

Digital Government, Incumbent Innovation and Firm Entry

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Abstract:Firm entry is widely recognized as a key driver of industrial dynamism, structural transformation, and long-term regional economic growth. By introducing new technologies and business models, entrants intensify competition and contribute to the reallocation of resources toward more productive activities, an effect often described as Schumpeterian creative destruction. The benefits of entry are not limited to efficiency gains: they also promote innovation diffusion, labor reallocation, and sectoral upgrading, all of which underpin regional competitiveness. However, entry decisions are influenced not only by entrepreneurial intent but also by the institutional environment and the strategic behavior of incumbent firms. This is particularly salient in transition economies such as China, where complex administrative procedures, regulatory frictions, and uneven policy implementation can elevate entry costs.

Recent studies suggest that digital government can facilitate firm entry. Empirical evidence suggests that digitalization acts as a key driver of entrepreneurial activity and sustainable competitiveness by enhancing connectivity, reducing transaction costs, and improving access to digital public services (Dabbous et al., 2023). In this context, the expansion of Digital Government (DG) has significantly reshaped the institutional landscape, offering mechanisms that facilitate firm entry through structural improvements in the business environment, reductions in information asymmetries, and increased transparency in regulatory procedures. Online government service integration, in particular, has been shown to enhance business environment quality by optimizing administrative efficiency, accelerating service delivery, and strengthening the availability of critical information, thereby lowering institutional frictions that often deter new entrants (Lei, Liang, & Liu, 2026). Complementing these efforts, the implementation of open government data accelerates firm entry by lowering data access barriers and mitigating informational constraints, especially for smaller and less resource-endowed firms (Wu & Xie, 2024). Digital governance reforms have also been found to strengthen urban industrial chain resilience by fostering localized innovation and entrepreneurial dynamism, providing a more supportive environment for new firm

creation (Yan, 2026). By migrating approval processes and public services onto digital platforms, these reforms disproportionately benefit resource-constrained startups by reducing both informational and financial barriers that traditionally characterize high-entry-cost industries.

Despite these pro-entry effects, the impact of digital government reforms is not uniformly beneficial for new entrants. Incumbent firms are not passive actors; they often respond strategically to potential competition by increasing investment in innovation and other resources that consolidate market position. Prior research shows that incumbents may intensify R&D investment to strengthen technological advantages and signal competitive strength, thereby raising entry barriers (Acemoglu & Cao, 2015). Building on the framework established by Aghion et al. (2009), entry can itself stimulate incumbent innovation, particularly in sectors close to the technological frontier. Consistent with the strategic entry deterrence theory (Gilbert & Newbery, 1982; Aghion et al., 2009), incumbents may engage in preemptive innovation to consolidate their dominance, effectively creating technological moats that limit opportunities for new firms.

Importantly, digital government reforms do not solely empower new entrants. Re-examinations of the so-called incumbent's curse (Chandy & Tellis, 2000) suggest that the relationship between incumbency and innovation is highly context-dependent. In a digitally enabled institutional environment, incumbents may transform the structural disadvantages of size and organizational inertia into advantages. By providing more efficient access to policy and technical information, digital government empowers incumbents to strategically deploy innovation and strengthen market positions. Established firms, with superior organizational capacity and experience navigating policy systems, can leverage digital platforms to access public resources, R&D support, and government subsidies more effectively than smaller competitors. Consequently, while digital government improves the overall business environment, it may also enable incumbents to erect stronger technological barriers, inadvertently discouraging potential entrants, a mechanism we term innovation-based exclusion.

China provides an ideal setting to examine these dynamics. As one of the earliest countries to promote digital institutional upgrading, China launched the "Internet Plus Government Services" initiative in 2016, aimed at improving public access to information and enhancing government service efficiency. Over nearly a decade, this policy has been widely implemented at the municipal level, creating a quasi-natural

experiment for evaluating whether digital government reforms facilitate firm entry and regional economic dynamism or, conversely, amplify incumbent advantages and crowd out potential entrants.

Based on the theoretical and reality background, using a panel of Chinese prefecture-level cities from 2010 to 2024, we investigate the heterogeneous and potentially unintended consequences of digital institutional reforms. Our dependent variable, capturing regional entrepreneurial dynamism, is the annual number of newly registered high-tech firms at the city level. To identify the mechanism of innovation-based exclusion, we adopt a strict intra-industry matching approach, defining incumbents as locally headquartered listed companies operating in the same high-tech sectors during the pre-policy period (2010–2015). This temporal and sectoral restriction serves two purposes. First, it ensures that incumbent status is exogenous to the 2016 policy shock. Second, it captures the “superstar firm” effect: pre-existing tech giants possess the financial and organizational capacity to disproportionately leverage digital public services. Their subsequent surge in invention patents can therefore be interpreted as strategic technological moats deployed against new entrants within the same regional and industrial domains.

Our empirical strategy unfolds in two stages. First, we use a staggered Difference-in-Differences (DID) design to estimate the baseline effect of digital government implementation on the entry of high-tech firms at the city level. Second, to test the strategic entry deterrence hypothesis, we introduce a moderating model by interacting the digital government policy indicator with a measure of incumbent innovation at the city level. Here, incumbent innovation is proxied by the average invention patent density of high-tech listed companies headquartered in the city. This interaction allows us to examine whether the entry-promoting effects of digital government are weaker in markets where established tech firms actively use patents to reinforce their technological advantage.

Our study contributes to the literature on regional development, digital governance, and industrial organization by providing a more nuanced understanding of how institutional digitalization shapes competitive dynamics and entrepreneurial activity. By highlighting both the empowering effects of digital government for new firms and the potential reinforcement of incumbent advantages, our findings offer important insights for policymakers seeking to design interventions that promote inclusive and sustainable regional economic growth.

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