# Development Operations Management: Frictions, Mechanisms, and Research Pathways*

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**Problem definition:** Operations management and operations research (OM/OR) insights are disproportionately drawn from high-income countries, yet a substantial share of operational systems worldwide function in emerging and developing economies under persistent *feasibility*, *governance*, and *relational frictions.* The field lacks a shared definition and scope boundary for Development Operations Management (DOM), as well as a disciplined framework that links developing-context frictions to operational mechanisms, developmentally meaningful outcomes, and generalizable theory. **Methodology/Results:** We develop a normative, conceptual framework for the subfield of DOM. We synthesize perspectives from OM/OR and development-oriented research and propose an agenda-setting, *full-cycle* framework, for DOM studies. We define what constitutes (and does not constitute) DOM, propose a step-by-step research process that moves from system definition and friction diagnosis to outcome specification, lever identification, field-informed refinement, and mechanism-based generalization, and map DOM contributions into complementary pathways (*scouting*, *prototyping under frictions*, *bottom-up theory building*, and *comparative refinement*). **Managerial insights:** The immediate audience of this paper is OM/OR scholars. However, the framework also provides managers and policymakers with a structured way to identify binding operational constraints, design implementable interventions that account for institutional and behavioral realities, select welfare-relevant performance measures, and assess transferability across settings through explicit mechanisms and boundary conditions.

**Keywords:** development OM; emerging and developing economies; globalization; prosperity; generalizability.

## 1. Background

Much of the research published in leading operations management and operations research (OM/OR) journals continues to focus on challenges observed in Western, Educated, Industrialized, Rich, and Democratic (WEIRD, the term coined by Henrich (2020)) societies, while more than 85% of the global population, about 6.87 billion people, live in 152 countries classified as emerging and developing economies (International Monetary Fund 2023). The goal of this article is to articulate and define the subfield of *Development Operations Management* (DOM), analogous to the well-established subfield of Development Economics, which examines the processes that underpin

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economic and social advancement in low- and middle-income countries. Development Economics is concerned not only with the drivers of growth, structural transformation, and long-term productivity, but also with broader improvements in human well-being (including health, education, labor conditions, and access to essential services) through public and private channels. Although the roots of Development Economics span many decades, the field has gained renewed prominence in recent years, highlighted by the 2019 Nobel Memorial Prize in Economic Sciences awarded to Esther Duflo, Abhijit Banerjee, and Michael Kremer for their pioneering work in this area.

Development OM examines operations and supply chain strategies that influence economic, social, and institutional conditions in developing countries, with particular attention to challenges related to poverty, sustainable growth, and human welfare. It calls for context-sensitive solutions tailored to *local realities*. By addressing constraints (such as limited infrastructure and weak institutional capacity) and incorporating existing supply chain dynamics, DOM aims to enhance supply chain performance, improve public service delivery, and strengthen industrial competitiveness, ultimately fostering economic growth in less developed regions. For example, insight into cultural drivers of supply chain behavior enables more effective local interventions. Toward this goal, research that deepens our understanding of operational and supply chain dynamics in developing contexts is essential. Notably, a study need not demonstrate outcome improvements or *engineer* immediate solutions to be considered DOM; rather, it must engage with the underlying frictions and contextual features that define operations in these settings. Although OM/OR scholars have long examined related issues, this subfield has not received the focused attention it deserves. In this article, we explain why it is critical and, drawing on recent studies and influential perspectives, propose rigorous, contextually grounded approaches to DOM research.

### 1.1. Frictions

At the core of DOM is the identification and analysis of frictions. A friction is a binding contextual constraint that systematically distorts operational decisions, incentives, information, or feasibility, thereby reshaping equilibria and performance outcomes. Frictions are not peripheral noise; they are theoretical inputs that structure how operational systems function. Recognizing that boundaries are not always sharp, we categorize frictions into three primary groups: *feasibility*, *governance*, and *relational frictions*.

- *Feasibility frictions* constrain what is operationally possible. They include structural and financial constraints that tighten the feasible set of decisions. Structural frictions arise from country- or region-specific conditions such as infrastructure unreliability (power, transport, cold chain), capacity gaps, and climate volatility, all of which limit managerial choice. Financial frictions stem from

limitations in capital and cash flow, including credit rationing, exchange-rate distortions, and high inflation, which are common in many developing economies.

- *Governance frictions* encompass informational, market, and institutional limitations that distort incentives and allocation. They include weak enforcement, corruption, regulatory volatility, informality, and market-structure distortions such as thin markets, monopolistic intermediaries, price controls, and rigid pricing regimes. These frictions reshape pricing, competitive equilibria, contract stability, and strategic behavior. Khanna and Palepu (1997) define *institutional voids* as the absence of essential market-supporting institutions, including formal contracting systems, regulatory frameworks, transparency mechanisms, labor protections, infrastructure, and effective enforcement. Such voids undermine both individual transactions and the broader business environment. They affect equilibrium behavior and reshape strategic interactions and contract stability. For example, product-market voids hinder firms' ability to assess supplier quality, while labor-market voids constrain growth when firms cannot find workers with basic skills. Systemic unfairness in global supply chains, including wage theft, supplier exploitation, and price manipulation, further disadvantages small suppliers and workers in developing countries (Chen et al. 2022). These conditions are particularly prevalent in the 47 least-developed countries, home to roughly 1.15 billion people (over 14% of the world's population), often informally referred to as the "Fourth World."[1]
- *Relational frictions* arise from behavioral and cultural constraints that shape how actors interact within operational systems. They affect cooperation, coalition formation, trust, and relational contracting. Examples include cultural norms, religious constraints, and persistent trust deficits.

### 1.2. What Does Not Constitute DOM

At first glance, DOM may seem similar to research in humanitarian operations. However, DOM is conceptually and practically distinct, at least for two reasons. First, the underlying ethics and goals differ. Humanitarian ethics focus on urgent life-saving assistance, whereas development ethics emphasize long-term structural change and social justice (Slim and Bonwick 2005). Humanitarian relief aims to alleviate immediate suffering (e.g., ending hunger, providing clean water, preventing disease outbreaks, and reuniting families), with the primary objective of rapid crisis response rather than addressing underlying causes. In contrast, development efforts are inherently long-term and focus on the structural roots of hardship. Development ethics considers the broader context of

[1] Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, the Democratic Republic of the Congo, Djibouti, East Timor, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Kiribati, Laos, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, São Tomé and Príncipe, Senegal, Sierra Leone, Solomon Islands, Somalia, South Sudan, Sudan, Tanzania, Togo, Tuvalu, Uganda, Vanuatu, Yemen, and Zambia.

human well-being, emphasizing gradual and transformative processes guided by planning, reform, and empowerment (Fukuyama 2014). Second, the approaches to implementation diverge. Humanitarian relief typically relies on top-down directive methods (centralized assessments, command-driven logistics, and externally managed delivery systems) designed for speed and control, often at the expense of local autonomy (Slim and Bonwick 2005). Development initiatives, on the other hand, typically prioritize local ownership and participatory decision-making. They employ domestically driven approaches, whether state-led or locally organized, that emphasize capacity building, collaborative resource planning, and facilitative logistics, enabling communities to shape and sustain their own futures.

