Socialist imprints and innovation strategies in a transition economy

Hien Tran[1] and Mark Freel[1, 2]

[1]Telfer School of Management, University of Ottawa, Ottawa, ON, K1N 6N5, Canada
[2]Lancaster University Management School, Bailrigg, Lancaster, LA1 4YX, United Kingdom

Abstract

This paper contributes to research at the intersection of institutional theory and the emerging literature on institutional imprinting by studying how the persistence and decay of founding institutional imprints affect network-based innovation strategies in small firms during later stages of economic transition. In do so, we are able to investigate both the extent of imprints and the boundary conditions that serve to strengthen or weaken their persistence. We situate our study in a fast-growing but under-studied transition economy, Vietnam, applying multiple estimation methods on a multilevel panel sample of 2644 small entrepreneurs over 6 years. Our major findings are, firstly, that firms launched before transition are influenced by socialist imprints and rely more on small and concentrated informal social networks, while firms launched after transition rely more on newer formal market institutions to generate innovations, and, secondly, that management and industry experience strengthens network-based innovation strategies and, thus, amplifies the persistence of socialist imprinting in firms established prior to transition.

1. Introduction

In the three decades since the fall of the Berlin Wall presaged the breakup of the Soviet Union and the dissolution of the Warsaw Pact, a large body of scholarship has concerned itself with processes of economic and social reform in what have become known as 'transition economies'[1]. Whether events were abrupt, as in Eastern Europe, or more gradual, as has notably been the case in China, entrepreneurs and entrepreneurship have often been central to the narrative (McMillan and Woodruff, 2002; Peng, 2001).

However, notwithstanding enthusiasm for private enterprise as a critical source of innovation and for its ability to adapt to, and co-evolve with, rapid institutional change (Peng, 2003; Ahlstrom and Bruton, 2010; Santarelli and Tran, 2013; Tran, 2019), recent work has been marked by growing pessimism. In this vein, empirical studies have observed forces of stagnation and reversion in transition economies, including an erosion of economic freedom in the post-transition period (Sobel, 2017), a retreat in "market orientation because of a stronger influence from the central and local governments" (Ahlstrom and Bruton, 2010: 532), and a general decline in democracy as well as in entrepreneurship (Audretsch and Moog, 2021). This juxtaposition of micro evidence on the momentum generated by an increasing number of private enterprises and macro evidence of a retreat in market liberalization and economic convergence entails a paradox. How might researchers reconcile evidence of thriving entrepreneurship, on the one hand, with concerns over institutional relapse, on the other?

Here we take our point of departure from the literature on the evolution of organizational strategy to argue that such paradox may be attributed, at least in part, to opposing forces of contingency and inertia. On one hand, entrepreneurs improvise and coevolve with their embedded social and institutional contexts (Audretsch et al., 2019) through their continuous strategic adaptation to changing external conditions as economies transition and firms grow (Nicholls-Nixon et al., 2000). On the other hand, their capacity to adapt is often limited by the enduring influence of their initial strategies, which are difficult to change once established. At its heart, this echoes debates on adaptation versus selection and the implications for organizational innovation (e.g. Meeus and Oerlemans, 2000). We reconcile the two

---

[1] Initially concerned with the economies of the former Warsaw Pact, in Eastern Europe, but extended to encompass the emerging markets of South-East Asia that have also experienced processes of economic and social 'transition'.

approaches, suggesting that, while entrepreneurs actively adapt, their actions are constrained by historical imprints that limit intentional strategic shifts. Firms in transition economies face two particular challenges: first, they "confront incompatible prescriptions from multiple institutional logics" (Greenwood et al., 2011: 318) in the transition from the outgoing socialist economic system to the emerging market system; and two, firms launched before or after the commitment to economic transition may be marked by distinctive imprints that influence the way they interact with, and adapt to, their external environment in the present (Maksimov et al., 2017).

Our research contributes to the emerging literature studying the persistence and decay of founding institutional imprints, and their influence on network-based innovation strategies within small firms in mature transition economies. We explore why some firms leverage emerging market institutions to enhance their innovation performance while others do not, despite operating in increasingly uniform formal institutional environments shaped by pro-market reforms (Waeger and Weber, 2019: 337). In answering this question, we take a coevolutionary approach, as suggested by Simsek et al. (2015), to investigate how the initial institutional logics at a firm's inception influence the development of micro-level innovation strategies and macro-level networking tactics during the adanced stages of economic transition. Furthermore, we examine a boundary condition that may strengthen or weaken the persistence of historical imprints on firms' innovation performance, placing entrepreneurs at the heart of the story and addressing prior concerns that research has treated the imprinting process as a 'black box' (Simsek et al., 2015: 305).

Our findings suggest that, on the one hand, firms founded before the economic transition began often developed capabilities and knowledge tailored to the socialist economic system that once prevailed. These "socialist imprints" are persistent and resistant to change, hindering these firms from updating their knowledge routines and strategic practices to align with new market institutions (Kriauciunas and Kale, 2006; Shinkle and Kriauciunas, 2012; Marquis and Qian, 2014; Banalieva et al., 2017). Such firms frequently rely on informal social networks to gain legitimacy and access vital innovation resources, as they are deeply embedded in the structures of the old planned economy, which constrains managerial efforts to adapt (Dixon et al., 2010). On the other hand, firms launched after the start of the transition are not burdened by previous imprints, positioning them to develop market-oriented capabilities more effectively and leverage evolving formal market institutions for innovation. Furthermore, socialist imprints

also affect the structural properties of firms' social networks, resulting in network imprints. Firms established prior to transition continue to engage in the smaller, more concentrated, strong-tie social networks formed during their formative years for innovation resources, whereas firms established after transition exploit pro-market institutions and weak-tie networks that include foreign business partners, government officials, and international organizations, leading to larger and more diverse networks. As the transition progresses, the influence of formal institutions becomes more pronounced, though informal networks remain significant. Intriguingly, the persistence of imprinting varies, appreaing less evident in firms led by entrepreneurs with lower levels of prior managerial and industry experience. These inexperienced entrepreneurs, unemcumbered by established routines and connections, are more adaptable, gradually shifting away from old ties to embrace new opportunities.

Empirically, our study tackles the challenges of theoretical ambiguity, dependence on cross-sectional data, and limited variable operationalization that have characterized previous research on imprinting. We conduct our analysis in an emerging and transition economy, Vietnam, where the shift from central planning to privatization offers an excellent context. Many state-owned firms, founded during the era of exclusive central planning, were privatized during the transition and many new private ventures were created. This provides us with a rich and diverse firm population, with varied degrees of socialist imprinting resulting from their founding histories and initial ownership.

2. Literature review

2.1. Institutional Imprinting and Entrepreneurial Innovation

Historical approaches have played an important role in institutional scholarship (Djelic and Ainamo, 2005; Lounsbury, 2002). Ever since Stinchcombe (1965) introduced the concept of 'imprinting'[2], the theory of institutional imprinting has attracted significant research interest at multiple levels of analysis: from individual imprints (Tilcsik, 2012; Raynard et al., 2013; Cock et al., 2020), firm-level strategies (Johnson, 2007; Geroski et al., 2010) to industry-level characteristics (Zaring and Eriksson, 2009; Marquis and Huang, 2010; Dobrev and

---

[2] Imprinting is defined as "a process whereby, during a brief period of susceptibility, a focal entity develops characteristics that reflect prominent features of the environment, and these characteristics continue to persist despite significant environmental changes in subsequent periods" (Marquis and Tilcsik, 2013: 201)

Gotsopoulos, 2010) and communities and networks (Bruton and Beckman, 2007; Marquis, 2003). Like institutional theory, institutional imprinting explores the impact of the external environment on firm- and individual-level behaviors, but it specifically highlights the enduring influence of historical contexts. The "stickiness of historical endowments" is encapsulated in three key building blocks: "a sensitive time period, environmental stamping, and persistence of imprints" (Marquis and Tilcsik, 2013: 196; Popli et al., 2021: 224). The imprinting process encompasses the time of exposure (the sensitive period) during which the focal entity (the imprinted organization or individual) is exposed to various characteristics of the environment (the imprinter). The main premise is that prior social and institutional historical contexts exert an enduring influence on entrepreneurs' social and business experiences, shaping their future economic strategies and actions (Baron et al., 1999).

At the organizational level, venture creation is assumed to be "one of the most salient moments of [a firm's] life cycle" (Pennings, 1980: 154), although other 'transition' periods – such as going public, merging with another firm, changing industries, or replacing the senior management team – may also constitute 'sensitive' periods later in its life. During these times, firms are particularly susceptible to the influence of technological and economic conditions (Marquis and Tilcsik, 2013) and founding institutional conditions (Lamberg and Laurila, 2005). These exposures exert a long-lasting "administrative heritage" on a firm's organizational structure, strategic actions, and subsequent operating behaviors (Calori et al., 1997: 681; Peng, 2003). These sensitive periods also leave an ideological imprint on founders' prevailing values and beliefs "about how the social world operates, including convictions about what outcomes are desirable and how they should be achieved" (Gupta *et al.*, 2017: 1019). As firms navigate uncertainty and adapt to environmental changes, the foundational characteristics of their originating institutions - such as public policies, political ideologies, cultural norms and values – tend to be internalized and embedded in organizational structures (Johnson, 2007), knowledge and capabilities (Kriauciunas and Kale, 2006), and innovation strategies (Maksimov et al., 2017).

Despite extensive research into how current institutional quality and changes influence individual- and firm-level behaviors and performance (Chari and David, 2012; Tran, 2019; Park et al., 2006), there is a comparatively limited understanding of how previous social and institutional history impact firm strategies and behaviors (Marquis and Qiao, 2020). This gap is particularly noticeable in the transition from protectionist to liberalized market regimes

(Popli et al., 2021). Additionally, existing research tends to treat the formation and evolution of imprinting as a 'black box' (Simsek et al., 2015: 305; Wang et al., 2019), viewed as discrete and "[not] process-based" (Simsek et al., 2015: 307), and typically seen as persistent without decay and irreversibility (Alakent et al., 2020; Sinha et al., 2020, Nicolini et al., 2016). This limited perspective leaves open questions about why firms exhibit varying degrees of inertia when exposed to the same founding conditions and develop imprints of differing intensities. In transition economies, focal organizations are imprinted with the dominant institutional logic at their founding, which may conflict with the prevailing institutional logic of subsequent sensitive periods. This institutional complexity emerges as firms "confront incompatible prescriptions from multiple institutional logics" (Greenwood et al., 2011: 318), particularly socialist imprinting[3] versus an emerging market-oriented ideology[4]. This juxtaposition not only places divergent demands on firms but also embeds them with contradictory blueprints (Shinkle and Kriauciunas, 2012). As suggested by Zhang et al. (2016), this tension makes economic transitions an ideal setting for examining how organizations are shaped by historical conditions while adapting to new environmental influences.

High levels of socialist imprinting from the pre-liberalization phase often indicate a strong governmental presence, with the central planner controlling all resources and production factors, regulating economic exchanges through quota systems, and making decisions based on administrative principles. Firms established during this period typically sought to maintain strong affiliation with state and local authorities to obtain legitimacy, social support, and approval from external stakeholders (Choi et al., 2012). These connections provided firms with preferential access to opportunities and resources (Hansen and Birkinshaw, 2007; Chen et al., 2014), which enhanced their survival and growth prospects (Dacin et al., 2007). The exposure to socialist practices and values, along with a reliance on close personal networks, deeply influenced firms' knowledge, routines, and capabilities, potentially hindering their strategic adaptability to institutional reforms and market liberalization (Kriauciunas and Kale, 2006). This often resulted in a slow response to the new opportunities afforded by emerging market institutions (Kogut and Zander, 2000).

---

[3] Socialist imprinting refers to "the impact of the institutional and market environment characterizing the socialist economy at the time of the firm's founding on its knowledge sets, and the new market knowledge set that is developed in in the post-socialist period (Kriauciunas and Kale, 2006: 660). It reflects the principles and demands of the collectivist and output-oriented socialist environment.

[4] Market-oriented ideology refers to economic liberalization policies such as privatization, deregulation, free trade, and reductions in government spending in order to enhance the role of the private sector in the economy and to facilitate economic growth (Tran and Santarelli, 2021).

Resource dependence theory also suggests that firms founded in the communist era continue to leverage these established networks to cope with environmental uncertainty and secure scarce resources (Tran and Freel, 2022), restrict competition (Makhija, 2003), maintain relationships with bureaucrats (Shinkle and Kriauciunas, 2010), and sustain employment growth (Park and Luo, 2001). For example, state-owned firms in China founded during the socialist era are more likely to have politicians and public officials on their boards of directors compared to those founded in later, market-oriented phases (Wei, 2007). The more incumbent firms in China were aligned to the socialist culture, the more they were driven away from "the logic of capitalism" (Tilcsik, 2010: 1476), and the adoption of new market-oriented governance practices (Yiu et al., 2005; Marquis and Qian, 2014). Subsequently, as market liberalization and pro-market reforms increase, legitimizing foreign firms and heightening competition (Chari and David, 2012), incumbent firms with socialist imprints continue relying on informal institutions and networks to sustain their innovation performance (Maksimov et al., 2017). This lead us to propose the following hypothesis:

Hypothesis 1a: Private firms launched before the formal initiation of market liberalization processes rely more on informal institutions (i.e., strong-tie personal networks) to generate entrepreneurial innovation.

