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The Informal Sector in China:

**The Role of Institutional Reform and Digital Transformation on Enterprise
Formalization**

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Abstract

This paper examines the dynamic evolution of economic informality in China along two dimensions: business registration (the extensive margin) and formal labor protections within registered firms (the intensive margin). Leveraging administrative records alongside micro-survey data from OSOME (2020–2026) and ESIEC (2018 and 2025), we evaluate how institutional reforms and digital transformation shape formalization incentives. While market-oriented regulatory reforms—such as the landmark 2014 business registration reform—fueled an unprecedented expansion in formal enterprise creation, stringent labor regulations unintentionally inflated intensive-margin informality. Simultaneously, the rapid rise of digital platforms and fintech ecosystems has created a platform substitution effect, enabling micro-enterprises to access credit, build consumer trust, and operate flexibly without state licenses. Consequently, we observe an informality paradox: extensive-margin informality remains widespread and is counterintuitively higher in China's most developed, highly digitized cities.

Key words: Informality, institutional reforms, small and medium enterprises, SMES

1. Defining and Measuring Informality in the Chinese Context

The informal economy is a defining feature of developing countries, generating roughly 35% of GDP and absorbing up to 70% of the total workforce in typical developing markets (World Bank, 2021). Characterized by non-regulated employment relationships, small-scale self-employment, and a widespread absence of formal contracts or social security coverage, the informal sector offers critical income opportunities for low-skilled or vulnerable populations facing constrained options in formal labor markets, particularly in the early stage of development (ILO, 2018). Mainstream economics literature suggests that the importance of the informal economy declines with economic growth (La Porta and Shleifer, 2014).

However, testing this conjecture using cross-sectional data remains difficult for two reasons. First, institutional environments vary greatly across countries, making it challenging to control for underlying institutional factors. Second, measures of informality are inconsistent across countries and can be defined in multiple ways. For instance, Lim (2026) uses the share of non-wage workers (self-employed and unpaid family workers) to capture informality in South Korea. In China, however, such labor force data are collected only through low-frequency population censuses.

This study focuses on China, a developing country that has undergone rapid economic transformation and offers several empirical advantages. First, significant regional variations in economic development alongside rapid temporal change within a uniform institutional setting provide an ideal environment to test whether the La Porta and Shleifer hypothesis holds.

Second, the measurement of informality in China is consistent across regions and over time when drawn from the same administrative or survey data. In particular, administrative business registration records are gathered far more systematically. The Chinese government primarily regulates economic activity through taxation—including value-added tax, social security contributions, and income tax—the fundamental prerequisite of which is that business entities register with local authorities and formally disclose their existence.

Third, the lessons drawn from China may offer valuable insights for other developing nations. As a leading developing country in digital transformation, China provides a compelling backdrop for examining how technological shifts shape informal economic activity. Our study pays particular attention to the role of digital transformation in driving the informal economy, providing a framework to assess whether the patterns observed in China hold across other developing contexts.

Because economic activities operating beyond state control constitute the informal sector, and given the ready availability of registration data, we define informality along two complementary dimensions: registration status (the extensive margin) and employment arrangements within registered entities (the intensive margin).

The first dimension captures the extensive margin, which covers business entities that operate without registering with the government, effectively remaining outside regulatory oversight. Because the total number of unregistered businesses is inherently hidden from official statistical systems, we track the annual numbers of newly registered self-employed individuals (*getihu*) and incorporated firms as metrics of formal business creation (the flip side of informality) over the past four decades. To directly quantify the scale of unregistered operations in more recent years,

we calculate the proportion of unregistered businesses relative to all sampled operators using the unique Online Survey of Micro-and-Small Enterprises in China (OSOME) for the 2020–2026 period. Jointly conducted since the third quarter of 2020 by the Center for Enterprise Data and Research at Peking University, the Institute of Social Science Survey at Peking University, and the Ant Group Research Institute, OSOME surveys active small business operators via the Alipay platform. Having accumulated approximately 250,000 valid responses through the first quarter of 2026, a key advantage of the OSOME dataset is its deliberate inclusion of both registered and unregistered business operators (Kong et al., 2022).

The second dimension captures the intensive margin, focusing on registered business entities whose employees lack formal protection because their employers fail to make legally mandated social security contributions on their behalf. To evaluate this margin, we primarily rely on the Enterprise Survey of Innovation and Entrepreneurship in China (ESIEC), conducted in 2018 and 2025. The baseline ESIEC 2018 survey was sampled from China’s administrative business registration database (the Industrial and Commercial Enterprise Registration Database) using a probability-proportional-to-size sampling method. This process yielded 117 counties across six provinces: Liaoning, Shanghai, Zhejiang, Henan, Guangdong, and Gansu. Within each selected county, 400 private companies (legally incorporated entities) and 100 self-employed proprietors¹ registered between 2010 and 2017 were randomly sampled. The 2025 follow-up wave employed a similar sampling strategy. Although the sample is strictly representative only within each of the six provinces, the collected data closely mirror national distributions regarding firm size and industry (Dai et al., 2021; Cong et al., 2024).

The ESIEC data provide detailed information on total employment, specifically tracking how many workers receive social security contributions, namely the Basic Old-age Insurance for Enterprise Employees (BOIEE). We utilize the proportion of employees without social security coverage to measure the intensive margin of informality.

2. Conceptual Framework

As discussed in the previous section, informality operates along two distinct behavioral axes: the extensive margin (an entrepreneur's decision whether to register a firm with the state) and the intensive margin (a registered firm's decision to comply with labor regulations and extend social protections to its workforce). These two margins do not exist in a vacuum; rather, they are continuously reshaped by two powerful macroeconomic forces: regulatory institutions and technological change—most notably digital transformation within the Chinese context. To capture these intersecting dynamics, we establish an analytical matrix as presented in Table 1. This matrix provides a structural framework to evaluate how legislative interventions and technological shifts either draw economic actors into the formal sector or exert structural pressures that push them into the informal sphere.

2.1 The Role of Institutions

The first column of Table 1 examines how traditional state apparatuses, through legislative updates and administrative reforms, directly alter the relative costs and benefits of legal compliance. At the extensive margin, institutional drivers dictate how difficult, costly, or attractive it is for an underground enterprise or self-employed individual to obtain a formal

¹ In Chinese, it is called *getihu*, or individual industrial and commercial households in English translation.

business license. Historically, this boundary has been governed by broader legal and administrative frameworks, including constitutional amendments, the Company Law (Gongsi Fa), and business registration rules.

When these institutional frameworks constrain the legal status of private enterprise, impose high minimum capital requirements, mandate complex bureaucratic approvals, or demand verifiable commercial real estate, they create formidable institutional barriers to entry. Entrepreneurs evaluate the relative payoffs of formal registration based on the institutional "rules of the game" conceptualized by Baumol (1990). This logic can be visualized using the production possibility frontier (PPF) geometry pioneered by Bhagwati (1982) in Figure 1. Specifically, Acemoglu (1995) formalized Baumol's insight by demonstrating how an institutional "reward structure" acts as an allocation vector—effectively the slope of the price tangent line—that determines whether entrepreneurial talent flows toward productive or unproductive (rent-seeking) activities. In our visual adaptation, we replace the productive and unproductive sectors with formal and informal economic activities, respectively.

[Figure 1: Role of institutional reforms and digital transformation in shaping the allocations of informal/form entrepreneurship]

For resource-constrained entrepreneurs, the financial frictions of formalization may outweigh the legal protections offered by official recognition, trapping them within extensive-margin informality. Conversely, when the state implements business registration reforms—such as transitioning from paid-in to subscribed capital requirements or streamlining licensing procedures—the cost of entering the formal economy drops dramatically. As a result, the solid tangent line representing the initial reward structure pivots outward to the dashed line, as shown in Panel A of Figure 1. Ultimately, the equilibrium allocation between formal and informal business entities shifts toward formalization from point A to point B.

This conceptual framework can similarly be applied to analyze the intensive margin of informality. Once a firm crosses the extensive margin by registering with the state, it encounters a distinct set of institutional drivers operating at the intensive margin: specifically, labor regulations and social insurance enforcement. At this stage, the regulatory focus shifts from entry requirements and firm creation to ongoing employer compliance regarding worker protections, minimum wages, and mandatory social security contributions.

While robust labor legislation is designed to eliminate precarious employment, it often introduces an unintended paradox. When labor laws substantially raise administrative compliance requirements or aggressively enforce non-wage benefits—such as pension, health, and unemployment insurance contributions—they significantly escalate total labor costs. For low-margin, labor-intensive micro, small, and medium enterprises (MSMEs), these mounting statutory expenses impose severe financial strain. To remain viable, legally registered firms frequently resort to informal strategies at the intensive margin. They may keep a portion of their workforce off the books, rely heavily on temporary labor dispatch arrangements, or underreport wages to minimize social insurance payments. Consequently, while institutional liberalizations tend to shrink extensive-margin informality, aggressive regulatory tightening may inadvertently expand its intensive margin.

