

Institutional reform, path development and firm creation: evidence from China

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This paper examines whether and how government-led institutional changes can reshape regional industrial development trajectories. Using quarterly panel data from Chinese cities between 2019 and 2024, we assess the impact of reforms of the business environment on firm creation within both path creation and path dependent industries. Applying a staggered difference-in-differences approach combined with coarsened exact matching, our findings reveal that business environment reforms significantly increase firm creation in path creation industries, especially in high-tech sectors and cities with initially weaker business environments. Key mechanisms identified include enhancements in the market environment and government services, which are central to driving these effects.

Keywords: institutional change, business environment, firm creation, path dependence, path creation

JEL Classifications: L26, O11, R11, R12

Introduction

Institutions — including rules, regulations and organisations — are key for shaping regional economies (Rodríguez-Pose and Storper, 2006). By embedding social practices and routines, institutions often exhibit persistence and stability, contributing to path dependence, where past events and trajectories influence current activity trends (Boschma and Frenken, 2006; Martin, 2000). This institutional inertia can reinforce existing industrial paths, hindering, in some cases, innovation and limiting regional potential (Grabher, 1993). Traditional scholarship has therefore tended to view institutions chiefly as rigid shackles that slow technological upgrading and keep regions bound to inherited development paths, making it exceptionally hard to break free of structural lock-ins (Wink et al., 2015).

Recent advances in scholarly research, however, have shifted from viewing institutions solely as obstacles to highlighting their potential adaptability and capacity to support path creation (Evenhuis, 2017). Research on institutional entrepreneurship has shed light on the role of actors in reshaping rules and practices to facilitate economic

transformation (Grillitsch and Sotarauta, 2020; MacKinnon et al., 2019). As key institutional actors, governments hold a unique capacity to enact reforms that reshape regional dynamics. By adjusting regulatory frameworks, reducing market barriers and creating favourable business environments, governments can disrupt institutional inertia and foster new growth paths (Sotarauta and Pulkkinen, 2011). Despite this, research that considers government actors — especially at the local level — as institutional entrepreneurs remains relatively scarce (Rodríguez-Pose, 2020).

China's recent wave of local government-led business environment reforms presents a unique opportunity to explore this question. These reforms aim to streamline administrative processes, ensure fair market access and enhance regulatory frameworks to reduce barriers for private sector growth. By nurturing a more transparent, inclusive and predictable business environment, these initiatives can reshape regional development paths, enabling firm creation in new industries while reducing the constraints of path dependent structures.

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We use this starting point to investigate the extent to which a recent spate of business environment reforms implemented at the local level since 2020 has influenced firm creation across industries classified as either path dependent or path creating. In the last few years, local governments across China have implemented, at the behest of the national government, institutional measures aimed at improving the conditions for investment and entrepreneurship (Zhang and Rodríguez-Pose, 2024). These reforms have been intended at making local ecosystems fairer, more transparent and stable for the generation and development of economic activity.

To empirically assess the impact of these reforms, we construct a panel dataset of Chinese cities from 2019 to 2024, using business registry data to track firm creation in path creation and path dependence industries. We employ a staggered difference-in-differences (DID) approach combined with coarsened exact matching (CEM) to address potential selection bias and ensure comparability between cities that implemented reforms and those that did not. Our findings reveal that business environment reforms have significantly led to increases in firm creation in path creation industries — those less connected to the existing regional industrial structure — while having no substantial effect on firm creation in path dependence industries — those connected with the local industrial structure. Specifically, cities enacting these reforms experienced an 87.8–116.6% increase in new firm registrations in path creation industries, indicating that institutional change can effectively disrupt existing trajectories and foster new growth paths. This effect is especially evident in high-tech sectors within the path creation category, underscoring the role of institutional reforms in stimulating innovation-driven industries. However, when we expand the definition of path creation industries to include those with the lowest 10% degree of interdependence, the positive effect of business environment reforms on firm creation becomes insignificant. This suggests that the reforms specifically catalyse entrepreneurship only in the most pioneering industries that are least connected to the existing regional industrial structure.

Further analysis shows that the positive impact of reforms is more substantial in cities with initially weaker business environments, suggesting that institutional improvements have the greatest effect where barriers were previously more constraining. Among the various components of the reforms, enhancements to the market environment and government service efficiency are the primary drivers of increased firm creation in path creation industries. These findings highlight the mechanisms by which government-led institutional changes can reshape regional development by lowering entry barriers, improving administrative efficiency and fostering a more conducive environment for entrepreneurial activity.

With this analysis, we make three key contributions to existing knowledge. First, we examine the impact of a government-led institutional reform on regional development paths. Whereas most scholarship highlights how knowledgeable agents and other actors reshape regional institutions from the bottom up, thereby steering development trajectories (see Wink et al., 2017), we demonstrate that local governments — acting as the primary shapers of a city's institutional environment — can themselves serve as agents of change, directly and positively promoting the emergence of new regional development paths. This underscores the significant yet often underappreciated role that local governments can play in initiating institutional change and promoting economic diversification. Second, we provide quantitative evidence to the current discourse on institutional change and path creation through causal inference methods. Using data from Chinese cities, we demonstrate that institutional environment reforms are not limited to individual cities; rather, they have strong external validity even at the national level, underscoring the widespread impact of government-led reforms on regional development paths. Lastly, our research provides insights into China's development path, particularly regarding regional development during and after COVID-19. By means of a novel firm registry database, we offer an up-to-date depiction of regional evolution, thereby enhancing our understanding of China's industrial trajectory.

The remainder of the paper is structured as follows. We first review the relevant research on institutions, reform and path dependence, before developing the research question, and introducing the research context. We then describe the data, variable construction and empirical strategy. The following part presents and discusses the results. The paper concludes with final remarks.

Institutions, reform and path creation and dependence

Institutions as shapers of economic activity

Institutions and path dependence: Institutions are understood as a set of formal and informal rules, regulations and constraints, as well as organisations spanning economic, political and social spheres (Rodríguez-Pose and Storper, 2006). By their nature, institutions tend to exhibit stability and permanence, often resisting change. They embody social practices and routines, acting as vehicles for transmitting the present and past into the future (Martin, 2000). Path dependence is closely linked to institutions, suggesting that past events shape present conditions and providing a historical context for explaining the present (Boschma and Frenken, 2006). More specifically, path dependence describes historical processes where chance events initiate institutional patterns that have lasting impacts (Djelic and Quack, 2007). By preserving social practices and routines, institutions help maintain the status quo, potentially slow-

ing structural economic adjustments and limiting regional potential and creativity (Martin, 2000).

Early literature predominantly characterised institutions as constraints limiting technological innovation. Setterfield (1993) described institutions as evolving but suboptimal path dependent phenomena, noting an inherent 'hysteresis' in their relationship with the economy. This view highlights the intertwining of technological path dependence and institutional inertia, framing institutions as forces driving technological trajectories' path dependence. Concepts such as 'institutional sclerosis', 'institutional rigidities' and 'institutional ossification' have emerged to describe the ways in which overregulation and vested interests can stymie development (Hodgson, 1989; Olson, 1982). In regional contexts, institutions are often seen as contributing to lock-in, as in the development histories of the Ruhr Area and other old industrial regions (Amin and Thrift, 1995; Grabher, 1993). These views underscore institutions' role in reinforcing existing paths and hindering new development trajectories.

Institutional change and path creation: Traditional lock-in-oriented models of path dependence present a conservative view of regional industrial evolution, emphasising continuity over change (Martin, 2010). The idea of path plasticity highlights a crucial counterpoint: even long-established trajectories retain a degree of malleability, because knowledgeable actors can reinterpret and recombine existing institutions and knowledge bases to open space for incremental — but potentially transformative — adjustments (Strambach, 2010). Building on this recognition of latent flexibility, recent scholarship examines how entirely new industrial paths can emerge, either by recombining existing regional assets (Simmie, 2012) or by cultivating novel ones (Boschma, 2017). Path creation — understood as the development and diffusion of new industries and economic activities — reflects the evolutionary quest for novelty (Morgan, 2017). Drawing on Garud and Karnøe's (2001) distributed view of agency, it begins with the mindful deviation of actors who must overcome path dependent barriers before new technological trajectories can gather pace (Simmie, 2012). In its early stages, marshalling interests is of paramount importance, as diverse actors align institutions and networks (Garud and Karnøe, 2001; Carvalho and Vale, 2018). These insights underpin Simmie's (2012) hybrid socioeconomic theory of path creation, which unfolds through mindful deviation, incremental innovation, barrier-breaking and eventual diffusion, showing that institutions — often seen as stabilising — can also be re-worked and mobilised as supports for change (Gertler, 2010).

This view of institutions as enabling change has been deepened by recent empirical studies. For instance, Tripp et al. (2020), in their work on green path development, demonstrate how the successful emergence of sustainable industries hinges not only on technological capabilities but

also on institutional conditions that create 'windows of opportunity' for transformation. Rather than acting solely as inertial forces, institutions — through regulatory shifts and supportive policies — can actively steer regions toward new trajectories. In a similar vein, MacKinnon et al. (2022) explore how the legitimisation of offshore wind energy industries varies across national contexts, influenced by how institutional structures recognise, support or inhibit new technologies. Their study underscores that path creation often requires alignment between emerging industries and evolving societal expectations, often mediated by public policy frameworks. From a slightly different perspective, Grillitsch et al. (2023) resort to comparative case analysis to highlight that path creation is rarely the result of agency alone. Rather, it is the outcome of interactions between capable actors and enabling institutional configurations. This reflects a growing consensus in the literature that agency is institutionally embedded, and institutional change is often contingent on strategic actor coalitions capable of mobilising political and economic support.

What these studies share is a shift from perceiving institutions as merely the background context to viewing them as active arenas where path creation unfolds. Recent theoretical contributions reinforce this shift. Benner (2023), for example, extends the concept of path development by integrating issues of inclusion, arguing that institutional and policy frameworks must address not only how new paths emerge but also who is included in them. His framework emphasises the spatial and social reach of new paths, bringing distributional concerns into the heart of evolutionary economic geography. The significance of formal institutional change is also demonstrated in work on political events as catalysts for new development paths. Belay and Adu-Ampong (2023), studying tourism development in Ethiopia, show how political transitions and state-led interventions can serve as 'critical junctures', that is, moments when established institutional patterns are redefined, enabling the formation of new economic directions. Their work calls attention to the strategic role of the state in reshaping institutional environments.

