaging in improvised and informal consumption practices.

4.1.3 Urgent and Non-Negotiable Needs

Urgent and non-negotiable needs constitute the fourth antecedent, operating through the mechanism of attentional tunneling. When a need is both acute and non-deferrable, such as hunger, a medical emergency, or the absence of fuel for cooking, the cognitive tunneling described by Mullainathan & Shafir (2013) becomes most acute, concentrating all available cognitive resources on finding an immediate solution regardless of its quality, safety, or long-term cost. This urgency-induced focus is a critical precondition for *jugaad*: it is the cognitive mechanism that transforms the abstract imperative to improvise into a concrete behavioral program.

4.1.4 Social Capital and Network Embeddedness

Social capital and network embeddedness constitute the fifth antecedent, functioning as a critical enabler of *jugaad* rather than a trigger. Yang et al. (2024) demonstrate that social capital significantly buffers income shocks among rural households by facilitating collective coping strategies; in the context of *jugaad*, dense social networks serve as repositories of *jugaad* knowledge (community members share repair techniques and workarounds), platforms for informal resource exchange (tool lending, labor sharing), and normative frameworks that legitimate and sustain improvised solutions (Sutar & Mukherjee, 2026). Communities with higher social capital thus exhibit more sophisticated, diverse, and socially coordinated *jugaad* repertoires. Collating all these, we posit:

Proposition 1a: The structural condition of scarcity (comprising chronic poverty, market exclusion, institutional distrust, and urgent needs) positively influences a BOP consumer's propensity to deploy *jugaad* in consumption.

Proposition 1b: Social capital density positively moderates the relationship between the structural condition of scarcity and *jugaad* deployment; specifically, higher social capital amplifies the likelihood of this behavior.

4.1.5 Mechanisms: The Cognitive and Behavioral Architecture of Consumer *Jugaad*

Building on the antecedent conditions, we specify four core mechanisms that constitute the behavioral and cognitive repertoire of consumer scarcity-induced ingenuity. These mechanisms are not independent; they are interrelated adaptive processes that BOP consumers deploy, often simultaneously, to navigate resource constraints.

4.1.5 Cognitive Reframing of Deficits as Opportunities

The first mechanism is fundamentally cognitive: the systematic reinterpretation of material deficits, broken objects, and waste as resources with latent utility. A cracked plastic container becomes a planter; a discarded tire becomes playground equipment; obsolete electronic components are repurposed for alternative uses. This reframing process is consistent with the “positive reappraisal” coping strategy identified in the psychological literature (Lazarus & Folkman, 1984) but extends it into the material domain of consumption: rather than reinterpreting the emotional meaning of a stressor, the *jugaad* consumer reinterprets the functional affordances of available materials.

Critically, this reframing is not random creative thinking but is constrained and directed by the specific unmet need that triggers *jugaad* behavior. The cognitive tunneling induced by scarcity (Mullainathan & Shafir, 2013) is not merely a liability that narrows attention but also an asset that concentrates cognitive effort on the specific problem at hand, increasing the likelihood of identifying non-obvious material solutions.

Proposition 2: Under conditions of scarcity, BOP consumers will systematically reframe perceived material deficits as resources with alternative functional value.

4.1.6 Informal Social Exchange and Resource Pooling

The second mechanism shifts from individual to collective adaptation: BOP consumers systematically leverage social networks to redistribute, share, and collectively access resources that no individual household could sustain on its own. This includes bartering labor for goods, collectively purchasing inputs at wholesale prices, lending and borrowing tools and equipment, and sharing transportation to distant markets. These arrangements transform the individual’s resource constraint into a collective resource pool, dramatically expanding the range of consumption possibilities available to each participating household.

The theoretical underpinning of this mechanism draws on both social capital theory (Putnam, 2000) and the institutional economics of informal exchange. Yang et al. (2024) demonstrate that social capital significantly mediates the relationship between income shocks and household resilience, operating through informal resource pooling. From a self-determination theory (SDT) perspective (Deci & Ryan, 2000), participation in these exchange networks also fulfills the basic psychological need for relatedness, social connection, and belonging, thereby providing motivational resources that support continued engagement in collective *jugaad*.