Compared to entrepreneurs who launched their ventures during the early stages of economic transition, those who started their businesses later are likely to face fewer or different constraints due to their imprints (Maksimov et al., 2017). Firms established after the initiation of reform policies are generally more adaptable and less resistant to change when navigating multiple, often conflicting, institutional logics (Greenwood et al., 2011). These firms originate in an environment increasingly defined by market-oriented institutional logics, gradually supplanting socialist principles, which shape their relationships and operational routines. Battilana and Dorado (2010) suggest that firms respond to such institutional complexity by developing a hybrid organizational identity that combines these conflicting logics. Conversely, Kraatz and Block (2008) argue that firms may resolve this tension by committing to the dominant or preferred market logics. As governments legally recognize the legitimacy of new private firms and view them as critical to the success of economic transition (Tran and Santarelli, 2021), they develop supportive, pro-entrepreneurial formal institutions to enhance private firms' innovation performance. Importantly, entrepreneurs are not merely passive

recipients of this increased legitimacy and institutional support; rather, they actively engage with local and central government officials to influence and shape these changes (Ahlstrom and Bruton, 2010). These interactions enable them to "achieve isomorphism and relieve uncertainty and legitimacy pressures" (Wei, 2017: 350), and craft innovation strategies that align with the prevailing market-oriented institutional logics (Shinkle and Kriauciunas, 2012). Thus, we propose the following hypothesis:

Hypothesis 1b: Private firms launched after the formal initiation of market liberalization processes rely more on formal institutions (e.g., formal business associations) to generate entrepreneurial innovation.

2.2. Network Imprinting and Entrepreneurial Innovation

While most imprinting studies have traditionally focused on how organization-level imprints affect the trajectories of organizational behaviors and outcomes (Simsek et al., 2015), research examining the impact of imprints on social networks remain underdeveloped (Milanov and Fernhaber, 2009). As suggested by Scott (2008: 158), imprinting studies that followed Stinchcombe's lead "did not systematically assess changes in normative and cultural-cognitive" dimensions of social networks, which are crucial for shaping entrepreneurial behaviors and strategies. On one hand, social network research primarily examines the immediate implications of networks (e.g., Hannan et al., 1996; Mizruchi and Stearns, 2001; Xiao and Tsui, 2007), suggesting that network-oriented entrepreneurs respond to environmental changes (Koka et al., 2006) by either restructuring their inter-personal networks[5] or shifting from a network-based strategy to a market-based strategy, such as joining new formal business associations to enhance innovation outcomes (Huggins et al., 2012). On the other hand, theorists of structural inertia and imprinting argue that "network inertia", resulting from the constraints of former ties (Kim et al., 2006: 705) or past network structures and positions (Marquis, 2003; Soda et al., 2004; McEvily et al., 2012; Ahuja et al., 2012; Sullivan et al., 2014), impedes network adaptation and dictates the nature of collaboration versus competition among network members (Vasudeva et al., 2013). In this way, "a past network, with its accumulated relational experience, becomes a kind of network memory" that casts a

---

[5] For instance, networks may "evolve from identity-based during its emergence to calculative in response to changing resource needs and acquisition challenges associated with the growth of the firm" (Hite and Hesterly, 2001).

long shadow over current structural arrangements and cannot be easily dismissed (Soda et al., 2004: 893). In a similar fashion, the neo-institutionalist perspective attributes inertial influences to the institutionalization and stabilization of network routines, where actors conform to established rules or beliefs to gain legitimacy from other social actors (Dimaggio and Powell, 1983).

Incorporating historical perspectives into network research involves a dual focus on distinct aspects of network history (Marquis and Tilcsik, 2013). First, there is the enduring impact of past ties on a focal actor or entity, which persists even after those specific ties have dissolved (McEvily et al., 2012). Analyzing these past ties and structural positions is crucial for understanding how actors acquire new knowledge, practices, and capabilities through social networks (Soda et al., 2004). Second, the notion of network persistence relates to how old network structures imprint on current configurations during sensitive periods. Even with the introduction of new members, these individuals tend to replicate the structural patterns of established network members, leading to a reproduction of network interactions over time and across various actors (Ahuja et al., 2012). This structural continuity underpins the network's overall connectivity and plays a key role in forming both bridging and bonding social capital (De Carolis et al., 2009). Bridging social capital helps identify new opportunities and creative solutions (Bhagavatula et al. 2010), mobilizes additional resources and information (Batjargal 2003), and bridges information asymmetries between entrepreneurs and key stakeholders (Shane and Cable 2002). Bonding social capital, on the other hand, fosters shared meanings, identity, values, and behaviors among network members, which in turn supports legitimacy, social and emotional backing, and innovation generation (Elfring and Hulsink 2003; De Carolis et al., 2009). As Byrne (1971) suggested in his pioneering work on interpersonal attraction, individuals often gravitate towards others with similar beliefs, thereby reinforcing shared attitudes and behaviors. Consequently, individuals are likely to adopt pro-innovation attitudes and behaviors that mirror those of their network contacts.

Bridging and bonding social capital foster entrepreneurial innovation by influencing the structural dimensions of network size and diversity. Network size, referring to the number of network members, is positively associated with the breadth of the accessible knowledge base, thereby increasing the potential for novel connections that drive radical innovation (Huggins et al., 2012). Consistent findings in the empirical open innovation literature also support a positive link between network size and innovativeness (e.g., Laursen and Salter 2006; Leiponen

and Helfat 2010), albeit with evidence of diminishing returns beyond some high level of network activity (Love, et al 2014). Individuals with extensive social ties are highly visible in their networks, allowing them to facilitate social exchanges and resource transactions that boost innovative performance (Rank and Strenge, 2018), as well as to manage and mitigate risk more effectively (Rauch et al. 2016). Conversely, network diversity – characterized by a range of non-overlapping and complementary sources of information and knowledge (Nooteboom 1999) – enriches productive entrepreneurial activities (Tortoriello and Krackhardt 2010). Social ties across institutional domains or from distinct communities often provide access to alternative points of view and novel solutions to problems (Stam and Elfring 2008; Tindall et al., 2012; Rogan and Mors 2014). Although empirical research has begun to explore how initial network size and diversity influence firms' network development over time (Milanov and Fernhaber, 2009), little is known about how this imprinting occurs and unfolds for firms at different founding points. This understanding is especially crucial in transition economies, where the impact of network inertia and imprinting is likely to be particularly sensitive to firms' founding histories.

In transition economies, cohesive strong-tie social networks have proven particularly important for entrepreneurs to countervail uncertainties associated with institutional voids (Santarelli and Tran, 2013). These strong-ties are especially vital for firms founded before market liberalization, as they often rely more heavily on network-based strategies to undertake entrepreneurial activities (Maksimov et al., 2017). However, as institutional transitions progress, the competitive landscape of innovation may increasingly demand access to non-overlapping and complementary sources of information and knowledge (Nooteboom 1999). Despite this need, existing strong-tie networks may become locked in, with network inertia solidifying less productive relationships and limiting entrepreneurs' exploration of new opportunities (Galaskiewicz and Zaheer, 1999). Ideally, economic transitions would encourage firms to evolve their strong-tie networks into more arm's length weak-tie networks, enabling access to a wider array of networks (Rogan and Mors 2014) and a better balance between political and market ties (Hitt et al., 2004; Peng and Quan, 2009). However, in practice, changes in network structures infrequently align perfectly with this ideal due to inertia from historically imprinted networking strategies and structures (Sullivan et al., 2014). Rather, firms launched before the initiation of transition processes tend to retain 'network memories' and remain entrenched in smaller, strong-tie networks, even as new market institutions present lucrative opportunities for engaging in more expansive weak-tie networks (Stam et al., 2014). For

example, Zhang et al. (2016) observed that Chinese entrepreneurs who founded their businesses in the early stages of market reforms were prone to deepen existing networks, maintaining politically and spatially concentrated strong ties with limited diversity. In contrast, entrepreneurs from later stages often pursued a strategy of broadening their networks, establishing fewer political connections but engaging more diverse, market-based networks (Zhang et al., 2016). Building on these observations, we propose that:

Hypothesis 2a: Private firms launched before the formal initiation of market liberalization processes rely on smaller social networks to generate entrepreneurial innovation.

Hypothesis 2b: Private firms launched before the formal initiation of market liberalization processes rely on less diverse social networks to generate entrepreneurial innovation.

2.3. The moderating role of entrepreneurial experience

Recent research has delved into the tension between the persistence and decay of imprints on organizational populations, particularly examining whether and how firms can break away from established imprints (Johnson, 2007) and how this, in turn, influences performance. A key focus of this inquiry is the influence of founders' (specific) human capital (Grilli et al. 2020). According to Grilli et al. (2020), the foundational argument is that experienced and skilled entrepreneurs are more likely to implement effective initial strategies than their less experienced counterparts. These early decisions can significantly affect the long-term performance of the organization. This imprinting effect is reinforced by the cognitive 'sunk costs' associated with many strategic choices (Becker 2004), which lead to "decision-making inertia" (Fredrickson and Iaquinto, 1989). Additionally, an organization's culture often mirrors the cognitive biases of its founders or early leaders, making it difficult to change (Grilli et al., 2020).

Importantly, entrepreneurs' human and social capital interact to establish the 'founders' effect'. Here, an array of factors, including entrepreneurial background, experience, characteristics, and age, have been suggested to influence the size and structure of networks and the extent of network inertia (Casson, 2005: 343; Hite and Hesterly, 2001; Sarason et al., 2006). Notably, specific human capital – particularly related experience – is crucial in maintaining the persistence of these imprints and enhancing their positive correlation with subsequent

performance (Grilli et al., 2020). This aligns with broader findings in organizational imprinting research, which highlight the enduring impact of founders' early experiences in specific organizational contexts on their later actions (Burton and Beckman, 2007). This understanding suggests that an entrepreneur or executive's prior experience serves as an important contingency factor. For example, in a transition economy, executives whose formative experiences are rooted in the old system may struggle to adapt to new environments (Newman, 2000). Those who remain in leadership through transitional periods often reinforce outdated routines and knowledge sets, limiting their capacity for personal and organizational change. To weaken the persistence of imprints, post-socialist enterprises are advised to appoint younger, marketing-oriented, short-tenured, well-educated, and heterogeneous managers (Clark and Soulsby, 2007) or to bring in outside managers who advocate an entrepreneurial approach to organizational restructuring (Dixon et al., 2007; Filatotchev et al., 2003).

Recently, entrepreneurship researchers have begun to examine how entrepreneurial characteristics can influence the link between a firm's founding history and its innovation strategies, particularly in transition economies. Maksimov et al. (2017) discovered a complementarity between network-based and resource-based strategies in generating superior innovation. Essentially, the more entrepreneurs develop internal resources and capabilities for innovation, the more they can benefit from their social networks (Ismail et al., 2013). This complementarity may be achieved when private firms, with networking-favoring imprints, are managed by entrepreneurs endowed with strong entrepreneurial resources. The leadership literature also suggests that an entrepreneur's industry-specific and managerial experience significantly shapes the structural properties of their networks and their preference for network-based innovation strategies. On one hand, extensive experience in the industry or in managerial roles enables them to accumulate a comprehensive industry-specific knowledge base and develop a larger strong-tie personal network, which in turn bolsters their social capital (Santarelli and Tran, 2013). On the other hand, their greater experience exerts an influential impact on network structure and practices, leveraging accumulated social capital towards spurring greater innovations. Therefore, private firms with network-favoring imprints – typically those established before economic reforms – can thrive by achieving complementarity between entrepreneurial experience and network-based innovation strategy. In summary:

Hypothesis 3: Private firms, being launched before the formal initiation of market liberalization processes and relying more on informal institutions, can generate greater innovation if they are run by more experienced entrepreneurs.

3. Empirical Context

3.1. An Overview of the Context

Our empirical setting is Vietnam: a fast-growing transition economy that has undergone "fundamental and comprehensive changes" (Peng, 2003: 275) since the launch of the *doimoi* policy in 1986. This policy initiated a series of reforms aimed at market liberalization and the privatization of state-owned enterprises. Vietnam's transition has been notably successful compared to other socialist countries, which often experienced a U-shaped transition characterized by initial negative growth, high inflation, and high unemployment—common among other transition economies in the Soviet bloc and Eastern Europe. Vietnam, however, has seen substantial economic advancements and impressive performance during its transition. Economic growth escalated from 3.4% in 1986, reaching a peak of 9.5% in 1995, and has maintained an average rate of around 8% thereafter (Tran and Santarelli, 2021). One explanation of the diversity of economic performance post-transition is the speed of reform, particularly "shock therapy" versus "gradualism". Unlike the "shock therapy"[6] approach adopted by most transition countries in Central and Eastern Europe (Sachs and Woo, 1994), the gradualist approach adopted by China and Vietnam, aims to preserve existing rare productive capabilities and the sophisticated expertise of public entrepreneurs in a transitional ownership form, which should gradually fade out as a market economy becomes fully established (Xu et al, 2014).