2.2 The Impact of Digital Technology and Platform Ecosystems

The second column of Table 1 introduces the contemporary catalyst of structural change: digital technology and the platform economy. Unlike traditional state institutions, which regulate through administrative command and control, digital platforms reshape informality by fundamentally altering market structures, transaction costs, and organizational forms.

At the extensive margin, digital technology acts as a highly efficient structural substitute for traditional institutional formality. Historically, an entrepreneur sought formal state registration primarily to secure critical business infrastructure: legal recognition to build consumer trust, access to commercial banking, and physical premises in commercial zones. Modern digital platforms and fintech ecosystems bypass these institutional prerequisites entirely. E-commerce platforms provide instant, decentralized market access without requiring operators to lease physical storefronts or establish a brick-and-mortar presence. Simultaneously, advanced fintech networks utilize big data, transaction histories, and algorithmic credit scoring to deliver working capital and payment processing directly to micro-vendors.

Because these digital infrastructures effectively replicate the classic benefits of formalization—market reach, trust mechanisms, and financial access—without imposing tax and regulatory compliance burdens, they drastically diminish an entrepreneur's incentive to formally register. Within the framework of Figure 1, digital technology is likely to expand the production possibility frontier (PPF) curve asymmetric in favor of informal business activities. Digital technology thus enables a highly sophisticated form of extensive informality, allowing unregistered entities to operate at scale (moving from point B to point C), as illustrated in Panel B of Figure 1.

At the intensive margin, the intersection of technology and labor has transformed gig platforms into an institutional "contested terrain." The rapid rise of digital ride-hailing, food delivery, and logistics platforms has dismantled traditional, localized employment structures, replacing them with algorithmically managed, highly flexible work arrangements.

This digital transformation directly challenges established legal frameworks, which are historically built around a rigid binary: formal labor relationships (*laodong guanxi*) versus independent civil service contracts (*laowu guanxi*). Gig platforms deliberately leverage this regulatory ambiguity to classify millions of platform workers as independent contractors rather than formal employees. By doing so, platforms retain the benefits of a highly responsive, algorithmically controlled workforce while evading the substantial financial burdens of mandatory social insurance contributions and formal labor contract protections.

This shift creates a complex manifestation of intensive informality: gig workers generate massive economic output and are highly visible on digital networks, yet they remain structurally detached from baseline social safety nets. The ongoing regulatory struggle to establish a "third category" of labor status—attempting to mandate baseline occupational injury insurance without stifling platform flexibility—highlights how digital technology continuously stretches and fractures the intensive margin of the modern economy.

In sum, our analytical matrix posits that informality is not a static residual sector, but rather a dynamic equilibrium continuously negotiated across these four distinct quadrants.

3. Institution Background

The trajectory of China's economic transformation over the past four decades is fundamentally intertwined with the evolutionary dynamics of its legal and regulatory framework and digital transformation. As the state progressively constructed an institutional apparatus to govern private economic activity, each regulatory milestone reshaped the boundaries between the formal and informal sectors. In academic literature, the informal economy is conceptualized along two distinct dimensions: the extensive margin, which encompasses completely unregistered business entities operating beyond state oversight, and the intensive margin, which comprises legally registered firms utilizing informal or unprotected labor arrangements. By tracing the regulatory landscape chronologically, we can observe how legislative interventions have acted as a dual-force mechanism, alternately inducing formalization by lowering entry barriers and inadvertently provoking informality by escalating compliance costs.

3.1 The Dawn of Institutional Recognition: 1981-1988

The foundational phase of China's private sector regulatory environment began in the post-Mao reform era, characterized by the gradual, experimental legalization of private ownership. In 1981, the state formally legalized the status of *getihu*, or individual industrial and commercial households. This policy shift was primarily a pragmatic response to severe urban unemployment pressures, providing a legitimate channel for self-employed individuals to operate small-scale operations such as street vending, repair shops, and domestic services. Prior to this, virtually all non-state economic initiatives were classified as capitalistic deviations and forced into a perilous underground existence. The institutionalization of the *getihu* marked the initial, massive transition of highly informal, clandestine businesses into a legally recognized, albeit heavily restricted, private sector.

This regulatory opening was further expanded in 1988 with the formal permission and constitutional recognition of private enterprises (*siying qiye*), defined as private entities employing more than eight workers. By providing explicit legal protection to larger private operations, the state established a clear pathway for capital accumulation outside the state-directed apparatus. For the informal economy, this period represented a critical shift on the extensive margin. Entrepreneurs who had previously relied on "wearing a red hat"—a widespread informal practice where private businesses registered under the guise of collectively owned enterprises to secure political safety—could begin to peel away these protective layers of institutional ambiguity. However, because the regulatory framework remained rudimentary and ideological suspicion persisted, a significant portion of the economy chose to remain completely informal, balancing the risks of state evasion against the heavy tax burdens and regulatory caprice levied on the newly recognized private actors.

3.2 Structural Formalization and Corporate Architecture: The 1993 Company Law

As the market socialist economy matured following Deng Xiaoping's Southern Tour, the need for a modern, standardized corporate governance structure became paramount. This culminated in the enactment of the landmark 1993 Company Law. This legislation established the foundational legal architecture for corporate entities in China, introducing standardized classifications such as limited liability companies and joint-stock companies. For the informal

economy, the 1993 Company Law provided a sophisticated, structured pathway for successful *getihu* and unregistered partnerships to transition from loose, informal operations into formally incorporated businesses.

The introduction of limited liability was a profound institutional catalyst. By legally separating personal assets from business liabilities, the state significantly altered the risk-reward calculus for informal entrepreneurs. The law effectively lowered the psychological and financial risks of structural formalization, triggering a period of rapid growth in the number of privately incorporated businesses. However, the 1993 framework also imposed stringent, conservative barriers to entry, including exceptionally high minimum registered capital requirements. For smaller, resource-constrained informal enterprises, these statutory capital thresholds acted as an institutional barrier, effectively institutionalizing a segmented market where wealthier firms formalized into corporations while undercapitalized entities were structurally locked into the informal sector or forced to fabricate their financial credentials through illicit third-party agencies.

3.3 Legalize the Private Sector: Amendments to the Constitution of the People's Republic of China in 1999

On March 15, 1999, the Second Session of the Ninth National People's Congress approved a series of constitutional amendments. One key amendment stated: "Non-public sectors of the economy such as the individual and private sectors of the economy, operating within the scope prescribed by law, are an important component of the socialist market economy." This amendment fundamentally legitimized individual businesses (*getihu*) and private enterprises within the nation's bedrock law. By eliminating previous political and legal ambiguities regarding their status, it provided crucial legal safeguards that allowed private enterprises to flourish. As shown in Figure 1, 1999 serves as a major milestone, after which the number of self-employed businesses experienced a pronounced upward trend.

3.4 Mass Entrepreneurship Driven by China's Opening: 1991–2007

Ultimately, market opportunities drive registration behavior. China's opening-up policy has served as the primary driver of market entity growth. As shown in Figure 1, the early 1990s marked a profound structural shift in China's private sector trajectory, notably catalyzed by Deng Xiaoping's Southern Tour in 1992. Prior to this, new business registrations for both incorporated entities and self-employed businesses (*getihu*) had remained flat. However, following the Southern Tour's reaffirmation of market-oriented reforms, a sharp and immediate divergence occurred. As shown by the dashed line corresponding to the right vertical axis, the share of self-employed businesses skyrocketed from around 12% in 1991 to over 40% by 1996, and nearly 60% by 1998. This steep upward trajectory reflects a massive wave of grassroots formalization and entrepreneurial entry as ideological barriers fell, allowing self-employed proprietors to rapidly outpace structured corporations in new-entry volume during the initial transition period.

China's accession to the World Trade Organization (WTO) in late 2001 introduced a parallel structural milestone. As illustrated in Figure 1, the post-WTO era triggered a synchronized, long-term expansion across both registration paths. Annual new *getihu* entries surged from under 3 million in 2001 to over 5 million by 2004, while incorporated firms established a steady upward trajectory. Notably, the individual business share plateaued at an elevated 80–85% during the mid-

2000s boom. This demonstrates that while international integration accelerated the growth of incorporated businesses, it simultaneously supercharged self-employed proprietors, establishing them as critical vehicles for labor absorption and grassroots economic momentum during China's globalization boom.

