# INTER-ORGANIZATIONAL GOVERNANCE AND INNOVATION UNDER DIFFERENT LOCAL INSTITUTIONAL CONTEXTS

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## ABSTRACT

This paper examines the effect of formal and informal institutional settings and of the governance of inter-organizational relationships (IORs) on innovation at the cluster level. The research primarily relies on quantitative methods, utilizing data obtained from a survey involving 115 firms and 12 in-depth interviews. Supplementary qualitative information from the interviews has also been incorporated in the analysis. The results support the hypothesis that innovative firms should consider not only the impact of different governance modes but also how these modes align with the existing local contexts. Failure to do so may result in firms becoming entrenched in the prevailing practices and products of a specific location.



**Keywords:** Firms, innovation, clusters, institutions, governance, inter-organizational relationships.

**JEL:** M2, O3, D83

# INTER-ORGANIZATIONAL GOVERNANCE AND INNOVATION UNDER DIFFERENT LOCAL INSTITUTIONAL CONTEXTS

## 1. INTRODUCTION

Institutions —defined as “humanly devised constraints shaping human interaction” (North, 1990)— are crucial for economic activity to facilitate and safeguard knowledge for innovation (Haus-Reve et al., 2019; Naz et al., 2015; Rodríguez-Pose and Crescenzi, 2008). Local institutions encompass formal control and coordination mechanisms based on the rule of law, as well as informal institutions transmitted through culture (Devarakonda et al., 2020). Extensive research has explored how formal and informal institutions facilitate regional innovation (e.g., Fitjar and Rodríguez-Pose, 2015; Patchell and Hayter, 2013; Trippl et al., 2018), revealing that firm concentration in clusters triggers interdependencies, thereby influencing local institutional arrangements (Porter, 1998; Rocha and Sternberg, 2005).

The innovative capacity of clusters relies on inter-organizational relationships (IORs) developed by firms and organizations at the local level. The governance of IORs —defined as the "authority and power relationships determining resource allocation and flow” within a cluster (Gereffi, 1994: 97)— involves mechanisms to protect against knowledge leakage while fostering tacit knowledge exchange (Poppo and Zenger, 2002; Uzzi, 1997). Yet, when specific industries are highly geographical concentrated, as in the case of clusters, mechanisms to protect against knowledge leakages may not work as close geographical proximity will also facilitate involuntary knowledge exchange mechanisms (or spillovers) that will enhance innovation within the cluster (Audretsch and Feldman, 1996). These spillovers can take place

through formal interaction (contracts) but in clusters they also often happen" through informal channels (relational norms) (Kim, 2014).

Although research has explored the link between formal and informal governance and innovation (Gulati, 1995; Mellewigt et al., 2007), little is known about how the governance of IORs in the local institutional context affects innovation within firms (Devarakonda et al., 2018). Firms can adapt their strategies to the institutional context and modify it by adopting new practices that then spread locally (Doh et al., 2017). The effectiveness of practice changes depends on the appropriate combination of IORs within the local context. Variations in IOR relationships from one location to another may yield differences in innovation due to variations in the institutional context (Devarakonda et al., 2018).

We posit that the impact of institutions on firm-level innovation is often mediated by local IORs. Hence, local formal and informal institutional settings, along with governance choices of IORs, shape innovation. The aim is to assess how the institutional context interacts with IOR governance to foster local innovation and whether firms need to adapt IOR governance to the local institutional context to enable such innovation.

To achieve this, a nested multi-level analysis of innovation processes is employed, combining the broader geography of clusters and firms (Asheim et al., 2019; Trippl et al., 2020). Clusters provide the institutional framework, while firms are key actors in systemic innovation. The analysis considers not only the formal/informal dimension of institutions but also their interdependencies (Eesley et al., 2018; Farole et al., 2011; Fuentelsaz et al., 2019; Gherhes et al., 2018).

The paper contributes to existing knowledge by assessing whether relational governance reduces the need for formal interaction, potentially counteracting the development of trusting relationships, or if, "by" contrast, informal and formal institutions mutually reinforce firm-level

innovation processes (Poppo and Zenger, 2002). Under a formal institutional context, firms adopting formal contractual forms in their IORs experience lower negotiation costs and enhanced reliability through rule adherence. In an informal institutional context, relational IORs promote individual routinization of collective sanctions and the development of shared routines to increase absorptive capacity. We hypothesize that a misalignment between the institutional context of the cluster and the governance of IORs —or, in other words, between the more informal (formal) traditions of the cluster and the more formal (informal) contractual relationships introduced by external actors— can undermine cluster coordination and, therefore, innovation due to inadequate attention to relationship regulation, excessive negotiation costs, or negative reputation effects.

Considering these two levels of analysis provides a better understanding of how firms in clusters drive innovation. Under a formal institutional context, firms introduce changes through contract modifications, leveraging collective experience in complex contract writing or by adapting firm practices to new legal environments. In an informal institutional context, firms rely on established routines and procedures based on trust, collective sanctions, and assumptions, that are progressively introduced by firms and organizations. Misalignment between the institutional context and firms' governance choices raises doubts about their effectiveness, making it challenging to enforce new contractual regimes in an institutionally unstable environment, leading to distrust and the risk of institutional lock-in.

The paper focuses on a Spanish footwear industrial district (cluster)[1] in Elche (EFID). EFID, a prominent open cluster, has experienced significant structural changes driven by the growing influence of multinationals and global fashion groups. These actors control market access and

[1] Although we are aware of the differences between clusters and industrial districts, both concepts will be used indistinctly throughout this paper.

enforce new relational models based on written norms, contracts, and sanctions (Belso-Martínez, 2015). Formalized relationships coexist with traditional relational dynamics rooted in trust, characteristic of the Marshallian industrial district model (Becattini, 1990; Dei Ottati, 2018). EFID represents an archetypal example of the role of different institutional dimensions in clusters.

The paper's structure is as follows: after this introduction, we delve into the relevant literature, presenting the micro-mechanisms through which formal and informal institutions influence innovation and networking in clusters. The literature review leads to the formulation of hypotheses. Section 3 describes the cluster, data, and methods. The results of the econometric analysis are reported and discussed in Section 4. Section 5 concludes, providing preliminary implications and outlining future research directions.

## 2. INSTITUTIONS AND INTER-ORGANIZATIONAL RELATIONSHIPS

### 2.1 Institutions, Local Networks, and Innovation

Innovation systems and institutions have been at the centre of research on industrial districts and clusters (Martin and Sunley, 2011; Maskell and Malmberg, 2007; Ter Wal and Boschma, 2011). Economic geographers have emphasized the interplay between firms and institutions in spatially and socially contingent spaces, highlighting their mutual influences (Hassink et al., 2014; Martin and Sunley, 2015a; Pike et al., 2009). Regional innovation system scholars perceive innovation as territorially embedded, shaped by unique social and institutional conditions (Bailey et al., 2010; Iammarino, 2005; Uyarra, 2011). The innovation system of a region comprises formal and informal institutions promoting common norms, values, and practices (Gertler et al., 2000).

