Information Asymmetry and Disclosure Gaps in Global Procurement Networks

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Abstract

This paper examines persistent information asymmetries within multinational procurement networks, with particular attention to opacity in sub-tier supplier relationships. Drawing on a dataset of 1,412 procurement contracts across six industry sectors and 23 jurisdictions, we identify structural conditions under which disclosure gaps emerge and are sustained. We find that asymmetric access to logistics data between buyers and suppliers creates compounding vulnerabilities across extended supply chains, and that voluntary disclosure initiatives have produced limited results in sectors where regulatory baselines remain weak. We propose a tiered disclosure framework designed to reduce information gaps while accommodating legitimate confidentiality constraints. Empirical implications are discussed for supply chain governance, regulatory design, and the institutional architecture of private-public information sharing.

Keywords: information asymmetry, procurement transparency, supplier disclosure, supply chain governance, logistics networks

1. Introduction

Global procurement networks have grown in complexity over the past two decades, driven by offshoring, just-in-time manufacturing, and the proliferation of multi-tier supplier relationships. As these networks expand, the informational asymmetries that characterize them have deepened. Buyers frequently lack visibility into the operational and financial conditions of sub-tier suppliers, and suppliers in turn have limited insight into the downstream demand signals that shape procurement decisions. This mutual opacity creates conditions for systemic fragility — conditions that have been repeatedly demonstrated by the cascading supply chain disruptions of the past decade.

The literature on supply chain transparency has focused primarily on the demand side — on the information needs of buyers and the mechanisms through which those needs can be met. Less attention has been paid to the structural conditions that sustain disclosure gaps or to the incentive misalignments that perpetuate them. The empirical work that does exist tends to be confined to single sectors or single jurisdictions, limiting the generalizability of its findings. This paper addresses both gaps, offering a cross-sector, cross-jurisdictional diagnostic framework for identifying asymmetry conditions and a normative proposal for closing them.

The paper proceeds as follows. Section 2 develops the theoretical background, drawing on the economics literature on information asymmetry and the supply chain management literature on transparency. Section 3 describes the dataset and methodology. Section 4 presents empirical findings on the distribution and structural determinants of disclosure gaps. Section 5 introduces the proposed tiered disclosure framework. Section 6 discusses policy implications and institutional design considerations. Section 7 concludes with a discussion of limitations and directions for future research.

2. Theoretical Background

Information asymmetry, first formalized in the economics literature by Akerlof (1970) and subsequently developed by Spence (1973) and Stiglitz (1976), describes conditions in which one party to a transaction possesses materially superior information. In procurement contexts, this asymmetry manifests along several

dimensions: product quality verification, supplier financial health, subcontractor relationships, and logistics network reliability. Each dimension creates distinct risks for downstream actors and calls for distinct mitigation strategies.

Prior work in the supply chain management literature has largely treated transparency as a binary condition — networks are either transparent or they are not. We argue that this framing obscures the graduated, sector-specific, and often deliberately maintained nature of disclosure gaps. Our framework introduces a five-level taxonomy of asymmetry conditions, ranging from incidental opacity to strategic concealment, that permits more nuanced empirical assessment and more targeted policy intervention.

2.1 Five Levels of Asymmetry

Level 1 (Incidental Opacity) refers to information gaps that arise from the routine cost of data collection and that no party has a particular interest in maintaining. Level 2 (Confidentiality-Driven Opacity) refers to gaps that exist because of legitimate commercial sensitivity but that could in principle be closed through appropriate confidentiality protections. Level 3 (Regulatory Arbitrage Opacity) refers to gaps that exist because operators exploit differential disclosure requirements across jurisdictions. Level 4 (Strategic Opacity) refers to gaps that operators actively maintain because disclosure would impose competitive or regulatory costs. Level 5 (Concealment) refers to gaps that operators maintain through active misrepresentation in contexts where disclosure would be required.

This taxonomy is not a moral hierarchy — Level 1 gaps are not necessarily preferable to Level 4 gaps in terms of their systemic consequences. The taxonomy is intended to support diagnostic analysis: identifying which type of gap characterizes a given context informs the policy response that is likely to be effective.

3. Data and Methodology

Our dataset comprises 1,412 procurement contracts drawn from public filings, regulatory disclosures, and industry association databases across the aerospace, pharmaceutical, consumer electronics, automotive, food processing, and maritime logistics sectors. Contract selection followed a stratified random sampling procedure, with oversampling in sectors subject to recent regulatory scrutiny. Geographic coverage spans 23 jurisdictions across North America, Europe, and Asia-Pacific.

Supplier disclosure practices were coded along fourteen dimensions using a structured rubric developed through iterative expert consultation with procurement professionals, regulatory officials, and academic researchers. Coding was conducted by a team of four trained coders working from anonymized contract texts. Inter-coder reliability was assessed across a 15% subsample of contracts, with Cohen's kappa exceeding 0.81 on all coded dimensions. Disagreements were resolved through structured discussion rather than majority voting to preserve substantive rigor.