Proposition 3: In response to resource constraints, BOP consumers will organize and participate in informal social exchange networks that collectively provide access to goods, services, and financial resources that individual households cannot independently acquire.

4.1.7 Risk Recalibration under Desperation

The third mechanism concerns the dynamic adjustment of risk tolerance in response to escalating scarcity. As established by De Courson et al. (2025) in the desperation threshold model, the relationship between resource scarcity and risk preference is non-monotonic: moderate scarcity induces risk

aversion (protecting what little one has), while extreme scarcity crossing a survival threshold induces risk tolerance (as the downside of risky action becomes no worse than the status quo). For BOP consumers, this has direct behavioral implications: as needs become more acute and alternatives become more constrained, consumers are willing to adopt improvised solutions that carry significant quality, safety, or social risks, such as using unlicensed medications, workaround electrical connections, or informal credit from predatory lenders.

This mechanism is theoretically important because it challenges simplistic characterizations of poor consumers as either uniformly risk-averse or uniformly risk-seeking. Instead, our framework predicts that risk preferences in *jugaad* contexts are dynamically calibrated to the severity of unmet need relative to a survival threshold, producing a conditional relationship that depends on the nature and urgency of the need being addressed.

Proposition 4: The relationship between resource scarcity and risk tolerance in *jugaad* behavior follows a non-monotonic pattern: moderate scarcity yields risk-averse improvisation, while extreme scarcity that crosses a perceived survival threshold yields risk-tolerant improvisation. This moderation effect will be strongest for need categories with the highest perceived urgency (health, nutrition, shelter).

4.1.8 Labor Substitution for Market Goods

The fifth mechanism concerns the systematic substitution of time and physical labor for market-purchased goods and services. When cash is unavailable, BOP consumers invest effort instead: walking long distances to cheaper markets, manually processing produce that wealthier consumers buy ready-made, cultivating kitchen gardens, or performing household construction and repair without professional help. This labor substitution effectively treats time and effort as a currency that can be exchanged for consumption value when monetary currency is unavailable. From a welfare perspective, labor substitution carries high costs: it consumes time that could alternatively be invested in income-generating activities, education, or rest, and it can impose substantial physical strain. Nevertheless, from the BOP consumer's immediate decision calculus, it represents a rational response to the relative prices of labor and goods that obtains in conditions of poverty: when cash is extremely scarce, and labor has low opportunity cost, substituting labor for goods is welfare-improving in the short term, regardless of its longer-term costs.

Proposition 5: BOP consumers systematically substitute time and physical labor for market-purchased goods and services, with the intensity of labor substitution being inversely related to available cash income and directly related to the perceived non-substitutability of the target consumption outcome.

4.1.9 Outcomes: Individual Empowerment and Systemic Entrenchment

Consumer *jugaad* generates outcomes at two analytically distinct levels: the individual consumer or household and the socio-economic system, and these outcome pathways are, critically, in tension with each other.

4.1.10 Individual Level Outcomes: Empowerment, Efficacy, and Skill Accumulation

At the individual level, successful *jugaad* yields immediate consumption utility, the primary objective of improvisation. But beyond this direct outcome, *jugaad* practice generates significant psychological and developmental benefits. Drawing on SDT (Deci & Ryan, 2000), we identify three outcome pathways. First, successful problem-solving under constraint enhances perceived competence, the sense that one is effective at managing one's environment, which is a fundamental human psychological need whose satisfaction improves intrinsic

motivation and subjective well-being. Second, the autonomy inherent in self-generated solutions, finding one's own way rather than depending on unavailable formal systems, satisfies the SDT need for self-determination, reinforcing an internal locus of control and reducing learned helplessness. Third, repeated *jugaad* practice accumulates domain-specific skills (mechanical repair, informal negotiation, resource identification) and identity resources (self-conceptualization as resourceful and adaptive) that carry transferable value beyond their immediate application.