Economic activities are embedded in socio-economic contexts where the interdependencies between a firm's behaviour and the local socio-institutional frameworks impact technology, institutions, and industries across different analytical levels (Bailey et al., 2010; Martin and Sunley, 2015b). Existing literature distinguishes between formal and informal institutions (North, 1990). Formal institutions include designed normative structures and rules, while informal institutions involve sociocultural characteristics like shared values, norms, and social structures (Lawson et al., 1999). Both contribute to innovation by enabling territories to adapt and respond to change (Rodríguez-Pose, 2013:1039). However, the influence of informal institutions on innovation has received less attention (Rodríguez-Pose, 2020).

Regarding informal institutions, the concept of "innovative milieu" has been used in various studies to explain the learning processes within local networks (Camagni, 1991; Capello, 1999; Keeble and Wilkinson, 1998). This regional collective learning relies on shared knowledge, language, procedures, as well as trust and reciprocity among geographically proximate firms, facilitating mutual understanding and communication. Other informal institutions that have been subject to scientific examination include "social capital" (Coleman, 1986), "untraded interdependencies" (Storper, 1995), "higher-order capabilities" (Foss, 1996), "local buzz" (Bathelt et al., 2004), and "embeddedness" (Granovetter, 1985).

Informal institutions play a crucial role in industrial districts, where economic and cultural factors interact to produce a virtuous circle of innovation (Becattini, 1990; Bellandi, 1989; Brusco, 1982). Firms located in industrial districts develop close connections that foster the division of labour among them, thereby enhancing their competitive advantage (Belussi and Caldari, 2009). Access to social capital and local informal interactions further contribute to industrial district success (De Ottati, 1991; Muringani et al., 2021).

Understanding how informal institutions foster innovation remains controversial. Local innovation relies on the development of networks of firms for acquiring valuable ideas and knowledge (Aggarwal, 2020; Baum et al., 2000; Cruz-González et al., 2015). Barriers to local network development include appropriability problems and coordination failures (Gulati, 1998; Kumar and Zaheer, 2019; Peng and Turel, 2020; Williamson, 1985). Formal institutions address these challenges by establishing regulations and enforcement mechanisms (North, 1990). Informal institutions, on the other hand, rely on social coordination and control, such as occupational socialization, collective sanctions, and reputations, rather than on authority or legally binding regulations, which often limit opportunities (Granovetter, 1985; Jones et al., 1997).

Firm reputation influences local networks, with collective routines formed through cumulative processes (Boschma and Frenken, 2009). Shared recognition and actions facilitate understanding, cooperation, and the translation of external knowledge into innovation (Bailey et al., 2010; Hervás-Oliver et al., 2011; Lawson and Lorenz, 1999). Strong communitarian bonds and shared political, social, and cultural identity contribute to the generation of cooperative behaviours (Dei Ottati, 1991, 2018), which can be easily adopted at the firm level. Firm-level alliances and previous local partnership experiences assist in the development of trust with new partners (Gulati, 1995), particularly in informal institutional contexts. These alliances allow firms to internalize the social institutional context, leading to the development of specific internal resources and path-dependent routines (Doh et al., 2017; Saka-Helmhout et al., 2020). Firms that employ relational governance mechanisms at the network level find it easier to foster innovations. Knowledge can be more effectively identified, integrated, applied, and protected in the innovation process when the firms, suppliers and customers involved operate under similar rules, procedures, and conventions (Zenger et al., 2002).

### 2.2. The institutional context and the governance of IORs

In addition to the institutional context, reducing appropriability problems and promoting communication and coordination within a cluster require effective governance mechanisms developed by firms in their partner relationships (Gulati, 1995; Kim, 2014). Firms establish IORs with local partners, including suppliers, customers, and competitors, which can be governed by contracts. Formal contracts involve promises or obligations for future actions. The complexity of a contract requires detailed specifications of obligations, dispute resolution clauses, and penalties for noncompliance (Williamson, 1991). Alternatively, relational governance forms rely on social processes, emerging from shared values and customs. These forms are based on mutuality, cooperation, information and knowledge sharing, and joint problem-solving (Dyer and Singh, 1998). While both governance mechanisms have demonstrated effectiveness for innovation (Belussi and Sedita, 2012; Devarakonda et al., 2018; Un et al., 2010), the optimal conditions for their application remain unclear.

--- Insert Table 1---

We examine the impact of both the institutional context of the cluster and the choice of governance mechanisms in IORs on innovation. Specifically, we anticipate that contractual governance mechanisms are reinforced at the IOR level under formal institutional contexts, while relational governance mechanisms are effective at the IOR level under informal institutional contexts. Table 1 provides a summary of the key arguments, with the underlying rationale being that innovative firms should align their relationship changes with those of the cluster they belong to. Introducing innovations requires adjusting incentives, communication structures and processes within the network to align with the institutional context. Consequently, we propose the following hypothesis:

H1: When in a cluster the governance of IORs is aligned with the local institutional context, firm-level innovation increases.

2.2.1. Formal institutions and contractual governance in IORs

Under a highly formalized institutional context, utilizing contracts at the network level enables the transformation of general rules into new agreements. In these conditions, a firm's ability to modify contract clauses for accommodating new activities, investments, and objectives is enhanced (North, 1990). These contracts not only address non-compliance but also document the division of labour and foster a shared understanding of agreement expectations. A well-defined contract serves as a tool for better adaptability to future contingencies (Kim, 2014). Additionally, contracts within this institutional context become increasingly comprehensive. Due to agents' limited knowledge and decision-making abilities, contracts are initially incomplete in specifying all possible contingencies. However, geographically proximate firms engaged in similar and repeated transactions under the same regulations can learn from each other and incorporate more specific provisions into their contracts (Celly and Frazier, 1996; Díez-Vial and Álvarez-Suescun, 2010; Langlois, 1992).

Similarly, regulatory changes are reflected in individual contract clauses. Regions seeking to implement new protective measures or adapt to evolving environmental conditions can introduce regulatory changes that translate into specific clauses and conditions within formal partner relationships. The standardization of the local context by repeatedly resorting to formal institutions facilitates the inclusion of standardized clauses.

2.2.2. Informal institutions and relational governance in IORs

The informal institutional context is characterized by repeated interactions among co-located agents that foster trust, shared values, and cultural norms. Within such a context, social actions

play a significant role in determining economic behaviour (Uzzi, 1996). Compared to formal contracts, the development of informal mechanisms of social coordination and control, including occupational socialization, collective sanctions, and reputations, can effectively reduce the risk of opportunistic behaviour (Granovetter, 1985; Jones et al., 1997). Firms, associations, and professional bodies contribute to the formation of social norms or region-specific assets, which mitigate the risk of opportunism and incite cooperative behaviour and the formation of shared social norms, ultimately enhancing local reputation and economic exchanges (Devarakonda et al., 2018).