Similarly, Huggins et al. (2023) focus on the evolution of entrepreneurial ecosystems in economically lagging regions, such as Cardiff. They illustrate that where local government agencies act in concert with business actors, new institutional spaces can be created that foster innovation and entrepreneurialism. These findings resonate with earlier conceptualisations of institutional change as occurring both incrementally and through punctuated events (Martin, 2010) but add empirical richness by detailing the mechanisms and actors involved.

Institutional entrepreneurship and government reform: The dynamics of institutional change and path development have received considerable attention, with studies highlighting how institutional transformations can promote economic prosperity (North, 1990). Within this discourse,

the concept of institutional entrepreneurship has emerged as a key lens through which to understand how actors initiate and implement institutional changes that support new developmental paths. Institutional entrepreneurs are individuals or groups — either organisations or collectives — who initiate divergent changes and actively engage in their implementation (Battilana et al., 2009). They challenge existing rules and practices, working to establish alternative arrangements that enable new economic activities (DiMaggio, 1988).

In regional development, institutional entrepreneurs help shape the institutional base of innovation systems. They mobilise resources, competencies and power to create new institutions or transform existing ones (Sotarauta and Pulkkinen, 2011). This process often involves overcoming opposition from incumbents and coping with complex power dynamics (Sotarauta and Suvinen, 2018). Institutional entrepreneurs aim to reshape inherited social practices and routines while themselves being influenced by these structures, highlighting the embedded nature of agency within institutional contexts (Garud et al., 2010).

Government actors, particularly local governments as rule-makers, can act as institutional entrepreneurs by initiating institutional changes through reforms. Such government-led institutional changes can restyle rules and provide new opportunities for innovative entrepreneurs to emerge and succeed (Hall and Thelen, 2009). Governments possess unique powers and resources to enact substantial institutional transformations, which can be critical in facilitating new path development. However, government-led reforms are often underrepresented in institutional entrepreneurship literature. Much of the discussion has focused on private sector or civil society actors, overlooking the proactive role of governments in initiating and implementing institutional change (Sotarauta and Pulkkinen, 2011). Recognising governments as institutional entrepreneurs emphasises the importance of formal institutions in steering and coordinating initiatives for regional and city-level economic development (Rodríguez-Pose, 2013; Rodríguez-Pose and Ketterer, 2020).

Understanding institutional entrepreneurship in the context of government reform involves examining how governments can strategically shape institutions to foster new economic activities. Governments can enact policies that reduce regulatory barriers, provide support for emerging industries and create favourable business environments (Acemoglu and Robinson, 2012). These actions often serve as catalysts for path creation, enabling innovative entrepreneurship and facilitating new industry development. Moreover, institutional entrepreneurs within government may engage in strategic actions to reshape institutions, including mobilising resources, crafting rationales for promoting new paths and building coalitions to support institutional change (Sotarauta and Pulkki-

nen, 2011). Through these actions, they can overcome institutional inertia and resistance from established interests, paving the way for new regional development trajectories.

Research questions

To explore whether and how local governments, acting as institutional entrepreneurs, can reshape regional development trajectories, we examine the role of government-led institutional reform in fostering new firm creation. We distinguish between two types of industries: path dependent industries, which are closely linked to the region's existing economic structure, and path creating industries, which represent emerging activities that deviate from established regional specialisation.

We define the institutional environment as the broader system of rules, norms and conventions that shape the behaviour of organisations and actors (Martin, 2000). This environment encompasses both formal arrangements (e.g. regulatory procedures, legal frameworks, bureaucratic routines) and informal institutions (e.g. cognitive scripts, norms of legitimacy). We define government-led institutional reform as a deliberate transformation of the institutional environment, initiated and implemented by public authorities — typically at the regional level — with the goal of improving the structural conditions under which economic activity occurs. Such reforms aim to reduce transaction costs, lower regulatory barriers, increase transparency and expand entrepreneurial access to resources and opportunities (Rodrik, 2004). Rather than targeting specific sectors through subsidies or industrial policies, these reforms focus on reshaping the general 'rules of the game' for all firms by modifying legal frameworks, simplifying licensing processes, enhancing contract enforcement, protecting property rights and improving administrative capacity (Gertler, 2010). In doing so, government-led reforms can transform the opportunity structures that shape how, where and by whom new firms are created (Grillitsch and Sotarauta, 2020). This conceptualisation allows us to more precisely identify the scope of institutional change we analyse and clarifies the theoretical contribution of the paper: institutional reforms — when directed at systemic rule changes rather than selective firm support — can disrupt regional path dependence and unlock new routes for firm creation in emerging sectors.

As central actors in institutional environments, governments are uniquely positioned to enact reforms, redistribute resources and reframe narratives that alter the opportunity structures for firm creation (Gertler, 2010; MacKinnon et al., 2019). Yet the extent to which institutional reforms can foster new firm creation — especially in regions shaped by entrenched industrial paths — remains theoretically contested.

A long-standing perspective in evolutionary economic geography is the lock-in thesis, which posits that regions become constrained by their historical development paths (Grabher, 1993; Martin and Sunley, 2006). In this view, evolution and firm creation are shaped by path dependence: pre-existing specialisation, institutional inertia and sunk costs reinforce a limited set of opportunities for entrepreneurial activity. Institutional reforms, even when well intentioned, are seen as unlikely to overcome deep-seated rigidities, particularly in peripheral or structurally disadvantaged regions. This perspective suggests that institutional reform alone is insufficient to initiate substantial change in firm dynamics. Instead, economic activities are expected to continue clustering around established industries due to the advantages of local knowledge spillovers, embedded infrastructures and stable expectations (Boschma, 2005). Thus, under this framework, the role of government-led reform is limited to marginal adjustments within existing development paths.

However, recent research has contested this deterministic account. A growing body of literature recognises that governments can act as institutional entrepreneurs (Battilana et al., 2009; Garud et al., 2010); that is, as agents capable of reshaping the institutional environment in ways that enable new organisational forms. For instance, Dawley (2014) documents how policy activism in Northeast England helped catalyse the offshore wind sector, despite a legacy of industrial decline and strong path dependence. Similarly, Morisson and Panetti (2020) show how public and private actors in Medellín actively co-constructed new institutional logics and support systems to shift the city's development trajectory toward a knowledge economy. These interventions were not reactive, but proactive efforts to realign institutions with emerging economic opportunities. Moreover, governments possess strategic advantages in mobilising resources, altering incentive structures and setting rules of the game. As Belay and Adu-Ampong (2023) show, state leadership can reconfigure both symbolic and material institutions to make previously unimaginable economic activities viable. From this perspective, institutional reform is not merely a response to exogenous change, but a strategic instrument through which governments can create the conditions for entrepreneurial activity.

In sum, while the lock-in perspective emphasises constraints, the institutional entrepreneurship view highlights state capacity to overcome them. These insights lead us to reject the notion that reform is inherently limited in effect and instead argue that government-led institutional reforms can significantly enhance overall firm creation, particularly in settings where institutional inertia has historically suppressed entrepreneurial activity.

However, who benefits from these reforms? Do they merely reinforce existing trajectories by making it easier for incumbents to expand, or do they open the door to new

entrants in emerging sectors? A competing explanation suggests that institutional reforms disproportionately benefit dominant industries, where firms already possess the knowledge, legitimacy and absorptive capacity to respond quickly to improved conditions (Simmie, 2012). In this view, reforms such as reduced red tape, enhanced contract enforcement or greater access to credit may unintentionally amplify the advantages of incumbents (Pike et al., 2018). This dynamic could entrench existing patterns of specialisation, deepen regional lock-in and crowd out opportunities for path creation.

However, other strands of research offer a more optimistic alternative: institutional reform can be a mechanism for opportunity structure transformation (North, 1990). Rather than privileging incumbents, reforms can lower entry barriers for outsiders, particularly those attempting to establish firms in emerging sectors. Grillitsch and Sotarauta (2020) argue that institutional change creates new 'opportunity spaces' by altering expectations, reallocating resources and shifting legitimacy. Crucially, this enables entrepreneurial actors to pursue ventures outside the dominant path. Steen (2016) illustrates how shared narratives and future-oriented visions, constructed through public policy and institutional coalitions, can legitimate the emergence of new paths. Rather than reinforcing what already exists, such reforms encourage experimentation and support actors who were previously marginalised by prevailing institutions. Empirical evidence further reinforces this point. Sun et al. (2024) find that in Chinese resource-based cities, improvements in local institutional environments are associated with a surge in new firms in sectors unrelated to the traditional industrial base. Similarly, Boschma et al. (2015) demonstrate that regional reforms aimed at improving governance quality and entrepreneurship support have fostered diversification, particularly in regions seeking to escape their historical specialisations. These findings suggest that institutional reform can redistribute opportunities, not just intensify existing ones.

Thus, we adopt the view that when designed to broaden participation, improve transparency and reduce barriers to entry, such reforms are especially valuable for new entrants in path creating industries. From this logic, we argue that institutional reforms are more likely to promote firm creation in industries that are not strongly connected to the existing regional structure — i.e. in path creating industries — than in those embedded in established trajectories. Grounded in the theoretical debates above, we propose the following hypothesis:

Hypothesis: Government-led institutional reform can have a considerable impact on firms that are not strongly connected to the existing regional industrial structure (path creation), while having a far more limited effect on industries more embedded in the local industrial structure (path dependence).

Research context

To assess whether this is the case, we focus on local government-led business environment reforms as the empirical context for the analysis. The business environment is a practical example where an effective legal and regulatory framework is widely acknowledged as essential for a robust market economy. In contrast, weak contracting and regulatory environments raise business costs, with cascading effects on employment, output, investment, productivity and living standards.