Proposition 6: Consistent engagement in *jugaad* behavior will enhance individual consumers' perceived self-efficacy, internal locus of control, and sense of agency, with these psychological benefits mediating a positive relationship between *jugaad* practice and subjective well-being.

4.1.11 System-Level Outcomes: Informal Economy entrenchment and Persistent Exclusion

At the systemic level, widespread *jugaad* behavior yields more ambivalent outcomes. On the one hand, the collective enactment of *jugaad* by BOP consumers sustains and elaborates the informal economy, maintaining markets for repair services, second-hand goods, scrap materials, and informal credit that provide livelihoods for many informal-sector workers and meaningful consumption options for households excluded from formal markets. On the other hand, by enabling the poor to meet needs through improvisation, *jugaad* reduces the visible social pressure to extend formal market provision to underserved communities. Firms may interpret widespread self-sufficiency as evidence of low demand, when it actually reflects the absence of a viable formal supply. Policymakers may underestimate the scale of unmet need when improvised solutions render deprivation less visible. In this sense, *jugaad*'s success at the individual level creates conditions for its perpetuation at the structural level.

Proposition 7: The widespread use of *jugaad* within a community expands informal markets while decreasing the visible demand for formal institutional intervention. Ultimately, this dynamic traps consumers in a cycle that perpetuates the original poverty and market exclusion that forced them to use *jugaad* in the first place.

Please refer to Table 1 given below for a summary of propositions, constructs, and boundary conditions. The conceptual framework is given in Figure 1.

Table 1. Summary of propositions, constructs, and boundary conditions

Proposition	Core constructs	Theoretical relationship	Boundary condition(s)
P1a	Structural scarcity (chronic poverty, market exclusion, institutional distrust, urgent needs) → Consumer <i>jugaad</i>	Structural scarcity positively influences the propensity to deploy consumer <i>jugaad</i> .	Applicable in BOP contexts characterized by persistent resource constraints.
P1b	Social capital × Structural scarcity → Consumer <i>jugaad</i>	Social capital positively moderates the relationship between structural scarcity and consumer <i>jugaad</i> .	Stronger in communities with dense social networks and resource-sharing norms.
P2	Scarcity → Cognitive reframing	Scarcity leads consumers to reframe material deficits as opportunity resources.	Strongest when unmet needs are immediate, and resources are limited.
P3	Resource constraints → Informal social exchange and resource pooling	Resource constraints increase participation in informal exchange networks.	More likely where strong social ties and trust facilitate cooperation.

Proposition	Core constructs	Theoretical relationship	Boundary condition(s)
P4	Resource scarcity → Risk recalibration	The relationship between scarcity and risk tolerance is non-monotonic; extreme scarcity increases the willingness to adopt risky improvisations.	Strongest for highly urgent need categories such as health, nutrition, and shelter (desperation threshold).
P5	Cash constraints → Labor substitution	Consumers substitute time and physical labor for market-purchased goods and services.	Stronger when cash availability is low, and consumption needs are non-substitutable.
P6	Consumer <i>jugaad</i> → Self-efficacy, agency, well-being	Repeated engagement in <i>jugaad</i> enhances competence, self-efficacy, agency, and subjective well-being.	Most evident when <i>jugaad</i> successfully resolves immediate consumption problems.
P7	Widespread consumer <i>jugaad</i> → Informal economy and institutional response	Consumer <i>jugaad</i> expands informal markets while reducing pressure for formal institutional intervention, reinforcing structural exclusion.	Emerges when informal solutions become persistent substitutes for formal markets