A distinctive characteristic of Vietnam's "gradualist" transition is the 'hold-and-see' mindset that establishes and maintains mixed ownership through which it sought to gradually transform bureaucratic entrepreneurship and previously accumulated productive capabilities into market-oriented ones, and progressively permitted SOEs and private start-ups to engage in markets for resources (Tran, 2019; Tran and Santarelli, 2021). China followed a different path, "dual track" liberalization approach, which maintains the co-existence of a market track and a plan track.

---

[6] Advocates of the shock therapy argued that the process of liberalization and privatization should be done as quickly as possible to prevent backsliding

Under this system, prices are liberalized at the margin, allowing market information to be gleaned as effectively as it would be under full price liberalization (Lau et al., 1997, 2000). Both approaches share similarities in that they are orchestrated under the governance of a strong, unified government led by the single political Communist Party, which uses its absolute power to preserve pre-accumulated productive capabilities while methodically planning the sequence of liberalization across different sectors. In this sense, State ownership continues to enjoy full legitimacy in political institutions and in the mind of the public. Despite its overall success, Vietnam's gradualist strategy entails some uncertainty and ambiguity within formal institutions that result from variations in institutional environments across provinces and over time.

The period 2007-2015 was marked by extensive institutional restructuring in Vietnam, aimed at fostering economic liberalization and enhancing integration into global markets, including entry into the World Trade Organization (WTO) and other international agreements. While many pro-market reforms were implemented[7], these have always been conditional on the stipulation that state ownership remains the cornerstone of the economy. POEs, governed by market mechanism, have been allowed to coexist and prosper alongside state capitalism. Meanwhile, small and inefficient SOEs were either liquidated or privatized, and larger, more efficient SOEs were revitalized by being transformed into state-controlled limited liability or joint stock companies. However, the prevailing state-run conglomerate model has shown its flaws[8]. Political interest groups and pervasive corruption induce rent-seeking and exacerbate the 'resource curse' problem in Vietnam (Vuong and Napier, 2014). The national innovation system suffers from infrastructure deficiencies, underqualified workforce, outdated production technologies and weak linkages with the public research sector (OECD and World Bank, 2014; CIEM et al., 2014). The Science and Technology (S&T) system is underfunded and has limited access to highly skilled personnel and the state-of-the-art facilities required to undertake advanced R&D (ibid, p. 14). Furthermore, the emphasis on the quantity of patents over the novelty of patents highlights a misalignment in performance metrics that could hinder genuine innovation (Bezanson et al. 1999: 52).

---

[7] Remarkable reforms in political institutions during the transition include separating the power and function of the Communist Party, the government, and the Parliament; delegating more power to local government (decentralization); reducing bureaucracy by contracting the size of the government or removing unnecessary business licenses and introducing the "one door – one stamp" initiative since 1997.

[8] The state sector only creates 10% employment but consumes 70% total social investment, 50% total state investment, 60% commercial credit, and 70% of ODA (BBC, 2013).

3.2. Data description

We utilized a unique dataset extracted from three waves of the small and medium enterprise (SME) survey conducted in 2011, 2013, and 2015.[9] These surveys collectively tracked over 2500 enterprises and their owners across ten Vietnamese provinces, gathering comprehensive data on enterprise history, employment, performance, owner backgrounds, business environment, and more. This wealth of information allows us to construct a 6-year multi-level sample[10] comprising 2,644 small manufacturing firms and their leading entrepreneurs. We aim to examine the relationships between entrepreneurial human resources, social network properties, and the successful implementation of three types of innovation (new products, new processes, and new technology) within these firms. The average age of the firms surveyed is 15.5 years (sd=10.2), and about half introduced some form of innovation during the survey period. Among these, 13% are diversified businesses, and 7.5% engage in exporting activities. The average age of entrepreneurs in our sample is 46.4 years (sd=11.1). Female entrepreneurs represent 41% of the sample, 25% of whom possess college or university degrees, while 38% have vocational training.

4. Methodology
4.1. Variables

Entrepreneurial innovation

Research on innovation in emerging economies often relies on patent fillings to measure innovation activity (e.g. Liu et al. 2010; Choi et al. 2011). However, for small firms in these economies, patents may not adequately reflect the breadth of innovation activities (Huggins and Thompson 2015). Instead, the innovation of these firms may be more accurately assessed

---

[9] These SME surveys stemmed from the collaboration between the Central Institute for Economic Management (CIEM) in Hanoi, Vietnam and the Ministry of Labour, Invalids and Social Affairs of Vietnam, the Department of Economics of the University of Copenhagen, and the Royal Embassy of Denmark in Vietnam. The surveys are designed with the objective of collecting and analysing data representative of the private sector as a whole in Vietnam. They are a crucial resource for many recent publications and a research book on "Structural Transformation and Inclusive Growth in Vietnam", which can be assessed at
https://www.wider.unu.edu/project/structural-transformation-and-inclusive-growth-viet-nam.

[10] Our sample of data is multi-level because it has a hierarchical or nested structure, with each lower level nested within the next higher levels. Particularly, entrepreneurs (lower level) are nested within firms or social networks (higher level), and firms (lower level) are nested within provinces (higher level). The multi-level structure allows us to distinguish between the variance attributable to individual differences among entrepreneurs and the variance due to differences between firms; and thus, enable us to explore how context affects firm-level outcomes.

through subjective, self-reported measures. In our study, we measure innovation by the likelihood of firms introducing new products, making major improvement to existing products, and adopting new technologies. To comprehensively capture innovative outcomes, we use two approaches. First, we create a categorical variable that assigns an ordinal degree of novelty to three types of innovation, attaining '0' for no innovation activity, '1' for process innovation through new technology adoption, '2' for incremental product innovation through improvements to existing products, and '3' for the introduction of entirely new products. Second, we construct a count variable as the sum of all types of innovation that the firm has introduced during the observation year. This measure focuses on the scope, rather than the type of innovation, with values ranging from 0 (no innovation) to 3 (conducting all three types of innovation). By spanning from innovation inputs (new technology adoption) to intermediate (product improvements) to final outputs (new product introduction), our approach aims to more effectively capture the latent variable 'innovativeness' (Hagedoorn and Cloodt 2003).

Strong-tied networks vs. formal business associations: We follow Santarelli and Tran (2013) to differentiate between strong-tied networks as the percentage of the entrepreneur's annual investment capital that is sourced from interest-free loans from close connections such as family, relatives and friends, and formal business associations as a dummy taking value '1' if the entrepreneur holds membership of one or more formal business associations established and governed by central or local authorities, and '0' otherwise.

Social networks' structural characteristics: Network size is measured by the ratio of the total number of people with whom the entrepreneur currently maintains regular and useful contact (at least once every 3 month) over the total number of employees of the firm. We develop this ratio to control for the extent to which network size is a simple artefact of firm size. Network diversity is measured by the Shannon entropy index. The index was originally proposed by Shannon (1948) and is calculated using the following formula: $ND = -\sum_{i=1}^{5} p_i \ln p_i$, where ND is network diversity and p_i is the proportion of contacts belonging to the ith type of contact. Here we have 5 types of contacts: (i) contacts in the same business (producing same products); (ii) contacts in a different sector (producing different products); (iii) bank officials (including both formal and informal creditors); (iv) politicians and civil servants, and (v) others. When firms have equal numbers of contacts of all 5 types, all p_i values will equal $1/5$, and the Shannon index will take the value $\ln(5) = 1.61$. The more unequal the distribution of contacts

across the categories, the larger the weighted geometric mean of the p_i values, and the smaller the corresponding Shannon index. If almost all network contacts are of one type, Shannon entropy approaches zero, and equals zero if there is only one type of contact. In other words, we have $0 \leq ND \leq 1.61$.

Moderators

Imprinting effect: The imprinting variable is a dummy which attains '1' if the firm was launched before the introduction of *doimoi* policy in 1986 that formally commenced the economic transition and market liberalization, and '0' otherwise.

Entrepreneurial experience is captured using dummy variables for management and industry experience, coded as 1 if the entrepreneur has such experience and 0 otherwise. These variables are recognized as important indicators of skills, knowledge, and networks, particularly for small entrepreneurs operating in uncertain transitional contexts (e.g. Santarelli and Tran 2013). In this vein, empirical studies frequently observe that firms owned by more experienced entrepreneurs are more likely to innovate (Romero and Martínez-Román 2012).

Control variables

We control for an array of relevant individual-level and firm-level characteristics, as identified in prior empirical work. At the individual level, education is measured categorically, with no professional education coded as '0' (the base group), primary to secondary technical school education coded as '1', and college and university education coded as '2'. Personality trait[11] measures were constructed to reflect specific entrepreneurial personality traits, comprising self-efficacy, locus of control and risk-taking[12]. Other individual controls include age, gender (male vs. female) and tenure (the number of years working at the firm) of the entrepreneur. At the firm-level, we control for innovation intensity (the ratio of innovation investment over total investment), firm size (measured by the natural logarithm of employment); exporting (a dummy variable indicating whether the firm is involved in exporting activities or not);

---

[11] The entrepreneurship literature consistently highlights the pivotal role of personality traits in shaping entrepreneurs' strategic choices and their ventures' performance outcomes. As our dataset includes inquiries about the owners' personality traits, we capitalize on this unique aspect to adjust for these traits while examining entrepreneurs' networking strategies and their firms' innovation performance.

[12] Table 1 presents the sets of questions used to measure these traits. Respondents indicated their agreement with statements on a Likert scale, ranging from 1 (disagree completely) to 7 (agree completely). Cronbach's alphas for these constructs range from 0.71 to 0.91, above the acceptable level of 0.67 commonly cited in the literature (Robinson et al., 1991).

diversification' (a dummy indicating whether the firm is diversified or not); and legal ownership (proxied by five dummies indicating household businesses, private firms, limited liability, collectives, and joint stock firms).

4.2. Estimation methods

Our multi-level study, which incorporates hierarchical data structures, provides a comprehensive understanding of not only individual-level behaviors (e.g., entrepreneurs' adopting of strong-tie or weak-tie networking strategy) and outcomes (e.g., innovation outcomes) but also the influence of broader, contextual factors (e.g., institutional environment before and after formal economic liberalization). In our analysis, entrepreneurs (level 1) are nested within firms (level 2), which in turn are nested within local institutional environment (level 3).

To test Hypothesis 1a and 1b, we interact the 'imprint' dummy variable, that separates firms launched before and after the *doimoi* policy (that initiated the formal economic transition process) with 'strong-tie network' and with 'membership of business association' respectively.

$$Innovation_{it} = strongties_{it}\gamma_1 + imprint_i\gamma_2 + imprint_i \times strongties_{it}\gamma_3 + imprint_i \times bizassociation_{it}\gamma_4 + bizassociation_{it}\gamma_5 + X_{it}\gamma_6 + \sigma_{it} \tag{1}$$

Where '$Innovation_{it}$ are types of innovation and count number of innovation types respectively; $strongties_{it}$ presents strong-tie personal networks, $bizassociation_{it}$ presents membership of formal business associations, σ_{it} is the disturbance term. Hypotheses 1a and 1b are supported if γ_3 and γ_4 are significantly positive and significantly negative respectively.

To test Hypothesis 2a and 2b, we interact the 'imprint' dummy with 'network size' and with 'network diversity' respectively.

$$Innovation_{it} = network\ size_{it}w_1 + imprint_iw_2 + imprint_i \times network\ size_{it}w_3 + imprint_i \times netwok\ diversity_{it}w_4 + network\ diversity_{it}w_5 + X_{it}w_6 + \mu_{it} \tag{2}$$

Where μ_{it} is the disturbance term. Hypotheses 3a and 3b are supported if both w_3 and w_4 are significantly negative.

To test Hypothesis 3, we include a three-way interaction between the imprinting dummy, network size and entrepreneurial experience.

$$Innovation_{it} = strongties_{it}\alpha_1 + imprint_i\alpha_2 + experience_{it}\alpha_3 + imprint_i \times network\ size_{it} \times experience_{it}\alpha_4 + imprint_i \times strongties_{it}\alpha_5 + imprint_i \times experience_{it}\alpha_6 + strongties_{it} \times experience_{it}\alpha_7 + X_{it}\alpha_8 + \eta_{it} \qquad (3)$$

Where $experience_{it}$ presents industry and management experience, η_{it} is the disturbance term. Hypotheses 4 is supported if α_4 is significantly positive.

