

### Author

1. **What problem or issue does this paper address?** The challenges of developing transparency in extended supply chains.
2. **What have prior studies overlooked about this problem or issue?** Prior studies primarily focused on the role of focal firms in stimulating supply chain transparency. Differently, we conceptualize supply chain transparency as a collective outcome that systematically associates with the structural characteristics of the supply chain.
3. **What is the paper's focal research question?** What is the association between supply chain structure and supply chain transparency?
4. **What is the paper's primary answer to this focal research question?** The answer is complex, with supply chain density having a positive association with supply chain transparency, supply chain clustering holding a negative effect and supply chain geographical heterogeneity having a positive effect.
5. **Why is the paper's methodology appropriate for answering the focal research question?** We followed a deductive approach to theory development because the literature provided initial evidence regarding the role of supply chain structure in influencing supply chain transparency, but no proof of a systematic association. Our large-scale correlational study based on secondary data was considered appropriate to answer our research question because it allowed us to efficiently and accurately map a sufficiently large number of extended supply chains and describe several of their organizational characteristics, thus achieving adequate statistical power and mitigating several sources of endogeneity (reverse causality, simultaneity, omitted variables and self-selection).
6. **What concerns did reviewers/editor raise about the paper's methodology?** Correlational studies are difficult to publish because they do not support causal inference. However, the employed methods and the selected empirical setting mitigated several potential sources of endogeneity and helped us to convince the reviewer team.
7. **Why is your empirical setting appropriate for answering the focal research question?** Our focus on ESG disclosure as a key empirical setting is motivated by:
  - 1) The mounting interest of internal and external stakeholders in the environmental and social impacts of supply chains;
  - 2) The broad generalizability of ESG information to the operational information that constitutes a source of competitive advantage for the focal firm but for which supply chain members may not have a clear economic incentive;
  - 3) It inherently assumes a collective perspective: each supply chain member possesses a non-substitutable piece of ESG information that—once shared—can reduce information asymmetries across the supply chain, and more broadly with stakeholders. Therefore, the ESG disclosure of a supply chain member is valuable to the focal firm, other members, and external stakeholders.
  - 4) Another reason to focus on ESG disclosure is the possibility to observe and measure it, unlike other forms of information sharing or collective (such as forecasts and inventory levels) that the supply chain members may enact, but which do not have a public disclosure element.

8. **What concerns did reviewers/editor raise about the paper's empirical setting?** Reviewers saw the empirical setting as appropriate. However, they asked us to provide an array of robustness checks and to clearly delineate the boundary conditions of our findings (ESG vs. environmental vs. social). They also pushed us to consider a configurational study, which, in our opinion, would not be able to provide clear insights on this multi-faceted phenomenon.
9. **What does this paper leave unanswered about its focal research question?** Mainly two:
  - 1) There is room to examine other structural dimensions such as, for example, clustering signatures or more granular measures of institutional, cultural, and operational heterogeneity.
  - 2) Second, and related, we do not measure what intervening mechanisms explain the association between supply chain structure and supply chain transparency. Future supply chain studies could use qualitative big data to reveal if and how supply chain structure relates to the emergence of effective norms and how these norms in turn ensure the achievement of collective outcomes.
10. **What would you do differently if you started this paper over again?** The first round of review was especially challenging because we tried to force one lens on the phenomenon (i.e., collective action theory), when instead the breadth of structural dimensions considered in the paper as well as its level of analysis required to combine complementary perspectives and mechanisms.

## **Depth (Disciplinary) Discussant**

1. **What theories or phenomena does this paper most directly inform?** Specifically, the paper informs the question of how likely it is that a buyer's suppliers will engage in ESG disclosure. More generally the paper addresses how supply network structure can create incentives or barriers to disclosure or data sharing.
2. **How specifically does this paper advance understanding of these theories or phenomena?** This paper is a rare example where cause and effect are argued for beyond the more typical buyer-supplier dyad. In this sense it is much better aligned with complexity science interpretations of supply networks.
3. **What other studies are most consistent with this paper's findings?** The authors do a good job of citing the relevant studies within their hypotheses development. I will not repeat here.
4. **What other studies cause you to question this paper's findings?** The positive impact of heterogeneity was surprising. I can believe the empirical outcome, but I'm not sure I agree on the logic of "why" as posed in the alternate H3 hypothesis.
5. **What is the best way to validate this paper's findings?**  
This would not be easy. There's a reason so many researchers in this space use the Bloomberg data despite its cost and challenging logistics – but supply network data could be created via a different means (e.g., perhaps via trade-level transactions) to obtain supply networks with more representation of smaller firms.
6. **What relevant mechanisms remain unknown about this paper's theories or phenomena?** The final causal link is unobserved (and unobservable using this type of research design) – namely, how exactly does a focal company perceive its surrounding network and how does that perception influence a decision to disclose or not?
7. **How would you refine the research question to study these unknown mechanisms?** Probably case studies could help supplement this "how" question. For example, currently many organizations are adopting science-based GHG targets. Is this a supply network dynamic, an industry sector dynamic, or an investor influence event? Engagement in the New Plastics Economy Global Commitment or the US Plastics Pact are other case examples that are current.
8. **What empirical settings would be most useful to study these unknown mechanisms?** See response above.
9. **What methods would be most useful to study these unknown mechanisms?** See response above.
10. **What difficulties will scholars face in further advancing this area of study?** Empirically, it is very difficult to obtain supply network data, and the methods needed for advanced graph theoretic metrics can be sophisticated, without much support from existing statistical programs.