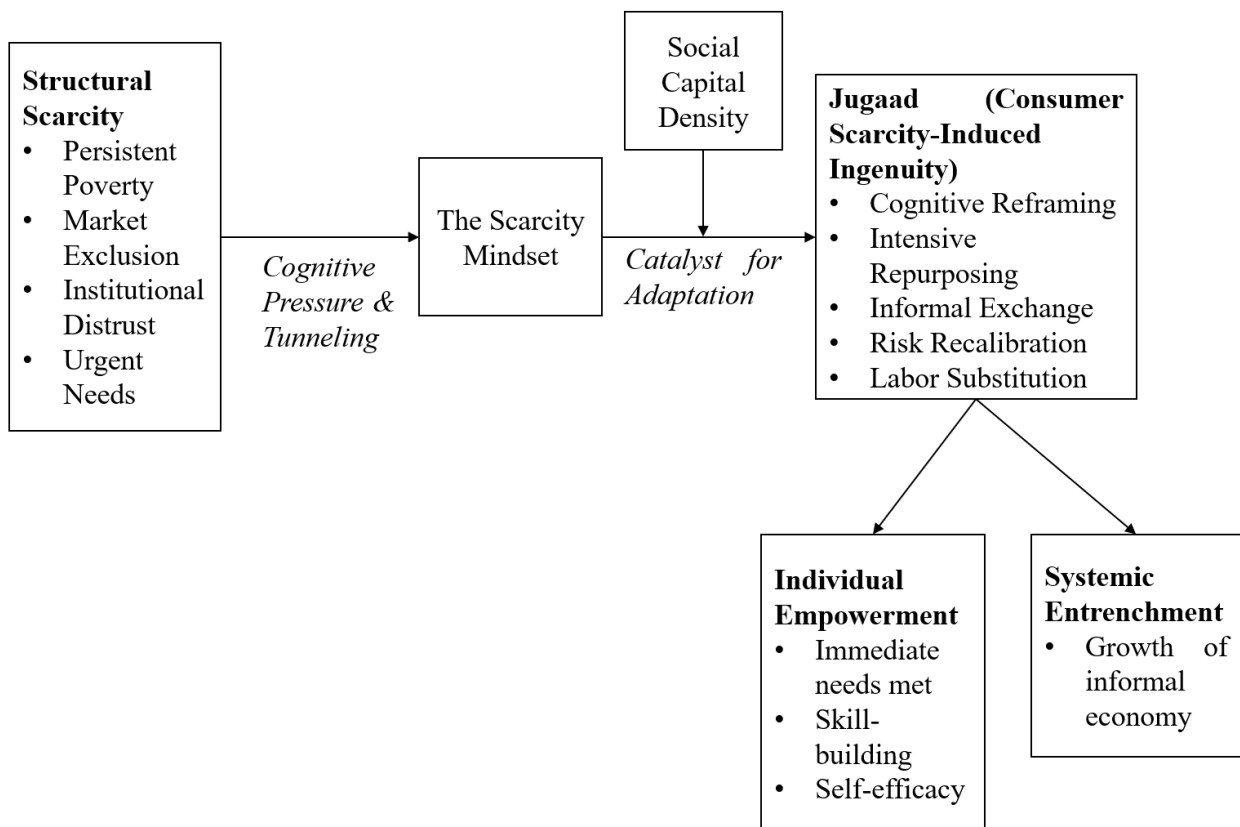


Figure 1: Conceptual framework

Source: Authors' creation

5. Conceptual Framework

The conceptual framework illustrates a sequential, non-deterministic process model that maps how extreme resource constraints trigger psychological shifts, resulting in adaptive *jugaad* behaviors that ultimately yield divergent socio-economic outcomes. The process initiates within an environment characterized by structural scarcity, defined by persistent poverty, market exclusion, institutional distrust, and urgent unmet needs. Rather than directly causing behavior, these macro-level deficits impose immense cognitive pressure and tunnel vision, forcing the individual into a specialized psychological state known as the scarcity mindset, in which immediate survival needs dominate cognitive bandwidth. As a catalyst for adaptation, this scarcity mindset propels BOP consumers to deploy *jugaad*, or consumer-scarcity-induced ingenuity. This behavioral construct manifests through four key mechanisms: cognitive reframing, intensive repurposing, informal exchange, and the recalibration of physical or functional risk.