3.5 Labor Standards and the Escalation of the Intensive Margin: 2008–2011

The focus of Chinese regulatory evolution underwent a paradigm shift in the late 2000s, transitioning from basic corporate structuring to the aggressive formalization of labor relations and social protections. This regulatory pivot was anchored by two powerful pieces of legislation: the 2008 Labor Contract Law (Laodong Hetong Fa) and the 2011 Social Insurance Law (Shehui Baoxian Fa). The 2008 Labor Contract Law significantly elevated the legal requirements for formal employment, mandating written contracts, limiting the use of consecutive temporary agreements, and introducing substantial severance penalties for non-compliance. This was followed by the 2011 Social Insurance Law, which extended mandatory coverage of the "five social insurances"—pension, medical, unemployment, work injury, and maternity benefits—to all enterprise employees, backed by stricter administrative enforcement mechanisms.

While these legislative milestones were explicitly designed to eliminate precarious employment and advance formalization, they produced powerful, counter-intuitive distortions along the intensive margin of the informal economy. By dramatically escalating the non-wage labor costs and administrative burdens of regulatory compliance, these laws created severe financial friction for low-margin, labor-intensive private enterprises. To bypass these rigidities and survive in highly competitive markets, many registered firms turned into informal labor strategies. Instead of formalizing their workforce, employers actively sought to keep workers off the books, expanded their reliance on third-party labor dispatch agencies, or structurally reclassified employees as independent contractors. Consequently, while these laws successfully enhanced protections for workers in large, highly visible corporations, they inadvertently widened the intensive margin of informality within the small and medium enterprise sector, driving a wedge between nominal regulatory compliance and the ground-level reality of labor informality.

3.6 Liberalization and the Extensive Margin: The 2014 Business Registration System Reform

Recognizing that exorbitant entry barriers were stifling grassroots entrepreneurship and trapping millions of micro-enterprises in the informal sector, the Chinese government launched the sweeping Business Registration System Reform (Shangshi Zhidu Gaige) in 2014. This reform directly targeted the administrative frictions associated with corporate registration. Chief among its provisions was the radical shift from a "registered capital" system to a "subscribed capital" system. Under the old regime, entrepreneurs were required to deposit large sums of cash into bank accounts to prove their capital adequacy before registration could occur; the 2014 reform allowed founders to simply declare their capital commitments over an extended timeline, eliminating the need for immediate, upfront cash outlays. Furthermore, the reform replaced the sequential, bureaucratic "licenses before certificates" approval process with a simplified streamlined system.

The Business Registration System Reform had immediate and profound implications for the extensive margin of the informal economy. By virtually eliminating the financial and administrative costs of obtaining a business license, the state dramatically lowered the

opportunity cost of entering the formal economy. Legions of unregistered micro-enterprises, domestic workshops, and self-employed individuals who had previously operated informally due to a lack of startup capital or bureaucratic know-how suddenly found formalization within reach. This regulatory decompression triggered an unprecedented entrepreneurial boom, resulting in an exponential increase in new market entity registrations (Barwick et al., 2025).

As shown in Figure 1, following the implementation of the reform, the volume of annual new registrations for both types of business entities entered an unprecedented high-growth trajectory. The number of new *getihu* registrations skyrocketed from approximately 8.5 million in 2013 to a remarkable peak of over 22 million by 2023. Concurrently, new incorporated business registrations expanded rapidly, nearly quadrupling over the same decade. Interestingly, even as both tracks experienced massive absolute volume growth, the share of individual businesses (corresponding to the right vertical axis) began a gradual downward shift from its historical 80% plateau, eventually declining to around 65% by 2025. This structural realignment indicates that while the reform fundamentally lowered the entry barriers for all market participants, it was uniquely effective at encouraging corporate formalization alongside the massive parallel expansion of grassroots micro-enterprises.

3.7 New Challenges in the Era of Platform Economy and AI

Parallel to these traditional regulatory developments was the meteoric rise of the platform economy from the mid-2010s onward. The rapid proliferation of digital ride-hailing, food delivery, and e-commerce platforms fundamentally reshaped China's production and employment structures. Gig platforms offered highly flexible income-generating opportunities for tens of millions of workers, effectively absorbing excess labor from traditional industries and blurring the conventional distinctions between employment and entrepreneurship. Initially, this digital frontier operated in a regulatory vacuum, creating a novel, highly sophisticated manifestation of digital informality where millions of workers generated substantial economic output while remaining entirely detached from standard labor protections.

In response to this expanding gray zone, regulatory oversight of the platform economy has intensified. The social insurance and legal status of gig workers have evolved into an institutionally contested terrain. Traditional labor laws, built around the rigid binary of formal employment relationships (*laodong guanxi*) versus independent civil contracting (*laowu guanxi*), struggled to accommodate the algorithmic management models of modern platforms. In recent years, state agencies have issued targeted directives attempting to establish a "third category" of labor status, mandating that platforms provide basic occupational injury protections and fair wage algorithms without explicitly forcing them to absorb the full cost of traditional social security packages. This ongoing regulatory struggle represents an active attempt to formalize the intensive margin of the digital economy without crushing the operational flexibility that drives platform growth.

The most recent phase of China's regulatory trajectory indicates a sharp pivot away from the liberalization of the previous decade, prioritizing corporate credibility, market order, and systemic risk reduction. This shift is exemplified by the major 2023 Revision of the Company Law. Reversing the open-ended leniency of the 2014 reforms, the 2023 revision reintroduced strict timelines for capital contributions, mandating that all subscribed capital must be fully paid within a maximum five-year window. This legislative tightening was designed to eliminate

millions of non-operational "shell" companies and uncapped corporate entities that had distorted market data and compromised corporate credibility. For businesses operating on the margins of profitability, this sudden requirement to materialize paid-in capital has forced a painful choice: dissolve the corporate structure and retreat back into informal, unregistered operations, or face severe administrative penalties.

This regulatory tightening expanded from corporate entities to grassroots digital commerce with the 2025 implementation of stricter rules for individual business registration. These regulations targeted digital entrepreneurs by requiring a verified physical commercial premise to maintain an official individual business registration, effectively ending the widespread practice of using residential addresses or virtual administrative loops for e-commerce compliance. For hundreds of thousands of small-scale live-streamers, boutique online vendors, and cross-border e-commerce operators, this requirement introduces high overhead costs. Early empirical observations suggest this policy has created significant structural disruptions. Rather than absorbing the costs of leasing commercial real estate, a substantial number of digital entrepreneurs are adjusting by relinquishing their formal registrations altogether. This dynamic risks triggering a reverse-formalization wave, driving digital micro-enterprises back into the extensive margin of the informal economy where they operate entirely outside state administrative networks.

On August 1, 2025, the Supreme People's Court on Labor Dispute Cases released the Interpretation (II) of Article 19, attempting to close previous loopholes by declaring any "opt-out" agreements between employers and employees—even those made voluntarily by the worker—as legally void. This move toward strict execution seeks to rectify long-standing issues where the Labor Law (1995) and Social Insurance Law (2011) were circumvented through informal employment or "contracting without contributing." This undoubtedly will increase the compliance costs for registered businesses.

4. Extensive Margin: Who Registers?

Following the analytical framework outlined in Table 1 and Figure 1, this section examines the registration decision: which enterprises choose to formalize, and how digital platforms and institutional reforms exert competing influences on these incentives.

4.1 Role of Institutional Reforms in Shaping Extensive Margin

As discussed in Section 3, China has undertaken a series of reforms targeting the entry costs of formal business creation. Here, we highlight two milestones indicated by the two vertical dashed lines in Figure 1. First, the 1999 constitutional amendment formally legitimized private enterprises. Following this reduction in policy risk, the number of registered businesses—particularly self-employed operations (*getihu*)—boomed.

Second, the state enacted a major capital market liberalization in 2014 by abolishing the statutory minimum paid-in capital requirement for company registration. For decades, this capital threshold functioned as a regressive barrier to entry, effectively locking out genuine grassroots operators while remaining navigable for well-capitalized or well-connected entrepreneurs who could temporarily secure bridging funds. The 2014 reform dismantled this barrier. Consequently, establishing a formal firm no longer requires locking up scarce liquidity in escrow accounts. Likely driven by this reduction in the relative cost of incorporation, the share of self-employed

businesses in total registrations has declined steadily since the reform, as shown in Figure 2.

[Figure 2: New business entries by registration type, 1991–2025]

The profound impact of this deregulation is clearly visible in Guangdong Province, which pioneered the policy as a pilot program in 2012 and 2013. As illustrated in Figure 3, new firm entries surged to roughly double their pre-reform velocity. This acceleration coincided precisely with the launch of the pilot program rather than reflecting an underlying macroeconomic trend (Barwick et al., 2025). Following the nationwide scale-up of the reform on March 1, 2014 (the second dashed line in Figure 2), the expansion rate of new entries for China as a whole mirrored this momentum and accelerated sharply.