Informal institutions within clusters have a close relationship with innovation, as they shape the social dimension of economic activities in these areas (Becattini, 1990; Bellandi, 1996; Bellandi et al., 2018; Brusco, 1982). The web of trust-based and interaction-based relationships in industrial districts fosters specific learning mechanisms and coordination dynamics that are crucial for innovation (Hervás-Oliver et al., 2021).

Strong communitarian bonds and a shared political, social, and cultural identity contribute to the generation of cooperative behaviours (Dei Ottati, 2018), which can be easily adopted at the firm level. Informal firm-level alliances and previous local partnership experiences facilitate the development of trust with new partners (Gulati, 1995). These alliances allow firms to internalize the social institutional context, leading to the development of specific internal resources and path-dependent routines (Doh et al., 2017; Saka-Helmhout et al., 2020). Firms that employ relational governance mechanisms in their relationships find it easier to foster innovations, as knowledge can be more effectively identified, integrated, applied, and protected in the innovation process when involved firms, suppliers, and clients operate under similar rules, procedures, and conventions (Zenger et al., 2002).

Changes in local relationships resulting from process innovations can be directly undertaken or diffused through the adaptation of social practices. By incorporating new standards into their relational governance, firms can transmit them to others as new frames of reference or moral obligations (Hoffman, 1999). Competitors in close proximity are more likely to imitate such practices as they are perceived as more appropriate and legitimate, compared to changes undertaken by distant firms with no established relationships (Marquis et al., 2007). The informal institutional context itself promotes the adoption of these changes, as trust-based relationships, frequent interactions, and shared standards facilitate adaptation (Castaldo et al., 2009; Hansen et al., 2011).

Based on these arguments about the role of formal and informal institutions within clusters, we derive the following sub-hypotheses from Hypothesis 1:

Hypothesis 1a: When in a cluster the governance of IORs contains a significant component of formal contractual relations, firm-level innovation increases.

Hypothesis 1b: When in a cluster the governance of IORs contains a significant component of informal relational interactions, firm-level innovation increases.

2.2.3. Misalignments between institutional context and network governance

Hence, both formal and informal governance methods at the local level can combine with the governance of IORs to deliver greater innovation. However, the question of what happens to firm-level innovation when the governance of the IOR is misaligned with the local institutions of the cluster —or, as indicated earlier, when there is a clash between the more informal traditions of the cluster and the more formal contractual relationships introduced by external actors. Under an informal institutional context, relying on contractual governance for the IOR increases coordination costs, as firms face pressure to design formal coordination models when

relational governance is perceived as functional and less costly (Kim, 2014). Innovation requires flexible relationships that allow for the incorporation of new processes, assets, and resources, often involving costly renegotiations of contracts and complex clauses (Uzzi, 1997). These costs can be reduced when firms operate within a context that promotes a shared understanding of agreement expectations (Uzzi, 1997). Additionally, in an informal institutional context, relying heavily on formal contracts can have adverse reputational consequences, as it may be seen as hindering cooperation (Devarakonda et al., 2018; Ghoshal and Moran, 1996). Informal institutional contexts thrive on reciprocity and trust. Putting the emphasis on contracts can thus undermine the foundation of partnerships in such an environment (Zenger et al., 2002).

When a firm adopts a relational governance mechanism, the level of formalization in the institutional context has a limited impact. However, in non-repeated interactions, a highly formalized institutional context becomes more relevant as regulations serve as the primary means of protection against short-term defection and coordination issues (Zenger et al., 2002). A formal institutional context can be beneficial in establishing trust at the beginning of a relationship, while relational governance helps address unforeseen events once the relationship is established (Carson et al., 2006). As the relationship stabilizes, the formal context becomes less significant. In regulated societies, individuals need to adhere to external rules that may not align with their natural tendencies, unlike in less regulated societies where commonly accepted practices suffice (Doh et al., 2017).

A misalignment between the local context and the governance of the local network can increase the risk of inertia and resistance to change, particularly in informal contexts where existing beliefs, social norms, and cognitive structures are more stable than laws and legislation (Boschma and Frenken, 2009; North, 1990). Nonetheless, effective communication and

knowledge exchange among firms can overcome this barrier. Although institutional arrangements can be highly resistant to change, aligning them with existing local governance mechanisms increases the likelihood of successful adaptation. In clusters with well-established relational institutional contexts, new formal contractual relationships are less likely to be effective, as they may not fit the prevailing relational dynamics. Therefore, we propose the following Hypothesis 2:

H2: A misalignment between the more informal traditions of the cluster and the more formal contractual relationships introduced by external actors can stifle innovation within the cluster, as both factors work as substitutes rather than complements.

This hypothesis can, in turn, be divided into two sub-hypotheses when considering the relationship between the governance of IORs and the local institutional context:

Hypothesis 2a: A relational governance in IORs under a formal institutional context reduces firm-level innovation.

Hypothesis 2b: A contractual governance in IORs under an informal institutional context reduces firm-level innovation.

## 3. EMPIRICAL EVIDENCE

### 3.1 Clusters, institutions, and innovation

For over 200 years, the Spanish province of Alicante —and, particularly, the city of Elche and its surroundings— has been the centre of the Spanish footwear industry. Local entrepreneurs initially produced and marketed espadrilles made of canvas uppers and rope soles in the 19th century. The incorporation of advanced fibres expedited production, reduced costs, and led to

the establishment of artisanal facilities by skilled workers. These craft operations gradually evolved into embryonic factories for leather shoes.

As demand grew, the number of factories increased, resulting in transformation and spin-off processes. Unlike most Spanish clusters that emphasized productive integration and economies of scale, the Elche Footwear Industrial District (EFID) adopted a decentralized industrial system with a mix of large "Fordist" factories and small and medium-sized enterprises (SMEs). The economies of location and a diverse manufacturing base provided EFID with flexibility to adapt to changes in demand (Miranda Encarnación, 1998). The arrival of US multinational companies and the expansion of international operations in the 1970s further enhanced the industry's quality and design capabilities (Belso-Martínez, 2006).

In the early 2000s, the local production system became fragmented as local multinationals relocated labour to low-cost clusters, while specialized SMEs focused on innovation strategies centred around design and quality (Belso-Martínez, 2010). Many local manufacturers became subcontractors for larger companies, sacrificing innovation to compete with low-cost producers (Belso-Martínez, 2015). The global financial crisis triggered a deep restructuring of EFID, with resource-rich firms intensifying their efforts in intangible assets and international operations to maintain competitiveness, while smaller-scale producers with limited resources faced challenges and often disappeared. Offshoring became prevalent among the cluster's largest manufacturers (Martínez-Mora et al., 2014).