The World Bank introduced the concept of the business environment through its *Doing Business* reports starting in 2002, which assess laws and regulations that either enhance or constrain business activity across countries (Klapper and Love, 2016). These reports highlight the critical roles of legal frameworks, regulatory efficiency and ease of doing business in promoting economic development and regional competitiveness. Variation in the local business environment can lead to substantial differences in economic activities. For example, starting a business takes just 9.2 days on average in high-income Organisation for Economic Cooperation and Development (OECD) countries. By contrast, the same process averages 27 days in sub-Saharan Africa, 30.1 days in Latin America and 34.4 days in East Asia and the Pacific (Hallward-Driemeier and Pritchett, 2015). Such delays highlight the challenges faced by economic stakeholders in developing countries in creating a conducive regulatory environment for businesses.

Acknowledging the importance of a supportive business environment for economic development, China has recently prioritised reforms in this area. Since 2020, local governments across the country have progressively introduced legislation to streamline processes and lower barriers to private sector growth. These reforms have fundamentally been concerned with five key areas: (i) streamlining administrative processes by simplifying enterprise registration and advancing the separation of permits and licences to facilitate business operations; (ii) ensuring fair market access through a negative list to guarantee equitable participation for all market entities; (iii) enhancing government services by promoting standardised, transparent and efficient services to support market participants; (iv) strengthening legal protections by safeguarding the rights of market entities and prohibiting unlawful administrative coercion; and (v) improving the cultural environment by fostering social trust, strengthening intellectual property protection, advancing the rule of law and providing high-quality public services to create a fair and inclusive market ecosystem. Collectively, these reforms aim to establish a stable, fair, transparent and predictable business environment conducive to investment and entrepreneurship (State Council of the People's Republic of China, 2019). While the economic ratio-

nale for these policies is evident, the extent to which other forces determine a city's decision to participate remains unclear.

To assess whether it is political or experiential factors that explain local uptake of the business environment reform programme, we estimate a series of correlation tests (Tables A1 and A2). Table A1 relates a city's participation to several political characteristics — capital-city status and the age, educational attainment and gender of the city leader — that prior research suggests might shape leaders' economic priorities (Li and Zhou, 2005). None of these variables is statistically significant, implying that political attributes alone do not account for why some cities adopt the business environment and others do not. Table A2 turns to policy learning by testing two earlier, thematically related initiatives: (i) the establishment of one-stop administrative approval centres since 2000 (Jiang and Zhang, 2025) and (ii) involvement in the World Bank's 2004 Investment Climate Survey (Dollar et al., 2005). Again, the coefficients are insignificant, indicating that earlier reform experience does not systematically raise the probability of joining the current business environment campaign.

Data and method

Data and variable construction

To examine the effects of business environment reforms on industrial path development, we construct a city-level panel dataset covering the period from the first quarter of 2019 to the second quarter of 2024. Our primary variable of interest — local business environment reform — is derived from a comprehensive collection of policy documents issued by Chinese local governments. These documents are compiled by PKUlaw.com, an online platform hosted by Peking University Law School. Specifically, we collect local government documents that contain the phrase 'optimising the business environment' in their titles. Since the central government's recommendation in January 2020 to improve the business environment, 58 out of 293 Chinese cities had officially implemented reforms in this direction by the time the data were collected, June 2024 (Figure 1).

To capture data on cities' industrial portfolios, we use the Chinese business registry database, which includes all firms registered during the period of analysis. All Chinese firms, regardless of size, are required by law to register with the National Enterprise Credit Information Publicity System, which maintains records of business registry data. This registry provides detailed information on business registration dates, business names, ownership structures, employment levels, industrial classifications at the SIC 3-digit level and firm addresses.

To estimate industrial path creation and path dependence at the city level, we apply the method proposed by Corradini and Vanino (2022), which builds on Breschi et al.'s

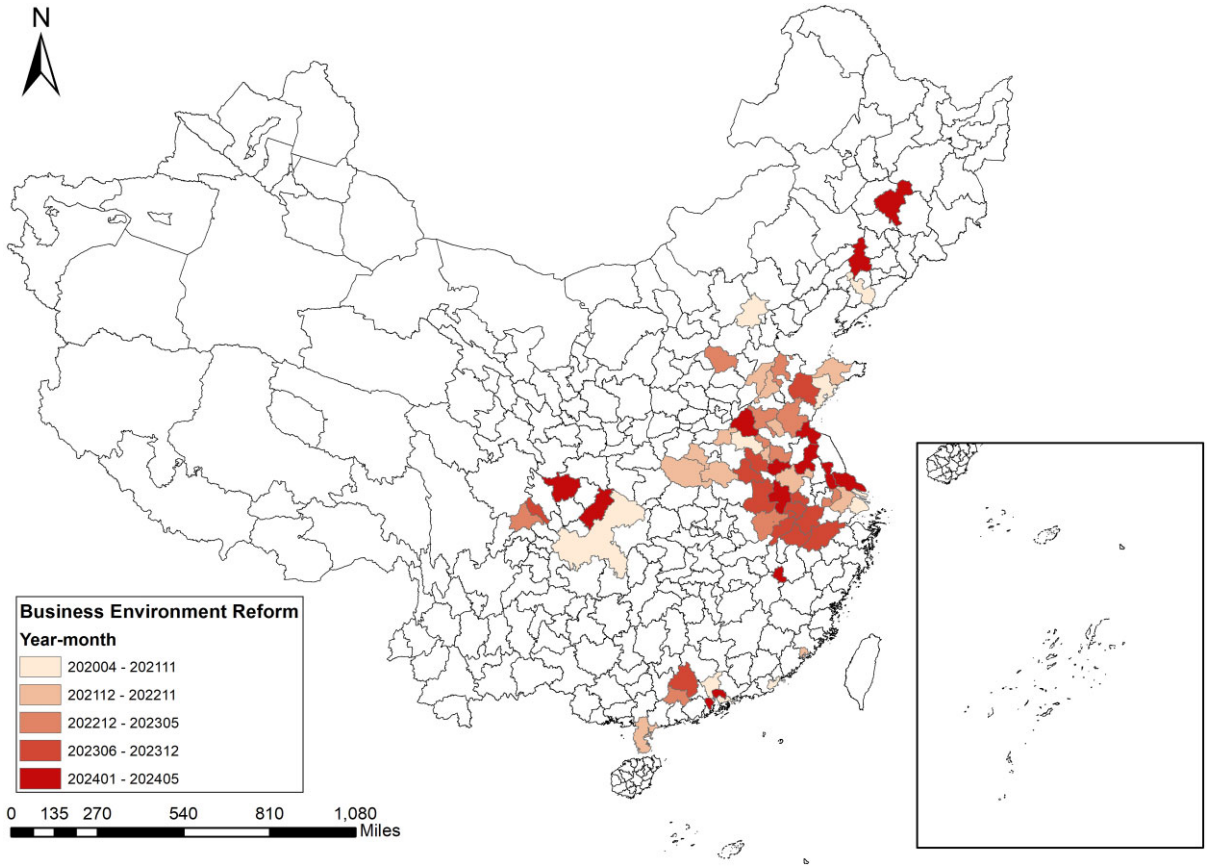


Figure 1. Rollout of business environment reform at the city level.

(2003) co-occurrence analysis. Specifically, the cosine index $S_{i,j}$ quantifies the closeness between two SIC 3-digit industries i and j based on their co-occurrences within the same city.¹ To avoid potential disturbing effects from the business environment reform, we construct each city's industry cosine index using the industrial portfolios in 2019, the year prior to the reform, as a baseline. It is calculated as follows:

$$S_{i,j} = \frac{\sum_r C_{ir}C_{jr}}{\sqrt{\sum_r C_{ir}^2} \sqrt{\sum_r C_{jr}^2}}, \quad (1)$$

where C_{ir} and C_{jr} represent the co-occurrence count of industries i and j in region r . $\sum_r C_{ir}C_{jr}$ is the sum of the product of co-occurrences within the region, representing shared presence. $\sqrt{\sum_r C_{ir}^2}$ and $\sqrt{\sum_r C_{jr}^2}$ normalise the counts for industries i and j , ensuring $S_{i,j}$ remains between 0 and 1. A higher $S_{i,j}$ indicates greater similarity in geographic distribution between industries i and j . To evaluate the path dependence of each industry i within a city's industrial structure, we calculate the weighted average of $S_{i,j}$ values between industry i and all other industries j within the city.

This average is weighted by the employment share of each industry j in the city. Following Corradini and Vanino (2022) and Neffke et al. (2011), we only include industries j that are in the top quartile of relatedness to industry i .

This approach allows us to calculate the degree of industrial path dependence at the industry-city level. To further distinguish between path dependence and path creation within each city, we rank industries by their calculated path interdependence scores. The top 5% of industries in each city, exhibiting the highest path interdependence scores, are categorised as path dependence industries. In contrast, the bottom 5% of industries, with the lowest path interdependence scores, are categorised as path creation industries, reflecting their lower integration with other local industries and their potential to create new regional paths. To analyse city-level development across these two pathways, we match these path creation and path dependence designations to our longitudinal data on firm creation, which is structured at the industry-city-quarter level and sourced from the business registry database. By adding firm creation counts for each city-quarter separately for path dependent and path cre-

ating industries, we can observe the evolution of firm creation within these pathways.

Recognising that firm creation may also be influenced by local socioeconomic characteristics, we incorporate data from *City Statistical Yearbooks* to control for these factors. Specifically, we account for population size and economic factors such as GDP per capita and GDP growth rate, as well as the size of local government, measured by government expenditure and revenue. Additionally, we consider the local industrial structure by including the proportions of manufacturing and service industries, which may impact firm creation.

Finally, our period of analysis includes the COVID-19 pandemic, which may have affected business registration and operations due to local disruptions. To mitigate the potential impact of COVID-19 on our estimates, we use the Oxford COVID-19 Government Response Tracker (OxCGRT) developed by the University of Oxford. The OxCGRT records daily confirmed cases and deaths across regions, as well as local policy measures. This dataset includes indices such as the stringency level, government response index, containment health index and economic support index, capturing the potential impacts of local government policies and actions during the pandemic (Hale et al., 2021). Tables A3 and A4 in the Online Appendix provide descriptive statistics and data sources for our dataset.