The second misconception is that geography alone is sufficient to classify a study as DOM. First, studies of Western or multinational corporations that locate assembly plants, call centers, or distribution hubs in developing countries are not DOM when their operations merely extend global supply chains. DOM applies when developing-context frictions are first-order in shaping operational mechanisms and outcomes. This distinction is not binary: the more central the frictions are to the operational logic, the stronger the case for a DOM classification. Relatedly, when Western financial institutions invest in developing economies, their activities fall within global finance and international business, not DOM. Financial flows alone do not imply development-oriented operational logic. As the 2001 Nobel laureate Joseph Stiglitz argues, capital flows and financial liberalization are often equated with *development*, yet frequently bypass local productive capacity, labor markets, and institutions (Stiglitz 2003). Such approaches tend to ignore weak enforcement, informal networks, political constraints, and infrastructure gaps, implicitly assuming one-size-fits-all models derived from developed-country contexts (Stiglitz 2003). In practice, investor confidence and financial stability are often prioritized over local operational efficiency or equity (Stiglitz 2003). Finally, operations that function identically in developed and developing settings do not meet the threshold for DOM. If the process, decision structure, and outcomes do not change meaningfully in response to local constraints, the setting is incidental rather than integral. Put differently, DOM is not simply *OM conducted in a developing country*; it is OM fundamentally shaped by context-specific conditions. For example, a study introducing periodic-affine inventory policies in a developing-country pharmacy chain would not qualify as DOM if the analysis relies solely on sales data and optimization models without engaging local market dynamics, regulatory requirements, supply chain limitations, or institutional frictions. In such cases, geography is incidental rather than central to the contribution.

## 2. Generalization, Growth and Globalization: A Discourse

Three are three reasons SC/OM scholars should engage more deeply with DOM: (i) to enhance the *generalizability* of our theories, (ii) to articulate OM's contribution to *economic growth*, and (iii) to maintain relevance amid the dynamics of *globalization*.

### 2.1. Generalization:

Establishing *generalizability* (or showing external validity) is a fundamental challenge in any discipline (Popper 2002). It refers to the extent to which results can be applied beyond the specific context in which they were generated, across different populations, settings, and time periods and, importantly, to identifying the conditions under which those results may no longer hold. Although generalization may involve moving from narrower to broader contexts, it does not imply a *hierarchical ordering*; it is about determining whether findings hold across cities, markets, or regions with different characteristics (Shadish et al. 2002). SC/OM is no exception. Most studies published in our leading journals aim to produce universally applicable insights, yet the existing body of SC/OM theory is largely derived from observations within WEIRD societies. This understandable pattern is what we can refer to as a *locality bias loop*: a self-reinforcing cycle in which limited representation in authorship and institutional access narrows the scope of research, thereby increasing the dominance of WEIRD-centric theories and further marginalizing alternative contexts and perspectives. Why does this happen?

Several studies show that research published in leading OM journals remains heavily siloed and dominated by North American perspectives, both in authorship and institutional representation (Dai et al. 2020; Babbar et al. 2020; Jonasson et al. 2022). For example, in their review of *Production and Operations Management*, Jonasson et al. (2022) report that more than 150 countries were entirely absent from the journal's coverage. Given the application-driven nature of SC/OM research, scholars tend to focus on *accessible problems* i.e., those SC/OM challenges closely aligned with industries and institutional environments familiar to the researchers. As a result, our field has generated theories, and prescribed policies, mainly relevant to WEIRD contexts, without a compelling rationale for assuming these contexts are more representative or universally applicable than those of, say, sub-Saharan Africa. This narrow focus has not only limited the field's exposure to the diverse and often more complex operational challenges faced elsewhere, but has also constrained its capacity to generate insights that are truly global in relevance. Advancing external validity presents ample opportunities to make SC/OM research more globally relevant and impactful. Considering one or more of the frictions, unique to developing-country contexts, provides a

pathway toward advancing external validity. Engaging systematically with these frictions helps close existing gaps by uncovering new operational phenomena and identifying challenges that may be absent or structurally different in developed economies.

Establishing generalizability is a double-edged sword, as researchers may uncover evidence that fundamentally challenges long-standing assumptions. DOM is valuable not only because it can demonstrate where OM models do generalize, but also because it reveals where standard OM assumptions *fail*. Put differently, DOM does not simply extend external validity; it stress-tests OM theory by exposing contradictions, violations, and breakdowns in commonly held assumptions. In doing so, it helps clarify the boundary conditions under which a theory applies, and how new theories can be developed outside these known boundaries. For example, most OM/OR models implicitly assume that consumers behave rationally, markets function competitively, contracts are enforceable, firms face no liquidity constraints, information is accurate and accessible, corruption does not distort incentives, and customers can afford *optimal* solutions. Yet, in many developing countries, these assumptions are systematically violated. Thus, DOM expands external validity not only by confirming where existing theory holds, but also by challenging and refining it.

An example of such work is McKenzie and Woodruff (2017), who examine business practices in more than 20,000 small firms across seven developing countries (Bangladesh, Chile, Ghana, Kenya, Mexico, Nigeria, and Sri Lanka) using survey and panel data to assess their impact on performance. Their findings challenge the traditional assumption, often supported in Western contexts, that small firms uniformly benefit from adopting formal, large-firm-style management practices; they show that in low-resource settings, a limited set of basic practices (such as record-keeping, financial planning, and inventory control) can significantly improve productivity and survival. Yet, conventional business training yields only modest, often statistically insignificant gains, revealing a mismatch between Western-style training expectations and the operational realities of small firms in developing economies. Another example is Boso et al. (2024), who examine two behavioral interventions (private-interest versus public-interest messaging) to reduce food waste in restaurant kitchens in Ghana. They find that in a context characterized by collectivist norms and economic insecurity, private-interest messages outperform public-interest appeals. This challenges the common assumption, rooted in Western research, that public-interest framing is uniformly more effective in collectivist societies. The study also identifies a gender reversal: contrary to prior findings that women are generally more prosocial, the public-interest intervention proved more effective among male kitchen staff. These studies reinforce a central DOM insight: *context matters*. Operational realities between developing and industrialized economies differ systematically, and the same "best practices" do not apply uniformly.