The post-crisis landscape is characterized by a fragmented cluster facing intense competition and shifting demand, prompting various strategies among its members. Leading firms have embraced the Industry 4.0 or eco-innovation paradigms, influenced by global multinationals in the district, while others rely on long-established manufacturing and business strategies. The evolution of the cluster is summarized in Table 2.

--- Insert Table 2---

Localized production systems, such as EFID, typically exhibit a traditional systemic structure characterized by intensive horizontal and vertical interactions based on trust. Suppliers and customers maintain close transactional relations, involving knowledge sharing and joint problem-solving (Belso-Martínez and Molina-Morales, 2013; Martínez et al., 2012; Parra-Requena et al., 2011). These relationships are standardized due to ongoing production fragmentation and spin-off processes. Skilled and experienced workers establish their firms, leveraging their relational capital and familiarity with local business practices (Ybarra, 2000, 2006).[2]

Over the past few decades, the institutional landscape has undergone changes due to the growing and dominant presence of global fashion groups and retailers such as Inditex-Zara, Mango, and H&M. Furthermore, firms face increasing legal and policy pressures to adapt for accessing institutional support for sustainable practices and principles in product design and manufacturing (Lewis et al., 2017). Market trends, particularly the demand for sustainable products, and the concentration in retailing have led to more closely monitored and regulated relationships with local suppliers. These changes aim to enhance sourcing coordination, ensure product specifications through the normalization of quality standards and traceability, and formalize socio-environmental conditions across the value chain (Belso-Martínez et al., 2018). As awareness of these regulatory pressures spreads through local networks, small innovative producers progressively integrate them into their business strategies. In summary, the coexistence of institutional settings in EFID gives rise to a complex web of interactions that shape the behaviour of individual firms.

[2] Informal economy practices have traditionally been widely accepted by all kinds of local manufacturers to reduce costs or gain flexibility (Ybarra, 2000).

### 3.2 Methodology

We conducted a cross-case study using qualitative and quantitative methods to test our hypotheses (Cameron et al., 2011). Based on the literature review, we designed a pilot questionnaire gathering data on firm characteristics, networking, innovation, formal and informal institutions, and market issues. The pilot phase, involving five firm managers, provided feedback, leading to improvements in the final questionnaire.

Due to the unavailability of disaggregated sub-regional information, we used SABI-Bureau Van Dijk[3] data to depict EFID firms' characteristics in 2020. Out of 471 active firms, the majority were small in revenue, capital assets, and employees. Despite their small size, 27.2% of local firms were exporters, and 12.3% owned one or more trademarks. EFID accounted for 30.1% of all active Spanish firms in the industry within a 326.1 km2 area. Its geographical core is centred around the Elche Business Park, housing 92 firms and concentrating 34.1 firms/Km2. The concentration in the core increased due to clustering around international brands like Zara, overseeing footwear design, development, and outsourced production coordination.

Top-level managers and business owners completed the questionnaire with assistance from an expert for accuracy. 115 participants took part in the survey between October and December 2018. They were assured of confidentiality and access to results (Miller et al., 1997).

To address common method bias, we conducted a single factor test following Podsakoff et al. (2003). The analysis identified thirteen factors explaining 82.79% of variance, with the largest factor explaining only 17.76%. The 25% response rate minimized non-response bias. Further

[3] SABI is a directory of Spanish and Portuguese companies containing general information and financial data. It covers more than 95 percent of companies with a minimum total annual revenue of €360,000 across all 17 Spanish regions.

analysis showed no significant differences in employee numbers, international operations, and total revenues between our sample and a random cluster population sample (p-value < 0.1).[4]

---Insert Table 3---

### 3.3. Measurement of variables

#### *3.3.1. Dependent Variable: Firm innovation*

Many firms choose not to patent new knowledge and innovations (Grant, 1996). This is particularly true in low-tech industries such as footwear production, where innovation is mostly incremental and based on non-codified knowledge, which reduces opportunities for formal protection. Furthermore, the limited degree of novelty and the knowledge disclosure needed in any patent application increases the risks of technological substitutes, limiting the effectiveness of patents.

Hence, in our analysis we resorted to alternative subjective performance measures, which have demonstrated internal consistency and reliability across sectors and countries (Singh et al., 2016). We created a composite index of innovation using indicators from the annual Innovation Survey conducted by the Spanish National Statistics Institute. The index was informed by insights from the literature on innovation in clusters (Boari et al., 2016; Expósito-Langa et al., 2015; Molina-Morales et al., 2016). It incorporated information regarding i) product; ii) process; iii) organizational; and iv) sales and marketing innovation. All these indicators were measured at firm-level (Table 3). Each of these four indicators captures the manager's perception of their firm's innovation relative to competitors over the past three years. Factor analysis with maximum likelihood estimation (KMO = .737; p-value < .01) was employed to assess internal consistency, resulting in a satisfactory Cronbach's alpha value of .85.

[4] Results available upon request.

*3.3.2. Independent Variables*

*Degree of IOR formalization*. The degree of IOR formalization was assessed by combining three questions concerning knowledge relationships with local suppliers, customers, and competitors (Doloreux, 2004; Knoben, 2009; Li et al., 2013; Porter, 2000; Zeng et al., 2010).

In district-level production, socio-institutional contexts play a vital role through linkages and untraded interdependencies (Martin, 2001; Storper, 1997). However, the orientation of networks toward formal or informal linkages depends on firm-specific and industrial factors, such as technological content or sophistication (Chetty and Agndal, 2008; Kadokawa, 2013). To capture this orientation, our survey asked firms about the extent to which their relationships with suppliers, customers, and competitors relied on informal or formal institutions. The level of formalization was determined by the presence of written rules, standardized procedures, or contracts, while informal institutions were indicated by trust, shared values, or relational norms. The scores from these three items were subjected to factor analysis, yielding a single construct that demonstrated internal consistency. (Cronbach's alpha = .68; KMO = .651; p-value < .01).

*Formal institutional context.* To measure the relevance of formal institutions at the cluster level, a composite indicator was created based on seven items covering the legal framework, contracts and written agreements, intellectual property rights, rule of law, and formal standardization of procedures. Respondents were asked to indicate their degree of agreement with these items. The information was condensed into a single construct with solid internal consistency (Cronbach's alpha = .85) through factor analysis (KMO = .737; p-value < .01).

*Informal institutional context.* A composite indicator was constructed to assess the importance of informal institutions at the cluster level. Seven different items were drawn from previous literature, covering firmness and authority, unwritten values and rules, mutual trust, loyalty and commitment, unplanned practices, social values, and collective interest. Respondents rated their

degree of agreement with these items. The information was consolidated into a single construct, displaying solid internal consistency (Cronbach's alpha = .82) through factor analysis (KMO = .795; p-value < .01).

