

# **Risk Prevention Strategies by Micro and Small Enterprises in Global Value Chain Reconfiguration: A Theoretical and Empirical Regional Perspective**

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## **Extended Abstract**

### **1. Introduction and Motivation**

The organisation and functioning of Global Value Chains (GVCs) have been profoundly affected by a sequence of recent shocks, including Brexit, the US-China trade conflict, the COVID-19 pandemic, and the Russia-Ukraine war. These disruptions have exposed structural vulnerabilities in globally fragmented production systems and heightened scholars and policymakers' concerns about excessive dependence on global connections, particularly in strategically relevant sectors (Gereffi, 2020; Gereffi et al., 2025).

Within the European Union, these concerns have been articulated through the framework of Open Strategic Autonomy (OSA) (Cagnin et al., 2021). OSA does not advocate withdrawal from global markets; rather, it aims to ensure that openness does not translate into strategic vulnerability (Schmitz & Seidl, 2023). A central objective is to strengthen domestic and regional production systems so that European economies remain resilient while continuing to participate in GVCs. In this view, reducing critical dependencies requires reinforcing local industrial ecosystems and enhancing the capacity of domestic firms to serve as reliable and competitive partners within global networks.

Yet, much of the debate implicitly assumes that production delocalisation primarily reflects strategic choices made by large multinational enterprises (MNEs), paying comparatively little attention to the role of domestic suppliers. At the same time, recent studies on supply chain resilience show that supplier upgrading, diversification, client base expansion, buffer stock strategies, and the development of local partnerships in production, research, and marketing significantly enhance suppliers' ability to withstand shocks (Gereffi, 2020; Choksy et al., 2022; Johnson, 2025). What remains largely unexplored, however, is whether these strategies also influence firms' decisions to engage in offshore outsourcing. Moreover, existing research has primarily focused on the resilience of individual suppliers or supply chains, without investigating whether certain strategies may generate spillover effects that strengthen the regional production system as a whole and alter the incentives for offshoring.

In this paper, we investigate whether risk prevention strategies implemented by domestic suppliers can affect firms' offshore outsourcing decisions by enhancing not only individual resilience, but also the overall attractiveness and reliability of the regional production system in which they operate. We focus in particular on Micro and Small Enterprises (MSEs), which constitute the backbone of local subcontracting networks and whose strategic behaviour may shape client firms' incentives when considering offshoring.

### **2. Regional Spillovers and Risk Prevention in Global Value Chains**

The broader literature on Supply Chain Risk Management (SCRM) provides the conceptual foundations for analysing preventive behaviour in interdependent production systems. This literature focuses on the identification and mitigation of the risks that arise from interdependencies among supply chain actors (Ho et al., 2015). Unlike traditional firm-level risk management, SCRM adopts a cross-company perspective, aiming to reduce vulnerabilities across the entire supply chain (Kleindorfer & Saad, 2005). Within this framework, supply chain risks are commonly classified into several categories, including environmental risks, industrial and organisational risks, decision-maker-related risks, and demand-related risks. Global outsourcing is typically listed among supply-related risk factors. The SCRM

literature also examines firms' responses to these risks, identifying five main strategies: risk avoidance, risk reduction, risk transfer, risk acceptance, and ignoring risks. Risk reduction strategies may take the form of comprehensive approaches targeting multiple sources of uncertainty or focused interventions aimed at specific disruptions.

Despite its cross-company orientation, SCRM remains largely confined to the boundaries of individual supply chains. The analytical focus is typically on relationships within a given value chain, rather than on the broader territorial context in which firms operate. Even when resilience is examined from a network perspective, the unit of analysis remains the supply chain rather than the region (Kano et al., 2020). As a result, limited attention has been devoted to the possibility that risk prevention strategies implemented by suppliers may generate spillover effects beyond a single value chain and contribute to strengthening the regional production system as a whole.

Moreover, the literature predominantly adopts the perspective of buyers or focal firms. Suppliers are frequently treated as potential sources of disruption rather than as actors exposed to systemic risk. With few exceptions (Kull & Closs, 2008), the vulnerabilities and strategic responses of lower-tier and local suppliers remain underexplored. This omission is particularly striking given that suppliers are often the weakest actors in GVCs, highly exposed to shock transmission mechanisms such as the bullwhip effect and demand volatility (Acemoglu et al., 2016; Altomonte et al., 2012).

Addressing this gap presents both theoretical and empirical challenges. Theoretically, extending SCRM beyond the value-chain level requires modelling interactions among firms that are not necessarily part of the same formal network but share a common territorial environment. Empirically, identifying regional spillovers of supplier-level risk prevention strategies is complicated by data limitations and endogeneity concerns, especially when linking such strategies to firms' offshore outsourcing decisions. Yet, these questions are of growing political importance. In the context of European Open Strategic Autonomy, strengthening domestic and regional production systems is considered essential to reducing strategic vulnerabilities. This makes it crucial to examine whether and how proactive risk prevention strategies implemented by local suppliers, particularly MSEs, can influence not only their own resilience, but also regional stability and the incentives of firms to engage in offshore outsourcing.