Three contextual boundary conditions govern the transition from antecedents to the deployment of mechanisms. First, social capital density moderates the deployment of mechanisms; communities with richer social networks exhibit more diverse *jugaad* repertoires, particularly enhancing mechanisms that require coordination, such as informal exchange and collective resource pooling. Second, the severity of poverty strictly moderates the risk recalibration mechanism. Consistent with the desperation threshold effect, the gap between available resources and the perceived survival minimum must be severe enough to trigger an inflection in risk tolerance, meaning that high-risk *jugaad* is adopted only under extreme deprivation. Third, the product or service category moderates the selection of the *jugaad* mechanism itself. When applied to essential categories like food, health, or shelter, the behavior is driven by extreme urgency, leading to high risk tolerance and raw labor substitution. Conversely, *jugaad* applied to discretionary categories relies more heavily on deliberate cognitive reframing and intensive repurposing.

Ultimately, the deployment of these *jugaad* behaviors generates a bifurcated outcome, producing simultaneous effects at both the micro and macro levels. At the micro-level, the behavior fosters individual empowerment by enabling the consumer to meet immediate survival needs, develop new problem-solving skills, and build a strong sense of self-efficacy. Concurrently, at the macro-level, the widespread reliance on these informal workarounds drives systemic entrenchment. By independently solving their structural exclusions, consumers inadvertently accelerate the growth of the informal economy and reduce the pressure on formal institutions to intervene, thereby deeply entrenching the very system of scarcity that triggered the adaptive process in the first place.

6. Theoretical Contributions

This paper makes several distinct theoretical contributions to the literature on consumer behavior, scarcity, the informal economy, and the circular economy.

First, we introduce the construct of consumer scarcity-induced ingenuity as a theoretically specified reconceptualization of *jugaad*. This construct advances the BOP consumer literature by providing a mechanism-level account of how structural poverty translates into specific adaptive behaviors, moving beyond descriptive documentation of coping strategies to theorize the cognitive and motivational processes that generate them. The construct bridges scarcity theory's insights into bandwidth allocation and attentional tunneling with the adaptive creativity these mechanisms can facilitate, resolving an apparent theoretical contradiction in the extant literature.

Second, we nuance the scarcity literature's predominantly pathological framing of the effects of cognitive scarcity. While De Bruijn & Antonides (2021) comprehensively document scarcity's

impairments on executive function and decision quality, our framework demonstrates that the same attentional and motivational mechanisms that produce tunneling and reduced bandwidth also produce heightened problem-focused attention and creative resource reframing when applied to survival-relevant consumption problems. This dual-process account of scarcity's cognitive consequences represents an advancement over unidimensional deficit models.

Finally, by establishing a theoretical link between consumer *jugaad* and the necessity-driven circular economy (Korsunova et al., 2022), we position BOP consumer behavior as a neglected driver of circular economy outcomes. The CE literature has largely theorized circular practices as the product of firm-level strategy, technological innovation, or environmentally motivated consumer choice; our framework demonstrates that CE outcomes can emerge from survival-motivated consumer behavior without environmental intent, with significant implications for CE measurement, policy, and theoretical scope.

7. Implications

7.1 Policy Implications

The reconceptualization of *jugaad* as scarcity-induced ingenuity has direct implications for how policymakers understand and respond to informal economy activity and BOP consumer welfare. Most fundamentally, it establishes that *jugaad* practices are rational adaptive responses to structural exclusion rather than indicators of cultural deficiency or economic irrationality. This reframing has three specific policy implications.

First, and most critically, addressing the structural antecedents of *jugaad* through expanded access to formal credit, healthcare, retail infrastructure, and identity documentation would more effectively reduce welfare-negative *jugaad* (unsafe improvisation) than any direct intervention targeting informal practices. The prevalence of *jugaad* is a diagnostic indicator of market and institutional failure.

Second, where informal *jugaad* practices produce positive welfare and circularity outcomes (as in informal repair economies and community resource pooling), policy should support and formalize these practices rather than suppress them. Creating legal frameworks for informal repair cooperatives, providing skill certification for informal mechanics and technicians, and establishing community-level resource libraries (tool banks, seed libraries) can transform ad hoc *jugaad* into more stable, safer livelihoods and consumption systems.