*3.3.3. Control variables*

A micro-geographical approach provides a realistic picture of locational advantages, which are unevenly distributed within the cluster and can be traced to small neighbourhoods (Boix et al., 2015; Mudambi et al., 2018). Agglomeration benefits gradually decline with increasing distance from the core of the industrial district (Kadokawa, 2013). We measured *Geographical Distance* as the road distance from the firm to the core of EFID (Elche Parque Empresarial). *Firm Size*, our second control variable, is generally perceived to be positively associated with innovation (Audretsch and Acs, 1991; Mowery et al., 1996). A factor analysis incorporating the number of employees and total revenues was used to calculate its value (KMO = .500; p-value < .01).

The model also includes a dummy variable, *R&D efforts*, representing R&D expenditures on total revenues over the last three years (Mowery et al., 1996) (1: Firms with R&D above the sample median, 0: otherwise). Firm age influences innovation and networking (Molina-Morales et al., 2015). Older firms usually rely on a broader knowledge base, while younger firms may exhibit more flexibility. *Age* is measured as the number of years since the firm's creation.

Access to external knowledge and innovation is facilitated through extra-cluster relationships (Bathelt et al., 2004; Bathelt and Turi, 2011; Glückler, 2007). A dummy variable, *International Operations*, represents firms engaged in both exporting and importing (1: if the firm exports and imports; 0: otherwise). Group membership indicates enhanced access to knowledge and better innovation performance (Belenzon and Berkovitz, 2010), so a dummy variable is included to represent *Group Membership* (1: if the firm belongs to a group; 0: otherwise).

In the fashion industry, subcontracting is common, with subcontractors benefiting from buyer-dependent relationships (Kale et al., 2000; Tokatli, 2015). A dummy variable, *Subcontractor*, controls for this influence (1: the firm is a subcontracting supplier; 0: otherwise).

## 4. EMPIRICAL RESULTS

Table 4 presents the basic descriptive statistics and Pearson correlations for all variables. Correlations do not exceed .70 and average VIF scores are 1.26, indicating no significant multicollinearity concerns.

---Insert Table 4---

Table 5 displays the main-effects model results, showing significant effects on firms' innovation. Firms belonging to a business group (B=.468; p-value<.05), subcontracting from multinational companies (B=.111; p-value<.05), engaging in international operations (B=.523; p-value<.05), or having greater investment in R&D (B=.751; p-value<.01) innovate more. Firm size and age, however, do not significantly affect innovation in the cluster. The presence of solid cluster institutions —whether formal (B=.296; p-value<.05) or informal (B=.180; p-value<.1)— positively contribute to innovation in line with Hypotheses 1 and 1a and 1b.

---Insert Table 5---

Model 2 introduces the interaction between formal and informal institutions, showing a negative effect on innovation (B=-.229; p-value<.05). Model 3 reveals that the joint consideration of formal institutional context and the governance of interorganizational relationships (IORs) has a significant and positive effect on innovation (B=.359; p-value<.01), confirming once again Hypothesis 1.

Model 4 examines the interaction between informal institutions and the formal governance of firms' IORs, finding a significant main effect of informal institutions (B=.236; p-value<.05), but no significant interaction effect (B= -.151; p-value=.131). Therefore, Hypothesis 2 is supported, as the governance of IORs within a cluster needs to be aligned with local informal institutions to maximize innovation. The predicted marginal effect plots further illustrate the two-way interaction effects. Figure 1 demonstrates that the positive impact of formal institutions on innovation is magnified when informal institutions are perceived as less relevant. In Figure 2, greater formal institutions have a stronger positive impact on innovation when district IORs are more formalized, confirming the need for alignment between the cluster and relational institutional levels, as suggested by Hypotheses 2, 2a and 2b.

---Insert Figure 1 and Figure 2---

## 5. FURTHER INSIGHTS FROM INTERVIEWS AND QUALITATIVE DATA

To complement the econometric analysis, we conducted 12 in-depth interviews with managers and experts (see Table 6). The interviews took place in April 2018 at the organizations' facilities, using a semi-structured questionnaire and lasting approximately one hour each. The qualitative analysis was followed by participant review and comments on a preliminary draft.

---Insert Table 6---

The interviews addressed key questions regarding the mechanisms governing interorganizational relationships (IORs) in EFID, changes in these mechanisms at the firm and cluster levels, the degree of formalization in relational dynamics, drivers of institutional change, the interplay between inter-firm governance and cluster institutions, and the influence of institutional mechanisms on innovation practices at both firm and cluster levels.

Informants confirmed the importance of informal interactions based on trust in protecting innovation and dissolving doubts about opportunistic behaviours, particularly between independent manufacturers and suppliers. These findings align with studies on industrial districts, emphasizing reciprocity, trust, and shared experiences as conducive to innovation. However, interviewees also indicated that the transcription and documentation of informal meetings are becoming common practices. Buyers' managers of fashion brands and suppliers or subcontractors increasingly engage in more formalized relationships, adapting shoe collections and discussing technical solutions.

The level of formalization varies across organizations, with footwear buyers exhibiting more contractual governance in IORs compared to independent manufacturers. In line with Hypothesis 1, many independent manufacturers imitate the informal institutional atmosphere of clusters based on trust. Trust-based relationships and routinization reduce negotiation and contractual costs, facilitating innovation. This corresponds to the success of the Emilia-Romagna region in Italy, where looser and reciprocal ties with privileged suppliers and subcontractors have fostered experimentation and innovation.

Conversely, the increasing dominance of legal frameworks in certain areas of the local business arena is seen as an alternative formula for minimizing cooperation risks in knowledge transfers required for innovation. This change permeates IORs, starting with large fashion brands and subcontractors and spreading through supplier networks. The progressive formalization of business exchanges is deemed to have lowered barriers and enhanced knowledge exchanges, contributing to innovation (see Table 7).

However, firms relying on relational IORs also recognize the coordination problems arising when higher levels of formalization become the norm, in line with Hypothesis 2. Trust alone is no longer sufficient, but modifying long-standing relational arrangements at the cluster level is

challenging. Dysfunctions also emerge when contractual governance is introduced in an informal institutional context, as negotiations become laborious and concerns about reliability and commitment arise. Shared values in IORs act as a barrier to incorporating discordant visions in the cluster.

---Insert Table 7---

The coexistence of formalization and traditional informal contexts creates distress. Firms collaborating with major buyers, subcontractors, and independent firms grapple with varying degrees of formalization in relationships, making relational dynamics complex and arduous. Both types of institutions, according to the interviewees, thus become reciprocally harmful, reinforcing the negative effect observed in the quantitative analysis for the interaction of institutional contexts as can be inferred from the synthesis of quantitative and qualitative results (Table 8).