[Figure 3: Number of new entrants in Guangdong Province]

Moreover, this entry boom was not a transitory, intertemporal substitution effect—such as entrepreneurs simply rushing to clear a regulatory backlog. Instead, the elevated rate of firm creation sustained itself for years, indicating that the reform permanently lowered entry barriers for ordinary entrepreneurs. This influx of new entrants injected intense competitive pressures into local markets. Crucially, this market churn induced a process of creative destruction: less productive incumbent firms were displaced, leading to an expansion in aggregate manufacturing productivity. The reform effectively achieved its objective by activating grassroots entrepreneurship, thereby allowing market selection to reallocate resources toward more efficient formal enterprises. Thus far, the narrative aligns closely with established empirical literature (e.g., La Porta and Shleifer, 2014) showing that informality tends to decline as an economy develops.

4.2 Informality Paradox

However, recent OSOME survey data demonstrate that the share of unregistered businesses has remained stubbornly fixed at approximately half of all active operators in the past five years, even edging upward in recent years. Figure 4 plots the proportion of survey respondents by registration type using the quarterly OSOME data from 2020 to 2026. Two distinct features stand out. First, throughout the period, roughly half of all active entities in China were running their enterprises without any formal registration. Because the official business registration records only capture registered entities, the vast population of unregistered businesses is entirely invisible in standard administrative data. By sampling both registered and unregistered operators through the Alipay platform, the OSOME survey brings the submerged portion of this economic iceberg into view.

Second, the proportion of unregistered businesses has grown steadily over the past several years. From approximately 2023 onward, unregistered operators surpassed *getihu* as the modal registration type and have continued to pull ahead since. The overarching trend, in other words, is not toward formalization but rather toward informalization in the past several years. Interestingly, these micro-level survey findings align closely with the macro patterns derived from administrative records. As shown in Figure 2, the number of newly registered self-employed businesses has declined noticeably over the past few years, while the number of newly registered incorporated companies has plateaued.

[Figure 4: The proportion of business entities by registration type from 2020 to 2026, (OSOME, 2020-2026)]

Given their concentration in consumer services and modest revenues, one might be tempted to view this widespread informality as a classic poverty trap—a symptom of marginal survival. The survey evidence, however, challenges this conventional perspective. Figure 5 plots the share of unregistered businesses against per capita GDP across Chinese prefectures for the years 2020 and 2025.² Standard development models (La Porta and Shleifer, 2014) predict that economic growth naturally erodes the informal sector, which should yield a downward-sloping regression line. Instead, the data reveal a striking paradox: not only do less-developed prefectures like Dingxi in Gansu Province maintain substantial informal shares, but highly developed Tier-1 hubs, such as Beijing and Shanghai, consistently exhibit even higher levels of extensive-margin informality. Furthermore, their unregistered shares shifted upward between 2020 and 2025. In other words, the positive correlation between informality and economic development has become more pronounced over the past five years across Chinese cities. This increasingly positive relationship presents a compelling puzzle that standard institutional frameworks fail to explain.

One might worry that this pattern simply reflects industry composition: large cities employ more service workers, and service activities are inherently easier to operate informally. However, the same pattern holds when the analysis is restricted exclusively to service-sector respondents (Table A1). The estimated coefficients for log per capita GDP in the service-sector subsample (corresponding to the analyses in Figure 5) remain highly positive and statistically significant. In fact, they exhibit an even greater magnitude for 2020 and 2025, suggesting that industry composition is not the primary driver of this paradox.

Another concern is that higher minimum wages and social insurance contribution bases in developed regions raise compliance costs. Yet, compliance cost differentials between richer and poorer prefectures remained broadly stable over this period despite the widening informality gap; a constant cost wedge cannot explain a growing divergence. Therefore, neither industry composition nor compliance costs can account for why informality is higher and growing faster in China's most developed cities. The platform substitution mechanism, explored in the next section, offers a more compelling explanation.

[Figure 5: Proportion of unregistered enterprise share versus per capita GDP across Chinese cities in 2020 and 2025 (OSOME, 2020&2025)]

4.3 Technological Explanation for the Paradox

To understand why more developed regions host higher concentrations of unregistered operators than their less-developed counterparts, one must examine the micro-level incentives of these proprietors. When surveyed, a clear majority of unregistered operators in the OSOME sample attribute their status not to economic necessity, but to a perceived lack of institutional utility. This suggests that informality is not merely an involuntary byproduct of marginal survival, but rather the outcome of a deliberate assessment that formal registration offers diminishing returns.

Digital platforms have increasingly internalized the functions once exclusive to formal registration, shifting the cost-benefit calculus for small-scale entrepreneurs. Fintech lenders now extend credit without requiring a business license; platform rating systems act as reliable substitutes for the credibility signals traditionally provided by legal status; and digital storefronts

² Four centrally administrated municipalities (Beijing, Chongqing, Shanghai, and Tianjin) are included in the sample, despite holding a higher provincial-level administrative status.

obviate the need for a physical commercial address. Consequently, for a growing number of small operators, formal registration imposes administrative compliance obligations without offering commensurate functional advantages.

This shift in incentives hinges on the functional erosion of the state license. Historically, registration served three primary roles: facilitating access to formal bank credit, validating reliability to consumers, and establishing the formal employer-employee relationship necessary to hire labor. Digital platforms have successfully replicated these mechanisms to a large degree outside the formal institutional framework, thereby eroding the institutional incentive to register.

To evaluate this mechanism empirically, Figure 6 plots the share of unregistered businesses against the Peking University Digital Financial Inclusion Index across Chinese prefecture-level cities for 2020 and 2025. Consistent with the platform substitution hypothesis, regions with higher digital financial penetration host significantly larger shares of unregistered operators, a positive relationship that holds robustly in both cross-sections. Where digital infrastructure is more advanced, the practical necessity of a state license dissolves, accelerating the trend toward extensive-margin informality.

[Figure 6: Unregistered enterprise share versus city-level digitalization (OSOME, 2020&2025)]

The credit channel is perhaps the most direct. For most of China's reform era, a business license was the minimum baseline credential banks required before extending working capital. Platform-based fintech has fundamentally altered this landscape. Ant Group, WeBank, and their competitors now evaluate creditworthiness directly from an applicant's Alipay or WeChat Pay transaction history, providing working capital without requiring a business license or physical collateral (Xie et al., 2018; Dollar and Huang, 2022; Dai and Zhang, 2026). Analysis of the OSOME data demonstrates that digital platform access narrows the financing gap between unregistered and registered operators by roughly one-third (Cheng, 2025). For many small operators, this closure is sufficient to eliminate the primary financial incentive to formalize.

The trust and market-access channels have shifted just as fundamentally. Prior to the platform era, a business license functioned as a vital credibility signal; consumers dealing with a licensed entity had an assurance of institutional accountability that an unlicensed operator could not provide. Platform rating systems have replaced this administrative signal with a mechanism that is far more granular and legible to consumers. A Taobao merchant with thousands of verified positive reviews commands consumer confidence that a newly licensed competitor cannot match. Consequently, the trust infrastructure of micro-commerce has migrated from the state's registration apparatus to the platform's reputation system, rendering formal legal status commercially redundant for a wide spectrum of operators.

The third channel operates through labor flexibility and regulatory exposure. In China, the statutory obligation to enroll workers in the social insurance system requires a formally registered employer entity. For small operators who utilize non-family labor, this requirement has historically served as a compelling practical reason to register. However, the expansion of gig platforms has introduced an alternative: task-based contracting via delivery and staffing intermediaries. This arrangement bypasses the conventional employment relationship and carries no social insurance obligations. Operators who staff their businesses through these digital intermediaries face no upstream pressure to register from a labor compliance perspective.

This apparent paradox can be resolved by analyzing how digital platforms interact dynamically with institutional reforms. While state-led liberalization successfully minimized the financial and bureaucratic barriers to obtaining a business license, the digital economy simultaneously hollowed out the practical benefits of holding one. Digital platforms have constructed parallel infrastructures for credit provision, reputation signaling, and flexible staffing. Consequently, while government reforms made formalization cheaper and more accessible, digital platforms rendered it largely optional for small-scale operators.

The stable, high baseline of informality captured in the survey data does not contradict the formal entry boom documented in administrative records. Instead, it reflects a structural equilibrium where the platform's substitution effect directly counterbalances the state's liberalizing push. When considering these two structural forces in tandem, they reveal a broader phenomenon of mass entrepreneurship: expansive growth in both registered and unregistered businesses, propelled simultaneously by state institutional reforms and digital transformation, precisely as hypothesized in Figure 1 and Table 1.

Taken together, these mechanisms indicate that in highly digitized landscapes, remaining unregistered is no longer a symptom of economic exclusion. Instead, it represents a rational, platform-sustained strategy that optimizes operational capacity while shedding administrative compliance costs.

5. Intensive Margin — Informal Employment within Registered Enterprises

This section examines informality at the intensive margin. Workers who receive social security contributions from their employers are defined as formal workers, whereas those excluded are classified as informal workers. This distinction allows for the calculation of the share of informal employment within the formally registered enterprise sector. The 2018 and 2025 waves of the ESIEC provide detailed data on the total number of full-time employees alongside their social security contribution status, from which the degree of informality at the intensive margin can be inferred.