Empirical strategy

Our aim is to provide a credible causal analysis of the impact of institutional reform on regional path dependence. To improve the accuracy of our estimates, we employ a two-step approach. First, we use the CEM technique to create a matched sample, ensuring that treated and control groups are more comparable in terms of observable characteristics. Based on this matched sample, we then apply a staggered (DID) approach to estimate the effects of business environment reforms over time. In line with our conceptual framework, we treat the official launch of local business environment reform — identified through city-issued policy documents — as the onset of government-led institutional reform. This treatment variable enters our empirical design as a staggered intervention, capturing the timing of formal reform announcements. It reflects our theoretical definition of institutional reform as a top-down restructuring of the local business environment initiated by government actors.

Despite controlling for a range of socioeconomic and COVID-19 factors, underlying differences may still exist between cities that choose to implement business environment reforms and those that do not. For instance, cities opting for reform may already have a more favourable institutional environment, creating a virtuous cycle that encourages further development and motivates local govern-

ments to undertake reforms. Such differences could render the treated and control groups incomparable, potentially biasing our estimates. To address this, we need to identify a suitable control group with a similar business environment and regional socioeconomic background to those cities that implemented the reform.

We adopt the CEM approach proposed by Iacus et al. (2012) to construct a sample of cities that serves as a basis for counterfactual analysis. CEM is an exact matching algorithm that stratifies data into bins based on all possible combinations of predefined observable categories. Compared to standard matching methods, CEM enhances balance, reduces model dependence and decreases estimation error. Specifically, matching variables are first coarsened (categorised into discrete bins), after which exact matches are made within these categories. This process produces counterfactuals that are comparable in terms of the joint distribution of observable baseline characteristics.

To account for potential differences in business environments that may influence a city's decision to adopt institutional reforms, we use a business environment database developed by Peking University and Wuhan University. This index, informed by metrics from the World Bank's *Doing Business* project, provides an overall business environment score for all 293 prefecture-level cities in China. Importantly, it also includes four sub-indicators — market environment, government services environment, legal environment and cultural environment — allowing us to track differences in business environments across cities in greater detail. We use each city's business environment indicators from 2019 (the pre-reform period) to match cities based on their baseline characteristics.

Panel A, Column 2 of Table 1 shows that, before matching, there are significant differences between the treated and control groups in terms of the overall business environment index and the four sub-indicators. Indeed, cities opting for reform generally score higher across all business environment metrics, which were also positively correlated with local socioeconomic characteristics (Panel B). After matching, the results in Columns 3 and 4 show that, of the 58 treated cities, we found suitable counterparts for 35. Similarly, 97 out of 235 control cities were successfully matched. Column 4 reports the mean differences between matched treated and control cities, indicating that, within the matched sample, cities that implemented the reform and those that did not are highly comparable, with no statistically significant differences in business environment or socioeconomic covariates. Figure 2 maps the matched cities included in the treated and control groups.

After matching, we estimate the dynamic effects of each city's business environment reform using a staggered DID event study framework, as in Sun and Abraham (2021). This approach enables us to capture both the short- and medium-term impacts of the reform. To account for stag-

Table 1. Descriptive statistics of whole and matched samples before the rollout of business environment reform.

	(1) Whole sample mean	(2) Reform and without reform difference	(3) Matched sample mean	(4) Reform and without reform difference
Panel A: business environment characteristics				
Overall business environment index	36.815	5.053*** (0.866)	36.685	0.383 (0.580)
Market environment index	9.571	6.730*** (2.023)	8.288	−0.144 (1.009)
Gov. services environment index	48.325	5.428*** (1.096)	48.570	0.938 (1.013)
Legal environment index	31.459	1.829** (0.731)	31.638	−0.323 (0.601)
Cultural environment index	73.772	3.465*** (1.037)	74.710	0.113 (1.374)
Panel B: socioeconomic characteristics				
Population (logged)	5.849	0.595*** (0.0982)	6.155	0.0325 (0.118)
GDP per capita (logged)	10.913	0.279*** (0.0750)	10.900	−0.00371 (0.0862)
GDP growth rate	6.471	−0.213 (0.293)	6.634	−0.296 (0.396)
Gov. expenditure (logged)	15.202	0.581*** (0.124)	15.324	−0.0932 (0.123)
Gov. revenue (logged)	14.110	1.060*** (0.166)	14.306	0.0278 (0.173)
Ratio of manufacturing ind.	39.326	1.542 (1.182)	40.288	1.453 (1.213)
Ratio of service ind.	49.114	2.795** (1.037)	48.723	−0.962 (1.252)
Sample size		293		132
Of which reform cities		58		35
Of which without reform cities		235		97

Notes: This table compares the whole sample and coarsened exact matched cities in 2019. Column 1 presents the mean characteristics of the whole sample. Column 2 shows the mean difference between reform and non-reform cities within this sample. Column 3 displays the mean characteristics of the matched sample, where non-reform cities are matched to reform cities based on business environment index, population and GDP per capita. Column 4 reports the mean difference within the coarsened exact matched sample. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

gered treatment timing and heterogeneous treatment effects, we employ the group-time average treatment effect estimator by Callaway and Sant'Anna (2021).

Let c be a dummy variable indicating whether a city has implemented the reform ($c = 1$). For city c in quarter t , let E_c represent the period when the city first implemented the reform, and define $K_{ct} = t - E_c$ as the number of quarters before or after the reform. We then regress the outcome Y_{ct} on a set of relative quarter indicators $1(K_{ct} = k)$ for each quarter from the beginning to the end of the sample period:

$$Y_{ct} = \alpha + \sum_k \beta_k [1(K_{ct} = k)] + \gamma_c + \delta_t + \varepsilon_{ct}. \quad (2)$$

In this specification, Y_{ct} represents the number of firm creations in city c during quarter t that belongs to the categories of path creation or path dependent industries. β_k represents the estimated effect at exposure length k from the first occurrence of the reform. We include city and

year-quarter fixed effects, denoted by γ_c and δ_t , respectively. By sweeping out those cross-sectional differences, γ_c guarantees that the coefficients β_k are identified purely from within-city changes around the reform date, rather than from persistent disparities across cities. The year-quarter fixed effects, δ_t , net out shocks that are common to every city in the same calendar quarter. Defining them at the year-quarter level lets us flexibly remove nationwide seasonality — such as the surge in registrations that typically follows the Lunar New Year — as well as macroeconomic fluctuations, concurrent national policies or other aggregate events that affect all locations simultaneously. By controlling for these shared temporal influences, δ_t ensures that any estimated effect attributed to the reform is not confounded by broader business-cycle movements or seasonal patterns in firm creation. Additionally, we control for socioeconomic and COVID-19 conditions. The standard errors are clustered at the city level.

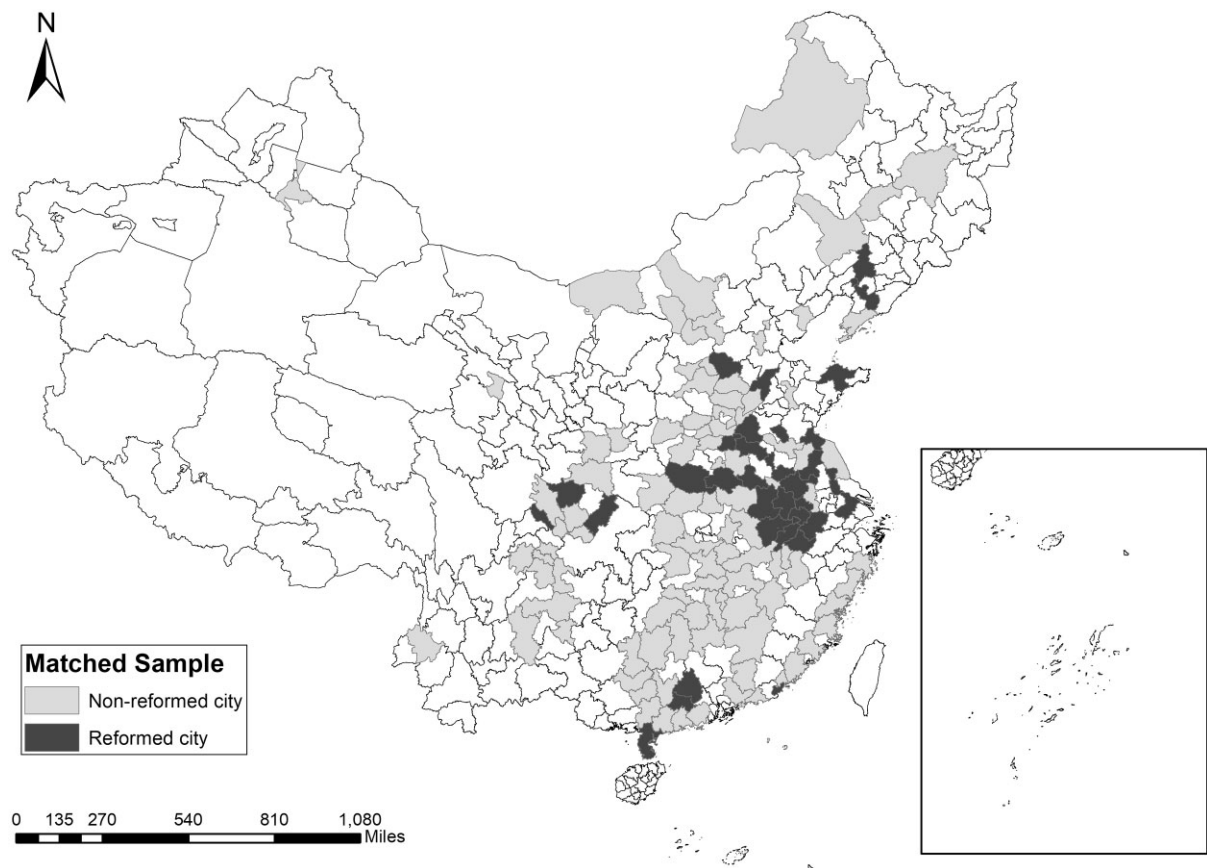


Figure 2. Matched treated (reformed) and control (without reform) city sample.