Third, the systemic entrenchment pathway identified in our outcome model has important implications for how policymakers measure unmet need. When *jugaad* effectively conceals deprivation, as when improvised health remedies substitute for unavailable medical care, standard welfare metrics that measure consumption outcomes will underestimate the extent of structural exclusion. Welfare assessment methodologies should be designed to capture the extent of *jugaad* substitution for formal services as an indicator of unmet needs in the formal sector.

7.2 Marketing and Managerial Implications

For firms operating in or seeking to enter BOP markets, our framework offers several insights. Firms should understand that widespread *jugaad* reflects not low demand but the absence of viable formal supply, a market opportunity missed precisely because conventional market research methods do not capture effective demand that has been displaced into improvised self-provision. Product design for BOP markets should emphasize repairability, modular upgradeability, and compatibility with existing improvised solutions, aligning with consumers' established repair and repurposing practices rather than assuming planned obsolescence can be sustained in markets where consumers routinely circumvent it.

Distribution and marketing strategies should leverage, rather than bypass, the social networks that sustain *jugaad* information diffusion. Community-based distribution through trusted local intermediaries (informal repair shop operators, community leaders, ROSCA group managers) is more consistent with the social architecture of BOP consumption than conventional retail channels. Firms that partner with existing informal networks, for example, by providing training and access to tools for community-based repairers rather than proprietary after-sale service monopolies, can create market-entry strategies aligned with the existing structure of BOP consumption without displacing the coping mechanisms on which poor households depend.

8. Limitations and Future Research Directions

Our conceptual framework generates a rich agenda for empirical and theoretical development across multiple methodological traditions.

First, and most fundamentally, the propositions advanced in our framework require empirical testing. Quantitative studies using survey methods and structural equation modeling could examine the relationships between structural antecedents (poverty severity, institutional distrust, social capital density) and *jugaad* mechanism deployment, with the outcomes of individual empowerment and systemic entrenchment as dependent variables. Such studies would benefit from the development of validated scales to measure consumer scarcity-induced ingenuity, a psychometric priority given the lack of existing instruments. Scale development should capture the distinct mechanisms we theorize (reframing, repurposing intensity, social exchange participation, risk tolerance calibration, labor substitution) as well as their outcome correlates.

Second, in-depth ethnographic research is essential for capturing the phenomenology of *jugaad* practice in its lived context. Many of the mechanisms we theorize, particularly cognitive reframing and the social normative dimensions of informal exchange, are not fully accessible through survey methods and require immersive observation and narrative inquiry. Multi-sited ethnographic studies comparing *jugaad* practices across different BOP contexts (urban slums versus rural agricultural communities; different regional and cultural settings) would enable both within-context depth and cross-context comparative analysis.

Third, the relationship between *jugaad* and the desperation threshold model (De Courson et al., 2025) warrants direct empirical investigation in BOP consumption contexts. While our framework draws on this model theoretically, its applicability to consumer risk preferences in informal markets has not been tested; experimental and natural-experiment methodologies could provide causal identification of the proposed non-monotonic relationship.

Finally, cross-cultural comparative research should investigate the cultural specificity and universality of the *jugaad* framework. While the construct originates in South Asian cultural contexts where improvisation carries particular social meaning and normative legitimacy, analogous practices exist under different names and normative framings across Latin America (*gambiarra*, in Brazil), West Africa (*debrouillardise*), and other resource-constrained contexts. Comparative research can identify which elements of the framework are universal responses to structural scarcity and which are culturally contingent, enabling more context-sensitive theoretical refinement.

9. Conclusion

This paper has advanced a theoretically grounded reconceptualization of *jugaad* as consumer scarcity-induced ingenuity, defined as a repertoire of cognitive and behavioral adaptations through which BOP consumers navigate persistent resource constraints, market exclusion, and institutional inadequacies in their everyday consumption lives. Departing from the prevailing firm-centric perspective in the

management and innovation literature, this reconceptualization positions BOP consumers as the primary agents of improvisation rather than passive recipients of frugal innovations. It demonstrates that their everyday adaptive practices reflect purposeful, contextually embedded problem-solving capabilities, thereby establishing *jugaad* as a theoretically meaningful form of consumer behavior and extending its relevance within consumer research.