Methodologically, when innovation is measured by types of innovation, we adopt a random-effect ordered logit model due to the ordinal and categorical nature of the variable; but when innovation is measured by a count number of innovation types, we apply the random-effect Poisson model[13]

5. Estimation results

Table 2 presents descriptive statistics and univariate correlations. These correlations do not indicate multicollinearity concerns. We further check for multicollinearity by calculating variance inflation factors (VIF) for all independent and control variables, which yields results consistently below 4, indicating low levels of collinearity. The correlation patterns provides preliminary support for our hypotheses. Specifically, network diversity (r=0.05) and institutional quality (r=0.11) are positively related to our categorical measure of entrepreneurial innovations at 1% significant level. However, network size (r=-0.03) shows a negative impact on entrepreneurial innovation, which runs counter to our hypothesis. The results of our estimations are presented in Table 3, where innovation is categorized ordinally, and in Table 4 where innovation is measured as a count of different innovation types.

---

[13] The random-effects model generally provides more efficient estimates than fixed-effects models because it uses both within and between variations in estimating coefficients. This is especially appropriate for our multi-level dataset with a large number of individuals/firms and relatively few time periods. Fixed effects model, conversely, is more suitable when there are many time periods but fewer entities as it only sues within-individual variation to estimate coefficients. The Hausman specification test indeed confirms our choice of random-effects model.

In the baseline model (Model 1), individual-level and firm-level control variables were regressed on entrepreneurial innovation, presented in the first column. Subsequent columns, which include independent variables, show a significant increase in Wald chi-squared statistics compared to the first column, thereby rejecting the null hypothesis that the coefficients of our predictors are zero.

Model (2) introduces the effect of strong-tie personal networks and weak-tie business associations, both of which are significantly and positively associated with entrepreneurial innovation. Past work has highlighted the critical role of financial support from family, relatives and friends for the survival and performance of private firms in transition economies, especially when access to formal loans is restricted (Santarelli and Tran, 2013). Model (3), detailed in Table 3, tests the the imprinting effects of the founding period on entrepreneurs' innovation strategies through interactions between the 'pre-transition imprinting' dummy with strong-tie network, and with the formal business association dummy. The results show that the effect of 'pre-transition imprinting' on innovation is significantly negative ($w = -0.737$) at the p<0.01 level, indicating that private firms founded before economic transition and market liberalization tend to exhibit fewer market innovations (i.e., new products) at the current advanced stage of transition. The positive and significant interactions between pre-transition inception and strong tie investment confirm our Hypothesis 1a. *Ceteris paribus,* private firms launched before formal economic reforms that rely more on informal strong-tie networks tend to generate more entrepreneurial and market-facing innovations. Additionally, the significantly negative coefficients on the interaction terms between 'pre-transition imprinting' and the formal business association dummy suggests that *ceteris paribus*, firms founded after the formal onset of economic transition derive greater benefits from formal weak-tie networks, leading to higher quality and quantity of innovation. This lends full support to Hypothesis 1b.

Hypothesis 2a and 2b, on the effect of network imprinting on entrepreneurial innovation, are tested through the interaction terms between 'pre-transition imprinting' and network properties in Model (4). The consistently negative coefficients of these interaction terms indicate the presence of network imprinting on our sampled firms' innovation strategies. Specifically, private firms established before the formal launch of economic transition are more likely to rely on strong-tie networks with geographically concentrated members for support in innovation, despite the availability of broader networking opportunities across industries,

sectors and regions presented by emerging market institutions (Tran and Santarelli, 2017). In contrast, firms founded after the start of formal market liberalization processes are better positioned to leverage these emerging market institutions. They gain access to newly established institutional resources, including formal business associations and institutional intermediaries, leading them to adopt market-based innovation strategies and develop larger and more diverse market-oriented networks. However, due to the non-significant interaction between 'pre-transition' and 'network diversity', we can only confidently affirm Hypothesis 2a.

Hypothesis 3 states that greater levels of management and industry experience among private entrepreneurs can enhance firms' network-based innovation strategies and strengthen the persistence of socialist imprinting in firms launched prior to economic transition. This hypothesis is tested using a three-way interaction among pre-transition imprinting, network size, and combined management and industry experience. The positive and statistically significant interactions (α=0.103 and α=0.025) in model (7) across both Tables 3 and 4 suggest that entrepreneurs' experience positively moderates and strengthens the effect of network-based innovation strategies. Other factors held constant, private firms launched before the formal launch of economic transition generate more new products when they adhere to network-based innovation strategies and are led by entrepreneurs with prior management and/or industry experience. In other words, experience complements accumulated social network capital in fostering innovation activities within these firms. This strongly supports Hypothesis 3.

To mitigate the risk of overstating and understating in the evaluation of interaction effects[14], following Kingsley et al. (2017), we test the marginal effect of all the interation terms. For H1a and H1b, we obtain the marginal effects of *imprint* on *innovation*, depending on the value of the moderating variable *strongties* and *bizassociation* as follows:

$\delta Innovation/\delta Imprint = \gamma_2 + \gamma_3 * strongties$

$\delta Innovation/\delta Imprint = \gamma_2 + \gamma_5 * bizassociation$

---

[14] Overstating occurs when the interaction term coefficient is statistically significant but the marginal effect is not significantly different from zero for some values of the moderating variable. Understating, on the other hand, occurs when the interaction term coefficient is not statistically significant, but the marginal effect is satistically different from zero for some values of the moderating variable (Kingsley et al., 2017).

To assess the statistical significance of each marginal effect, we calculate the standard error of the marginal effects as follows:

$\hat{\sigma}_{\delta Innovation/\delta Imprint} =$

$$\sqrt{var(\hat{\gamma}_2) + (strongties)^2 * var(\hat{\gamma}_3) + 2 * strongties * cov(\hat{\gamma}_2, \hat{\gamma}_3)}$$

$\hat{\sigma}_{\delta Innovation/\delta Imprint}$

$$= \sqrt{var(\hat{\gamma}_2) + (bizassociation)^2 * var(\hat{\gamma}_5) + 2 * bizassociation * cov(\hat{\gamma}_2, \hat{\gamma}_5)}$$

Since *bizassociation* is coded as a dichotomous variable, the marginal effect of *Imprint* on *Innovation* in the absence of *bizassociation* is given by $\gamma_2 + \gamma_5 * 0$ (i.e., γ_2). Conversely, when *bizassociation* is present, the marginal effect is equal to $\gamma_2 + \gamma_5 * 1$ (i.e., $\gamma_2 + \gamma_5$). Using the coefficient estimates in Tables 3 and 4, the marginal effects for both conditions of the moderating variable *bizassociation* are calculated in Table 5. The results show that the marginal effects are statistically significant and different from zero for both conditions of formal business association membership. Additionally, the marginal effect is amplified when the firm holds membership of business association ($bizassociation = 1$), which strongly supports Hypothesis H1b. On the other hand, since *strongties* is coded continuously, the marginal effect of *Imprint* on *Innovation* can be visualized through the marginal effect plots across the range of *strongties* (see Figures 1 and 2). Figure 1 indicates that *imprint* generally has statistically significant positive effects on *innovation* for most values of *strong-tie investment.* However, a closer examination reveals that the effect of *imprint* on *process innovation* is weaker, approaching zero for all values of *strong-tie investment*, which suggests caution in overstating support for Hypothesis H1a. Figure 2, the conditional marginal effect of *imprint* on the *number of innovation*, however is only different from zero for part of the range of the moderating variable, approaching zero (or turning zero) when strong-tie investment increases to 100% (as indicated by the 95% confidence interval band crossing the zero line at value 100). This provides only partial support for Hypothesis H1a. In summary, after assessing the marginal effect significance, we obtain stronger support for Hypothesis H1b only.

The performance of various control variables aligns with expectations and findings from previous studies. Specifically, professional education and tenure are significant determinants of entrepreneurial innovation. However, prior management and industry experience reduce innovativeness. Diversified, exporting, and indebted firms are more innovative, and, finally, larger firms are found to be more innovative than their smaller counterparts. With respect to

entrepreneurial personality traits, self-efficacy and risk-taking are positively associated with both new product introduction and the number of innovation types introduced.

6. Robustness check

When examining the imprinting impact of economic liberalization on firms' innovation performance, using a simple pre-post-1986 dummy variable might be overly simplistic. This is because societal and organizational adjustments to new economic policies are not instantaneous, but rather gradual and complex. To address the complex nature of institutional imprinting in the context of economic liberalization, we consider using a continuous imprinting variable that is the difference between the "imprinting year" (1986) and the "inception year" (the year a firm was founded). This measure, referred as "age at imprinting" or "time since imprinting", quantifies how long a firm had been in existence when the imprinting event occurred, potentially affecting its adaptability and strategies in response to that event. This approach posits that the greater this value, or the longer a firm has been established before the liberalization, the deeper the degree of imprinting. The historical conditions at the time of a firm's inception continue to significantly shape its strategies, behaviors, and performance even long after those conditions have evolved. Appendix A presents the estimation results utilizing this continuous imprinting variable, which align with those obtained using the imprinting dummy variable. *Ceteris paribus,* as the "time at imprinting" increases, meaning the older the firm was at the time of economic liberalization, the more it relies on financial support from informal strong-tie networks, and thus the more it innovates. In contrast, the longer firms have been established after the formal launch of economic transition, the more they benefit from formal weak-tie networks to produce higher quality and quantity of innovation.

7. Discussion

Theoretical and empirical contribution

The present study draws upon imprinting theory to investigate the influence of founding period on private firms' innovation and networking strategies at the advanced stage of the economic transition. Beyond re-examining and re-confirming the relative roles of formal institutions and social networks in stimulating firm-level entrepreneurial innovations, we explore the enduring impacts of previous institutional logics on firms' adaptive responses to institutional changes. In transition economies, the imprinting effects of the former socialist institutional and market environments hinder firms launched prior to transition from altering their knowledge routines

and networking behaviors to take advantage of evolving market institutions. As these firms are embedded in the old socialist institutions, they tend to adhere to traditional logics and depend on past ties and routines in their innovation efforts.

Our findings have important implications for the institution-based view of innovation strategy and advance current knowledge on how imprinting influences firms' strategic adaptation behaviors in later stages of market liberalization. We find that both formal and informal institutions affect innovation performance through the imprints they leave at the time of a firm's inception. Notably, firms launched before the formal transition are deeply influenced by "socialist imprints" that promote a strong-tie network-based innovation strategy as an adaptive response to the intensifying market competition. These firms continue to rely on their close-knit, geographically concentrated networks to accommodate evolving resource and knowledge demands for innovative endeavors, even though the emerging market institutions may open up promising networking opportunities across industries, sectors and regions. Additionally, the imprinting effect also applies to private firms founded after the initiation of market liberalization. These firms are better positioned to adopt new market-oriented approaches to innovation, utilizing resources and support from larger and more diverse market-oriented networks, such as formal business associations and institutional intermediaries, to achieve higher quality and quantity of innovation. Moreover, the nature and degree of imprinting varies across different levels of experience. Entrepreneurs with greater management and industry experience are better able to leverage strong-tie networks, thereby strengthening the imprinting effects in firms launched prior to economic transition. As suggested by Zhang et al. (2022), firms with a strong communist ideological imprint—that is, those founded during the centrally planned economy—persist in utilizing longstanding network ties and traditional innovative practices to survive and thrive in the post-transition period. These firms often require more time and effort to complete their transformation. Finally, given that executives "plays a crucial role during the imprinting process because [they are] the most important link between the environment and the young organization" (Mingo and Khanna, 2014, p. 1233-4), this imprinting effect is stronger (more persistent) for those being managed by entrepreneurs with management and industry experience. Or, in the obverse, the imprint decays when firms recruit less experienced managers.

Empirically our study extends the work of Maksimov et al. (2017) to the context of a transition economy while addressing issues related to theoretical ambiguity and the limitations of cross-

sectional data. Our research is situated in Vietnam, an emerging transition economy characterized by significant and recent institutional changes, providing an excellent context for our analysis. This setting is particularly informative because of the extensive privatization of older state-owned firms during the transition, alongside the emergence of numerous new private enterprises. This mix has resulted in a rich and diverse population of firms, each with varying levels of socialist imprinting influenced by their specific founding histories and initial ownership types.

Policy Implications

In addition to theoretical and empirical contributions, this study has significant implications for public policy development. Fundamentally, organizational transformation and adaptation are constrained by factors such as organizational history, inherited routines, and the bounded rationality of managers. These, in turn, are shaped by environmental conditions at at the time of founding (Mingo and Khanna, 2014). In the context of firms within transition economies, these factors tend to solidify the internal configuration of assets, operating capabilities, and managerial responsibilities that were originally tailored to a planned rather than a market economy (Kriauciunas and Kale, 2006). This entrenchment persists even after structural changes (Marquis, 2003). Indeed, these constraints are likely to be magnified in transition economies due to the enduring norms, values, and assumptions underlying economic activities inherited from the previous socialist institutional and economic system (Uhlenbruck et al., 2003). These historically grounded constraints can significantly impede firms' recognition of the need for change and have proven difficult to overcome (Dixon et al., 2010; Dixon and Day, 2007). Therefore, the first requirement for organizational transformation is fostering an awareness within organizations of the need for change. Whether an organization succeeds in breaking away form its past depends on its embeddedness in old institutions and the characteristics of its leadership team.

