

Understanding the contemporary history of urban economic change: The case of entrepreneurial innovation

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Abstract

In the opening decades of the twenty-first century certain cities around the world emerged as hubs of entrepreneurial innovation. This paper explores this urban economic change phenomenon through in-depth and comparative qualitative analysis. It focuses on the recent contemporary history of New York, Los Angeles, London, Berlin, Tokyo and Shanghai prior to the global COVID pandemic. Based on an analysis of the drivers, mechanisms and processes of change, it is found that these cities acted as places of possibility for many individuals who previously may have been unlikely to engage in entrepreneurship. The cities were found to have established new development paths through entrepreneurial innovation stemming from co-creation network dynamics, with key human agents playing pivotal roles. Common elements include the rise of venture capital, the growth of entrepreneurial cultures, and institutional policy changes. Notably, entrepreneurial innovation was found to be closely tied to changes in large corporates. This innovation evolved through the proliferation of new infrastructure such as co-working spaces and innovation incubators, with each city being utilised as a test-bed for new ideas. Finally, the emergence of a darker side to entrepreneurial innovation is found in terms of growing urban inequality.

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cities, economic change, entrepreneurship, innovation

1 | INTRODUCTION

An important economic transformation occurred in the opening decades of the twenty-first century whereby certain cities around the world emerged as hubs of innovation, entrepreneurship and technology (Adler et al., 2019; Adler & Florida, 2021; Florida et al., 2017; Rossi & Di Bella, 2017). As part of these processes of economic evolution and development, cities have generated entrepreneurial networks both within and beyond their boundaries, and a number of these further cemented their position as entrepreneurial innovation hubs following the financial crisis of 2008 (Audretsch & Belitski, 2017; Audretsch et al., 2021; Zukin, 2020).

While a small cadre of the most advanced cities at various points in history have been crucibles of innovation and entrepreneurship (see Hall, 1998 for a detailed analysis), such activities have not been viewed as a particularly urban phenomenon (Breschi & Malerba, 2001; Malecki, 2021). Indeed, for much of the latter part of the twentieth century the principal locations were 'out-of-town' science and industry parks, with downtown and central locations in cities being dominated by commercial and retail activity (Castells & Hall, 1994). However, the evolution of economic development has led to a shift away from the technopoles of innovation on out-of-town science and industry parks to downtown innovation districts that form part of wider global innovation systems (Adler et al., 2019; Katz & Wagner, 2014).

Against this backdrop, this paper seeks to explore the nature of urban entrepreneurial innovation as a global phenomenon through in-depth and comparative analysis of the emergence of cities as centres of new economic development paths. Therefore, the fundamental research question the paper seeks to address is: how and why did the growth of urban entrepreneurial innovation occur during the period following the financial crisis of 2008 and prior to the COVID-19 pandemic of 2020? In order to unpack this, three sub-questions are addressed: (1) what were the drivers of urban entrepreneurial innovation; (2) what were the key mechanisms facilitating urban entrepreneurial innovation?; and (3) what were the processes of change stemming from these drivers and mechanisms? To examine these questions the paper utilises qualitative data from interviews with more than 130 individuals across six cities from the private sector, government and the public sector, and the university sector. The case study cities are New York, Los Angeles, London, Berlin, Tokyo and Shanghai, with all the interviewees being engaged in entrepreneurship and innovation in their respective cities.

Overall, the study forms an analysis of the recent contemporary history of these cities and an exploration of the growth of entrepreneurial innovation in these locations, as well the nature of urban economic change more generally. In order to conceptually frame an analysis that can provide both specific and more broader insights on economic change in cities, the paper draws on calls for more pluralistic theoretical thinking within economic geography (Martin, 2021). To this end, it integrates a number of conceptual strands that seek to understand how cities evolve in the context of the rise of entrepreneurial innovation. The framework developed to address this is presented in the next section of the paper. Following this, an overview of the methodological approach adopted and three empirical sections highlighting the main empirical findings framed by the drivers, mechanisms and process of urban entrepreneurial innovation are presented. These are followed by an analysis of the 'darker side' of urban entrepreneurial innovation and finally a discussion of the key findings from the study.