Empirical results

Effects on firm creation in path creation and path dependence industries

Table 2 presents our baseline results, with the dependent variable defined as the logged number of new firms created within path creation and path dependence industry groups. We use this terminology — rather than the related and unrelated labels common in the diversification literature — because the two classifications are built on different statistical objects and serve distinct analytical purposes. Relatedness studies typically employ entropy-based variety measures to describe how diverse a region's overall industrial portfolio is. By contrast, our path creation and path dependence splits are derived from a cosine-similarity index that compares the specific entering industry to the incumbent industrial structure. The index therefore captures the degree of regional lock-in. High similarity indicates that entry follows an established trajectory (path dependence), whereas low similarity signals that entry breaks with the past and represents a new trajectory (path creation). This focus on the process of breaking or

reinforcing historical paths is central to our research question, which asks whether government-led institutional reform can weaken regional inertia and open space for genuinely new industrial activity.

The columns show variations in specification and sample to assess the robustness of our analysis. Overall, cities that implemented business environment reforms experienced a significant increase in firm creation within path creation industries. However, the effect on firm creation within path dependence industries is both economically and statistically insignificant. Specifically, Columns 1–3 report results using the matched sample generated through CEM, followed by the staggered DID empirical strategy. Column 1 displays the baseline specification for Equation (2), applying both city and year-quarter fixed effects. On average, cities that enacted the reform saw an 87.8% increase in firm creation within path creation industries, i.e. those with the lowest degree of integration with the regional industrial structure (Panel A, Column 1). In contrast, the reforms had no significant positive effect on firm creation within path dependence industries, which are more closely linked to other local industries (Panel B, Column 2).

Table 2. Effects of business environment reform on the number of firm creations.

	Number of firm creations (logged)			
	(1)	(2)	(3)	(4)
Panel A: path creation				
Business environment reform × Post	0.630*** (0.219)	0.686*** (0.240)	0.773*** (0.231)	1.254*** (0.271)
Panel B: path dependence				
Business environment reform × Post	−0.022 (0.031)	−0.015 (0.029)	−0.019 (0.030)	0.076 (0.070)
City FEs	✓	✓	✓	✓
Year-quarter FEs	✓	✓	✓	✓
Socioeconomic controls		✓	✓	✓
COVID-19 controls			✓	✓
Empirical method	CEM + DID	CEM + DID	CEM + DID	DID
Observations	2904	2904	2904	731

Notes: This table relates the number of firm creations to the business environment reform using a staggered DID design. The unit of observation is city × year-quarter. *Business environment reform* is a dummy variable equal to 1 if the city has implemented the reform, and 0 otherwise. *Post* is a dummy variable equal to 1 if the year-quarter is after the reform. Standard errors are clustered at the province level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

In Columns 2 and 3, we incrementally include a set of controls to examine the extent to which the findings in Column 1 are driven by observable covariates. Recognising that time-variant socioeconomic variables at the city level could influence firm creation, we add controls for population, GDP per capita, GDP growth rate, government expenditure, government revenue and the proportions of manufacturing and service industries. In Column 3, we further incorporate COVID-19-related variables, including confirmed cases, deaths, the stringency level, government response index, containment health index and economic support index, to control for the pandemic's potential impact on firm creation during the study period. Notably, adding these additional time-variant controls does not affect the significance of our coefficients. Indeed, after fully accounting for these covariates, the magnitude of the effect on firm creation within path creation industries increases to 116.6% (Panel A, Column 3), while firm creation in path dependence industries remains trivial and statistically insignificant (Panel B, Column 3).

In Column 4, we address the concern that our significant results may be influenced by the inclusion of non-treated cities in the matched control group. To test this, we exclude these cities from the control group, focusing solely on cities that eventually adopted the reform between January 2020 and June 2024. This approach allows us to estimate the effect based solely on the timing of reform adoption among cities that ultimately implemented it. The results remain consistent with our previous analysis. Panel A shows an even stronger effect on the magnitude and significance of the coefficient for firm creation within path creation industries. However, the coefficient for firm creation within path dependence industries remains small and statistically insignificant (Panel B, Column 4).

A key assumption of the DID design for identifying the causal effect of business environment reform on firm creation within path creation and path dependence categories is that, in the absence of reform, treated and control cities would have followed similar trends. Although this assumption cannot be directly tested, we provide evidence supporting its validity by examining pre-trends. Figure 3 displays the impact of business environment reform on firm creation with quarter-by-quarter estimates. As shown in Figure 3, prior to the reform, trends in firm creation were similar between reformed and unreformed cities. Following the introduction of the business environment reform, however, firm creation in path creation industries exhibits a clear upward trend, increasing quarter by quarter. In contrast, firm creation in path dependence industries remains relatively stable and non-significant, closely aligned with the zero axis. Overall, these findings strongly suggest that after implementing the business environment reform, cities experienced a substantial increase in firm creation within path creation industries, while there was no noticeable impact on firm creation within path dependence industries.

One potential concern is that the post-reform surge in firm creation within path creation industries merely reflects a nationwide uptick in entry that happened to coincide with the rollout of the business-environment reform. If that were true, randomly re-assigning the reform time across cities should generate treatment effects of similar magnitude. To probe this possibility, we conduct a Monte-Carlo placebo exercise. Each city is randomly assigned a reform time drawn from the empirical distribution of implementation dates, after which we re-estimate the matched DID specification reported in Column (3) of Table 2. We repeat this procedure 1000 times, recording the resulting

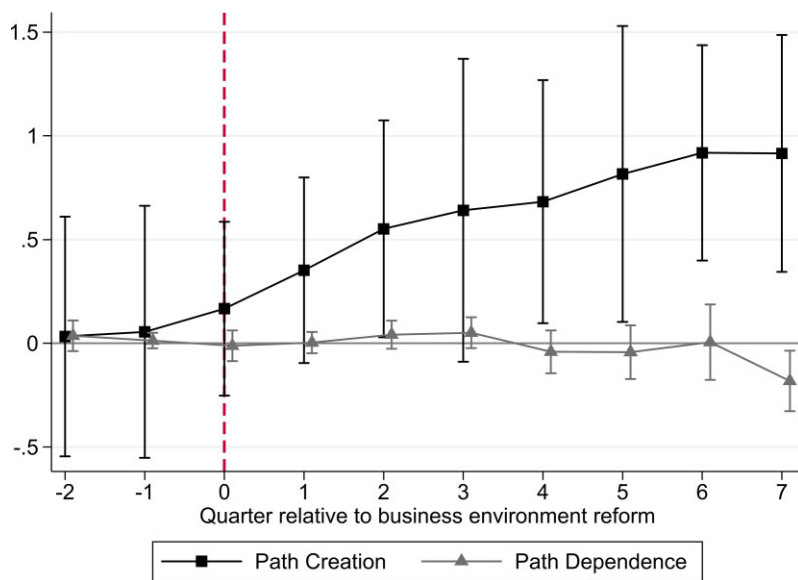


Figure 3. Event study — effects of business environment reform on the number of firm.

treatment coefficients. Figure 4 plots the distribution of the corresponding t-statistics; the simulated statistics are approximately normally distributed around zero. Crucially, none of the 1000 placebo draws produces a t-value that exceeds the actual estimate ($t = 3.346$, marked by the red dashed line). We therefore reject the null hypothesis that our main result could arise from chance alone.

Industry expansion in path creation and path dependence

As outlined in the variable measurement section, we calculate firm creation counts separately for path creation and path dependence industries by aggregating based on each city's degree of industrial path dependence. Specifically, industries with the lowest 5% degree of interdependence with other local industries are categorised as path creation, while those with the highest 5% degree are considered path dependence industries. A key question is whether expanding the threshold for path creation and path dependence industries yields similar results. In Figure 5, we expand the industry range for path creation and path dependence to include the top and bottom 10%. With an average of 301.1 SIC 3-digit industries per city, this adjustment increases the number of path creation and path dependence industries from approximately 15 to 30.

Our event study reveals that, when the industry range is expanded by 5%, the positive effect of business environment reform on firm creation within path creation industries becomes entirely insignificant at any time point following the reform. Although the coefficient shows a slight initial increase, firm creation in the path creation cate-

gory reverts to baseline levels within seven quarters post-reform. In contrast, expanding the industry range has no impact on firm creation within path dependence industries. Comparing the grey lines in Figures 4 and 3, we observe highly consistent results for path dependence industries.

These findings suggest that reforms of the local business environment in China significantly incentivise firm creation only within the most pioneering path creation industries (those in the lowest 5% of interdependence with other industries). However, when the range of path creation industries is expanded to the lowest 10%, this catalytic effect on entrepreneurship within path creation industries disappears entirely.

Heterogeneous effects

Empirical evidence suggests that newly created firms exhibit considerable heterogeneity across industries, particularly regarding differences in technological level and innovation capacity, which may lead to varied responses to reforms (Audretsch et al., 2015; Corradini and Vanino, 2022). We further explore this heterogeneity within path creation and path dependence industries by examining high-tech and low-tech sectors separately, using classifications based on the EUROSTAT framework (Table 3).²

Columns 1 and 2 (Table 3) present the impact of the reform on firm creation in high-tech and low-tech industries within the path creation category. Our estimates indicate that high-tech industries within the path creation category are particularly responsive to the reform, showing an average increase of 102.4% in firm creation, a highly significant