### **3. Research Question**

The central research question guiding this study is:

***What role do proactive risk prevention strategies implemented by local MSE suppliers play in influencing offshoring and global sourcing decisions made by client firms located in the same region?***

### **4. Theoretical Framework**

The theoretical framework builds on the economics of risk prevention developed in a static setting by Ehrlich and Becker (1972), extended to a dynamic framework by Menegatti (2009), and applied to supply chain disruptions by Kleindorfer and Saad (2005). In these models, prevention refers to actions that reduce the probability of adverse events, rather than merely limiting their consequences.

To this prevention framework, we add insights from the literature on production in teams (Holmström, 1982; Rasmusen, 1987). In team production settings, individual effort contributes to a joint outcome that is not perfectly separable across agents. This generates well-known incentive problems, including moral hazard and free-riding, but also opens the possibility that complementarities in effort may produce collective gains exceeding the sum of individual contributions.

Building on Battiston and Menegatti (2025), we model prevention as the outcome of interacting efforts, where one agent's preventive investment may reinforce the incentives of others. Suppliers face a strategic allocation problem: they must decide whether to invest in risk prevention and, if so, how to allocate resources between two types of strategies. The first type consists of "egoistic" strategies that primarily enhance the individual firm's resilience. The second type consists of "mutually reinforcing strategies" that generate positive spillovers within the region and increase its overall attractiveness to client firms.

The strategic interaction among suppliers may generate multiple equilibria. In one equilibrium, firms underinvest in mutually reinforcing strategies due to free-riding incentives, leading to low collective prevention and a higher propensity of client firms to engage in offshore outsourcing. In another equilibrium, a sufficient number of suppliers choose mutually reinforcing prevention strategies, generating cumulative regional effects that significantly reduce offshoring incentives. Between these extremes, intermediate equilibria may arise depending on the degree of complementarity among efforts, the cost structure of prevention, and firms' expectations about others' behaviour.

The model therefore does not yield a unique equilibrium outcome. Instead, it highlights how regional production systems may become trapped in low-prevention equilibria or coordinate on high-prevention equilibria. The key analytical question becomes which type of prevention strategy has the strongest effect in reducing the probability of offshore outsourcing, and under what conditions a critical mass of suppliers can shift the region from one equilibrium to another.

## **5. Empirical Strategy and Identification Challenges**

The theoretical framework is tested empirically using Italian firm-level data aggregated at the level of Local Labour Market Areas (LLMAs), which represent the territorial unit of analysis. LLMAs provide an appropriate spatial scale to capture production linkages, labour mobility, and subcontracting relationships among firms operating within the same regional context and within the same industry, independently of administrative boundaries (Sforzi 2012). This territorial perspective is consistent with the theoretical model, which emphasises regional spillovers generated by suppliers' risk prevention strategies across firms operating in the same local production system.

The empirical analysis relies on the Italian Ministry of Economic and Finance Survey (IMEFAS) database, which provides detailed information on micro and small enterprises, including balance-sheet data, firm characteristics, and information on internationalisation strategies (Bucini et al., 2022). These data are combined with information from the ORBIS database on offshore outsourcing decisions, allowing one to distinguish between global sourcing strategies adopted by MSEs and those undertaken by medium and large firms operating in the same LLMA and sector.

A central empirical challenge is operationalising the distinction between "egoistic" and "mutually reinforcing" risk prevention strategies. Building on the theoretical model, we classify firm-level strategies into two broad categories. The first includes prevention efforts that primarily enhance individual resilience without generating regional spillovers, such as diversification into unrelated sectors or expansion of commercial relations outside the region. The second includes mutually reinforcing strategies that may generate positive externalities within the LLMA and industry, such as technological and process upgrading, diversification toward higher value-added functions, expansion of the local client base, and the development of production or R&D partnerships within the region. While both types may improve firm-level resilience, only the latter are expected to affect the overall attractiveness and reliability of the regional production system.

The key explanatory variable captures the intensity and diffusion of mutually reinforcing risk prevention strategies within each LLMA–industry level, measured as the share (or number) of MSEs adopting such

strategies. The main outcome variables measure both the frequency and the intensity of global sourcing decisions in the region, distinguishing between offshore outsourcing by MSEs and FDI decisions by larger firms. The empirical strategy tests whether a higher regional concentration of mutually reinforcing strategies is associated with a lower likelihood of offshore outsourcing, consistent with the existence of regional spillovers and multiple equilibria in prevention effort.

The estimation is conducted using a Linear Probability Model with fixed effects, which allows controlling for unobserved time-invariant heterogeneity across LLMA-industry levels and common shocks over time.

## **6. Expected Contributions and Policy Implications**

The paper contributes to the GVC and SCRM literature by reconceptualising risk prevention strategy and by highlighting the indirect role of MSEs in GVC reconfiguration processes. It introduces a regional perspective that complements existing supply chain-centred approaches and provides new insights into how collective upgrading efforts can enhance regional resilience.

From a theoretical perspective the paper extends the analysis of interactions in prevention, examining new cases and applications not studied in the literature.

From a policy perspective, the findings can inform industry associations and regional policymakers across the European Union. By identifying subsets of MSEs that contribute most strongly to regional resilience, the analysis supports the design of targeted policies that promote risk prevention strategies with positive externalities. This approach is fully consistent with the objectives of the ESPON 2020 Thematic Action Plan TERRES, which aims to support European territories in navigating uncertainty and structural change.

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