---Insert Table 8---

## 6. CONCLUSION, IMPLICATIONS, AND LIMITATIONS

Research on clusters has highlighted the significance of the institutional context and interorganizational relationships (IORs) for fostering innovation. However, the interplay between the institutional context, IOR governance, and innovation has been underexplored. Building on Devarakonda et al.'s (2018) pioneering work, our study offers new insights into the connection between firm-level relationships and institutional theory, shedding light on how local governance of IORs interacts with the cluster's institutional context to shape innovation dynamics.

The complexity arises from the diversity in IORs governance and institutional contexts, intertwined with firms' specific characteristics and local networks. Large fashion buyers typically adopt contractual governance and formalization, influencing independent footwear manufacturers and suppliers bound by traditional informal atmospheres and trust-driven relationships. As the global fashion industry reinforces the dominance of large buyers and promotes formalization, this dynamic affects innovation trajectories within the cluster. However, remnants of traditional practices persist in some areas of the EFID, creating a complex ecosystem where footwear firms must navigate and adapt to foster innovation.

Our findings emphasize the crucial role of aligning IORs and the institutional context in shaping innovation within clusters. When coordinated effectively, these elements facilitate the acceptance of specific institutional practices through imitation, leading to efficient interactions and knowledge transfers (Husted et al., 2016). This complements existing literature that has focused primarily on trust-based IORs and informal institutional environments (Doh et al., 2017; Saka-Helmhout et al., 2020), by highlighting the mutual reinforcement of contractual arrangements as a part of IORs and formal institutions. Recurrent regulated transactions with more complete contracts at lower costs result in successful experiences that spread within the cluster (Diez-Vial and Álvarez-Suescun, 2010).

The increasing engagement of large buyers and subcontractors in contractual relationships in the EFID tends to isolate them from the local context and reduce interactions with other cluster members, undermining the traditional trust-based atmosphere. Independent manufacturers and suppliers interacting with different firms continue to use various governance systems, reflecting the diversity of their business relationships. Contacts with large buyers lead to formalization, while interactions with subcontractors or suppliers in the cluster network tend to remain informal.

Overall, a misalignment between the governance of IORs and institutional contexts can discourage innovation. Pressure for tighter regulation can create coordination problems, disenchantment, and adverse reputation effects. Hence, our research highlights that formal and informal institutions can reinforce one another, facilitating innovation in complex ways (Farole et al., 2011), but only when they are aligned. When that is not the case, the robustness of informal institutions at the cluster level resists formalization pressures, stifling innovation and contributing to the debate on the complementary or substitutive nature of formal and informal institutional dimensions (Gereffi and Lee, 2016; Haus-Reve et al., 2022; Hervás-Oliver and Boix-Doménech, 2013).

The findings have significant implications for policymakers and firms' management structures. Policymakers should understand existing relationships before determining the necessary institutions and policies to promote local innovation. Stimulating innovation solely through regulations in an informal institutional context is less effective than establishing formal agreements with local agents to introduce new perspectives and values. Managers should also consider the specific local context instead of blindly replicating agreements from other contexts (Hoffmann et al., 2023). Replication practices may hinder innovation and lead to coordination problems. Evaluating the relationship between the local institutional context and global networks would be interesting.

The cross-sectional nature of our data and the focus on a footwear district in Europe require caution in generalizing the findings. Future research in different regions and industries is needed to better understand the influence of institutions on firm performance. The study has only explored institutional influences on innovation performance, while implications for strategic behaviour warrant further investigation. While our measures are based on perception data, they provide a creative and realistic alternative to most traditional measures of innovation. However, alternative indicators may complement and refine the findings.

Despite these caveats, the analysis highlights that the balance between formal and informal institutions is fundamental in determining the resilience and survival capacity of the footwear industry (Bellandi, 2010; Hervás-Oliver et al., 2011). Relying on more traditional and informal institutional contexts provides flexibility and agility in decision-making but may hinder the adoption of new practices and regulations required for adaptation to the competitive global market. Hence, the drive towards greater formalization of IORs is contributing to keeping the cluster dynamic. However, the coexistence of formal and informal institutions may lead to tensions, and the prevalence of more formal institutions in the future may transform the traditional practices that once dominated footwear production in the Elche area.

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**Table 1. The effect of different institutional contexts and IORs governance on innovation**

| | | Governance of IORs | |
|---|---|---|---|
| | | **Contractual** | **Relational** |
| **Institutional context** | **Formal** | - Contracts become increasingly more complete: lower negotiation costs<br>- Players are reliable by following rules.<br>- Regulation changes are translated into new contract clauses. | - Little attention to regulation under stable relationships.<br>- Relational costs.<br>- Inertial lock-in under changes: lower flexibility to incorporate changes. |
| | **Informal** | - Unnecessary high costs of negotiation, coordination and designing contracts.<br>- Adverse reputation effects.<br>- Inertial lock-in under changes: lower flexibility for incorporating changes. | - Individual routinization of collective sanctions.<br>- Share routines to increase absorptive capacity.<br>- Changes in local relationships are spread collectively.<br>- Weaken under competitive pressures |

**Table 2. The evolution and main trends of the EFID**

| Period | Main hints | Description |
|---|---|---|
| 1880 | First espadrille artisans | The Shoe Industry maximizes the industrial evolution of Elche based on canvas shoes. |
| 1940 | The consolidation of a footwear manufacturing system | Localization economies, decentralization and flexibility. 51.7% of the workforce in Elche works in the footwear sector. |
| 1960 | The launch of the footwear industry in Elche | The development of the industry leads to the population being doubled, reaching a census of more than 100,000 people. |
| 1980 | Consolidation of the footwear components industry | The Footwear Industry consolidates as the economic driving force lays the groundwork of the future cluster and generates new jobs. |
| 1990 | Qualitative leap in the footwear industry adaptation to globalization | Companies reinvent themselves by adapting to all kinds of economic situations through innovation and quality |
| 2000 | A global cluster in the new geography of the industry | Integration in the Global Value Chain. Offshoring of low-value, increasing local subcontracting and innovation-based strategies. |
| 2010 | Financial crisis and the restructure of the local industry | Solid financial resources, reverse offshoring, wage restraints, investment in intangibles and export markets reinforced the position of solid companies. |
| 2015 | Post crisis recovery based on high valued added strategies. | Renovated confidence in innovation, intangibles and flexibility, Solid growth in firms or employment, also in components. |
| 2020 | Strategic complexity, consolidation of top-level segments and socio-environmental awareness | Sustainability claims proliferate on the agenda. Digitalization penetrates retailing. Consumers demand personalization and experiences |

## Table 3. Constructs and Measures

**Firm Innovation**

Creation of a composite innovation index. Questions about the relevance over the last three years of the firm's:

- Product innovation compared to competitors
- Process innovation compared to competitors
- Organizational innovation compared to competitors
- Sales and marketing innovations compared to competitors

7 point Likert scale (1: far below to 7: far above)

**Degree of IOR formalization**

Questions about the degree of informalization (e.g., trust or relational norms) versus formalization (written rules or contracts) of firm's relationships over the last three years with local