### 2.2. Growth:

Although poor governance and macro-level mismanagement are often cited as leading causes of underdevelopment, much less attention is given to how operations are managed on the ground. Voors et al. (2018) pose a fundamental question: do managers in developing economies default to short-term decision-making in response to economic or political instability, leading to inefficient resource allocation, or do these environments require fundamentally different tools and frameworks tailored to local constraints and opportunities? For example, economic sanctions in countries such as Iran have reshaped supply chain structures, compelling firms to adopt unconventional strategies to maintain continuity. In such uncertain environments, managers may exhibit myopic rather than forward-looking behavior. OM practices, however, play a vital role in fostering economic prosperity by improving efficiency, reducing costs, and enhancing quality. Drawing on the theory of "swift and even flow," Schmenner (2001) argues that faster throughput and reduced variability raise productivity regardless of capital intensity, helping explain differences in industrialization and economic prosperity. Complementing this perspective, Goel et al. (2021) show, using data from 130 countries (2007–2017), that improvements in logistics performance, both infrastructure (input) and timeliness (output), positively influence economic growth. By enhancing productivity and coordination, operational improvements can scale into aggregate growth effects.

The central role of SC/OM in fostering economic prosperity has gained increasing recognition in recent years. This shift aligns with a broader movement toward local management, reflected in initiatives such as "participatory development projects" (Watson 2015). By transferring decision-making authority and resources to local communities and enabling them to manage services according to their priorities and constraints, these initiatives promote more effective and sustainable interventions aligned with lived realities (Voors et al. 2018). This is a two-way dynamic: OM can address critical challenges in environments characterized by diverse frictions, and engagement with such contexts can, in turn, enrich OM theory and practice. As Netessine (2021) notes, despite contributions to healthcare and environmental sustainability, OM has had limited impact on many of the UN's 17 Sustainable Development Goals, prompting the question: "How many of us in Operations Management work on inclusive economic growth?"

As noted earlier, developed and developing economies may face similar SC/OM challenges; however, solutions that succeed in developed settings often fail to translate because of structural differences, including inadequate infrastructure, fragile institutions, political instability, religious sensitivities, currency fluctuations, and large informal sectors. Addressing these complexities requires attention to legal frameworks (Whybark 1997), market dynamics (Eftekhar and Van Wassenhove

2016), cultural norms (Özer et al. 2014), religious influences (Shu et al. 2012), and local content, including reliance on domestic goods, services, and labor (Munson and Rosenblatt 1997). Importantly, not *all* contextual factors render prescribed policies suboptimal relative to their application in developed economies; in some cases, frictions might enable practices that would be ineffective in WEIRD contexts to succeed in developing settings. For example, Eftekhar and Van Wassenhove (2016) highlights conflict-zone realities such as security risks, extremely poor road infrastructure, and unpredictable breakdowns and accidents that make vehicle utilization and replacement requirements highly uncertain, often resulting in under-utilization, premature disposal, and inefficient fleet-sizing decisions.[2]

One example from this relatively limited stream of research illustrating DOM's contribution to economic growth is Villa et al. (2024), who examine cash-constrained nanostores in Latin America. The central question is both straightforward and critical: How should shopkeepers allocate scarce cash between household needs and inventory investment? The problem is complicated by variation in supplier visit frequency and profit margins, which jointly affect replenishment timing and returns. As a result, shopkeepers face a behavioral trade-off between inventory aversion (avoiding stockouts or excess inventory) and liquidity preference (retaining cash for personal or business needs). Drawing on large-scale empirical data and behavioral experiments, Villa et al. (2024) show that liquidity constraints and diversification biases systematically shape ordering decisions. Shopkeepers tend to over-diversify, especially when suppliers visit frequently, spreading scarce cash too thinly across products and reducing profitability. Grounded in severe cash constraints, supplier variability, and limited financial access, the study integrates relational and governance frictions to provide prescriptive insights on ordering and supplier-visit policies in developing-country contexts.

### 2.3. Globalization:

SC/OM has contributed significantly to business globalization by studying coordination, contracting, and quality adoption. Yet much of this work centers on supply chain risk and buyer-supplier relationships from the perspective of multinational corporations (MNCs) based in WEIRD countries, reflecting the locality bias loop. There are three globalization-related reasons to engage with DOM. First, in an interconnected economy, manufacturers and service providers routinely collaborate with partners in developing countries. Improving supply chain practices in these regions not

[2]In Eftekhar and Van Wassenhove (2016), the decision-maker is an international humanitarian organization operating in an international development context. While this differs from our focal domain, it provides a useful illustration of how operational frictions shape decisions. The authors also discuss limited managerial oversight, which can lead to decisions that appear logical at headquarters but prove illogical in the field.

only strengthens local capabilities but also enhances coordination across global supplier, distributor, and retailer networks.

Second, global success requires adapting operations across countries, cultures, and regulatory systems. Management theories developed in WEIRD contexts often require modification in non-WEIRD settings (Hofstede 1994; Flynn and Saladin 2006). The external validity of such frameworks is constrained by cultural and institutional boundaries, a point captured by the "cultural relativity of management" (Hofstede 1983, 1984; Trompenaars and Hampden-Turner 2012). Gupta and Gupta (2019) demonstrate how cultural context shapes innovation adoption, quality practices, governance, and buyer-supplier relationships, cautioning against universal application of Western-centric SC/OM frameworks. Cross-national evidence provides tangible examples: time orientation and quality management practices vary systematically across countries, influencing manufacturing strategy and the transferability of TQM practices (Voss and Blackmon 1998; Rungtusanatham et al. 2005). Such findings underscore that management practices do not travel frictionlessly across institutional environments. For executives engaged in global operations, navigating these differences is not optional; it is central to building resilient and adaptive supply chains. Engaging with DOM strengthens this capability by equipping managers and students with the analytical tools to diagnose contextual frictions and adapt operational designs accordingly, thereby grounding SC/OM research and education in context-sensitive, globally relevant insights (Netessine 2021).