Table 2 presents the share of full-time employees covered by employer-paid social security across surveyed registered businesses from the 2018 and 2025 waves of the ESIEC survey, broken down by registration type, sector, and founder gender. The data uncover several striking structural trends regarding labor informalization at the intensive margin within China's registered micro and small enterprises.

First, a persistent institutional divide exists between incorporated firms and self-employed businesses (*getihu*). Across both survey waves, employees in incorporated businesses enjoyed significantly higher rates of social security coverage, outstripping their counterparts in self-employed businesses by roughly 17 to 24 percentage points. In 2018, for instance, 61.7% of full-time workers in incorporated firms received employer-paid social security benefits, compared to just 44.2% in self-employed businesses.

Second, the 2025 survey wave reveals an unprecedented contraction in social security coverage across both enterprise types, indicating a sharp escalation of employment informality at the intensive margin. Between 2018 and 2025, the share of full-time employees covered by

employer-paid social security plummeted by 11.5 percentage points for incorporated businesses (dropping to 50.2%) and by a staggering 18.3 percentage points for self-employed businesses (falling to 25.9%).

Third, women-owned businesses reported a higher percentage of employees covered by employer-paid social security than male-owned firms. Over time, however, coverage declined across both groups. Fourth, sector-level social security coverage fell across the board during this period, though the producer services sector maintained the highest coverage rate in both years.

Fifth, as shown in Figure 7, the share of full-time employees receiving employer-paid social security increases monotonically with firm size. Micro-enterprises with fewer than five employees exhibited the lowest baseline coverage rates across both waves. As firm size scales, compliance climbs steadily, indicating that formal labor arrangements are heavily concentrated among larger workforces. This pattern aligns with standard institutional frameworks, which assume that larger firms face greater regulatory visibility, possess more formalized human resource capabilities, and are less able to obscure informal labor arrangements from local authorities.

[Figure 7. The share of employees covered by employer-paid social security by firm employment size]

However, a closer inspection of the cross-sectional shifts over time reveals that the severe compliance contraction observed in 2025 was not confined to a single size bracket; rather, it represents a systemic retreat across the entire organizational spectrum. While larger firms maintain their relative advantage in compliance over smaller ones, the entire size-distribution curve shifts downward in the 2025 wave.

Quan, Hu, and Zhang (2026) have additionally examined heterogeneity in compliance across regions and sectors, finding that non-compliance is heavily concentrated in underdeveloped regions and the agricultural sector. Utilizing ESIEC 2025 data, they conducted a simulation exercise to evaluate the impact of full compliance on enterprise profitability. The simulations demonstrate that if every full-time employee were enrolled in social security under current standards, the average net profit margin would plummet from 8.6% to a mere 2.9%. This striking reduction suggests that for the vast majority of MSMEs, statutory social security contributions represent an existential threat rather than a minor administrative line item.

Further evidence of employers' reluctance to hire full-time workers is the surge in one-person businesses, those operating with zero employees. As shown in Figure 8, the share of one-person enterprises has expanded dramatically over the past three years, rising from roughly a quarter to over half of all surveyed entities. Conversely, the proportion of businesses employing five or more workers fell by half, dropping to 12.4% as of the first quarter of 2026. Of course, the emergence of generative AI is likely another important driver behind this rising trend. We leave it as a question for future research to investigate the relative importance of these two underlying mechanisms.

[Figure 8 The share of one-person companies (zero employees)]

Beyond the reluctance of business owners, individual workers also exhibit a distinct lack of incentive to formalize. Drawing on OSOME 2025 data, Quan, Hu, and Zhang (2026) investigated worker perspectives and found that many surveyed employees actively prefer more flexible alternatives, such as Basic Old-Age Insurance for Urban and Rural Residents or Social Insurance for Flexible Employment. Given the high mobility and episodic instability characteristic of private-sector employment associated with the platform economy, these alternative frameworks are frequently viewed as more portable, accessible and better aligned with their career trajectories.

Moreover, workers perceive low financial returns from enrolling in formal old-age social security. Among respondents who were not enrolled, 56.5% cited high premium burdens or personal financial hardship as the primary barrier, while another 16.7% expressed concern that they would receive negligible payouts upon retirement. Only 14.5% of respondents actually desired formal coverage but were constrained by employer non-provision. Collectively, these findings underscore the formidable structural challenges facing state authorities in enforcing full compliance with labor and social protection laws within the registered business sector.

6. Conclusion and Policy Implications

Based on the comprehensive analytical framework and contemporary empirical findings from the OSOME (2020–2026) and ESIEC (2018 and 2025) surveys, alongside administrative business registration data, this paper offers a nuanced summary of the shifting nature of economic informality in China.

The evolution of China's regulatory environment reveals that informality is not a static, residual sector born of poverty, but rather a dynamic equilibrium. It is constantly negotiated across two distinct behavioral axes: the extensive margin (an entrepreneur's decision to legally register) and the intensive margin (a registered firm's decision to comply with labor protections).

At the extensive margin, the legal milestones of the 1980s and the landmark business registration reform of 2014 proved highly effective in absorbing underground operators into the formal institutional sphere, fueling an impressive expansion in the number of registered business entities across China over the past four decades.

Conversely, well-intentioned social protection legislation—such as the 2008 Labor Contract Law and the 2011 Social Insurance Law—inadvertently expanded intensive-margin informality by raising compliance costs beyond what small enterprises could bear. More recently, regulatory interventions imposing stringent new demands regarding paid-in capital and physical premises risk pushing the most vulnerable, digitally driven segments of the private sector back into the informal economy. While establishing a definitive causal link between these specific labor regulations and the exact degree of employment informality remains beyond the scope of this paper, it represents a vital avenue for future research.

Furthermore, recent findings from the OSOME survey reveal a striking paradox: extensive-margin informality is higher and growing faster in China's most economically advanced, highly digitized cities. This directly contradicts standard development economics models, which predict that economic growth naturally erodes informality. This phenomenon is likely driven by a powerful platform substitution effect. Digital platforms and advanced fintech networks have

successfully replicated the functional benefits traditionally exclusive to state registration—such as access to working capital via transaction history, consumer trust via algorithmic rating systems, and decentralized market reach via virtual storefronts. Consequently, nearly half of China's active micro-entities operate outside the purview of official administrative records.

To navigate this tension between institutional standardization and market vitality, Chinese policymakers must pivot away from rigid command-and-control mandates and adopt an adaptive, tiered regulatory framework. We propose three strategic policy reorientations.

First, there is a clear need to enhance the perceived value and structural flexibility of social insurance. To address the documented deficit in participation intent among employees, the social security apparatus must increase institutional transparency regarding future payouts. Furthermore, policy should improve benefit portability across different insurance tracks—specifically streamlining integration between flexible employment insurance schemes and traditional enterprise employee programs. Reconceptualizing these contributions as portable, high-yield social investments rather than immediate wage taxes will boost worker demand for compliance.

Second, the state should deploy targeted fiscal incentives directly linked to compliance. For instance, policymakers could introduce corporate income tax reductions or targeted subsidies for MSMEs that maintain full social security compliance for their full-time staff. This structural shift transitions the regulatory paradigm from a purely punitive enforcement model to an incentive-compatible framework, encouraging firms to voluntarily formalize their labor arrangements.

Third, given the accelerating shift toward gig work and platform-intermediated employment, policymakers should design flexible safety nets tailored to non-standard employment. Establishing basic income support mechanisms and flexible social security schemes allows the state to move beyond the rigid binary of traditional employment contracts, extending a baseline social safety net that accommodates the high labor mobility inherent to the modern digital economy.