An important policy contribution of this study to management practice is the expansion of the scope of established innovation policies from a traditional framing around networks ("innovation is a network-based process", Cantisani, 2006: 1295) to incorporate a discussion on the potential complementarity of network-based and institution-based approaches to innovation. The dynamics of how imprints persist or decay, and their impact on both institution-based and network-based innovation strategies, remain poorly understood. Equally,

the potential role of entrepreneurs in either strengthening or weakening institutional imprints nees more exploration. We consider this expansion to be especially impactful at a time when innovation has been increasingly recognized as a crucial driver of economic growth and technological catch-up in narratives of transition and transformation (Lee et al., 2015). While there has been much emphasis on the diminishing importance of network strategies as formal market institutions become more established (Hoskisson et al., 2000; Peng, 2003; Yiu et al., 2005), these strategies still prove highly beneficial for firm-level innovation, particularly in the later stages of institutional transition. Indeed, our findings suggest that entrepreneurial experience can be a strategic tool for maximizing the socialist network capital of private firms that were launched before the formal onset of economic transition and, thus, enables them to leverage their interpersonal networks to secure innovation resources and introduce innovations.

However, while individual experience is undoubtedly a critical factor in shaping an entrepreneur's approach to networking, it can be argued that institutional imprinting plays a more deterministic role for several reasons: (i) the imprinting phase occurs at a formative stage of the entrepreneurial venture, setting the foundation for future behaviors and strategies. In contrast, experience accumulates over time and is subject to reinterpretation and change based on new information and contexts; (ii) experience is often specific to particular industries, decisions, or outcomes and may influence certain aspects of an entrepreneur's behavior. Institutional imprinting, however, reflects a broader set of influences, encompassing the regulatory, cultural, and economic milieu that shapes overall strategic orientations, including networking; (iii) the effects of institutional imprinting are considered to be long-lasting, if not permanent, because they are embedded in its founding conditions. While experiences may evolve or diminish over time as entrepreneurs adapt to new conditions or insights; and (iv) experience typically relates to individual learning and adaptation. Institutional imprinting, on the other hand, affects a wider group of entities (all firms and entrepreneurs operating within the imprinted context) and thus has a more uniform and pervasive influence on networking styles and other strategic behaviors.

Our research offers actionable insights for managers and policymakers seeking to mitigate the effects of historical imprinting and support the transformation and adaptaion of private firms under evolving market conditions. Notably, the impact of socialist imprints can be weakened when firms are led by entrepreneurs who lack prior managerial experience or industry-specific knowledge. Additionally, policy makers should consider enhancing public business

development services and adjusting taxation policies to encourage entrepreneurs and organizations to broaden their network reach. This could be achieved through expanding participation in networking, beyond their established contacts, to hold membership in various business associations that span regional and national innovation systems.

References

Ahlstrom, D., and Bruton, G. D. 2010. "Rapid institutional shifts and the co-evolution of entrepreneurial firms in transition economies." *Entrepreneurship Theory and Practice* 34: 531–554.

Ahuja, G., Soda, G., and Zaheer, A. 2012. The genesis and dynamics of organizational networks. *Organization Science*, 23(2): 434–448.

Alakent, E., Goktan, M. S., and Khoury, T. A. 2020. "Is venture capital socially responsible? Exploring the imprinting effect of VC funding on CSR practices", *Journal of Business Venturing*, 35: 1– 20.

Albano, J. 2017. Vietnam and the Consequences of Technological Innovation for Developing Countries. *New Perspectives in Foreign Policy*. 13: 16-19.

Audretsch, D. B., and Moog, P. 2021. "Democracy and Entrepreneurship". *Entrepreneurship Theory and Practice*. 46(2): 368-392.

Audretsch, D. B., Cunningham, J. A., Kuratko, D. F., Lehmann, E. E., and Menter, M. 2019 "Entrepreneurial ecosystems: economic technological and societal impacts." *The Journal of Technology Transfer*. 44: 313-325.

Autio, Erkko, Martin Kenney, Philippe Mustar, Don Siegel, and Mike Wright. 2014. "Entrepreneurial Innovation: The Importance of Context." *Research Policy* 43 (7): 1097–1108.

Banalieva, E. R., Karam, C. M., Ralston, D. A., Elenkov, D., Naoumova, I., Dabic, M., Potocan, V., Starkus, A., Danis, W., and Wallace, A. 2017. "Communist footprint and subordinate influence behavior in post-communist transition economies. *Journal of World Business.* 52(2): 209-229.

Baron, J. N., Hannan, M. T., and Burton D.M. 1999. "Building the Iron cage: determinants of managerial intensity in the early years of organizations" *American Sociological Review* 106: 960–1012.

Batjargal, Bat. 2003. "Social Capital and Entrepreneurial Performance in Russia: A Longitudinal Study." *Organization Studies* 24 (4): 535–56.

Battilana, J., and Dorado, S. 2010. "Building sustainable hybrid organization: The case of commercial microfinance organizations." *Academy of Management Journal*, 53 (6): 1419–1440.

BBC. 2013. VN 'cần hỗ trợ doanh nghiệp tư nhân' https://www.bbc.com/vietnamese/vietnam/2013/12/131203_hsbc_vietnam_economy_report

Becker, M. 2004. "The Concept of Routines Twenty Years After Nelson and Winter (1982): a Review of the Literature," *Industrial and Corporate Change*, 4: 643-677

Bezanson, K., Annerstedt, J., Chung, K., Hopper, D., Oldham, G., & Sagasti, F. 1999 *Viet Nam at the crossroads: the role of science and technology*. Ottawa: IDRC.

Bhagavatula, Suresh, Tom Elfring, Aad Van Tilburg, and Gerhard G. Van De Bunt. 2010. "How Social and Human Capital Influence Opportunity Recognition and Resource Mobilization in India's Handloom Industry." *Journal of Business Venturing* 25 (3): 245–60.

Bruton, Garry D., David Ahlstrom, and Han-Lin Li. 2010. "Institutional Theory and Entrepreneurship: Where Are We Now and Where Do We Need to Move in the Future?" *Entrepreneurship Theory and Practice* 34 (3): 421–40.

Bu, J., and Cuervo-Cazurra, A. 2020."'Informality costs: Informal entrepreneurship and innovation in emerging economie''". *Strategic Entrepreneurship Journal*, 14(3): 329-368.

Burton, M.D., and Beckman, C.M. 2007. "Leaving a legacy: Position imprints and28uccesss- sor turnover in young firms." *American Sociological Review*, 72(2): 239–266.

Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.

Calori, R., Lubatkin, M., Very, P., and Veiga, J. F. 1997. "Modelling the Origins of Nationally-Bound Administrative Heritages: A Historical Institutional Analysis of French and British Firms" *Organization Science*, 8: 681–696.

Cantisani, A. 2006. "Technological innovation processes revisited. *Technovation*. 26: 1294-1301.

Casson, M., 2005. "Entrepreneurship and the theory of the firm". *Journal of Economic Behavior & Organization*, 58(2): 327–348.

Chari, M. D. R., and David, P. 2012 "Sustaining superior performance in an emerging economy: an empirical test in the Indian context". *Strategic Management Journal.* 33(2): 217-229.

Chen, V. Z., Li, J., Shapiro, D. M., and Zhang, X. 2014 "Ownership structure and innovation: An emerging market perspective." *Asia Pacific Journal of Management*, 31: 1–24.

Choi, S. B., Park, B., and Hong, P. 2012 "Does ownership structure matter for firm technological innovation performance? The case of Korean firms." *Corporate Governance: An International Review*, 20: 267-288.

Choi, Suk Bong, Soo Hee Lee, and Christopher Williams. 2011. "Ownership and Firm Innovation in a Transition Economy: Evidence from China." *Research Policy* 40 (3): 441–52.

CIEM, DoE, ILSSA, UNU-WIDER. 2014. *Report – Characteristics of the Vietnamese Business Environment: Evidence from an SME Survey in 2013*. Central Institute for Economic Management.

Clark, E. and Soulsby, A. 2007. "Understanding top management and organizational change through demographic and processual analysis". *Journal of Management Studies*, 44: 932–954.

Cock, R. D., Andries, P., and Clarysse, B. 2020. "How founder characteristics imprint ventures' internationalization process: the role of international experience and cognitive beliefs". *Journal of World Business.* 56(3): 101163.

Dacin, M. T., Oliver, C., and Roy, J. 2007 "The legitimacy of strategic alliances: An institutional perspective." *Strategic Management Journal*, 28: 169–187.

De Carolis, D. M., Litzky, B. E., and Eddleston, K. A. 2009. "Why networks enhance the progress of new venture creation: The influence of social capital and cognition" *Entrepreneurship Theory and Practice* 32 (2): 527-545.

DiMaggio, P. J., and Powell, W. W. 1983. "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields". *American Sociological Review*, 48: 147–160.

Dixon, S. E. A., and Day, M. 2007. "Leadership, administrative heritage and absorptive capacity". *Leadership & Organization Development Journal*, 28: 727–748.

Dixon, S. E., Meyer, K. E., and Day, M. 2010. "Stages of organizational transformation in transition economies: A dynamic capabilities approach" *Journal of Management Studies*, 47(3): 416-436.

Djelic, M. L., and Ainamo, A. 2005. "The telecom industry as cultural industry? The transposition of fashion logics into the field of mobile telephony." *Research in the Sociology of Organizations*, 23: 45–82.

Dobrev, S.D., and Gotsopoulos, A. 2010. Legitimacy vacuum, structural imprinting, and the first mover disadvantage. *Academy of Management Journal*, 53(5): 1153 – 1174.

Elfring, T., and Hulsink, W. 2003. "Networks in Entrepreneurship: The Case of High-Technology Firms." *Small Business Economics* 21 (4): 409–22.

Filatotchev, I., Wright, M., Uhlenbruck, K., Tihanyi, L., and Hoskisson, R. E. 2003. "Governance, organizational capabilities, and restructuring in transition economies". *Journal of World Business*, 38: 331–347.

Foo, M., Vissa, B., and Wu, B. 2020. Entrepreneurship in Emerging Economies. *Strategic Entrepreneurship Journal*, 14 (3): 289-301.

Fredrickson, J. W., and A. L. Iaquinto. 1989. 'Inertia and creeping rationality in strategic decision processes'. *Academy of Management Journal*, 32, pp. 516–542.

Freitas, I. M. B., and Lawson, C. 2019. "Imprints from idea origin on innovation and the development environment". *Industrial and Corporate Change*. 28(6): 1533-1553.

Galaskiewicz, J., and Zaheer, A. 1999. "Networks of competitive advantage". *Research in the Sociology of Organizations*, 16(1): 237-61.

Gartner, W. B. 1985. "A conceptual framework for describing the phenomenon of new venture creation". *Academy of Management Review*. 10(4): 696-706

Geroski, P. A., Mata, J., and Portugal, P. 2010. "Founding conditions and the survival of new firms" *Strategic Management Journal.* 31(5): 510-529.

Greenwood, R., Raynard, M., Kodeih, F., Micelotta, E. R., and Lounsbury, M. 2011. "Institutional complexity and organizational responses". *The Academy of Management Annals*. 5(1): 317-371.

Grilli, L., Jensen, P. H., Murtinu, S., & Park, H. D. (2020). A closer look at the contingencies of founders' effect on venture performance. *Industrial and Corporate Change*, 29(4): 997–1020

Gupta, A., Briscoe, F., and Hambrick, D. C. 2017. "Red, blue, and purple firms: organizational political ideology and corporate social responsibility", *Strategic Management Journal*, 38: 1018– 1040.

Hagedoorn, John, and Myriam Cloodt. 2003. "Measuring Innovative Performance: Is There an Advantage in Using Multiple Indicators?" *Research Policy* 32 (8): 1365–79.

Hannan, M. T., Burton, M. D., and Baron, J. N. 1996. "Inertia and change in the early years: employment relations in young, high technology firms". *Industrial and Corporate Change*. 5(2): 503-536.

Hansen, M. and Birkinshaw, J. 2007. "The innovation value chain". *Harvard Business Review.* 85(6): 121-130.

Hite, J. M., and Hesterly, W. S. 2001. "The evolution of firm networks: from emergence to early growth of the firm". *Strategic Management Journal*. 22: 275-286.

Hitt, M. A., Ahlstrom, D., Dacin, M. T., Levitas, E., and Svobodina, L. 2004. "The Institutional Effects on Strategic Alliance Partner Selection in Transition Economies: China vs. Russia". *Organization Science*, 15(2): 173-185.

Hoskisson, R. E., Eden, L., Lau, C. M., and Wright, M. (2000). "Strategy in emerging economies". *Academy of Management Journal*. 43(3): 249-267.

Huggins, Robert, and Piers Thompson. 2015. "Entrepreneurship, Innovation and Regional Growth: A Network Theory." *Small Business Economics* 45 (1): 103–28.