Third, developing-country markets are increasingly viewed as growth frontiers, particularly as expansion opportunities plateau in developed economies and corporate attention to social responsibility intensifies (Parmigiani and Rivera-Santos 2015). Market-based approaches to poverty alleviation reinforce this shift. Prahalad (2004) reframes low-income populations not as passive aid recipients, but as entrepreneurs and value-conscious consumers, arguing that integrating the poor into core business strategies offers greater promise than philanthropy alone. This perspective positions the BOP as a "latent market" that requires redesigned products, distribution systems, and radically different cost structures (Prahalad 2004). However, critics question the scalability of this vision, pointing to the operational and supply chain constraints that characterize many developing markets, including high distribution costs, weak infrastructure, regulatory uncertainty, and limited institutional support (Karnani 2007; Karamchandani et al. 2011). Building on these concerns, Lee and Tang (2018) identify three challenges for global firms in developing contexts: navigating structural constraints, meeting environmental and social expectations under the "triple bottom line," and managing an expanded stakeholder landscape that includes governments, NGOs, regulators, and community actors. Success therefore depends on adapting operations to local constraints while aligning diverse stakeholder interests.

## 3. Framework: Full-Cycle Research

Research in less familiar settings is inherently challenging, particularly for scholars based in WEIRD contexts with limited access to developing-country environments. We propose a framework to guide rigorous and contextually grounded DOM studies. The framework draws on the logic of "full cycle research," introduced by Robert Cialdini (Cialdini 1980; Mortensen and Cialdini 2010). Full-cycle research begins with a phenomenon observed in its natural setting and advances theory through iteration between field studies, which capture contextual realities and real-world impact, and controlled studies, which isolate mechanisms. We adopt this iterative logic without restricting it to laboratory methods. In DOM, the cycle may involve field studies, analytical modeling, structural estimation, or other complementary approaches aimed at theory refinement.

*Step 1–Define the system and identify key frictions:* Researchers should first define system boundaries, identify key decision-maker(s), distinguish hard from soft constraints (e.g., regulatory frameworks versus informal institutions), and map channels of value creation, capture, and potential rent extraction. Within this boundary, the task is to identify the *binding friction(s)*. Observable constraints often mask deeper distortions: persistent delays, for example, may appear to reflect poor road quality, while the underlying friction lies in mistrust, unreliable information, or coordination failures in fragmented governance structures. Identifying root frictions, rather than symptoms, is the intellectual starting point of DOM.

These frictions are not noise; they are theoretical inputs that shape mechanisms and equilibria. In practice, the phenomenon that initiates the full-cycle is often a persistent operational failure or adaptation observed in the field: platforms that fail to disintermediate, contracts that unravel despite apparent efficiency, incentives that distort effort allocation, or technologies adopted but not used as intended. Field engagement distinguishes first-order frictions shaping the mechanism (e.g., informal relationships, information opacity, trust) from second-order or symptomatic constraints. This parallels Cialdini's identification of social norms in natural settings. However, the object of interest here is the operational mechanism embedded within a governance structure, not behavior alone.

*Step 2–Define developmentally meaningful outcomes:* Unlike traditional OM, DOM outcomes are not necessarily financial. They may include access and inclusion, equity in service delivery, community empowerment, improvements in education or health, reductions in waste, leakage, or corruption, and institutional resilience. Evaluating performance through a developmental lens shifts the benchmark from purely economic efficiency to societal objectives. Such outcomes are often

multidimensional, partially observable, and realized over long horizons. To bring OM-like precision to their definition, researchers should explicitly specify: (i) the primary welfare construct (e.g., access, equity, income stability, resilience); (ii) the operational proxy and its validation logic, clarifying how and why the measurable variable maps to the welfare construct; (iii) the relevant time horizon (including short- and long-run effects and dynamic trade-offs); and (iv) the distributional lens, identifying who benefits, who bears costs, and potential unintended effects. This structure anchors modeling and empirical analysis by clarifying what constitutes meaningful improvement and making explicit the trade-offs embedded in development-oriented operations.

*Step 3–Identify OM/OR levers:* As in any OM model, the researcher abstracts the identified friction into a tractable operational framework. This step involves theoretical abstraction rather than contextual replication. Instead of modeling the entire environment, the researcher isolates the binding friction and embeds it into a stylized DOM model. For example, informal networks $\rightarrow$ stability or coalition constraints; weak monitoring $\rightarrow$ ambiguity or partial observability; limited liquidity $\rightarrow$ nonlinear incentive responses; infrastructure gaps $\rightarrow$ endogenous capacity or routing constraints. The next task is to identify operational levers that mitigate or discipline the friction. These may include, for example, inventory policies for unreliable transportation, incentive mechanisms to improve compliance or trust, platform designs that expand market access, routing configurations suited to weak infrastructure, or allocation rules under severe budget constraints. The guiding principle is that the friction determines the lever, not the reverse. The core question becomes: How does this friction reshape optimal decisions, equilibria, or performance guarantees?

*Step 4–Recalibrate and refine:* This step serves two purposes; calibration and theory refinement. Calibration often requires returning to the field. In many developing-country settings, the key question is not whether an optimal policy exists in theory, but under what conditions it survives real-world complexity. Field re-engagement tests whether predictions hold when multiple frictions interact and reveals decay, heterogeneity, unintended responses, and underlying behavioral or operational channels. This parallels the "field validation" stage in full-cycle research, with emphasis on mechanisms and system performance rather than outcomes alone.

Field evidence should also refine theory, not merely calibrate parameters. In DOM, this may involve revising objective functions (e.g., profit versus stability), introducing constraints revealed by behavior, or incorporating endogenous responses that invalidate static assumptions. Developing-country settings are especially informative because they expose failure modes often latent in high-institutional-quality environments. This step also surfaces insights that originate in developing-country contexts yet extend OM theory more broadly. For example, network design under extreme

uncertainty informs robust system design; management in informal environments isolates core managerial behaviors; procurement under corruption risk reveals anti-collusion mechanisms; and comparisons of local versus centralized decision-making in weak institutional settings clarify when decentralization improves performance. These *bridges* generate generalizable insights that strengthen OM as a whole.