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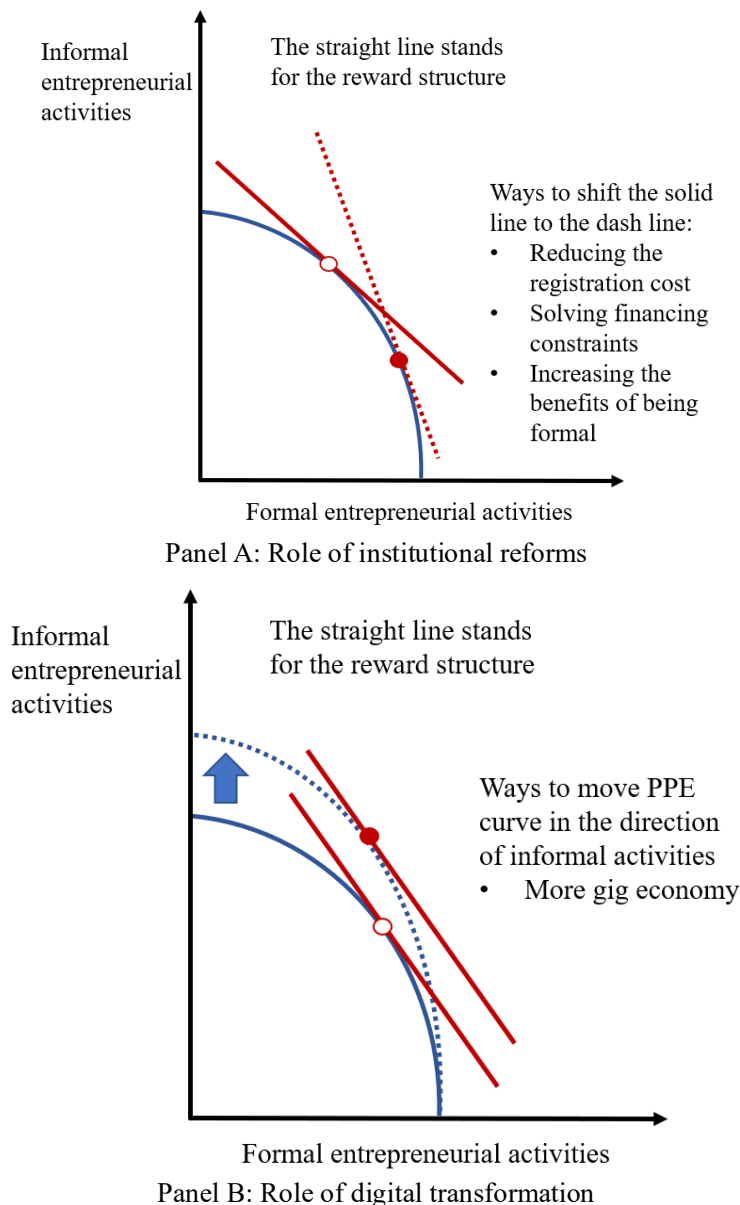


Figure 1 Role of institutional reforms and digital transformation in shaping the allocations of informal/form entrepreneurship

Note. Drawn by authors. This framework modifies the conceptual definitions of Baumol (1990) by replacing productive/unproductive entrepreneurship with formal/informal activities and maps them onto the production possibility frontier (PPF) geometry pioneered by Bhagwati (1982). Specifically, Acemoglu (1995) formalized Baumol's intuition mathematically by demonstrating how an institutional "reward structure" acts as an allocation vector—effectively the slope of the tangent line—that determines whether entrepreneurial talent enters the productive sector or the unproductive rent-seeking sector. In our visual adaptation, we replace the productive and unproductive sectors with formal and informal economic activities, respectively. In this figure, the "rules of the game" are represented by the tangent line. Institutional reforms, such as the 1999 constitutional amendment and the 2004 business registration reform, effectively alter the slope of this tangent line, as illustrated in Panel A. Conversely, digital transformation—exemplified by the rising penetration of the platform economy—likely shifts the PPF outward more along the axis of informal activities, as shown in Panel B.

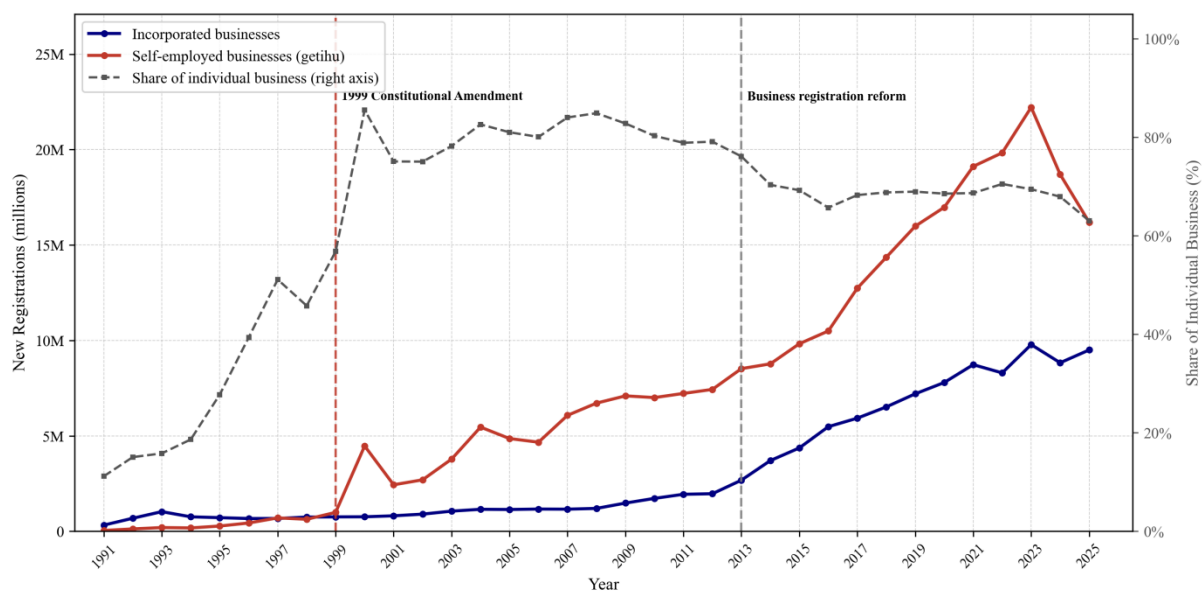


Figure 2 New business entries by registration type, 1991–2025

Note: The left vertical axis displays the annual number of newly registered incorporated businesses and self-employed individuals over the 1991–2025 period. The dashed line represents the share of self-employed businesses in total registered entities, with values corresponding to the right vertical axis. Data are sourced from China’s business registration records maintained by State Administration for Market Regulation. The left vertical dashed line indicates the 1999 constitutional amendment regarding private businesses, whereas the right vertical dashed line marks the business registration reform launched on March 1, 2024.

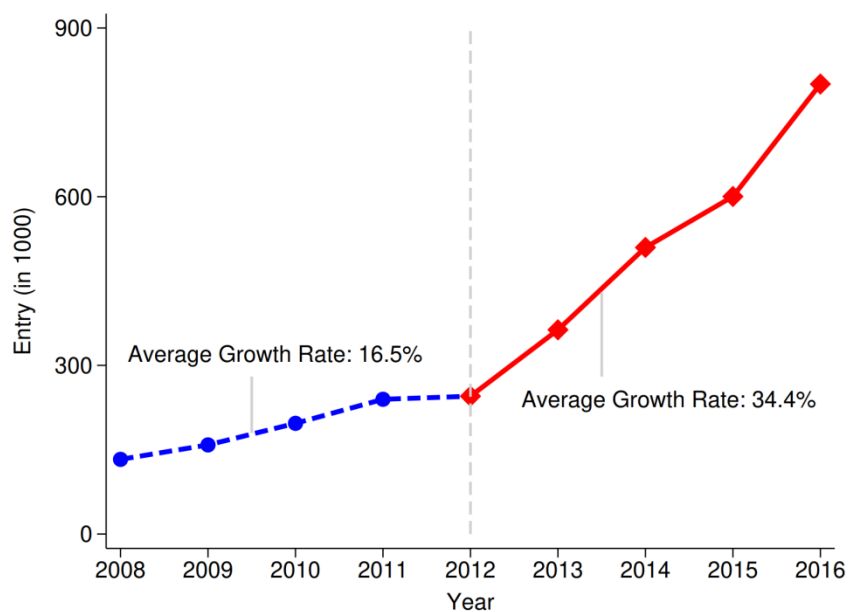


Figure 3 Number of new Entrants in Guangdong Province

Note: This figure shows the annual trend of firm entry (in 1,000 of firms) for the entire Guangdong Province. The blue/red dots denote raw data time series before/after the reform. Data and original figure are from Barwick et al. (2025).