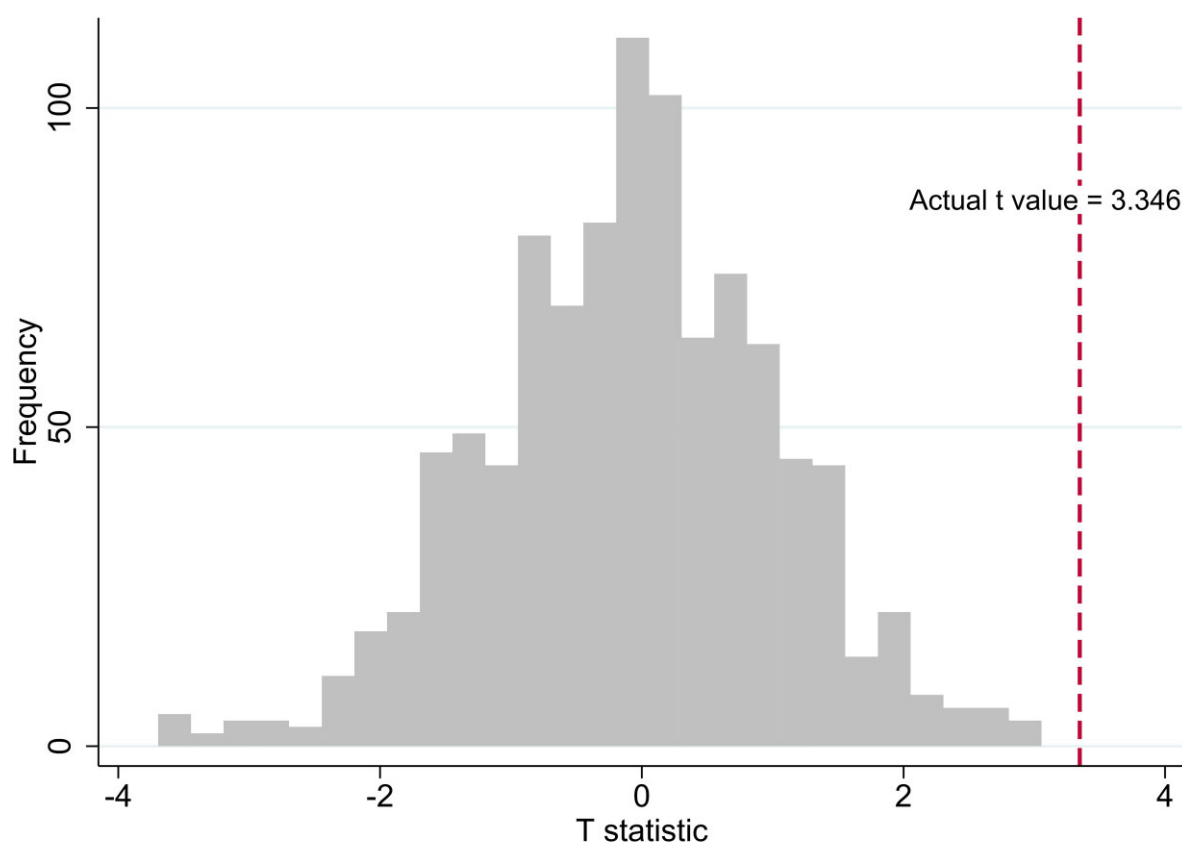


Figure 4. Distribution of placebo t-statistic vs. actual t-value.

Table 3. Effects on firm creations of path creation and path dependence industries: high- vs. low-tech divide.

	Number of firm creations (logged)			
	(1)	(2)	(3)	(4)
	Path creation		Path dependence	
	High-tech	Low-tech	High-tech	Low-tech
Business environment reform × Post	0.705*** (0.222)	0.423 (0.299)	0.126 (0.086)	−0.071* (0.040)
City FEs	✓	✓	✓	✓
Year-quarter FEs	✓	✓	✓	✓
Socioeconomic controls	✓	✓	✓	✓
COVID-19 controls	✓	✓	✓	✓
Empirical method	CEM + DID	CEM + DID	CEM + DID	CEM + DID
Observations	2904	2904	2904	2904

Notes: This table relates the number of firm creations to the business environment reform using a staggered DID design. The unit of observation is city × year-quarter. *Business environment reform* is a dummy variable equal to 1 if the city has implemented the reform, and 0 otherwise. *Post* is a dummy equal to 1 if the year-quarter follows the reform. Standard errors are clustered at the province level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

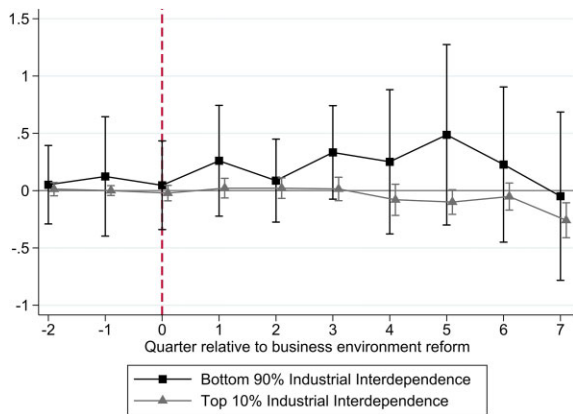


Figure 5. Event study — industry expansion in path creation and path dependence.

result. In contrast, the effect on low-tech industries in the path creation category is less pronounced; while the coefficient is positive (0.423): it is no longer statistically significant. Columns 3 and 4 examine the high-tech and low-tech divide within the path dependence category, revealing that the reform has no significant positive impact on firm creation in either high-tech or low-tech industries within path dependence categories.

Figure 6 provides a quarter-by-quarter visualisation of the reform's impact on firm creation across high-tech and low-tech industries within both path creation and path dependence categories. Figure 6A shows that high-tech industries in the path creation category experience consistent, statistically significant increases in firm creation at nearly every time point post-reform. In contrast, significant effects for low-tech industries in this category appear sporadically, only in a few quarters post-reform. Figure 6B displays quarterly changes for high-tech and low-tech industries within the path dependence category. While the coefficient for high-tech industries is higher than that for low-tech industries at any given time, both categories exhibit statistically insignificant results overall. In summary, our findings suggest that the observed significant baseline effects in path creation industries are primarily driven by high-tech sectors. Although the reform positively affects firm creation within low-tech industries in the path creation category, the overall effect is less pronounced.

Cities also exhibited varying levels of business environment quality prior to implementing the business environment reform. To examine whether the reform had differential effects based on pre-existing business environment levels, we use the 2019 city business environment index constructed by Peking University and Wuhan University to categorise cities by their pre-reform business environment quality. Cities with an index above the sample mean are classified as the high business environment group, while

those below the mean are included in the low business environment group. We estimate the effects separately for each group (Table 4).

Columns 1 and 2 reveal that in cities with a low initial business environment, the reform led to a substantial positive impact on firm creation within the path creation category, significant at the 1% level. In contrast, in cities with a high initial business environment, the reform's effect on firm creation within path creation industries is less pronounced, with a smaller and less significant coefficient. For firm creation within path dependence industries, however, the effect remains consistently small and statistically insignificant across both groups. These results suggest that the business environment reform is particularly effective in cities with initially weaker institutional environments, while cities with a well-developed business environment see fewer tangible benefits from the reform.

Mechanisms

In this final analysis, we explore how specific components of the business environment reform, as an institutional change, influence regional path development. Our dataset on local government policy documents provides not only the starting dates for reform implementation in each city but also detailed information on the specific areas targeted by the reform. Local governments typically focus on four main dimensions for enhancing the business environment: the market environment, government service environment, legal environment and cultural environment. Cities often emphasise different aspects, usually implementing reforms in two to four of these dimensions, as specified in their local business environment improvement regulations.

We systematically quantify these four reform channels based on the policy document content and test the effectiveness of each component individually. Table 5 summarises the impact of each reform dimension on firm creation within path creation and path dependence industries. Column 1 reveals the effects of each reform direction: improvements in the market environment and government service environment have a significant positive impact on firm creation within path creation industries, with an average effect exceeding 80% post-reform. In contrast, reforms targeting the legal and cultural environments have less pronounced impacts on regional path development. Specifically, improvements in the legal environment are significant only at the 10% level, while cultural environment reforms have no substantial impact on path creation.

Figure 7 further corroborates our analysis. Reforms in the market and government service environments show a steadily increasing positive effect on firm creation within path creation industries following the implementation of reform. In comparison, improvements in the legal environ-

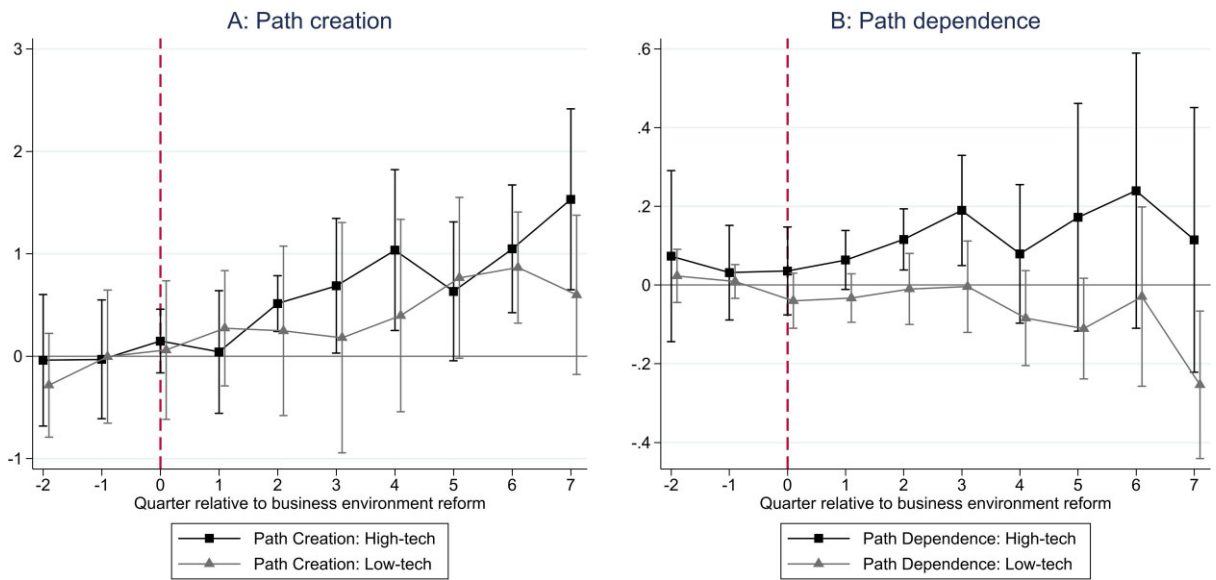


Figure 6. Event study — effects on firm creations of path creation industries: high- vs. low-tech divide.

Table 4. Effects on firm creations of path creation and path dependence industries: high- vs. low-business environment index.