- Suppliers of equipment, materials, components….
- Customers from the private or public sector
- Competitors or other companies from the same branch of activity

7 point Likert scale (1: very high informal to 7: very high formal)

**Informal Institutional context**

Questions about the extent you agree with the following statements about informal institutions for innovation practices at the cluster level (norms, shared values, atmosphere of trust,…):

- Relationships with other companies are based more on demand than on firmness and authority
- There are a number of "unwritten" values and rules, so companies act and relate to them
- Mutual trust between companies is an important element in business relations (commercial, productive, innovation).
- Leading companies are committed to loyalty, collaboration and trust in their relations with other companies, even at the expense of their interests
- The usual practice among companies is to deal with things as they come, rather than planning
- The results of companies are linked to factors such as social relations, seniority or prestige
- The dynamics of the sector tend to promote the individual interests of the companies more so than collective ones

7 point Likert scale (1: Totally disagree to 7: Totally agree)

**Formal Institutional context**

Questions about the extent you agree with the following statements about formal institutions for innovation practices at the cluster level (written norms, rules, manuals, contracts,…

- Business relations (commercial, productive, innovation) are increasingly regulated by formal contracts and agreements.
- The reliability of the judicial system is key to business activities (commercial, productive, innovation)

- The reliability of the judicial system is key to protect firms' intellectual property.
- The growing formalization of business relations is promoting firms' innovation practices.

7 point Likert scale (1: Totally disagree to 7: Totally agree)

**Size**

- Factor including information about the firm's number of employees and total revenue

**R&D Effort**

- Dummy variable that takes value 1 if the firm %R&D is above the median in the sample, and 0: otherwise.

**Age**

- Number of years since the creation of the firm

**International operations**

- Dummy variable that takes value 1 if the firm exports and imports, and 0: otherwise.

**Geographical distance**

- Dummy variable that takes value 1 if the firm is outside the core district area, and 0: if the firm is inside the core district area

**Group**

- Dummy variable that takes value 1 if the firm belongs to a business group, and 0: otherwise

**Subcontractors**

- Dummy variable that takes value 1 if the firm is a subcontractor, and 0: otherwise

**Table 4. Main descriptives and correlation matrix**

| | Mean | Sd | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Firm Innovation | 0 | 1 | 1 | | | | | | | | | | |
| Size | ,000 | ,985 | -,121 | 1 | | | | | | | | | |
| Age | 22,326 | 11,424 | -,077 | *,166 | 1 | | | | | | | | |
| Group | ,445 | ,499 | ,121 | ***,279 | ,137 | 1 | | | | | | | |
| International operations | ,198 | ,400 | *,194 | ,044 | *,179 | **,204 | 1 | | | | | | |
| R&D | ,386 | ,489 | **,239 | **-,203 | -,063 | -,097 | *-,190 | 1 | | | | | |
| Geographical distance | ,897 | ,305 | -,151 | ,037 | ,044 | *-,163 | -,048 | -,023 | 1 | | | | |
| Subcontractors | 1,593 | 1,898 | *,178 | ,090 | -,092 | ,090 | ,006 | -,074 | ***-,371 | 1 | | | |
| Informal Institutional context | ,000 | 1,000 | ***,279 | -,261 | -,035 | -,150 | ,043 | ,048 | ,045 | -,060 | 1 | | |
| Formal Institutional context | ,000 | 1,000 | *,189 | ,156 | *,172 | -,038 | ,145 | **-,201 | -,050 | **,203 | ,133 | 1 | |
| Degree of IOR formalization | ,000 | 1,000 | -,063 | *,179 | **,274 | *,194 | ,049 | -,042 | ,074 | *,177 | ***-,314 | ,133 | 1 |

***p<.01; **p<.05; *p<.1

## Table 5. Regression results. Dependent variable: Firm innovation

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|---|---|
| | B | SE | B | SE | B | SE | B | SE |
| Intercept | -,765 | ,441 | -,793 | ,511 | -,468 | ,430 | *-,871 | ,443 |
| Size | -,056 | ,101 | -,074 | ,116 | -,067 | ,096 | -,048 | ,100 |
| Age | -,004 | ,009 | -,002 | ,009 | -,007 | ,009 | -,003 | ,009 |
| Group | **,468 | ,216 | **,420 | ,207 | *,369 | ,208 | *,394 | ,220 |
| International operations | **,523 | ,255 | **,503 | ,244 | *,458 | ,243 | **,511 | ,253 |
| R&D | ***,751 | ,219 | ***,787 | ,365 | ***,664 | ,210 | ***,778 | ,218 |
| Geographical distance | -,016 | ,087 | -,012 | ,226 | -,044 | ,083 | -,007 | ,086 |
| Subcontractors | **,111 | ,055 | **,123 | ,051 | ,077 | ,054 | **,132 | ,056 |
| Informal Institutional context | *,180 | ,102 | ,043 | ,114 | ,079 | ,102 | **,236 | ,107 |
| Formal Institutional context | **,296 | ,128 | **,264 | ,122 | **,242 | ,122 | **,333 | ,129 |
| Degree of IOR formalization | -,118 | ,116 | -,082 | ,108 | -,106 | ,111 | -,066 | ,121 |
| Formal Institutional context* Informal Institutional context | | | **-,229 | ,096 | | | | |
| Formal Institutional context*Degree of IOR formalization | | | | | ***,359 | ,120 | | |
| Informal Institutional context*Degree of IOR formalization | | | | | | | -,151 | ,099 |
| F-statistic | ***3,272 | | ***3,682 | | ***4,121 | | ***4,121 | |
| R2 | ,315 | | ,367 | | ,393 | | ,393 | |

***p<.01; **p<.05; *p<.1

## Table 6. Characteristics of the interviews conducted

| | **Activity** | **Firm profile** | **Position** |
|---|---|---|---|
| Supplier | Producers of textiles, heels, lasts, packaging, etc. Sales and interaction with footwear buyers, manufacturers, and subcontractors. | Leading textile and woven producer | Top manager |
| | | Top heels and last manufacturer. | Business owner |
| Footwear buyers | MNE or large local firms that outsource footwear production. Buy and/or interact with suppliers and subcontractors. | Global MNE. Mass fashion brand. | Production chain coordinator |
| | | Local MNE. Medium-high footwear brand. | Business owner |
| | | Global MNE. Mass fashion brand. | Top manager |
| Independent manufacturers | Footwear firms with collection, production, and diversity of customers. Buy from suppliers and interact with subcontractors. | Medium-sized firm. Internationalized. Diversified portfolio of customers. Medium-high market segment. | Top manager |
| | | Small-sized firm. Internationalized. Mostly small customers. Medium market segment. | Business owner/CEO |
| Subcontractors | Footwear producers without collections focused on cost and efficiency. Buy from suppliers and interact with footwear manufacturers. | Large manufacturer. Diversified portfolio of footwear buyers. | Production manager |
| | | Small manufacturer. Mostly focused on one footwear buyer. | CEO |
| Supporting Organization | Local organizations provide support in innovation, technology, and managerial spheres. Interact with all district members. | Footwear business association. | Representative |
| | | Technological institute | Innovation manager |
| | | University | Academic expert |