### **Breadth (Non-disciplinary) Discussant**

1. **What theories or phenomena in your discipline does this paper most directly inform?** Supply chain transparency, institutional theory, collective action theory, and social identity theory.
2. **How specifically does this paper advance understanding of these theories or phenomena?** It offers more clarity on the conditions when suppliers and extended suppliers contribute to supply chain transparency. The paper also offers a nuanced understanding of these theories in the context of collective action by extended stakeholders.
3. **What other studies in your discipline are most consistent with this paper's findings?** The paper draws on interdisciplinary sources already.
4. **What other studies in your discipline cause you to question this paper's findings?** The positive association with heterogeneity was surprising. This requires further exploration. The effect of clustering was also unique. I used to think only of intra-cluster effects and no inter-cluster effects.
5. **What is the best way to validate this paper's findings?** Qualitatively through a very large-scale study. Quantitatively, the database they use is common and anyone with access to the database and required skills can validate the results.
6. **What relevant mechanisms remain unknown about this paper's theories or phenomena?** Institutional effects on supplier transparency. Focal firms' relationship with suppliers and supplier reciprocity. The role of supply chain and social intermediaries in improving supply chain transparency. The role of industry associations in improving supply chain transparency. Bottom-up local initiatives aimed at supply chain transparency.
7. **How would you refine the research question to study these unknown mechanisms?** I would focus on the 'how' and 'why' questions related to supply chain transparency and topics suggested above. How are supply chain structure and transparency related? Why are supply chain structure and transparency related? When are supply chain structure and transparency related? How and when can supply chain and social intermediaries improve supply chain transparency? How and when can industry associations improve supply chain transparency? How and when can bottom-up initiatives to improve supply chain transparency developed? How do institutional affect supply chains transparency?
8. **What empirical settings would be most useful to study these unknown mechanisms?** Global supply chains of specific products; e.g., garments.
9. **What methods would be most useful to study these unknown mechanisms?** Case studies and ethnographies.
10. **What difficulties will scholars face in further advancing this area of study?** Suppliers and focal firms are not very open when it comes to sensitive topics such as transparency. So, access to actors and field sites would be difficult. Geographically dispersed supply chain research requires a diverse team with local knowledge and expertise.

## **Impact (Practical) Discussant**

1. **What practical problem or issue does this paper most directly address?** It addresses the difficulties firms face to increase transparency across supply chains and tries to find if supply chain structure has a significant effect on this.
2. **How does this paper help managers understand how to address this problem or issue?** It provides a starting point to managers on where to invest resources to address transparency concerns and be able to respond to inquiries internally and externally. It provides a framework to make relevant decisions to map and model their supply networks for insights that can be acted upon in geographical and membership decisions.
3. **Are any parts of the paper unnecessarily confusing or jargony?** Not really in an academic environment. Math, variable definition, considerations, and conclusions need to be properly explained and they are. To be more effective in a corporate environment and be able to reach busy professionals in the areas that manage transparency in focal firms, it will be important to develop a summarized, friendly version that can be shared and communicated more easily.
4. **In what ways are the findings consistent with what happens in practice?** There is consistency on the finding that denser and more interconnected supply chains facilitate more transparency. Similarly expected was the negative effect of clustering.
5. **In what ways are the findings not consistent with what happens in practice?** I would have expected supply chain industrial heterogeneity to have an effect in facilitating transparency, given the sharing of knowledge and standards and learnings that can be moved from one industry to another, especially through vendors and customers establishing policy and needs for disclosure.
6. **What specifically does this paper overlook about the realities of this problem or issue?** Some of the realities not considered could be the firm's ESG program's maturity and the relative size of each one of these companies, as well as how to connect all this with the influence that regulations and enforcement can have on supply chain structure, contracts, and supply relationships
7. **How would you revise the research question to make the study more practical?** "How to increase supply chain transparency by understanding supply chain structure and relationships?"
8. **What other empirical setting would allow a more realistic assessment of this problem or issue?** This is an appropriate empirical setting to assess this problem. ESG disclosure is measurable and can be observed from available records and it is increasingly needed for internal and external reporting.
9. **What other papers or books have helped you to understand this problem or issue?** Some examples are: MIT Supply Chain Special Reports, Deloitte "The Path to Supply Chain Transparency", etc. Mostly drawing from professional experience and the paper itself.
10. **What related issues do you think would benefit from further academic study?** This could go one step beyond and analyze not only the effect on transparency/visibility for firms that supply chain structure provides, but also the benefits for the firms that transparency provides (gaining trust from partners and even consumers and higher sales). Further into the future we could be thinking on how technologies like Blockchain could have an impact on supply chain transparency (in the context of allowing firms that have their own information and interests to protect, to share a common platform that holds information of common interest like ESG disclosures for example).