Huggins, Robert, Andrew Johnston, and Piers Thompson. 2012. "Network Capital, Social Capital and Knowledge Flow: How the Nature of Inter-Organizational Networks Impacts on Innovation." *Industry and Innovation* 19 (3): 203–232.

Ismail, K. M., Ford Jr., D. L., Wu, Q., and Peng, M. W. 2013. "Managerial ties, strategic initiatives, and firm performance in Central Asia and the Caucasus." *Asia Pacific Journal of Management*. 40: 433-446.

Javidan, Mansour, Robert J. House, Peter W. Dorfman, Paul J. Hanges, and Mary Sully De Luque. 2006. "Conceptualizing and Measuring Cultures and Their Consequences: A Comparative Review of GLOBE's and Hofstede's Approaches." *Journal of International Business Studies* 37 (6): 897–914.

Johnson, V. 2007. "What is organizational imprinting? cultural entrepreneurship in the founding of the Paris Opera". *American Journal of Sociology*. 113(1): 97-127.

Kim, T. Y., Oh, H., and Swaminathan, A. 2006. "Framing interorganizational network change: a network inertia perspective", *Academy of Management Review* 31(3): 704.

Kingsley, A. F., Noordewier, T. G., and Vanden Bergh, R. G. 2017. "Overstating and understating interaction results in international business research. *Journal of World Business*. 52(2): 286-295.

Kogut, B., and Zander, U. 2000. "Did Socialism fail to innovate? A natural experiment of the two Zeiss Companies". *American Sociological Review*, 65(2): 169-190.

Koka, B. R., Madhavan, R., and Prescott, J.E. 2006. "The evolution of interfirm networks: environmental effects on patterns of network change". *Academy of Management Review* 31(3): 721–737.

Kraatz, M., and Block, E. 2008. "Organizational implications of institutional pluralism.". In Greenwood, R., Oliver, C., Suddaby, R., and Sahlin-Andersson, K. (Eds.), *The Sage handbook of organizational institutionalism*. 243–275. Thousand Oaks, CA: Sage.

Kriauciunas, A., and Kale, P. 2006. "The Impact of Socialist Imprinting and Search on Resource Change: A Study of Firms in Lithuania." *Strategic Management Journal*, 27: 659-679.

Lamberg, J. A., and Laurila, J. 2005. "Materializing the societal effect: organizational forms and changing patterns of dominance in the paper industry." *Organization Studies*. 26: 1809-2830.

Laursen, K., and A. Salter. 2006. "Open for Innovation: The Role of Openness in Explaining Innovation Performance among UK Manufacturing Firms." *Strategic Management Journal* 27 (2): 131–50.

Lau, L., Qian, Y. and Roland, G. 1997 "Pareto-Improving Economic Reforms through Dual-Track Liberalization." *Economics Letters*, 55(2): 285-292.

Lau, L., Qian, Y. and Roland, G. 2000 "Reform Without Losers: An Interpretation of China's dual-track approach to reforms." *Journal of Political Economy*, 108(1): 120-143.

Lee, Ruby P., Ayşegül Özsomer, and Kevin Z. Zhou. 2015. "Introduction to the Special Issue on 'Innovation in and from Emerging Economies.'" *Industrial Marketing Management*, no. 50: 16–17.

Leiponen, A., and Helfat, C. E. 2010. "Innovation Objectives, Knowledge Sources, and the Benefits of Breadth." *Strategic Management Journal* 31 (2): 224–36.

Lepoutre, J., Justo, R., Terjesen, S. and Bosma, N. 2013. Designing a global standardised methodology for measuring social entrepreneurship activity: the Global Entrepreneurship Monitor social entrepreneurship study. *Small Business Economics*, 40: 693–714.

Liu, Xiaohui, Jiangyong Lu, Igor Filatotchev, Trevor Buck, and Mike Wright. 2010. "Returnee Entrepreneurs, Knowledge Spillovers and Innovation in High-Tech Firms in Emerging Economies." *Journal of International Business Studies* 41 (7): 1183–97.

Lounsbury, M. 2002. "Institutional transformation and status mobility: the professionalization of the field of finance". *Academy of Management Journal*. 45: 255-266.

Love, James H., Stephen Roper, and Priit Vahter. 2014. "Learning from Openness: The Dynamics of Breadth in External Innovation Linkages." *Strategic Management Journal*. 35(11): 1703-1716.

Mair, J., Battilana, J., and Cardenas, J. 2012. "Organizing for Society: A Typology of Social Entrepreneuring Models." *Journal of Business Ethics* 111 (3): 353–73.

Makhija, M. 2003. "Comparing the resource-based and market-based views of the firm: empirical evidence from Czech privatization". *Strategic Management Journal*, 24(5): 433-451.

Maksimov, V., Wang, S. L., and Luo, Y. 2017. "Institutional imprinting, entrepreneurial agency, and private firm innovation in transition economies." *Journal of World Business*. 52(6): 854-865.

Marquis, C. 2003. "The Pressure of the Past: Network Imprinting in Intercorporate Communities." *Administrative Science Quarterly*, 48: 655-689.

Marquis, C. and Tilcsik, A. 2013. Imprinting: Toward a multilevel theory. *Academy of Management Annals*, 7(1): 195-245.

Marquis, C., and Huang, Z. 2010. "Acquisitions as exaptation: The legacy of founding institutions in the U.S. commercial banking industry." *Academy of Management Journal*, 53(6): 1441–1473.

Marquis, C., and Qian, C. 2014. "Corporate social responsibility reporting in China: Symbol or substance?" *Organization Science*, 25(1): 127-148.

Marquis, C., and Qiao, K. 2020. "Waking from Mao's dream: communist ideological imprinting and the internationalization of entrepreneurial ventures in China", *Administrative Science Quarterly*, 65: 795– 830.

Martinez, Martha A., and Howard E. Aldrich. 2011. "Networking Strategies for Entrepreneurs: Balancing Cohesion and Diversity." *International Journal of Entrepreneurial Behavior & Research*. 17(1): 7-38.

McEvily, B., Jaffee, J., and Tortoriello, M. 2012. Not all bridging ties are equal: Network imprinting and firm growth in the Nashville legal industry, 1933 – 1978. *Organization Science*, 23(2): 547–563.

McMillan, John, and Christopher Woodruff. 2002. "The Central Role of Entrepreneurs in Transition Economies." *Journal of Economic Perspectives* 16 (3): 153–70.

Mickiewicz, T., Stephan, U., and Shami, M. 2021. "The consequences of short-term institutional change in the rule of law for entrepreneurship." *Global Strategy Journal*. https://doi.org/10.1002/gsj.1413.

Milanov, H., and Fernhaber, S. A. 2009. "The impact of early imprinting on the evolution of new venture networks". *Journal of Business Venturing*, 24(1): 46-61.

Mingo, S., and Khanna, T. 2014. "Industrial Policy and the Creation of New Industries: Evidence from Brazil's Bioethanol Industry." *Industrial and Corporate Change*, 23(5): 1229–1260

Mizruchi, M. S., and Stearns, L. B. 2001. "Getting Deals Done: The Use of Social Networks in Bank Decision-Making." *American Sociological Review* 66 (5): 647–671.

Neubert, M. J., Bradley, S. W., Ardianti, R., and Simiyu, E. 2017. "The role of spiritual capital in innovation and performance: evidence from developing economies". *Strategic Entrepreneurship Journal*. 41(4): 621-640

Newman, K. L. 2000 "Organizational transformation during institutional upheaval". *Academy of Management Review*, 25(3): 602-619.

Nicholls, A., and Murdock, A. 2012. "The Nature of Social Innovation." In *Social Innovation*, 1–30. Springer.

Nicholls-Nixon, C., Cooper, A., and Woo, C. 2000 "Strategic Experimentation, Understanding Change and Performance In New Ventures". *Journal of Business Venturing*, 15: 493-521

Nicolini, D., Delmestri, G., Goodrick, E., Reay, T., Lindberg, K., et al. 2016 "Look what's back! Institutional complexity, reversibility and the knotting of logics." *British Journal of Management*, 27: 228–248.

Nooteboom, B. 1999. "Innovation, Learning and Industrial Organisation." *Cambridge Journal of Economics* 23 (2): 127.

North, Douglass C. 2016. "Institutions and Economic Theory." *The American Economist* 61 (1): 72–76.

OECD and World Bank. 2014. *Science, Technology and Innovation in Vietnam*. Paris: OECD Publishing. http://dx.doi.org/10.1787/9789264213500-en.

Park, S. H., and Luo, Y. 2001. Guanxi and organizational dynamics: Organizational networking in Chinese firms. *Strategic management journal*, 22(5): 455-477.

Park, S. H., Li, S., and Tse, D. K. 2006. "Market liberalization and firm performance during China's economic transition." *Journal of International Business Studies*, 37: 127-147

Partanen, J., Kauppila, O-P, Sepulveda, F., and Gabrielsson, M. 2020. "Turning strategic network resources into performance: the mediating role of network identity of small and Medium-Sized enterprises". *Strategic Entrepreneurship Journal*, 14(2): 178-197.

Peng, M. W. (2003). "Institutional transitions and strategic choices." *Academy of Management Review, 28*(2): 275– 296.

Peng, M. W. 2001. "How Entrepreneurs Create Wealth in Transition Economies." *Academy of Management Perspectives* 15 (1): 95–108.

Peng, M. W. 2002. "Towards an institution-based of business strategy" *Asia Pacific Journal of Management*, 19: 251-267.

Peng, M. W., Sun, S., Pinkham, B., and Chen, H. 2009 "The institution-based view as a third leg for a strategy tripod" *The Academy of Management Perspectives*, 23(3): 63-81

Peng, M. W., and Quan, M. J. 2009, "A micro–macro link during institutional transitions", Keister, L. (Ed.) *Work and Organizations in China After thirty Years of Transition* (Research in the Sociology of Work, Vol. 19), Emerald Group Publishing Limited, Bingley, pp. 203-224.

Pennings, J. M. 1980. "Environmental influences on the creation process". In J. R. Kimberly and R. H. Miles (Eds.). *The organizational life cycle*: 134-160. San Francisco: Jossey-Bass.

Popli, M., Raithatha, M., and Fuad, M. 2021. "Impact of institutional imprinting on the persistence of superior profits: a study of regulatory punctuation in India". *Journal of Business Research*. 124: 223-235.

Powell, Walter W., Kelley Packalen, and Kjersten Whittington. 2012. "Organizational and Institutional Genesis." *The Emergence of Organizations and Markets* 434: 434–65.

Puffer, S. M., McCarthy, D. J., and Boisot, M. 2010. "Entrepreneurship in Russia and China: The Impact of Formal Institutional Voids". *Entrepreneurship Theory and Practice*, 34(3), 441–467.

Rank, O. N., and Strenge, M. (2018). Entrepreneurial Orientation as Driver of Brokerage in External Networks: Exploring the Effects of Risk-Taking, Proactivity, and Innovativeness. *Strategic Entrepreneurship Journal*, 12(4): 482-503

Rauch, Andreas, Nina Rosenbusch, Jens Unger, and Michael Frese. 2016. "The Effectiveness of Cohesive and Diversified Networks: A Meta-Analysis." *Journal of Business Research* 69 (2): 554–68.

Raynard, M., Lounsbury, M., and Greenwood, R. 2013. "Legacies of logics: sources of community variation in CSR implementation in China." In Lounsbury, L., and Boxenbaum, E. (Eds.) *Research in the sociology of organizations: institutional logics in action.* Volume 39A, Emerald Group Publishing Ltd.

Robinson, John P., Phillip R. Shaver, and Lawrence S. Wrightsman. 1991. "Criteria for Scale Selection and Evaluation." *Measures of Personality and Social Psychological Attitudes* 1 (3): 1–16.

Rogan, M., and Mors, M. L. 2014. "A Network Perspective on Individual-Level Ambidexterity in Organizations." *Organization Science* 25 (6): 1860–77.

Romero, Isidoro, and Juan A. Martínez-Román. 2012. "Self-Employment and Innovation. Exploring the Determinants of Innovative Behavior in Small Businesses." *Research Policy* 41 (1): 178–89.

Santarelli, Enrico, and Tran, H. T. 2013. "The Interplay of Human and Social Capital in Shaping Entrepreneurial Performance: The Case of Vietnam." *Small Business Economics* 40 (2): 435–58.

Sarason, Y., Dean, T., and Dillard, J. F. 2006. "Entrepreneurship as the Nexus of Individual and Opportunity: A Structuration View." *Journal of Business Venturing* 21(3): 286–305.

Scott, W. R. 2008. *Institutions and organizations: Ideas and interests* (3rd ed.). Los Angeles, CA: Sage

Shane, S., and Cable, D. 2002. "Network Ties, Reputation, and the Financing of New Ventures." *Management Science* 48 (3): 364–81.

Shannon, Claude E. 1948. "A Mathematical Theory of Communication." *The Bell System Technical Journal* 27 (3): 379–423.

Shinkle, G. A., and Kriauciunas, A. P. 2010 "Institutions, size and age in transition economies: Implications for export growth". *Journal of International Business Studies* 41: 267–286.