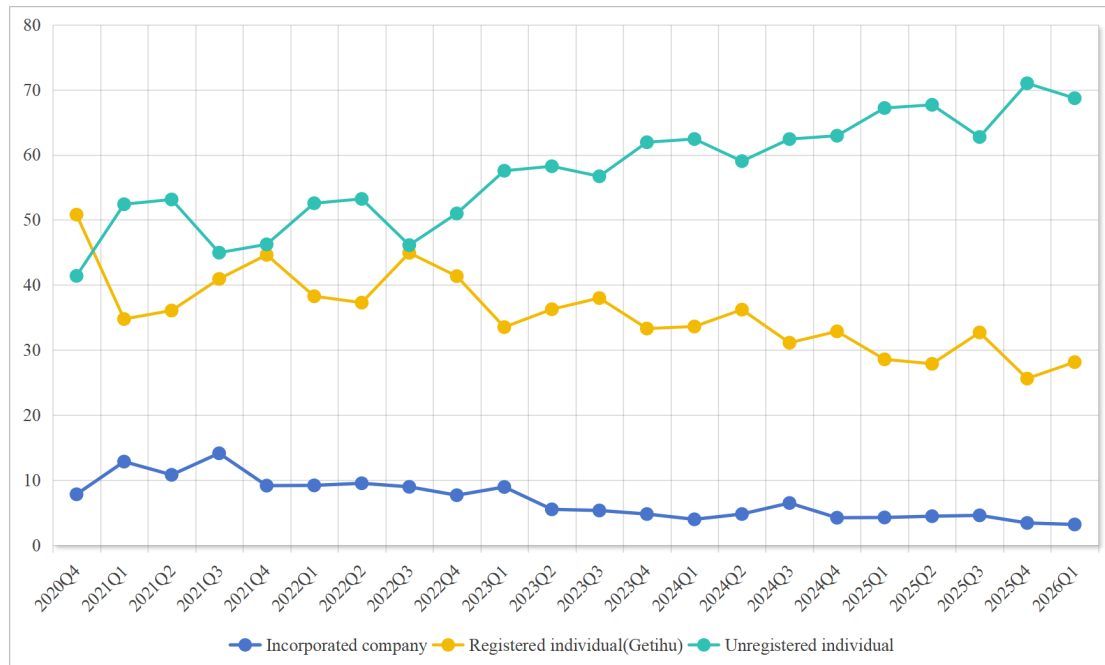


Figure 4 The proportion of business entities by registration type, 2020–2026 (%)

Note: The data are sourced from the Online Survey of Micro-and-Small Enterprises (OSOME), a quarterly survey of small business operators conducted via the Alipay platform. The figure spans 23 survey waves from 2020 Q3 to 2026 Q1. The three stacked layers represent, from bottom to top: operators without formal business registration; registered individual proprietors (getihu); and formally incorporated companies.

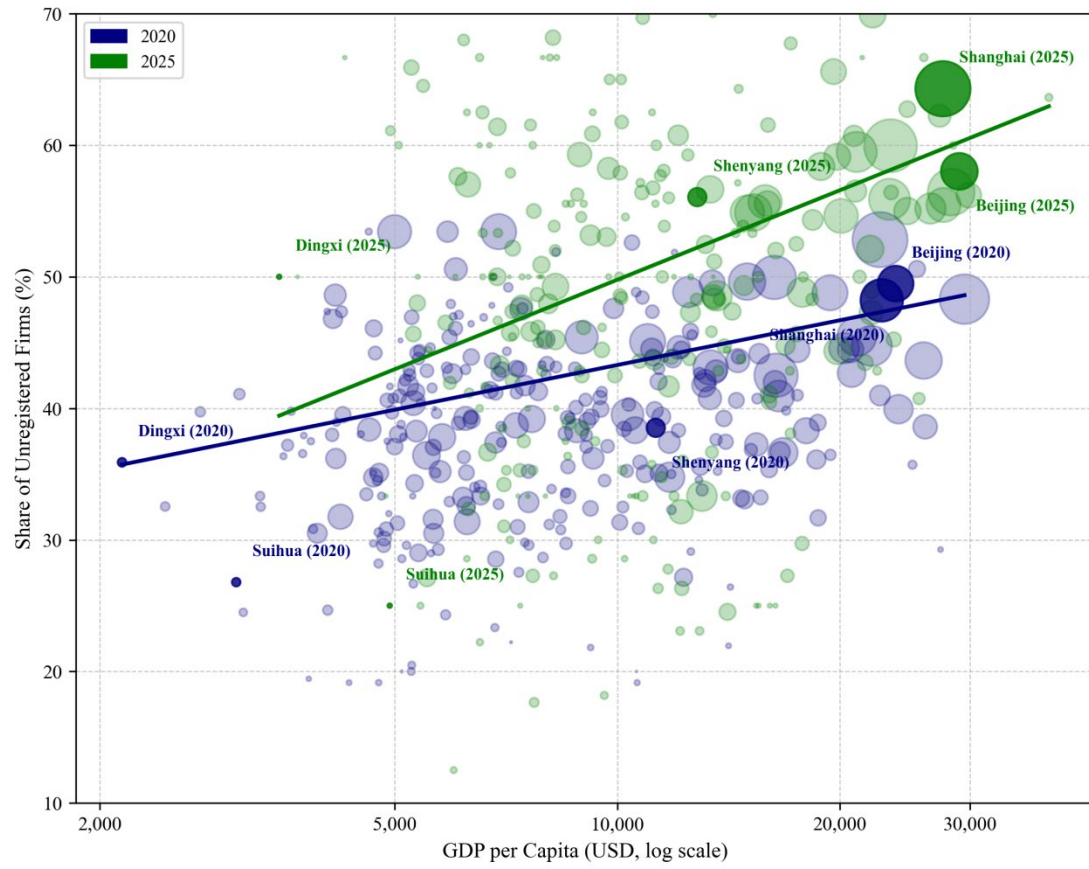


Figure 5 Proportion of unregistered businesses (2020 and 2025) and per capita GDP across prefecture-level cities

Note: The data are from OSOME and city-level GDP statistics. The circles represent the share of unregistered businesses derived from quarterly OSOME data aggregated at the prefecture level, including the four centrally administered municipalities (Beijing, Chongqing, Shanghai, and Tianjin), which occupy a higher administrative tier. For the 2020 series (blue circles), both the unregistered share (vertical axis) and per capita GDP at the prefecture level (horizontal axis) are measured in 2020. For the 2025 series (green circles), the unregistered share is measured in 2025, while per capita GDP (horizontal axis) corresponds to 2024, the most recent year available. Circle size is proportional to per capita GDP.

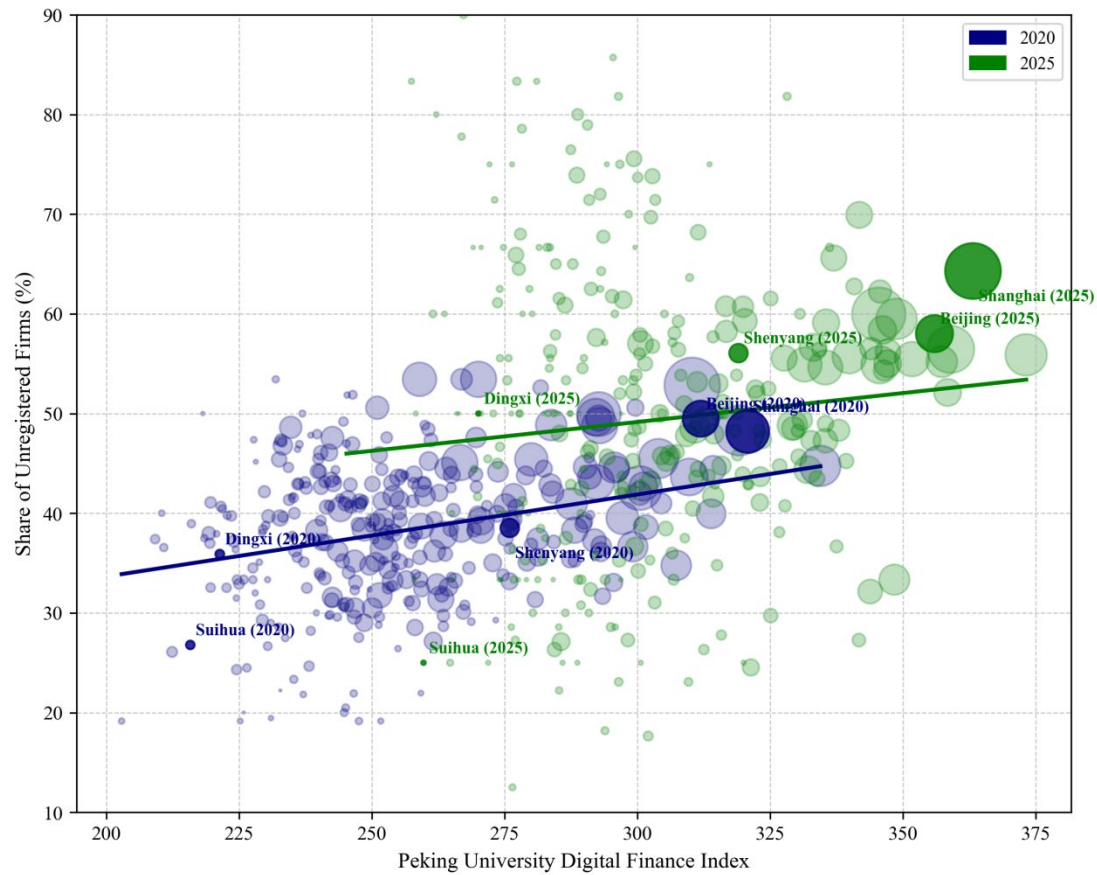


Figure 6 The proportion of unregistered businesses (2020 and 2025) versus digital finance index across prefecture-level cities

Note: Data are drawn from the OSOME and the Peking University Digital Financial Inclusion Index. The circles represent the share of unregistered businesses derived from quarterly OSOME data aggregated at the prefecture level, including the four centrally administered municipalities (Beijing, Chongqing, Shanghai, and Tianjin), which occupy a higher administrative tie. For the 2020 series (blue circles), both the unregistered share (vertical axis) and the digital finance index at the prefecture level (horizontal axis) are measured in 2020. For the 2025 series (green circles), the unregistered share is measured in 2025, while the digital finance index (horizontal axis) corresponds to 2023, the most recent year available. Circle size is proportional to per capita GDP.