The process model we have developed, linking structural antecedents through four adaptive mechanisms to dual-level outcomes of individual empowerment and systemic entrenchment, provides a theoretically integrated account of how scarcity produces ingenuity, and at what costs. The framework demonstrates that *jugaad* practice simultaneously enhances consumer self-efficacy and skill, sustains informal value chains with significant welfare value, and reproduces the conditions of structural exclusion that make such improvisation necessary. This ambivalence is not a theoretical inconsistency but a fundamental feature of survival consumption under structural poverty, one that any serious engagement with BOP consumer welfare must confront.

We emphasize that our framework views *jugaad* as a structural response to structural conditions: a demonstration of human cognitive capacity for creative adaptation in the face of adversity and, simultaneously, a diagnostic indicator of the market and institutional failures that necessitate such adaptation. The most consequential policy implication of our framework is not that *jugaad* should be celebrated and amplified, but that the structural conditions generating it, chronic poverty, market exclusion, institutional distrust, and unmet urgent needs, should be directly addressed. *Jugaad* offers a window into the adaptive capacity of marginalized consumers; inclusive markets and just institutions would make that adaptation less urgently necessary.

References

- Amendah, D. D., Buigut, S., & Mohamed, S. (2014). Coping strategies among urban poor: Evidence from Nairobi, Kenya. *PLoS ONE*, 9(1), e83428. <https://doi.org/10.1371/journal.pone.0083428>
- Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, 50(3), 329–366. <https://doi.org/10.2189/asqu.2005.50.3.329>
- Becker, G. S. (1965). A theory of the allocation of time. *The Economic Journal*, 75(299), 493–517. <https://doi.org/10.2307/2228949>
- Coker, K. K., Zeiss, J. G., & Albinsson, P. A. (2024). The consumer on stage: Toward a typology of improvisation in consumption contexts. *Journal of Business Research*, 170, Article 114305. <https://doi.org/10.1016/j.jbusres.2023.114305>
- De Bruijn, E.-J., & Antonides, G. (2021). Poverty and economic decision making: A review of scarcity theory. *Theory and Decision*, 92(1), 5–37. <https://doi.org/10.1007/s11238-021-09802-7>
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- De Courson, B., Frankenhuys, W. E., & Nettle, D. (2025). Poverty is associated with both risk avoidance and risk taking: Empirical evidence for the desperation threshold model from the UK and France. *Proceedings of the Royal Society B: Biological Sciences*, 292(2040), Article 20242071. <https://doi.org/10.1098/rspb.2024.2071>