Shinkle, G. A., and Kriauciunas, A. P. 2012. "The impact of current and founding institutions on strength of competitive aspirations in transition economies." *Strategic Management Journal,* 33: 448-458.

Simsek, Z., Fox, B. C., and Heavey, C. 2015. "What's past is prologue. A framework, review, and future directions for organizational research on imprinting", *Journal of Management*, 41: 288– 317.

Sinha, P. N., Jaskiewicz, P., Gibb, J., and Combs, J. G. 2020. "Managing history: how New Zealand's Gallagher Group used rhetorical narratives to reprioritize and modify imprinted strategic guideposts", *Strategic Management Journal*, 41: 557– 589.

Sobel, Russell S. 2017. "The rise and decline of nations: The dynamic properties of institutional reform." *Journal of Institutional Economics* 13(3): 549–574.

Soda, G., Usai, A., and Zaheer, A. 2004. "Network memory: The influence of past and current networks on performance." *Academy of Management Journal*, 47(6): 893-906.

Stam, W., and Elfring, T. 2008. "Entrepreneurial Orientation and New Venture Performance: The Moderating Role of Intra-and Extraindustry Social Capital." *Academy of Management Journal* 51 (1): 97–111.

Stam, Wouter, Souren Arzlanian, and Tom Elfring. 2014. "Social Capital of Entrepreneurs and Small Firm Performance: A Meta-Analysis of Contextual and Methodological Moderators." *Journal of Business Venturing* 29 (1): 152–73.

Stinchcombe, A. L. 1965. Social structure and organizations. In March, J. G. (Ed.) *Handbook of Organizations*. 142-193. Chicago: Rand McNally & Co.

Sullivan, B. N., Tang, Y., and Marquis, C. 2014. "Persistently learning: How small-world network imprints affect subsequent firm learning". *Strategic Organization*. 12(3): 180-199.

Teece, D. J., Pisano, G., and Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7): 509-533

Thornton, P. H., Ocasio, W., and Lounsbury, M. 2012. *The institutional logics perspective*. Oxford, UK: Oxford University Press.

Tilcsik, A. 2010. "From ritual to reality: demography, ideology, and decoupling in a post-communist government agency. *The Academy of Management Journal.* 53(6): 1474-1498.

Tilcsik, A. 2012 *Remembrance of things past: individual imprinting in organizations.* Harvard University, Cambridge, MA.

Tindall, D. B., Cormier, J., and Diani, M. 2012. "Network Social Capital as an Outcome of Social Movement Mobilization: Using the Position Generator as an Indicator of Social Network Diversity." *Social Networks* 34 (4): 387–95.

Tortoriello, M., and Krackhardt, D. 2010. "Activating Cross-Boundary Knowledge: The Role of Simmelian Ties in the Generation of Innovations." *Academy of Management Journal* 53 (1): 167–81.

Tran, H T. 2019. "Institutional Quality and Market Selection in the Transition to Market Economy." *Journal of Business Venturing* 34 (5): 105890.

Tran, H. T., and Freel, M. 2022. "Ownership, innovation, and variable institutional quality." *Corporate Governance: An International Review*. Forthcoming. DOI: **https://doi.org/10.1111/corg.12477**

Tran, H. T., and Santarelli, E. 2021. "Successful transition to a market economy: an interpretation from organizational ecology theory and institutional theory". *Industrial and Corporate Change*. 30(3): 652-677.

Tran, H.T., Santarelli, E. 2017. "Spatial heterogeneity, industry heterogeneity, and entrepreneurship". *Annals of Regional Science*. 59: 69–100

Uhlenbruck, K., Meyer, K. E., and Hitt, M. 2003. "Organizational Transformation in Transition Economies: Resource-Based and Organizational Learning Perspectives". *Journal of Management Studies*, 40(2): 257- 282.

Vasudeva G., Zaheer A., and Hernandez E. (2013) The embeddedness of networks: institutions, structural holes, and innovativeness in the fuel cell industry. *Organization Science*. 24(3): 645-663.

Vasudeva, G., Zaheer, A., and Hernandez, E. 2013 "The embeddedness of networks: Institutions, structural holes, and innovativeness in the fuel cell industry". *Organizational Science*. 24(3): 645–663.

Vuong, Q. H., and Napier, N. K. 2014. Resource curse or destructive creation in transition: evidence from Vietnam's corporate sector. *Management Research Review*. 37(7): 642-657.

Waeger, D., and Weber, K. 2019. "Institutional complexity and organizational change: an open polity perspective", *Academy of Management Review*, 44: 336– 359.

Wales, W., Shirokova, G., Beliaeva, T., Micelotta, E., and Marino, L. 2021. "The impact of institutions on the entrepreneurial orientation-performance relationship" *Global Strategy Journal*. DOI: /10.1002/gsj.1418.

Wang, D., Du, F., and Marquis, C. 2019. "Defending Mao's dream: how politicians' ideological imprinting affects firms' political appointment in China", *Academy of Management Journal*, 62: 1111– 1136.

Wei, G. 2007. "Ownership structure, corporate governance and company performance in China" *Asia Pacific Business Review*. 13(4): 519-545.

Wei, Y. 2017. "Organizational Imprinting and Response to Institutional Complexity: Evidence from Publicly-Traded Chinese State-Owned Firms in Hong Kong". *Management and Organization Review*, 13(2): 345-373.

Xiao, Z, and Tsui, A. S. 2007. "When brokers may not work: the cultural contingency of social capital of Chinese high-tech firms. *Administrative Science Quarterly*. 52(1): 1-31.

Xu, D., Lu, J. W., and Gu, Q. 2014 "Organizational forms and multi-population dynamics: Economic transition in China." *Administrative Science Quarterly*, 59(3): 517-547.

Yiu, D., Bruton, G. D., and Lu, Y. 2005. Understanding business group performance in an emerging economy: Acquiring resources and capabilities in order to prosper. *Journal of Management Studies*, 42(1): 183-206.

Zaring, O., and Eriksson, C. M. 2009. "The dynamics of rapid industrial growth: evidence from Sweden's information technology industry, 1990-2004". *Industrial and Corporate Change*. 18(3): 507-528.

Zhang C., Tan J., and Tan D. (2016) Fit by adaptation or fit by founding? A comparative study of existing and new entrepreneurial cohorts in China. *Strategic Management journal*. 37(5): 911-931.

Zhang L., Ren Y. and Wu J. (2022) Communist ideological imprinting and the transformation of state-owned enterprises. *British Journal of Management*. https://doi.org/10.1111/1467-8551.12632

Zimmerman, M. A., and Zeitz, G. J. 2002. "Beyond Survival: Achieving New Venture Growth by Building Legitimacy." *Academy of Management Review* 27 (3): 414–431.

Table 1: Reliability and Validity Analysis

Constructs and indicators	Factor loadings
Self-efficacy: Cronbach's alpha 0.72; RR 0.73; AVE 0.5; MSV 0.085; ASV 0.021	
If I run up against difficulties in life, I often doubt my own abilities	0.78
Compared to other people, I have not achieved what I deserve	0.80
I frequently have the experience that other people have a controlling influence on me	0.68
I have little control over the things that happen in my life	0.69
Locus of control: Cronbach's alpha 0.72; RR: 0.73; AVE 0.6; MSV 0.053; ASV 0.015	
Inborn abilities are more important than any efforts once can make	0.84
What a person achieves in life is above all a question of fate or luck	0.78
The opportunities that I have in life are determined by societal living conditions	0.78
Risk-taking propensity: Cronbach's alpha 0.9; RR 0.9; AVE 0.7; MSV 0.018; ASV 0.03	
Risk aversion level (0 = risk averse; 10 = risk loving)	0.82
Willingness to take risks in financial matters	0.87
Willingness to take risks in your occupation / running your enterprise	0.85
Willingness to takes risks while driving	0.79
Willingness to take risks in recreational hobbies and sports	0.77
Willingness to take risks with your health	0.78
Willingness to take risks with your faith in other people	0.70

Note: AVE: average variance extracted; ASV: average shared variance; RR: Raykov's reliability; MSV: maximum shared variance

Table 2: Correlations, Means, and Standard Deviation

	Mea	Std	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)	0.75	1.16	0	3	1.00																
(2)	8.41	11.5	0	168	-0.03*	1.00															
(3)	0.86	0.35	0	1.59	0.05*	-0.14*	1.00														
(4)	0.00	1.09	-1.73	3.39	0.01	0.01	0.01	1.00													
(5)	0.00	0.96	-1.56	3.21	0.03*	0.00	0.06*	0.58*	1.00												
(6)	0.02	1.83	-3.14	8.16	0.04*	-0.08*	0.10*	0.08*	0.15*	1.00											
(7)	1.91	0.72	1	3	0.07*	-0.18*	0.14*	0.01	0.09*	0.06*	1.00										
(8)	14.4	8.22	0	61	0.03	0.09*	-0.05*	0.03	-0.03*	-0.09*	-0.14*	1.00									
(8)	49	10.8	20	89	-0.00	0.07*	-0.06*	-0.01	-0.05*	-0.08*	-0.13*	0.44*	1.00								
(10)	0.11	0.31	0	1	0.00	-0.07*	0.04*	-0.05*	0.03*	0.06*	0.28*	-0.08*	0.13*	1.00							
(11)	0.11	0.31	0	1	0.20*	-0.02	0.06*	0.05*	0.02	0.01	0.05*	-0.04*	-0.05*	0.04*	1.00						
(12)	0.14	0.31	0	1	0.09*	-0.03*	0.03*	0.01	-0.02	0.02	0.02	-0.04*	-0.07*	-0.01	0.06*	1.00					
(13)	0.08	0.30	0	11	0.07*	-0.06*	0.12*	0.01	0.00	0.02	0.07*	-0.07*	-0.05*	0.03*	0.07*	0.03*	1.00				
(14)	0.06	0.24	0	1	0.09*	-0.13*	0.08*	-0.04*	0.01	0.06*	0.19*	-0.04*	-0.09*	0.04*	0.03	0.05*	0.06*	1.00			
(15)	1.77	1.12	0	6.6	0.11*	-0.42*	0.19*	-0.06*	0.03*	0.19*	0.39*	-0.17*	-0.18*	0.11*	0.09*	0.10*	0.13*	0.42*	1.00		
(16)	2.05	12	0	100	0.03	0.03*	0.07*	0.02	0.04*	0.03*	0.02	0.01	-0.01	-0.01	0.02	0.05*	0.02	0.02	0.05*	1.00	
(17)	0.07	0.26	0	1	0.10*	-0.08*	0.11*	0.01	0.00	0.02	0.09*	0.02	0.03*	0.04*	0.06*	0.06*	0.09*	0.18*	0.24*	0.02	1.00

Note: *: correlation is significant at 0.01 level (two tailed)

(0) Types of innovation; (2) Network size; (3) Network diversity; (4) Locus of control; (5) Self-efficacy; (6) Risk-taking; (7) Education; (8) Tenure; (9) Age; (10) Management/industry experience; (11) Diversification; (12) Innovation intensity; (13) Debt ratio; (14) Export; (15) Firm labor size; (16) Strong-tie investment; (17) Formal business association

Table 3: The imprinting effects of individual resources, social networks, formal network on categories of entrepreneurial innovation

Variables		'1' new technology; '2': improved product; '3': new product				
		(1)	**(2)**	**(3)**	**(4)**	**(5)**
Social network	Network size				0.011** (0.005)	
	Network diversity				0.145 (0.126)	
	Percent of investment from strong ties		0.007* (0.003)	0.007* (0.03)		0.006* (0.003)
Formal network	Membership of business association		0.324* (0.159)	0.513** (0.166)		
Imprinting effects	Imprinting * strong ties			**0.025*** **(0.011)**		-0.032** (0.013)
	Imprinting*strong ties*experience					**0.103*** **(0.058)**
	Imprinting * business association			**-2.110**** **(0.567)**		
	Imprinting * network size				**-0.035**** **(0.013)**	
	Imprinting * network diversity				**-0.212** **(0.379)**	
Individual-level controls	Internal locus of control	-0.155* (0.082)	-0.154* (0.082)	-0.157* (0.082)	-0.151* (0.082)	-0.152* (0.082)
	Self-efficacy	0.242** (0.093)	0.232** (0.094)	0.237** (0.094)	0.229** (0.094)	0.232** (0.094)
	Risk-taking	0.165** (0.041)	0.163** (0.041)	0.161** (0.041)	0.160** (0.041)	0.163** (0.041)
	Education	0.308** (0.106)	0.311** (0.106)	0.314** (0.106)	0.304** (0.107)	0.303** (0.106)
	Tenure	0.061** (0.009)	0.075** (0.011)	0.075** (0.011)	0.076** (0.011)	0.076** (0.011)
	Age	0.025** (0.007)	0.024** (0.007)	0.023** (0.007)	0.024** (0.007)	0.024** (0.007)
	Management and industry experience	-0.797** (0.226)	-0.789** (0.227)	-0.789** (0.227)	-0.775** (0.267)	-0.826** (0.233)
Firm-level controls	Diversification	2.897** (0.156)	2.887** (0.157)	2.875** (0.157)	2.888** (0.157)	2.903** (0.157)
	Innovation intensity	1.121** (0.125)	1.108** (0.125)	1.107** (0.125)	1.122** (0.126)	1.115** (0.125)
	Debt ratio	0.449** (0.157)	0.432** (0.155)	0.425** (0.155)	0.431** (0.156)	0.443** (0.157)
	Export	0.592** (0.238)	0.573** (0.239)	0.558* (0.240)	0.583** (0.239)	0.581** (0.239)
	Firm labor size	0.201* (0.085)	0.175* (0.086)	0.175* (0.086)	0.223** (0.088)	0.185* (0.086)
	Pre-transition imprinting		-0.915** (0.252)	-0.737** (0.254)	-0.443 (0.431)	-0.909** (0.261)
Wald chi2		$\chi^2(16) = 508$**	$\chi^2(19) = 520$**	$\chi^2(21) = 534$**	$\chi^2(21) = 522$**	$\chi^2(22) = 522$**