*Step 5–Generalize by mechanism, not by context:* External validity is a common concern in DOM research. The full-cycle logic addresses this by prioritizing mechanism-based generalization over setting-based comparison. Insights derived from developing-country frictions often travel more broadly: informal enforcement resembles platform disintermediation risks; information opacity parallels algorithmic decision-making under limited observability; and liquidity constraints mirror budget-constrained operations in nonprofit or public-sector systems. In this sense, the developing-country field site functions as a theory amplifier rather than a special case, advancing core OM theory.

To discipline such generalization, researchers should explicitly (i) state the assumptions defining the mechanism, (ii) identify contexts that violate those assumptions, (iii) clarify the minimal conditions required for transferability, and (iv) specify the *portable* component of the result such as the decision logic, incentive constraint, information structure, or equilibrium response. The external validity question thus shifts from "Does this apply elsewhere?" to "Under what structural conditions does this mechanism operate?"

### 3.1. Two Illustrative Applications

We present two examples and map each onto the five steps to further clarify and operationalize the proposed framework.

**3.1.1. Ghana's Cocoa Supply Chain.** Ghana, the world's second-largest cocoa producer, supplies roughly 20% of global cocoa and relies heavily on the crop for rural livelihoods (Tsiboe 2021). The sector supports nearly one million smallholder farmers (Ghana Cocoa Board 2024). Yet, despite its importance, the supply chain exhibits classic institutional voids. Cocoa is traded within a state-controlled system in which the government sets a fixed farm-gate price and oversees quality control and logistics. Farmers sell to Licensed Buying Companies (LBCs) through purchasing clerks (PCs). Although this centralized structure is intended to stabilize incomes, weak enforcement and operational breakdowns generate persistent distortions. A core friction is incentive misalignment between farmers and PCs. PCs face low commissions and funding delays, creating incentives to

manipulate weighing or reject volumes. Farmers, fearing underpayment, may increase moisture content or add foreign matter. Because beans are reweighed at depots, even honest actors face risk. The result is defensive behavior on both sides: mistrust becomes equilibrium, and cooperation erodes. Additional constraints compound the problem. PC shortages and uncertainty about yields undermine formal rules restricting multi-LBC activity. Strict grading standards, while essential for export quality, intensify pressure in a system already characterized by weak infrastructure and limited monitoring. The consequences are material: in the 2023–2024 season, Ghana lost approximately 160,000 tonnes—nearly one-third of projected output—to smuggling (Caldero 2024). Cross-border sales to higher-price markets such as Ivory Coast and Togo further erode official supply (Caldero 2024). At a deeper level, farmers face what Fair Trade International (2024) describe as a "tyranny of trade-offs": immediate consumption needs compete with long-term farm investment. Liquidity constraints, mistrust, and regulatory rigidity reinforce one another, trapping the system in low productivity and persistent leakage. From a DOM perspective, this case illustrates how misaligned incentives, weak enforcement, and infrastructure gaps interact to generate systemic underperformance. It also highlights broader research opportunities: how institutional capacity and farmer agency shape growth; how asymmetric power between global buyers and smallholders affects value chains; and how such mechanisms generalize to other LMIC contexts.

Viewed through the full-cycle framework, the Ghana case maps cleanly onto the DOM steps. A fragmented, state-controlled system generates monitoring and liquidity frictions (Step 1) that undermine income stability and productivity (Step 2). These frictions point to incentive-compatible measurement, liquidity redesign, and traceability as operational levers (Step 3), whose robustness depends on enforcement interactions (Step 4). More broadly, the case shows how weak enforcement combined with rigid pricing can induce defensive distortion equilibria, a mechanism transferable to other regulated supply chains (Step 5).

**3.1.2. Iran's Agricultural Supply Chain.** A second example is Iran's agricultural supply chain, where economic sanctions, currency instability, multiple exchange-rate regimes, and import restrictions generate severe procurement and distribution frictions. Sanctions have reduced oil revenues, fueled inflation, and increased poverty, while encouraging state-led efforts toward economic self-reliance. Although some sectors have reorganized production under these pressures (El-Komy 2025), agriculture remains structurally vulnerable. Agriculture accounts for roughly 10% of GDP and employs about one-sixth of the labor force (World Bank 2024). Yet inefficiencies are substantial: approximately 35 million tons of food are wasted annually across harvesting, storage, and distribution stages, an economic loss estimated to exceed one-quarter of oil revenues (Akbari and

Nasrollahzadeh 2022; Jamshidi 2020). Several interacting frictions drive this under-performance. First, sanctions disrupt imports of key inputs such as fertilizers, creating shortages and price distortions despite government currency allocations. Second, exchange-rate volatility and reactive policy interventions (price controls, quotas, export restrictions) generate uncertainty and weaken investment incentives. Third, infrastructure gaps and limited cold-chain capacity amplify losses for perishable goods. Fourth, climate volatility, especially recurrent drought, reduces yields in both rain-fed and irrigated systems. At the micro level, farmers operate as small, liquidity-constrained producers with limited access to advanced technologies or cooperative structures. Collective action is weak, while middlemen often operate through stronger, coordinated networks. Pricing therefore reflects relational bargaining rather than transparent competition. In one recent episode, rice farmers attempted to coordinate on a minimum price; middlemen responded by jointly refusing purchases, forcing the coalition to collapse as crops spoiled under financial pressure. From a DOM perspective, the mechanism is clear: liquidity constraints, policy instability, and weak collective action interact to produce high costs, waste, and underinvestment. Under sanctions and enforcement gaps, relational contracting and network asymmetries dominate formal pricing structures. More broadly, this case illustrates how macroeconomic shocks translate into operational frictions within supply chains, offering insight into regulated or sanction-constrained markets beyond Iran.

Viewed through the full-cycle lens, the Iranian case begins with a sanction-exposed agricultural system involving smallholder farmers, import-dependent input suppliers, middlemen, processors, and government actors controlling currency allocation and pricing. Within this system, sanctions-driven input shortages, exchange-rate distortions, policy volatility, weak logistics, climate risk, and coordinated middlemen power constitute the binding frictions (Step 1), undermining income stability, increasing post-harvest waste, and discouraging long-run investment (Step 2). These frictions point to OM/OR levers such as input allocation redesign under currency constraints, incentive-compatible procurement mechanisms, cooperative contract structures, storage optimization, and drought risk-sharing policies (Step 3). Their viability depends on stability under interacting shocks, including sanctions, currency volatility, and climate risk, requiring recalibration based on observed behavioral and policy responses (Step 4). More broadly, the mechanism suggests that when external shocks interact with policy distortions, input scarcity and relational pricing can generate coordination failure and waste, an insight transferable to other sanction-affected or tightly regulated agricultural systems (Step 5).