	Number of firm creations (logged)			
	(1)	(2)	(3)	(4)
	Path creation		Path dependence	
	Low-B.Env	High-B.Env	Low-B.Env	High-B.Env
Business environment reform × Post	0.778*** (0.192)	0.552* (0.319)	−0.038 (0.048)	−0.004 (0.035)
City FEs	✓	✓	✓	✓
Year-quarter FEs	✓	✓	✓	✓
Socioeconomic controls	✓	✓	✓	✓
COVID-19 controls	✓	✓	✓	✓
Empirical method	CEM + DID	CEM + DID	CEM + DID	CEM + DID
Observations	1606	1298	1606	1298

Notes: This table relates the number of firm creations to the business environment reform using a staggered DID design. The unit of observation is city × year-quarter. *Business environment reform* is a dummy variable set to 1 if the city has implemented the reform, and 0 otherwise. *Post* is a dummy set to 1 if the year-quarter is after the reform. Standard errors are clustered at the province level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

ment seem to be less impactful, though they still display a positive trend overall. Finally, reforms in the cultural environment seem to provide minimal support for firm creation. These findings suggest that within China's business environment reform, the most crucial mechanisms for fostering path creation are improvements in the market and government service environments.

Conclusion

This paper has examined how government-led institutional reforms shape regional industrial development

paths, with a focus on China's recent business environment reforms. Using a city-quarter panel dataset from 2019 to 2024 and a staggered DID approach combined with CEM, we provide robust evidence on how these reforms influence firm creation across industries with varying degrees of embeddedness in local industrial structures.

Our findings reveal that the reforms significantly increased firm creation in path creating industries, particularly in high-tech sectors. In contrast, there was little to no effect on path dependent industries. The impact is especially pronounced in cities with initially weaker business environments, suggesting that institutional improve-

Table 5. Mechanisms of business environment reform on firm creations of path creation and path dependence.

	Number of firm creations (logged)	
	(1) Path creation	(2) Path dependence
Panel A: Market environment × Post	0.612*** (0.223)	−0.023 (0.030)
Panel B: Government service environment × Post	0.630*** (0.219)	−0.022 (0.031)
Panel C: Legal environment × Post	0.406* (0.223)	−0.041 (0.033)
Panel D: Cultural environment × Post	0.187 (0.160)	−0.150** (0.076)
City FEs	✓	✓
Year-quarter FEs	✓	✓
Socioeconomic controls	✓	✓
COVID-19 controls	✓	✓
Empirical method	CEM + DID	CEM + DID
Observations	2904	2904

Notes: This table relates the number of firm creations to the business environment reform using a staggered DID design. The unit of observation is city × year-quarter. *Business environment reform* is a dummy variable set to 1 if the city has implemented the reform, and 0 otherwise. *Post* is a dummy variable set to 1 if the year-quarter is after the reform. Standard errors are clustered at the province level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

ments are most effective where barriers were previously more constraining. Among reform components, improvements in market conditions and government service delivery emerged as key drivers. These findings have important policy implications. They highlight the potential for local governments to act as institutional entrepreneurs, capable of disrupting entrenched development paths and catalysing new trajectories. Reforms that lower entry barriers, improve administrative efficiency, and foster innovation are especially effective in facilitating path creation. Moreover, the stronger effects in less-developed institutional contexts underscore the value of tailoring reform strategies to local conditions. Immediate policy gains may be achieved by prioritising market-oriented reforms and administrative improvements over more diffuse changes in legal or cultural domains.

While our findings underscore the transformative potential of local government-led institutional reforms, several limitations merit critical reflection. First, although the reforms significantly boosted firm creation in pioneering, path creating industries — particularly in cities with weaker institutional environments — they had no measurable effect on path dependent sectors. This suggests that the reforms’ impact may be limited to contexts where entry barriers are particularly binding, and where entrepreneurial responses are more elastic. In regions with mature industrial structures or already favourable business environments, institutional reform alone may be insufficient to overcome entrenched economic patterns.

Moreover, the effectiveness of reform is shaped not only by the rules themselves, but also by how they are implemented. Bureaucratic inertia, uneven enforcement or limited administrative capacity may dilute the impact of well-intentioned reforms.

Second, our findings raise important questions about whether further policy measures are needed to deepen reform impacts, particularly for small and medium-sized enterprises (SMEs). Many of the new firms captured in our dataset are likely to be start-ups or micro-enterprises. Without targeted support — such as credit access, capacity-building programmes or tailored innovation infrastructure — these firms may struggle to survive or scale, especially in technologically advanced sectors. Therefore, future reforms may need to move beyond institutional streamlining toward more strategic support mechanisms for SME development, particularly in lagging regions.

Finally, our study has several empirical limitations. While we employ robust causal inference techniques, including staggered DID and CEM, our findings are still based on observed phenomena. Unobserved factors — such as informal institutional dynamics, leadership quality or sub-national political incentives — may still shape reform outcomes in ways we cannot fully control for. In addition, our measure of institutional reform is based on the issuance of local government policy documents. This provides a clear treatment definition but may not fully capture the variation in implementation intensity or effec-

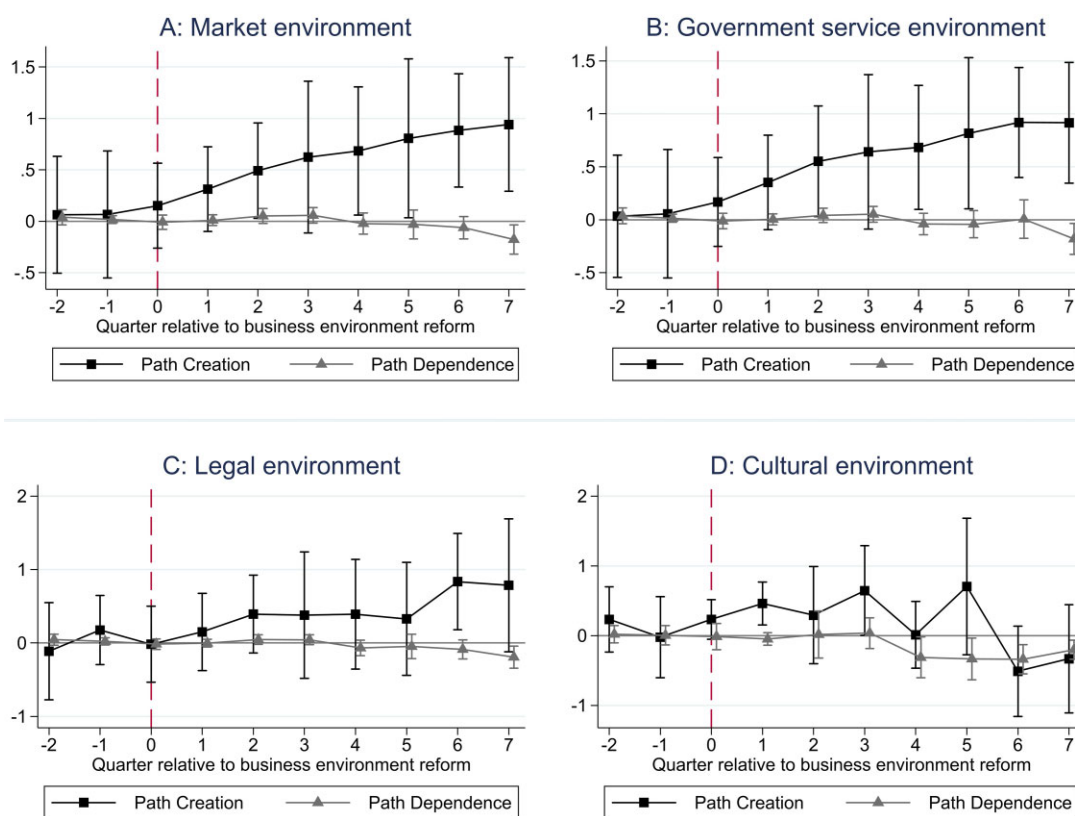


Figure 7. Event study — mechanisms of business environment reform.

tiveness. Future research could benefit from incorporating more granular implementation data, qualitative case studies of reform processes or firm-level microdata to better understand how different types of firms respond to institutional change. Understanding the long-term trajectories of these new firms — particularly their survival, innovation performance and integration into the local economy — will also be essential for assessing the enduring impact of reform.

Taking into account all these caveats, the paper shows that nimble, well-targeted institutional reform can jolt even the most path dependent regional economies into fresh trajectories of growth. We show not only that local governments can act as institutional entrepreneurs, but that their actions pay tangible dividends in the form of new, innovation-driven firms. In shining a light on the catalytic role of market and service-oriented reforms — especially in places where the institutional scaffolding is weakest — we move the debate beyond abstract theory and into the realm of practical policy action. The message is bracingly optimistic: with the right rules, transparent enforcement and a dash of administrative vigour, policymakers can tilt the playing field in favour of tomorrow's industries without simply feather-bedding yesterday's incumbents. In

short, the study underscores that purposeful governance has the power to redraw regional economic maps and offers a blueprint for those willing to seize the opportunity.

Endnotes

- 1 We use the SIC 3-digit classification level as it provides the most detailed industry classification available in our business registry data. To the best of our knowledge, this is the highest level of granularity for industry classification currently accessible in China.
- 2 According to the EUROSTAT classification, high-tech firms are identified by the following SIC codes: (24) chemicals and pharmaceuticals, (29) machinery and engines, (30) computers and office equipment, (31) electrical machinery, (32) IT and communication equipment, (33) medical, precision and optical instruments, (34) motor vehicles, (35) transport equipment, (61) water transport, (62) air transport, (64) postal services and telecommunications, (65) financial intermediation, (66) insurance, (67) financial auxiliary activities, (70) real estate, (71) machinery and equipment leasing, (72) IT-related activities, (73) research and development and (74) other business services.

Supplementary material

Supplementary material is available at [Cambridge Journal of Regions, Economy and Society](#) online.