*** significant at 5% level, * significant at 1% level; n=9,222 observations; Random ordered logit model was adopted. Ownership types are controlled but not shown.*

Table 4: The imprinting effect of individual resources, social networks, formal network on number of innovation categories

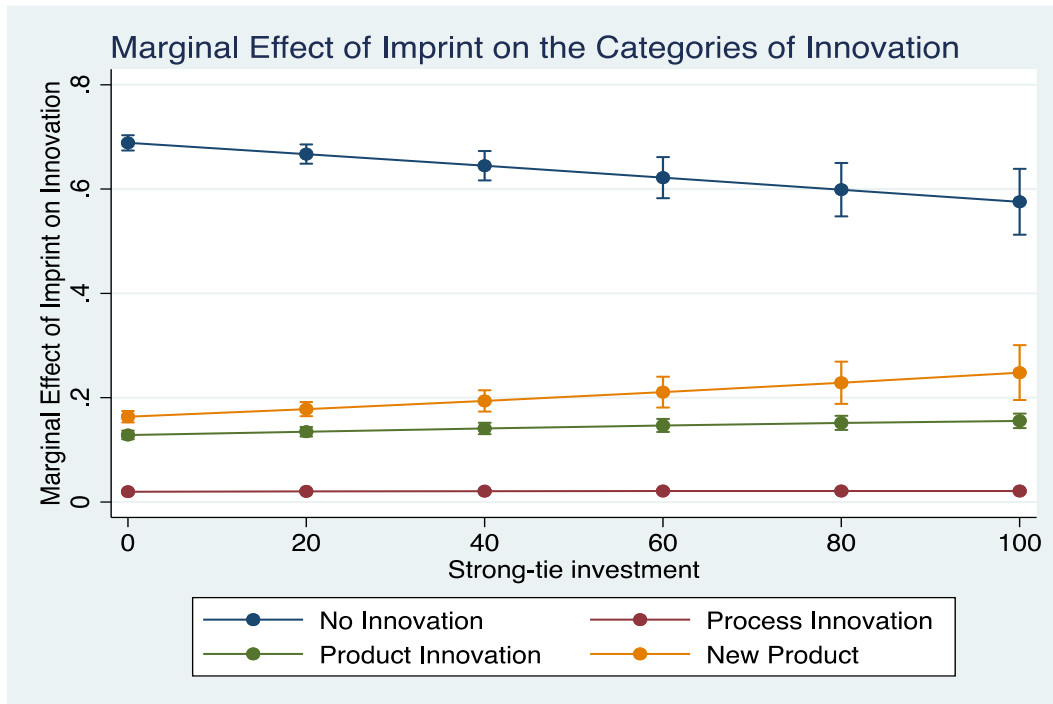| Variables		Number of innovation categories				
		(1)	**(2)**	**(3)**	**(4)**	**(5)**
Social network	Network size				0.006**	
					(0.002)	
	Network diversity				0.186**	
					(0.067)	
	Percent of investment from strong ties		0.005**	0.005**		0.006**
			(0.001)	(0.001)		(0.002)
Formal institution	Membership of business association		0.152*	0.205**		
			(0.078)	(0.081)		
Imprinting effects	Imprinting * strong ties			**0.007***		-0.013*
				(0.003)		(0.006)
	Imprinting*strong ties*experience					**0.025***
						(0.013)
	Imprinting * business association			**-0.839****		
				(0.318)		
	Imprinting * network size				**-0.016***	
					(0.007)	
	Imprinting * network diversity				**-0.042**	
					(0.206)	
Individual-level controls	Internal locus of control	-0.052*	-0.051*	-0.051*	-0.048	-0.049
		(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
	Self-efficacy	0.101**	0.095**	0.096**	0.094**	0.094**
		(0.035)	(0.034)	(0.034)	(0.035)	(0.034)
	Risk-taking	0.049**	0.046**	0.045**	0.043**	0.046**
		(0.014)	(0.015)	(0.015)	(0.015)	(0.015)
	Education	0.099**	0.102**	0.102**	0.098*	0.102**
		(0.042)	(0.042)	(0.042)	(0.042)	(0.042)
	Tenure	0.009**	0.012**	0.011**	0.012**	0.012**
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
	Age	0.001	0.001	0.001	0.001	0.001
		(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
	Management and industry experience	-0.154*	-0.154*	-0.151*	-0.137	-0.141
		(0.089)	(0.089)	(0.088)	(0.089)	(0.092)
Firm-level controls	Diversification	0.751**	0.733**	0.728**	0.734**	0.743**
		(0.065)	(0.065)	(0.065)	(0.065)	(0.065)
	Innovation intensity	0.721**	0.701**	0.696**	0.711**	0.704**
		(0.062)	(0.062)	(0.062)	(0.062)	(0.062)
	Debt ratio	0.089*	0.088*	0.087*	0.082	0.087
		(0.051)	(0.051)	(0.051)	(0.051)	(0.051)
	Export	0.129	0.103	0.111	0.121	0.113
		(0.099)	(0.099)	(0.100)	(0.099)	(0.101)
	Firm labor size	0.152**	0.139**	0.141**	0.166**	0.145**
		(0.033)	(0.033)	(0.033)	(0.034)	(0.033)
	Pre-transition imprinting		-0.164	-0.089	-0.001	-0.144
			(0.105)	(0.106)	(0.221)	(0.109)
Wald chi2		$\chi^2(16) = 419^{**}$	$\chi^2(19) = 434^{**}$	$\chi^2(21) = 442^{**}$	$\chi^2(21) = 437^{**}$	$\chi^2(22) = 437^{**}$

** significant at 5% level, * significant at 1% level; n=9,222 observations; Random Poisson model was adopted. Ownership types are controlled but not shown.

**Table 5: Marginal Effect of *Imprint* on *Innovation***

Moderating Variable	Categories of innovation	Number of innovation
Bizassociation = 0	-0.737** (0.254)	-0.089 (0.106)
Bizassociation = 1	-2.847** (0.567)	-0.928** (0.318)

*** significant at 5% level, * significant at 1% level; n=9,222 observations*

Figure 1

Marginal Effect of Imprint on the Categories of Innovation

Figure 2

Marginal Effect of Imprint on the Number of Innovation

38
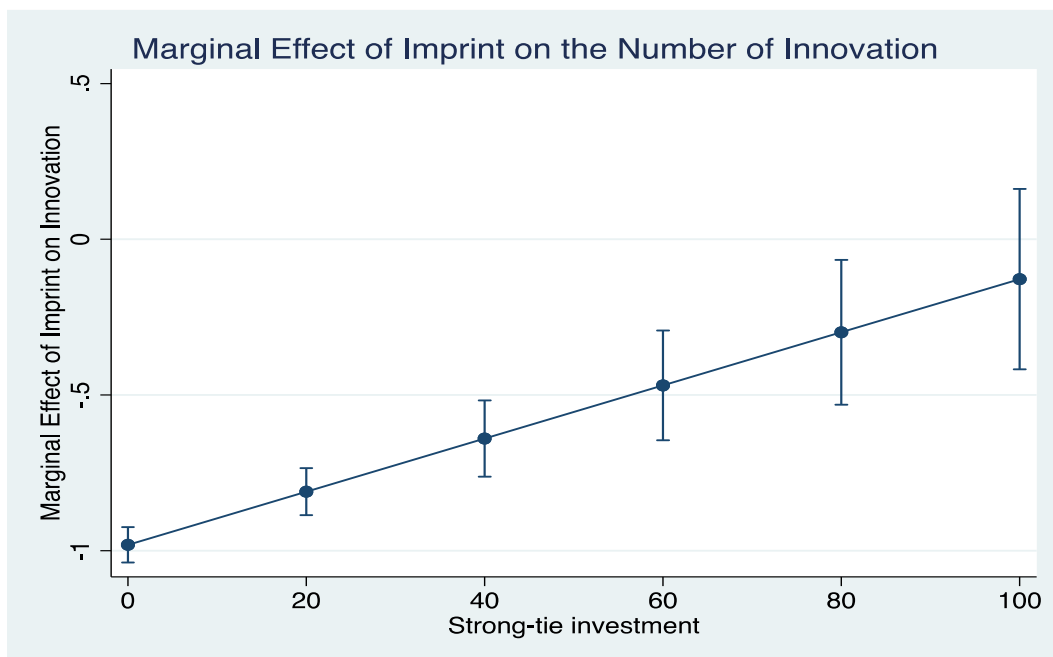
Appendix A: Imprinting effect of individual resources, social networks, formal network on innovation (continuous 'imprinting' variable)

Variables		Categories of Innovation			Number of innovation categories		
Social network	Network size		0.0003 (0.006)			0.000 (0.003)	
	Network diversity		0.302 (0.182)			0.244** (0.101)	
	Percent of investment from strong ties	0.006 (0.006)		0.006* (0.06)	0.002 (0.003)		0.001 (0.003)
Formal network	Membership of business association	-0.241 (0.247)			-0.005 (0.132)		
Imprinting effects	Imprinting * strong ties	**0.001*** **(0.000)**		-0.001* (0.000)	**0.000** **(0.000)**		-0.0003 (0.0002)
	Imprinting * strong ties *experience			**0.001** **(0.001)**			**0.0002** **(0.000)**
	Imprinting * business association	**-0.054**** **(0.017)**			**-0.014** **(0.009)**		
	Impriting * network size		**-0.001*** **(0.000)**			**-0.0005*** **(0.0002)**	
	Impriting * network diversity		**-0.015** **(0.012)**			**-0.005** **(0.007)**	
Individual-level controls	Internal locus of control	-0.157* (0.082)	-0.143* (0.082)	-0.149* (0.082)	-0.053* (0.029)	-0.049 (0.029)	-0.051 (0.029)
	Self-efficacy	0.231** (0.093)	0.219** (0.094)	0.224** (0.093)	0.095** (0.034)	0.093** (0.034)	0.095** (0.034)
	Risk-taking	0.158** (0.041)	0.154** (0.041)	0.159** (0.041)	0.045** (0.015)	0.042** (0.015)	0.045** (0.015)
	Education	0.318** (0.106)	0.311** (0.106)	0.311** (0.106)	0.103** (0.042)	0.101** (0.042)	0.103** (0.042)
	Tenure	0.093** (0.013)	0.093** (0.013)	0.094** (0.013)	0.013** (0.005)	0.014** (0.005)	0.013** (0.005)
	Age	0.023** (0.007)	0.024** (0.007)	0.024** (0.007)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)
	Management and industry experience	-0.803** (0.227)	-0.780** (0.226)	-0.739* (0.375)	-0.154* (0.088)	-0.137 (0.089)	-0.259 (0.157)
Firm-level controls	Diversification	2.873** (0.156)	2.876** (0.156)	2.891** (0.156)	0.729** (0.065)	0.731** (0.065)	0.738** (0.065)
	Innovation intensity	1.091** (0.125)	1.128** (0.125)	1.100** (0.126)	0.692** (0.062)	0.714** (0.062)	0.701** (0.062)
	Debt ratio	0.449** (0.126)	0.429** (0.155)	0.434** (0.156)	0.085 (0.051)	0.084 (0.051)	0.086 (0.051)
	Export	0.551** (0.239)	0.586** (0.239)	0.582* (0.239)	0.108 (0.099)	0.122 (0.099)	0.120 (0.101)
	Firm labor size	0.183* (0.086)	0.229* (0.087)	0.202* (0.085)	0.141** (0.033)	0.168** (0.034)	0.149** (0.033)
	Degree of imprinting	-0.037** (0.011)	-0.049** (0.015)	-0.041** (0.011)	-0.004 (0.004)	-0.006 (0.007)	-0.004 (0.004)
Wald chi2		$\chi^2(21) = 533^{**}$	$\chi^2(21) = 526^{**}$	$\chi^2(22) = 524^{**}$	$\chi^2(21) = 437^{**}$	$\chi^2(21) = 439^{**}$	$\chi^2(22) = 433^{**}$