**Table 7. Main qualitative insights on alignment theoretical expectations**

| | | Governance of IORs | |
|---|---|---|---|
| | | **Contractual** | **Relational** |
| **Institutional context** | **Formal** | *"…Everything is always written and documented to avoid problems, determine responsibilities and ensure a successful cooperation. In the end, it is good for all of us. Initially it was difficult, but they have adapted and assume the costs [formalization] if they want orders"*<br><br>(Production chain coordinator of a Footwear buyer).<br><br>*"The power of global brands forces firms to minimize risks through legal tools and formal documents [contracts].... Although this is complex and costly, they should use the legality…."*<br><br>(Academic expert)<br><br>*"The industry is becoming conscious of the value of legal protection, Patents and contracts include more and more aspects and clauses. For instance, to deal with the increasing social and environmental rules".*<br><br>(Innovation manager of the Technological institute)<br><br>*"…legal framework between large fashion brands and their subcontractors regulates several areas and protects both sides…. This new type of regulation is something they have to live with more and more".*<br><br>(Top manager of an independent manufacturer) | *"We really do not need to write or sign... Why should we invest time and money in something unnecessary? We have known each other for years.... This is not like working with Zara or Mango...."*<br><br>(Top manager of an independent manufacturer).<br><br>*"It is complicated to deal with unexpected events and changes. Even when we know each other, terms and responsibilities are ambiguous..... Despite willingness and the effort, sometimes satisfactory solutions are not reached and cooperation ends".*<br><br>(Top manager of a supplier firm)<br><br>*"Instead of granting permanent exclusivity to each joint development, we ask them to respect it only for a certain period. Once known, anyone can quickly imitate it. ..... It is not like registering a design or patent. They refused, but eventually gave in"*<br><br>(Business owner of a supplier firm)<br><br>"The business association and the technological institute advise them to protect themselves from future problems..... Never want to change, for them the rules are clear and work well"<br><br>(Top manager of a Footwear buyer) |
| | **Informal** | *"Agreements must be in some form of written to avoid confrontations about the results of our work.... It is a sign of mistrust as we hale from a time and a place when a person's word was enough"*<br><br>(Representative of Business association)<br><br>*"We try to use plain language and create a friendly atmosphere during formalization..... They are increasingly open and get used to them [contracts], but negotiation is always hard due to traditions"*<br><br>(Business owner of a Footwear buyer)" | *"The beginning of the story is to present our novelties to our customers [independent manufacturers] … After, we meet in their factory many times to adapt our proposal and achieve the right product…… That's how it has worked for decades"*<br><br>(Business owner of a supplier firm)<br><br>*"Our customers [independent manufacturers] trust that developments are not sell to competitors, otherwise, our future cooperation will be damaged. Although this is becoming difficult due to sales pressure and the quality of alternative offers"* |

| | | |
|---|---|---|
| | "It is difficult to change their minds... For instance, the know about the environmental wave. However, most of them relegate it. They see it as a waste of time and money"<br><br>(Representative of Business association)<br><br>*"Impossible, I would have a problem with my customer. It (a contract) would be a sign of distrust. This way of doing things runs up against traditional common uses and harms cooperation and the creation of new things"*<br><br>(Top manager of a Supplier) | (Business owner of a supplier firm)<br><br>*"I run my business as my father and other business owners before me.... I try to be honest with my suppliers and maintain longstanding partnerships…… We know each other perfectly well, and this makes everything easy"*<br><br>(Business owner of an independent manufacturer). |

## Table 8. Synthesis of quantitative and qualitative results

| Combinations of institutional context and governance of IORs | Quantitative results | Qualitative insights |
|---|---|---|
| Formal context and degree of IORs formalization | B= ***.359 (SE=0.120) | Evidence that formalization protects all actors and guarantees expected behaviours. Helps to address responsibilities and solve tough negotiations. Increasingly complex, costly and subject to new regulation. |
| Informal context and degree of IORs formalization | B= -.151 (SE=0.099) | Evidence the existence of social sanctions. The relevance of mutual knowledge and cooperation to innovate. The prevalence of informal governance in certain spheres. The risks induced by competition pressures. |
| Formal context and Informal context | B=**-.229 (SE=0.096) | |

***p<.01; **p<.05; *p<.1

Figure 1. Predicted values of Firm Innovation

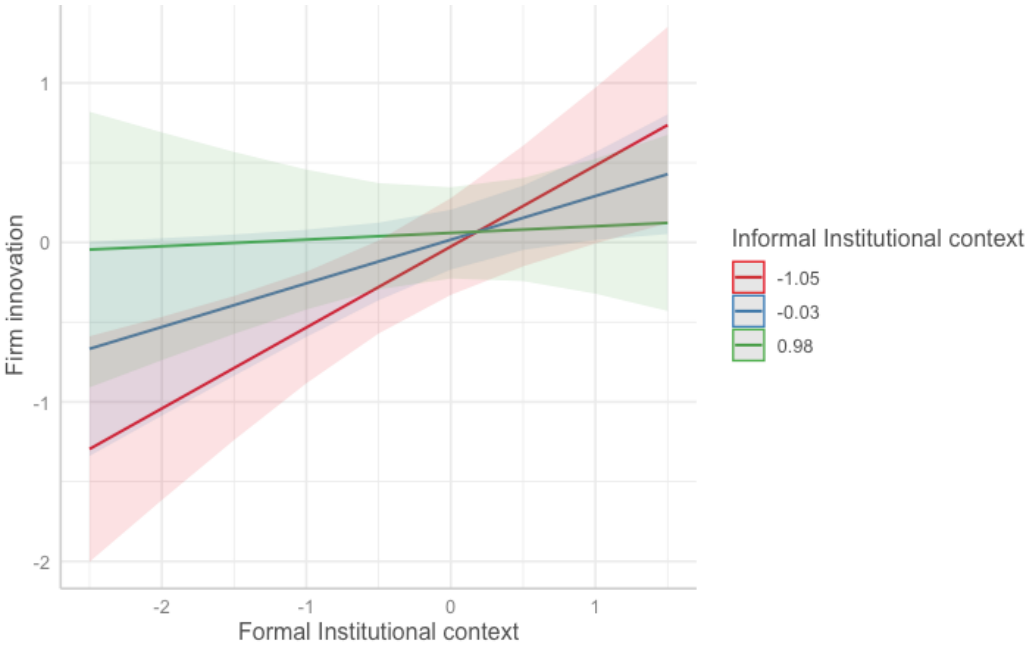


Figure 2. Predicted values of Firm Innovation