## 4. Positioning a Paper in the Full-Cycle Research

This section explains how an individual DOM paper can be situated within the full-cycle framework. Rather than categorizing studies ex post, the goal is to clarify a paper's research intent, namely,

which stage of theory development it advances and for whom its contribution is designed. Building on the logic of full-cycle research, papers differ in whether the operational phenomenon and the institutional context are already well understood. From this perspective, DOM research may enter the cycle at different points, each representing a legitimate pathway to theoretical advancement and practical relevance.

In this article, we encourage field research not merely as a site for applying established theories, but as a means of developing and refining them. Paluck and Shah (2025) introduce a $2 \times 2$ framework that categorizes studies according to whether the focal phenomenon and the real-world context are well defined or remain undefined. From this typology, they identify four research goals: "prototyping," which tests theories in natural settings; "interpreting," which explains observed behaviors; "refining," which specifies boundary conditions; and "scouting," which discovers new processes. They also introduce "situating," which examines localized interactions between people and their environments using computational methods and large-scale data. Reviewing experiments ranging from voter turnout and energy conservation to policing and poverty, the authors demonstrate how the *wild* generates insights that controlled laboratory settings cannot capture (Paluck and Shah 2025). They advocate a full-cycle approach in which field and laboratory research jointly strengthen theory. The same logic applies to DOM: developing-country settings are not merely contexts of application, but generative environments that reveal new frictions, mechanisms, and boundary conditions that advance OM theory.

Studies can be positioned within the DOM literature according to their research intent rather than by setting or method alone. Building on full-cycle logic, these intents vary depending on whether the operational phenomenon and the institutional context are well understood. From this perspective, DOM research in developing countries follows distinct yet complementary pathways, each contributing to theory development and practical relevance in different ways.

1. *Scouting local frictions (purely local):* This pathway focuses on operational or institutional challenges unique to a specific developing country or region. In such settings, both the operational phenomenon and the institutional context may be underexplored. The goal is to identify and characterize locally salient frictions and to design interventions tailored to these constraints. Although not aimed at immediate generalization, these studies play a critical discovery role by surfacing new mechanisms and problem structures. Both the question and the proposed solutions are local; the contribution lies in revealing phenomena that warrant further theoretical development.

2. *Prototyping under frictions (localized solutions to global problems):* This pathway examines operational challenges also present in developed economies (e.g., last-mile delivery) but studies them in developing-country contexts. The research question is global, while the institutional and infrastructural setting is friction-rich and less familiar. These studies embed established OM concepts in environments characterized by binding frictions, allowing researchers to assess how canonical operational logics perform under stress. Their contribution lies in showing how optimal strategies, trade-offs, and performance outcomes shift when core assumptions are violated. The question is universal; the answers are context-contingent.
3. *Bottom-up theory building:* A third pathway adopts a bottom-up approach, beginning with a locally inspired operational challenge and using it to develop conceptual insights that advance general OM theory. In these studies, the phenomenon may initially be ill-defined, but close engagement with the local context allows researchers to extract broader principles, such as adaptive logistics structures or participatory governance mechanisms, that extend beyond the original setting. These studies treat developing-country environments as theory-generating sites, leveraging their complexity to build models and insights with universal relevance. In other words, the question originates locally, but the intended contribution is global.
4. *Refining (comparative studies):* Finally, comparative studies examine how the same operational challenge or intervention unfolds across contexts, often contrasting developed and developing economies or comparing multiple developing regions. Here, both the phenomenon and the contexts are relatively well defined. The primary contribution is to refine theory by identifying boundary conditions, context-dependent mechanisms, and sources of heterogeneity in performance. By clarifying when and why similar strategies succeed or fail across environments, these studies strengthen external validity and inform differentiated managerial or policy responses.

**Table 1 Mapping DOM Research Pathways to Full Cycle Research Intents**

| DOM pathway | Known phenomenon | Context | Paluck and Shah (2025) | Role in DOM |
|---|---|---|---|---|
| Scouting local frictions | No | Unknown | Scouting/Situating | Discovery of new mechanisms |
| Prototyping under frictions | Yes | Unknown | Prototyping | Stress-testing OM theory |
| Bottom-up theory building | No $\rightarrow$ Yes | Known | Interpreting/Scouting | Theory generation |
| Refining | Yes | Known | Refining | Boundary conditions & external validity |

*Note:* In bottom-up theory-building studies, the operational phenomenon is often initially ill-defined and becomes theoretically specified through field engagement.

We note that a single paper is not expected to traverse the entire cycle. Instead, clarity on where a paper enters the cycle helps align research design, evaluation criteria, and contribution claims with the appropriate stage of theory development.

**Table 2 Expected Intellectual Contributions Across DOM Pathways**

| Pathway | Expected intellectual contribution |
|---|---|
| Scouting local frictions | Identification of a novel operational phenomenon; development of a clear taxonomy of frictions; and evidence that the friction is first-order in shaping operational outcomes, even in the absence of a complete solution. |
| Prototyping under frictions | Demonstration of how a canonical OM result changes under specific developing-context frictions; formal characterization of boundary conditions under which the original theory holds or fails. |
| Bottom-up theory building | Extraction of a generalizable OM construct from a local setting; articulation of the underlying mechanism; and demonstration that the construct travels beyond the original context. |
| Refining | Clean identification of heterogeneity across contexts; mechanism-based comparison that sharpens theory and clarifies external validity and boundary conditions. |

## 5. Rigor vs. Relevance

A common misconception is that research grounded in developing-country settings prioritizes relevance at the expense of rigor. We argue the opposite. DOM demands the same methodological standards as mainstream OM/OR (analytic depth, empirical credibility, and theoretical precision) whereas engaging contexts marked by institutional complexity often overlooked in WEIRD environments. Rigor provides credibility and conceptual clarity; relevance ensures engagement with real-world operational challenges shaped by e.g., institutional voids, cultural norms, and political instability. These frictions do not dilute rigor; they extend the frontier of OM by exposing operational phenomena that traditional models or developed-country data may not fully capture (see also highly relevant discussion in RRBM Cofounders (2020)). In this sense, DOM strengthens rigor by forcing researchers to grapple with missing markets, information asymmetries, informal institutions, scarce data, and adaptation under constraint, conditions that often reveal mechanisms latent in more structured environments.