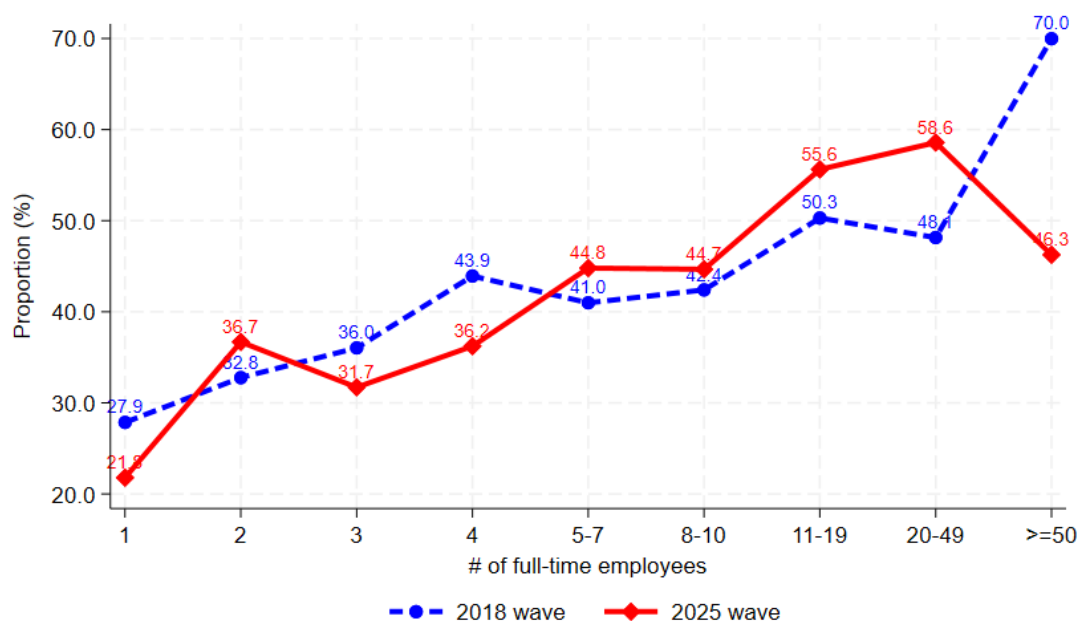


Figure 7. The share of employees covered by employer-paid social security by firm employment size

Note: Data are drawn from ESIEC 2018 and 2025 waves. Newly sampled businesses in each wave are used to calculate the share of full-time employees covered by employer-paid social security. In accordance with the survey's sampling design, a frequency weight of 4 is applied to firms within the wholesale and retail sector, and a frequency weight of 1 is applied to all other sectors. Incorporated and self-employed businesses are pooled (differing mainly in employment size). Businesses are categorized by full-time employment scale, with the social security coverage share computed for each group.

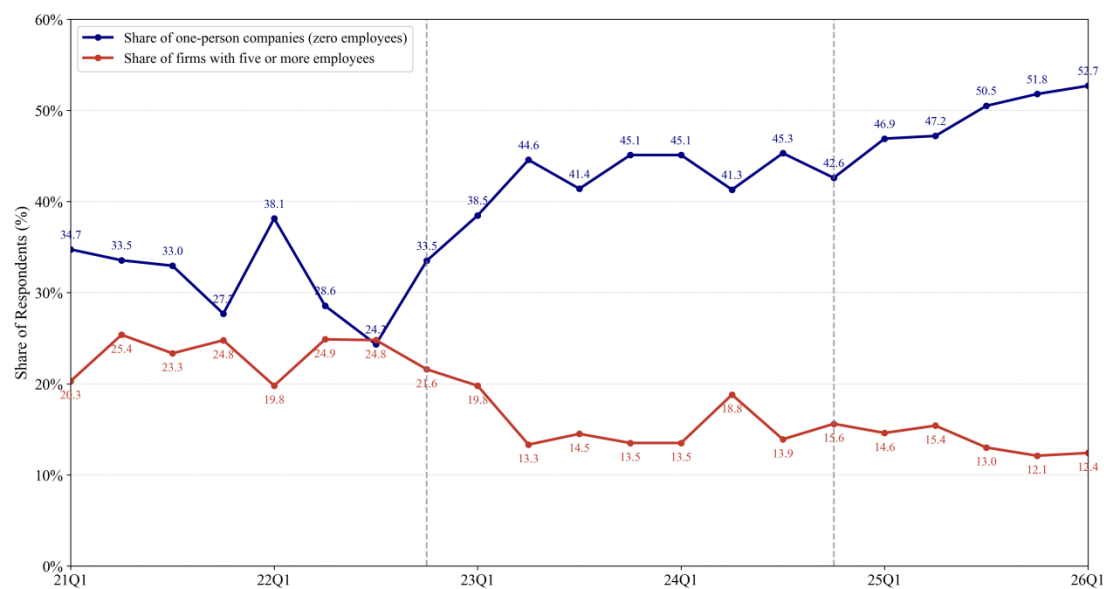


Figure 8 The share of one-person companies (zero employees)

Note: Data are drawn from OSOME. Each point shows the share of surveyed businesses that report having no employees (one-person companies) or five or more employees.

Table 1: The 2×2 analytical matrix of informality versus key drivers

	Institutions	Digital technology
Extensive margin (registration)	High institutional barriers lock firms into informality; deregulation pulls them into formal systems.	Platforms act as substitutes for formality. Fintech and digital storefronts grant market and capital access without need for a physical presence or state license.
Intensive margin (employment compliance)	Higher compliance costs of labor laws and social insurance enforcement can push registered firms to use more uncontracted, informal labor.	Gig platforms serve as an institutional "contested terrain," utilizing algorithmic management to leverage flexible labor while bypassing traditional social protections.

Note: Drawn by authors.

Table 2. The share of full-time employees covered by employer-paid social security (%)

ESIEC wave	2018	2025
Overall	59.8	47.5
By registration type		
Incorporated businesses	61.7	50.2
Self-employed businesses	44.2	25.9
By founder's gender		
Male	51.1	46.3
Female	57.9	50.8
By sector		
Agriculture*	55.7	9.1
Industry	54.9	50.3
Producer services	69.9	50.6
Residential services	54.6	46.3

Note: Data are drawn from the 2018 and 2025 waves of the Enterprise Survey for Innovation and Entrepreneurship in China (ESIEC). Newly sampled businesses in each wave are used to calculate the share of full-time employees covered by employer-paid social security. In accordance with the survey's sampling design, a frequency weight of 4 is applied to firms within the wholesale and retail sector, while a frequency weight of 1 is applied to all other sectors. The gender analysis centers on the gender identity of the founders of the sampled business entities. In the 2018 wave, 22.7% of respondents identified as managers rather than founders, thereby reducing the effective sample size for this specific analysis.

*The sharp drop in the coverage rate of the agriculture sector may be explained as follows: (1) The table presents weighted averages, which are heavily influenced by a few large enterprises (over 100 employees). Because the sample size in the agricultural sector is small, the mean value is sensitive to the uneven distribution of these larger enterprises across waves. (2) Enterprises located in nationally designated poverty-stricken counties are exempt from paying social security for their employees. Because these counties tend to be in remote areas, most of the enterprises operating there belong to the agricultural sector. Consequently, the sole large enterprise (more than 100 employees) with zero employee social security coverage in 2018 is located in a poor county, while in the 2025 wave, two such large enterprises are in poor counties, and one is in a county whose poverty designation was recently lifted. These three large enterprises with zero coverage dramatically pull down the average for the agricultural sector in 2025.

Table A1. Robustness of the development gradient:

Full sample vs. service subsample

Year	Outcome variable	Full sample	Service-only	Service-only <i>t</i> -statistics
2020	log GDP per capita	4.803	5.732	6.07
2020	Digital finance index	0.111	0.130	6.58
2025	log GDP per capita	8.907	9.803	8.87
2025	Digital finance index	0.167	0.179	8.28

Note: Each cell in the columns labeled “Full sample” and “Service-only” reports the OLS slope coefficient from a city-level regression of the unregistered business share (%) on log GDP per capita (as specified in Figure 4) or the Digital Finance Index (as specified in Figure 5). Coefficients are estimated separately for the full OSOME sample and the service-sector subsample. The full sample includes all active business operators surveyed across 23 quarterly waves, whereas the service-sector subsample is restricted to respondents within the service industry. Robust *t*-statistics for the estimated coefficients of the service-sector subsample are reported in the final column.

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