3.1 Dependent Variables

Our primary dependent variable is the presence or absence of material disclosure gaps in each contract, operationalized as the absence of information about a sub-tier supplier or logistical dependency that would be required for an informed counterparty assessment. Secondary dependent variables include the type of gap (per the Section 2.1 taxonomy) and the documented downstream consequences of the gap, where observable.

3.2 Independent Variables

Independent variables include sector, jurisdiction, contract size, supplier concentration in the relevant market, regulatory baseline for the jurisdiction, and several control variables capturing macroeconomic conditions at the time of contract execution. Regulatory baselines were coded using a four-point scale derived from an independent assessment of mandatory disclosure requirements applicable to each jurisdiction.

4. Findings

Across the full dataset, we find that 61% of contracts contained at least one material disclosure gap. Gaps were most prevalent in maritime logistics (74%) and consumer electronics (69%), and least prevalent in aerospace (38%), where regulatory requirements are most stringent. The maritime logistics finding is particularly noteworthy given the strategic significance of the sector and the cross-jurisdictional complexity of its supply networks.

In 23% of cases, disclosure gaps were found to have contributed to a documented disruption event within 18 months of contract execution. The strength of the association between disclosure gaps and subsequent disruption is statistically significant after controlling for sector, jurisdiction, and contract size ($p < 0.001$), suggesting that information asymmetries are not merely a correlate of disruption risk but a causal contributor.

4.1 Structural Determinants of Disclosure Gaps

Disclosure gaps cluster along three structural conditions. First, regulatory environment: gaps are substantially more common in sectors with limited mandatory disclosure requirements (correlation coefficient $r = -0.42$ between regulatory baseline strength and gap prevalence). Second, market concentration: concentrated supplier markets show higher gap rates than competitive ones ($r = 0.37$ between Herfindahl-Hirschman Index and gap prevalence). Third, geopolitical complexity: multi-jurisdiction supply chains show higher gap rates than domestic ones, with the effect most pronounced for chains crossing major geopolitical boundaries.

These structural conditions are largely outside the control of individual procurement actors and explain why voluntary disclosure initiatives have produced limited results. A purchasing manager operating in a sector with weak regulatory baseline and concentrated suppliers faces a binary choice between accepting the disclosure environment as it exists and exiting the supplier relationship — neither of which is operationally feasible for most procurement programs.

4.2 Taxonomy Distribution

Among contracts with disclosure gaps, the Section 2.1 taxonomy distribution is as follows: Incidental Opacity 12%, Confidentiality-Driven Opacity 31%, Regulatory Arbitrage Opacity 24%, Strategic Opacity 28%, Concealment 5%. The substantial share of Regulatory Arbitrage and Strategic Opacity is consistent with our framing of disclosure gaps as actively maintained rather than incidentally occurring.

5. A Tiered Disclosure Framework

Building on the structural diagnosis above, we propose a three-tier disclosure framework calibrated to the sensitivity of the underlying information. Tier 1 covers information that should be publicly disclosed regardless of competitive considerations: ownership structure, regulatory compliance history, and primary supplier relationships. Tier 2 covers information that should be disclosed to regulators and credentialed counterparties under confidentiality protections: sub-tier supplier networks, financial dependency relationships, and contingency arrangements. Tier 3 covers genuinely competitive information that should remain confidential: pricing, contract terms, and proprietary operational data.

The framework is designed to be implemented through a combination of mandatory regulatory baselines (for Tier 1), conditional disclosure obligations triggered by counterparty credentialing (for Tier 2), and preserved commercial confidentiality (for Tier 3). The detailed institutional architecture required to operationalize this framework is beyond the scope of this paper, but the broad outlines are sketched in Section 6 below.

6. Policy Implications

The findings presented here have direct implications for supply chain governance and regulatory design. Three implications warrant emphasis. First, voluntary disclosure initiatives are insufficient in sectors where

structural conditions sustain disclosure gaps. Regulatory baselines must be strengthened in these sectors before voluntary mechanisms can produce meaningful results. Second, cross-jurisdictional coordination is essential. Disclosure requirements that vary substantially across jurisdictions create regulatory arbitrage opportunities that undermine the effectiveness of any single national framework. Third, the tiered framework proposed here requires institutional infrastructure that does not currently exist at adequate scale — credentialing systems, protected disclosure channels, and enforcement mechanisms — and its implementation will require sustained investment from both public and private actors.

7. Conclusion and Limitations

Information asymmetry in global procurement is not an incidental feature of complex supply chains but a structural condition that is in many cases actively maintained. Our tiered disclosure framework offers a practical path toward greater transparency without imposing blanket disclosure mandates that would be resisted by industry.

This paper has several limitations worth noting. The contract sample, while large by the standards of this literature, remains a fraction of total global procurement activity. Coding from contract texts captures formal disclosure obligations but may understate informal information sharing that occurs through channels not reflected in contract documents. Future work should examine the enforcement mechanisms necessary to make the proposed framework operational, the international coordination challenges it would entail, and the empirical question of whether disclosure improvements actually produce the systemic resilience benefits the framework is intended to deliver.

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