### 5.1. What Rigor Means in DOM

In DOM, rigor is not tied to a specific method but to disciplined alignment among (i) the research question, (ii) the developing-context friction(s) that define the setting, (iii) the identification strategy or logical argument supporting the claims, and (iv) the pathway of contribution (discovery, stress testing, theory building, or refinement). At a minimum, rigor in DOM takes three complementary forms:

- *Construct and measurement rigor (identifying the binding friction).* Many observable constraints, such as delays, shortages, or spoilage, are symptoms rather than root frictions. A DOM study is rigorous when it clearly identifies the binding friction, for example weak monitoring rather than road quality, liquidity constraints rather than "low demand," or relational pricing rather than

"market power," and demonstrates that it is a first-order driver of operational outcomes. This often requires triangulation, such as combining administrative data, field observation, and interviews, and explicit treatment of measurement error and strategic misreporting, which are frequently endogenous in weak-enforcement environments.

- *Inferential rigor (credible claims about mechanisms and effects).* Credibility may arise from randomized field experiments, quasi-experiments, structural estimation, careful comparative designs, or tightly specified analytical models. The key requirement is alignment between claims and design. For empirical work, this entails addressing threats to identification such as selection, spillovers, noncompliance, anticipation, and differential measurement; reporting robustness checks; and, especially in DOM settings, examining heterogeneity rather than averaging it away, since frictions often bind for some actors and not others.
- *Theoretical rigor (mechanism clarity and boundary conditions).* DOM research should clearly articulate how the identified friction reshapes information, incentives, feasibility, equilibrium behavior, or performance trade-offs, and specify the boundary conditions under which the mechanism weakens, reverses, or disappears. This connects local relevance to generalizable OM knowledge and prevents DOM from collapsing into contextual description.

### 5.2. Lessons from Development Economics and the 2019 Nobel: Field Rigor Is Not a Contradiction

The evolution of modern development economics, highlighted by the 2019 Nobel Prize awarded to Duflo, Banerjee, and Kremer "for their experimental approach to alleviating global poverty," is instructive for DOM. The Nobel-recognized approach did not relax scientific standards in pursuit of relevance; it strengthened them by insisting on credible designs, careful measurement, and iterative learning in settings where implementation and measurement are most challenging. Development economists showed that broad debates about "what causes development" can become tractable by decomposing them into smaller, mechanism-focused questions tested in the field (Banerjee and Duflo 2009). For DOM, the parallel move is to decompose *operations in developing economies* into identifiable frictions and their operational consequences, the logic underlying the full-cycle framework. At the same time, development economics offers an important caution: internal validity is not synonymous with understanding. Randomized experiments are not automatic truth machines; they do not substitute for theory, careful covariate reasoning, or disciplined interpretation, nor do they resolve external validity concerns on their own (Deaton and Cartwright 2018). This critique reinforces the case for DOM as defined here. Field evidence, whether experimental or observational, should be treated as one component of an iterative process in which theory and empirics co-evolve. Credible designs are necessary, but without clear mechanisms and explicit transportability logic, findings cannot accumulate into generalizable knowledge.

### 5.3. OM Parallels: A Shared "Credibility" Agenda, but With an Operations Lens

OM has increasingly adopted designs aligned with the "credibility revolution" in empirical economics (Angrist and Pischke 2010), including field and natural experiments, stronger quasi-experimental identification, and complementary theory and structural analysis. This methodological shift is particularly well suited to DOM, as developing-economy frictions often generate exploitable variation, such as policy changes, phased rollouts, shocks, discontinuities, and technology adoption thresholds, while simultaneously requiring close attention to implementation realities.

Recent OM studies demonstrate how rigor and relevance can be jointly achieved in developing-country contexts. Quasi- and natural-experimental designs reveal operational mechanisms in large public systems. For example, Allu et al. (2024) use a natural experiment to examine how agent choice affects the uptake of food entitlements in India, identifying compliance responses under weak monitoring. Focusing on behavioral frictions in bottom-of-the-pyramid retailing, Villa et al. (2024) combine large-scale data with behavioral experiments to identify liquidity and diversification biases among cash-constrained nanostore owners, yielding context-sensitive operational prescriptions. Field experiments in low-capacity environments illuminate governance mechanisms affecting performance, as in Voors et al. (2018), who study elite capture and management in Sierra Leone. Finally, Uppari et al. (2024) show how structural models calibrated with field-experimental data can generate counterfactual insights far beyond the original experimental setting. Broadly, the OM community has begun developing explicit methodological infrastructure for intervention-based research, including tutorials and editorial initiatives on field experiments and registered-report-style review processes. This is not a *DOM exception*; it reflects a discipline-wide recognition that policy-relevant and managerially consequential operational questions often require field-engaged designs that maintain strong inferential standards.

### 5.4. What "Relevance" Means in DOM (and What It Does Not Mean)

DOM relevance is not established by topical importance alone ("poverty is important") or by descriptive proximity to the field ("we collected data in a developing country"). Rather, relevance requires a credible theory of change that links OM/OR levers to developmentally meaningful outcomes under the binding frictions. This entails (i) clearly defining the welfare-relevant outcome (e.g., access, equity, resilience, leakage reduction, income stability), (ii) mapping it to measurable operational indicators, and (iii) explaining why the proposed lever is feasible given institutional capacity and political economy constraints. Relevance should also not be conflated with advocacy. DOM research may be normatively motivated, but its scientific contribution must remain falsifiable

and mechanism-based. A useful discipline is to distinguish among what the paper *values* (its welfare construct and distributional lens), what it *claims* (mechanism, effect, boundary conditions), and what it *recommends* (a lever or design that is implementable under institutional constraints).

### 5.5. Practical Guidance: How to Meet Standards of Rigor and Relevance in DOM

As a starting point for discussion, we outline several practical guardrails that may help authors (and reviewers) avoid a false trade-off in DOM studies, regardless of method:

1. *Make frictions explicit and central.* Clearly identify the binding friction, justify that it constrains behavior, and show how it enters the mechanism through information, incentives, feasibility, or equilibrium effects.
2. *Align claims with design.* If the design identifies an average treatment effect, avoid broad claims of transportability without explicit boundary conditions. If the work is analytical, clearly state assumptions and interpretive scope.
3. *Treat implementation as part of the theory.* In many developing-economy settings, execution is an equilibrium outcome rather than a mechanical step. Front-line agents, intermediaries, and beneficiaries respond strategically to weak monitoring, limited enforcement, and informal institutions. Implementation choices, such as what is observable, who exerts effort, what can be manipulated, and which penalties are credible, often constitute the mechanism linking a lever to outcomes. DOM studies should model or measure compliance, misreporting, leakage, and adaptation as endogenous responses; characterize the implementable policy set under enforcement and capacity constraints; and anticipate displacement effects in which behavior shifts to less-monitored margins.
4. *Pre-specify and document.* When feasible, pre-analysis plans, clear outcome hierarchies, and transparent reporting reduce discretion, especially when data are noisy and field conditions evolve.
5. *Interrogate heterogeneity and distributional effects.* DOM problems are rarely symmetric. Identifying who benefits and who bears costs is often a first-order concern.
6. *Generalize by mechanism.* Specify what must hold for the result to travel to another context, such as information structure, enforcement regime, liquidity constraints, or network topology.