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References

- Acemoglu, D., and Robinson, J. A. (2012) *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. New York: Crown Currency.
- Amin, A., and Thrift, N. (1995) Globalisation, institutional 'thickness' and the local economy, *Managing Cities: The New Urban Context*, 12: 91–108.
- Audretsch, D. B., Kuratko, D. F., Link, A. N. (2015) Making sense of the elusive paradigm of entrepreneurship, *Small Business Economics*, 45: 703–712.
- Battilana, J., Leca, B., Boxenbaum, E. (2009) 2 How actors change institutions: towards a theory of institutional entrepreneurship, *Academy of Management Annals*, 3: 65–107.
- Belay, M. K., and Adu-Ampong, E. A. (2023) The state, political trigger events and path creation in tourism destination in Ethiopia, *Tourism Geographies*, 25: 1856–1873.
- Benner, M. (2023) Making spatial evolution work for all? A framework for inclusive path development, *Cambridge Journal of Regions, Economy and Society*, 16: 445–462.
- Boschma, R. (2005) Proximity and innovation: a critical assessment, *Regional Studies*, 39: 61–74.
- Boschma, R. (2017) Relatedness as driver of regional diversification: a research agenda, *Regional Studies*, 51: 351–364.
- Boschma, R., Balland, P. A., Kogler, D. F. (2015) Relatedness and technological change in cities: the rise and fall of technological knowledge in US metropolitan areas from 1981 to 2010, *Industrial and Corporate Change*, 24: 223–250.
- Boschma, R. A., and Frenken, K. (2006) Why is economic geography not an evolutionary science? Towards an evolutionary economic geography, *Journal of Economic Geography*, 6: 273–302.
- Breschi, S., Lissoni, F., Malerba, F. (2003) Knowledge-relatedness in firm technological diversification, *Research Policy*, 32: 69–87.
- Callaway, B., and Sant'Anna, P. H. (2021) Difference-in-differences with multiple time periods, *Journal of Econometrics*, 225: 200–230.
- Carvalho, L., and Vale, M. (2018) Biotech by bricolage? Agency, institutional relatedness and new path development in peripheral regions, *Cambridge Journal of Regions, Economy and Society*, 11: 275–295.
- Corradini, C., and Vanino, E. (2022) Path dependency, regional variety and the dynamics of new firm creation in rooted and pioneering industries, *Journal of Economic Geography*, 22: 631–651.
- Dawley, S. (2014) Creating new paths? Offshore wind, policy activism, and peripheral region development, *Economic Geography*, 90: 91–112.
- DiMaggio, P. J. (1988) Interest and Agency in Institutional Theory. In L. Zucker (ed.) *Institutional Patterns and Organizations: Culture and Environment*, Massachusetts: Ballinger.
- Djelic, M. L., and Quack, S. (2007) Overcoming path dependency: path generation in open systems, *Theory and Society*, 36: 161–186.
- Dollar, D., Hallward-Driemeier, M., Mengistae, T. (2005) Investment climate and firm performance in developing economies, *Economic Development and Cultural Change*, 54: 1–31.
- Evenhuis, E. (2017) Institutional change in cities and regions: a path dependency approach, *Cambridge Journal of Regions, Economy and Society*, 10: 509–526.
- Garud, R., and Karnøe, P. (eds) (2001) Path creation as a process of mindful deviation. *Path Dependence and Creation*, p. 138. New York: Psychology Press.
- Garud, R., Kumaraswamy, A., Karnøe, P. (2010) Path dependence or path creation? *Journal of Management Studies*, 47: 760–774.
- Gertler, M. S. (2010) Rules of the game: the place of institutions in regional economic change, *Regional Studies*, 44: 1–15.
- Grabher, G. (ed.) (1993) The weakness of strong ties: the lock-in of regional development in the Ruhr Area. *The Embedded Firm: On the Socioeconomics of Industrial Networks*. London: Routledge.
- Grillitsch, M., and Sotarauta, M. (2020) Trinity of change agency, regional development paths and opportunity spaces, *Progress in Human Geography*, 44: 704–723.
- Grillitsch, M., Sotarauta, M., Asheim, B., Fitjar, R. D., Haus-Reve, S., Kolehmainen, J., Stihl, L. (2023) Agency and economic change in regions: identifying routes to new path development using qualitative comparative analysis, *Regional Studies*, 57: 1453–1468.
- Hale, T., Angrist, N., Goldszmidt, R., Kira, B., Petherick, A., Phillips, T., Tatlow, H. (2021) A global panel database of pandemic policies (Oxford COVID-19 Government Response Tracker), *Nature Human Behaviour*, 5: 529–538.
- Hall, P. A., and Thelen, K. (2009) Institutional change in varieties of capitalism, *Socio-Economic Review*, 7: 7–34.
- Hallward-Driemeier, M., and Pritchett, L. (2015) How business is done in the developing world: deals versus rules, *Journal of Economic Perspectives*, 29: 121–140.

- Hodgson, G. M. (1989) Institutional economic theory: the old versus the new, *Review of Political Economy*, 1: 249–269.
- Huggins, R., Munday, M., Thompson, P., Xu, C. (2023) Entrepreneurial ecosystems, agency and regional development: emergence and new path creation in the Cardiff city region, *Local Economy*, 38: 538–561.
- Iacus, S. M., King, G., Porro, G. (2012) Causal inference without balance checking: coarsened exact matching, *Political Analysis*, 20: 1–24.
- Jiang, T., and Zhang, Z. (2025) An analysis of the impact of administrative approval reform on the technological complexity of manufacturing exports, *PloS One*, 20: e0319734.
- Klapper, L., and Love, I. (2016) The impact of business environment reforms on new registrations of limited liability companies, *The World Bank Economic Review*, 30: 332–353.
- Li, H., and Zhou, L. A. (2005) Political turnover and economic performance: the incentive role of personnel control in China, *Journal of Public Economics*, 89: 1743–1762.
- MacKinnon, D., Dawley, S., Pike, A., Cumbers, A. (2019) Rethinking path creation: a geographical political economy approach, *Economic Geography*, 95: 113–135.
- MacKinnon, D., Karlsen, A., Dawley, S., Steen, M., Afewerki, S., Kenzhegaliyeva, A. (2022) Legitimation, institutions and regional path creation: a cross-national study of offshore wind, *Regional Studies*, 56: 644–655.
- Martin, R. (2000) Institutional approaches in economic geography. In E. Sheppard, and T. J. Barnes (eds) *A Companion to Economic Geography*, pp. 77–94. Oxford: Blackwell.
- Martin, R. (2010) Roepke lecture in economic geography — rethinking regional path dependence: beyond lock-in to evolution, *Economic Geography*, 86: 1–27.
- Martin, R., and Sunley, P. (2006) Path dependence and regional economic evolution, *Journal of Economic Geography*, 6: 395–437.
- Morgan, K. (2017) Nurturing novelty: regional innovation policy in the age of smart specialisation, *Environment and Planning C: Politics and Space*, 35: 569–583.
- Morisson, A., and Panetti, E. (2020) Institutional entrepreneurs and socio-institutional changes in Medellín, Colombia, *Regional Studies, Regional Science*, 7: 35–51.
- Neffke, F., Henning, M., Boschma, R. (2011) How do regions diversify over time? Industry relatedness and the development of new growth paths in regions, *Economic Geography*, 87: 237–265.
- North, D. C. (1990) *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- Olson, M. (1982) *The Rise and Decline of Nations*. New Haven, CT: Yale University Press.
- Pike, A., Rodríguez-Pose, A., Tomaney, J. (2018) Shifting horizons in local and regional development. In I. Turok et al. (eds) *Transitions in Regional Economic Development*, pp. 82–102. London: Routledge.
- Rodríguez-Pose, A. (2013) Do institutions matter for regional development? *Regional Studies*, 47: 1034–1047.
- Rodríguez-Pose, A. (2020) Institutions and the fortunes of territories, *Regional Science Policy & Practice*, 12: 371–386.
- Rodríguez-Pose, A., and Ketterer, T. (2020) Institutional change and the development of lagging regions in Europe, *Regional Studies*, 54: 974–986.
- Rodríguez-Pose, A., and Storper, M. (2006) Better rules or stronger communities? On the social foundations of institutional change and its economic effects, *Economic Geography*, 82: 1–25.
- Rodrik, D. (2004) Institutions and economic performance—getting institutions right, *CESifo DICE Report*, 2: 10–15.
- Setterfield, M. (1993) A model of institutional hysteresis, *Journal of Economic Issues*, 27: 755–774.
- Simmie, J. (2012) Path dependence and new technological path creation in the Danish wind power industry, *European Planning Studies*, 20: 753–772.
- Sotarauta, M., and Pulkkinen, R. (2011) Institutional entrepreneurship for knowledge regions: in search of a fresh set of questions for regional innovation studies, *Environment and Planning C: Government and Policy*, 29: 96–112.
- Sotarauta, M., and Suvinen, N. (2018) Institutional agency and path creation: institutional path from industrial to knowledge city. In A. Isaksen, R. Martin, M. Trippl (eds) *New Avenues for Regional Innovation Systems — Theoretical Advances, Empirical Cases and Policy Lessons*, pp. 85–104. Cham: Springer.
- State Council of the People's Republic of China. (2019) Guiding opinions on accelerating the improvement of the socialist market economy system in the new era, https://www.gov.cn/zhengce/content/2019-10/23/content_5443963.htm [Accessed 20 August 2024].
- Steen, M. (2016) Reconsidering path creation in economic geography: aspects of agency, temporality and methods, *European Planning Studies*, 24: 1605–1622.
- Strambach, S. (2010) 19 Path dependence and path plasticity: the co-evolution of institutions and innovation — the German customized business software industry. In R. Boschma, and R. Martin (eds) *The Handbook of Evolutionary Economic Geography*, p. 406. Cheltenham, UK: Edward Elgar Publishing.
- Sun, H., Ma, L., Jin, F., Huang, Y. (2024) Path dependence or path creation of mature resource-based cities: a new firm entry perspective, *Journal of Geographical Sciences*, 34: 499–526.
- Sun, L., and Abraham, S. (2021) Estimating dynamic treatment effects in event studies with heterogeneous treatment effects, *Journal of Econometrics*, 225: 175–199.
- Trippl, M., Baumgartinger-Seiringer, S., Frangenheim, A., Isaksen, A., Rypestøl, J. O. (2020) Unravelling green regional industrial path development: regional preconditions, asset modification and agency, *Geoforum*, 111: 189–197.
- Wink, R., Kirchner, L., Koch, F., Speda, D. (2015) There are many roads to reindustrialization and resilience: place-based approaches in three German urban regions, *European Planning Studies*, 24: 463–488.

Wink, R., Kirchner, L., Koch, F., Speda, D. (2017) Agency and forms of path development along transformation processes in German cities, *Cambridge Journal of Regions, Economy and Society*, 10: 471–490.

Zhang, M., and Rodríguez-Pose, A. (2024) Government reform and innovation performance in China, *Papers in Regional Science*, 103: 100023.