- Escudero-Cipriani, C., García-del Junco, J., Chafloque-Céspedes, R., & Alvarez-Risco, A. (2024). Frugal innovation in the business environment: A literature review and future perspectives. *Frontiers in Artificial Intelligence*, 7, Article 1385522. <https://doi.org/10.3389/frai.2024.1385522>
- Grace, D. (2015). Food safety in low and middle income countries. *International Journal of Environmental Research and Public Health*, 12(9), 10490–10507. <https://doi.org/10.3390/ijerph120910490>
- Hill, R. P., & Sharma, E. (2020). Consumer vulnerability. *Journal of Consumer Psychology*, 30(3), 551–570. <https://doi.org/10.1002/jcpy.1161>
- Horodnic, I. A., Ciobanu, C. I., Zaiț, A., & Williams, C. C. (2022). Who purchases from the informal economy and why? *Frontiers in Psychology*, 13, Article 940076. <https://doi.org/10.3389/fpsyg.2022.940076>
- Kaur, R. (2016). The innovative Indian: Common man and the politics of jugaad culture. *Contemporary South Asia*, 24(3), 313–327. <https://doi.org/10.1080/09584935.2016.1214108>
- Korsunova, A., Halme, M., Kourula, A., Levänen, J., & Lima-Toivanen, M. (2022). Necessity-driven circular economy in low-income contexts: How informal sector practices retain value for circularity. *Global Environmental Change*, 76, Article 102573. <https://doi.org/10.1016/j.gloenvcha.2022.102573>
- Landrum, N. E. (2020). A critical discourse analysis to explain the failure of BoP strategies. *Critical Perspectives on International Business*, 17(4), 599–618. <https://doi.org/10.1108/cpoib-08-2018-0066>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
- Lévi-Strauss, C. (1967). *The savage mind*. University of Chicago Press.
- Mullainathan, S., & Shafir, E. (2013). *Scarcity: Why having too little means so much*. Times Books/Henry Holt and Company.
- Mukherjee, S., & Datta, B. (2024). Counterfeit conundrum: Insights into bottom of the pyramid consumer behavior in India. *Journal of Retailing and Consumer Services*, 82, Article 104114. <https://doi.org/10.1016/j.jretconser.2024.104114>
- Mukherjee, S., Datta, B., & Paul, J. (2020). The phenomenon of purchasing second-hand products by the BOP consumers. *Journal of Retailing and Consumer Services*, 57, Article 102189. <https://doi.org/10.1016/j.jretconser.2020.102189>
- Narayanan, Y. (2019). Jugaad and informality as drivers of India's cow slaughter economy. *Environment and Planning A: Economy and Space*, 51(7), 1516–1535. <https://doi.org/10.1177/0308518x19852640>
- Piacentini, M., & Hamilton, K. (2013). Consumption lives at the bottom of the pyramid. *Marketing Theory*, 13(3), 397–400. <https://doi.org/10.1177/1470593113489195>
- Prahalad, C. K. (2004). *The fortune at the bottom of the pyramid: Eradicating poverty through profits*. Pearson Education.
- Prahalad, C. K., & Hart, S. L. (2002). The fortune at the bottom of the pyramid. *Strategy+Business*, 26, 1–14.
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon and Schuster.

- Radjou, N., Prabhu, J., & Ahuja, S. (2012). *Jugaad innovation: Think frugal, be flexible, generate breakthrough growth*. Jossey-Bass.
- Schofield, H., & Venkataramani, A. S. (2021). Poverty-related bandwidth constraints reduce the value of consumption. *Proceedings of the National Academy of Sciences*, 118(35), Article e2102794118. <https://doi.org/10.1073/pnas.2102794118>
- Singh, R., Gupta, V., & Mondal, A. (2012). Jugaad: From "making do" and "quick fix" to an innovative, sustainable and low-cost survival strategy at the bottom of the pyramid. *International Journal of Rural Management*, 8(1-2), 87-105. <https://doi.org/10.1177/0973005212461995>
- Srivastava, A., Mukherjee, S., Datta, B., & Bag, T. (2025). Conspicuous consumption at the Indian BOP: A boon or bane? *Journal of Consumer Marketing*, 42(2), 146-158. <https://doi.org/10.1108/jcm-10-2023-6370>
- Sutar, J., & Mukherjee, S. (2026). BOP's dilemma: Is jugaad an innovation or an invisible burden? *Journal of Consumer Marketing*, 43(5), 752-769. <https://doi.org/10.1108/JCM-07-2025-8049>
- United Nations Conference on Trade and Development. (2025). *Emerging trends and challenges in consumer product safety*. https://unctad.org/system/files/official-document/ditccplp2024d1_en.pdf
- Vidal-Ayuso, F., Akhmedova, A., & Jaca, C. (2023). The circular economy and consumer behaviour: Literature review and research directions. *Journal of Cleaner Production*, 418, Article 137824. <https://doi.org/10.1016/j.jclepro.2023.137824>
- Yang, Y., Huang, Y., Huang, J., & Nie, F. (2024). The role of social capital in the impact of multiple shocks on households' coping strategies in underdeveloped rural areas. *Scientific Reports*, 14(1), Article 14218. <https://doi.org/10.1038/s41598-024-65206-x>
- Zhu, H., You, F., Gruber, T., Dong, H., & De Bont, C. (2025). Effects of perceived scarcity on mental health, time and risk preferences, and decision-making during and after COVID-19 lockdown: Quasi-natural experimental study. *JMIR Public Health and Surveillance*, 11, Article e69496. <https://doi.org/10.2196/69496>