Rather than treating rigor and relevance as competing objectives, the full-cycle approach views them as complements: field engagement sharpens constructs and mechanisms; theory structures generalization; and empirical designs, experimental or quasi-experimental, discipline inference. In

this view, DOM is not a relaxation of OM standards to accommodate *hard contexts*, but an opportunity to expand OM's scientific frontier by studying operational systems where constraints bind, institutions are imperfect, and welfare consequences are immediate.

## 6. Conclusion: DOM as a Mechanism-Based, Full-Cycle Research Program

This paper argues that DOM should be recognized as a distinct subfield of OM/OR, defined not by geography, but by the centrality of developing-economy frictions in shaping operational mechanisms and outcomes. The premise is straightforward: if most of our theories, empirical regularities, and managerial prescriptions are derived from WEIRD environments, then the field's claims to generality remain incomplete. Developing-country settings are not *special cases* appended to a mature canon; they are contexts where assumptions routinely fail in systematic ways, constraints bind rather than peripheral, and operational design measurably influence welfare-relevant outcomes such as access, inclusion, leakage reduction, and institutional resilience. In this sense, DOM is both a substantive agenda, addressing high-stakes operational failures affecting billions, and a scientific agenda, offering a disciplined way to stress-test and refine OM theory.

We also emphasize a scope boundary essential for conceptual clarity. DOM is not synonymous with *OM conducted in a developing country.* Nor is it a relabeling of humanitarian operations, global supply chain risk, or multinational replication in emerging markets when the operational logic is largely imported and the developing context is incidental. DOM requires direct engagement with first-order frictions and explicit analysis of how they reshape decisions, equilibria, trade-offs, and intervention feasibility. When treated as as theoretical inputs, rather than noise, such frictions enable models and evidence to illuminate mechanisms that remain latent in higher-institutional-quality environments.

To move DOM from a broad aspiration to a coherent research program, we propose a full-cycle framework that begins with system definition and friction diagnosis, proceeds through developmentally meaningful outcome specification and OM/OR lever design, and iterates through field-informed refinement toward mechanism-based generalization. The key intellectual stance is that external validity in DOM should be judged primarily by whether the mechanism is portable under well-specified boundary conditions, not by whether the empirical setting resembles the original field site. This reframes the question from *Does the result hold elsewhere?* to *Under what structural conditions does the result hold?* It also provides a constructive response to a common concern: that DOM is either *too local* to matter to mainstream OM or *too complex* to model cleanly. DOM's

answer should be neither to retreat into context-free abstraction nor to settle for context-rich description. Instead, the discipline is to isolate the friction that is truly binding, embed it into tractable operational representations, and then use theory and evidence to delineate where the mechanism travels.

We also mapped DOM papers into complementary pathways (scouting, prototyping under friction, bottom-up theory building, and comparative refinement) to clarify legitimate contributions at different stages of the cycle. This taxonomy serves two purposes. First, it encourages explicit statement of intent: a scouting study should be evaluated by the novelty and first-order nature of the identified friction and mechanism, not by whether it closes the loop with a fully optimized policy. Second, it helps reviewers and editors align the evaluation criteria with the purpose of a paper, reducing the risk that DOM submissions are judged by inappropriate standards (e.g., demanding universal generalization from an early-stage discovery paper or requiring laboratory-like control in a setting where field realism is precisely the object of study). In a field where data access, measurement, and implementation constraints are often more severe than in developed contexts, this alignment is not a lowering of rigor; it is an insistence on fit between method, contribution, and inference.

Several priorities follow for the next phase of DOM research.

1. *Make frictions explicit and cumulative.* Move beyond ad hoc lists toward reusable taxonomies and measurable constructs that clearly distinguish binding from symptomatic constraints. The most influential work will articulate friction $\rightarrow$ mechanism $\rightarrow$ lever $\rightarrow$ outcome chains that others can replicate and extend.
2. *Operationalize developmental outcomes with precision.* Welfare constructs such as inclusion, resilience, and empowerment require validated proxies, explicit dynamic trade-offs, and clear distributional analysis. This anchors operational design in policy-relevant impact.
3. *Embed implementation in theory.* Solutions that are not incentive-compatible or institutionally feasible are theoretically incomplete. Designs must survive enforcement gaps, informality, liquidity shocks, and strategic response.
4. *Build comparative and mechanism-based replication.* Cross-context comparison sharpens boundary conditions and converts local insights into portable mechanisms.
5. *Maintain methodological pluralism with disciplined inference.* Field experiments, quasi-experiments, structural models, qualitative engagement, and analytical work all have a place, provided claims match design and the friction–mechanism–outcome link is explicit.

Finally, DOM will realize its promise only if the community adopts norms consistent with its subject matter. This includes sustained engagement with local institutions and stakeholders, meaningful collaboration with scholars based in developing economies, attention to ethics and unintended consequences, and a commitment to cumulative knowledge rather than one-off demonstrations. Developing-country settings often face constraints on data, resources, and institutional support that mirror the very frictions we study. Advancing DOM therefore requires not only stronger models and evidence, but also stronger research infrastructure, including shared datasets where feasible, transparent field protocols, and publication norms that value discovery, replication, and clear articulation of mechanisms.

In sum, DOM offers OM/OR an opportunity to become more globally valid, more scientifically robust, and more consequential. By taking frictions seriously as theoretical input, grounding outcomes in developmental objectives, and insisting on mechanism-based generalization, the field can avoid the false choice between rigor and relevance. The goal is not to create an *applied corner* of OM, but to expand the core of the discipline: to build theories and designs that remain correct, and useful, when constraints are binding, institutions are imperfect, and operational systems matter the most.

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