2 | ENTREPRENEURIAL INNOVATION AND URBAN ECONOMIC CHANGE

Entrepreneurial innovation, in the form of the introduction of new and often radically different products, services and processes, is seen by some to be the cornerstone of economic development as it helps forge new development paths (Baumol, 2002). As Autio et al. (2014) argue, entrepreneurial innovation refers to creative and radical advancement characterised by co-creation and evolutionary processes within ecosystems whereby human agents, operating as individuals or teams, navigate complex context based networks. This perspective on entrepreneurial innovation emphasises the dynamic interaction between the entrepreneur and the broader contexts within which they operate.

Such contexts include social, institutional, industrial, organisational, temporal, and spatial settings, and for Autio et al. (2014) the changing nature of the behaviour of agents within these contexts, particularly entrepreneurs, lies at the centre of understanding the nature of innovation and development paths. For Autio et al. (2014), spatial and temporal dimensions represent the overarching context within which the others are then set. This framework of examining the geographical locus of entrepreneurial innovation in cities and its evolution over time is where this paper seeks to position itself. As indicated by Jessop (2019), the spatiotemporal aspects of entrepreneurial innovation are particularly evident in the urban form and context through the introduction of new places, spaces and methods for innovating within cities.

Building on Jessop's (2019) observations, traditional models of innovation based on planning, linear and causal theories have evolved to more emerging models based on openness and entrepreneurship (Chesbrough, 2020; Malerba & McKelvey, 2020). Such open and entrepreneurial thinking represents the notion of 'possibility' (Baron, 2023), with certain cities around the world offering individuals the opportunity to become both innovative and entrepreneurial in new ways (Tavassoli et al., 2021). In particular, a range of new innovation hubs in cities in North America and Europe emerged following the 2008 financial crisis (Adler & Florida, 2021), which can be considered to form part of processes related to globalised urbanisation (Brenner & Keil, 2020; Storper, 2013). In parallel, there has been the rise of Chinese globalisation (Derudder & Taylor, 2020; Root, 2020), which alongside developments in North America and Europe has led to the resurgence of urban places in the west and the rise of new urban centres in the east (Sassen, 2020; Scott, 2008).

It has been argued that through 'human' dimensions related to selective migration and associated sorting mechanisms, individuals with a capacity and preference for entrepreneurially-driven innovation and economic activity have become increasingly attracted to urban locations (Florida et al., 2017; Huggins & Thompson, 2022; Storper & Manville, 2006). Coupled with these human dimensions, there have been related changes in 'organisational' dimensions whereby open innovation practices have led to investment in innovation, especially investment in human capital aspects, which has become increasingly weighted away from large firms – or what can be termed 'corporates' – towards entrepreneurs and start-ups (Audretsch & Belitski, 2017; Huggins & Thompson, 2022). It is possible that these dimensions have played a role in the rise of entrepreneurship-driven innovation, that is, entrepreneurial innovation (Autio et al., 2014; Garud et al., 2014), in the urban context, but there is little systematic evidence addressing this hypothesis.

Furthermore, in the context of examining wider urban economic change questions also need to be raised regarding the possibility of a darker side of urban entrepreneurial innovation, particularly the potential limits to which possibilities are available across the urban population. This echoes Molotch's (1976) conceptualisation of the city as a growth machine exploited by elites and entrepreneurs, and part of the analysis within this paper seeks to explore the unevenness and darker sides of twenty-first century urban development (Clark, 2020; Kwon & Sorenson, 2023; Lee &

Rodríguez-Pose, 2021). For example, evidence indicates that the growth of entrepreneurial innovation may contribute to increased inequality by acting as a force for creative destruction that reallocates resources to successful entrepreneurs (Halvarsson et al., 2018; Packard & Bylund, 2018). In an urban context, it is argued that there may actually be a symbiotic relationship between the growth in negative externalities and entrepreneurial innovation. For example, challenges such as housing crises and congestion can create opportunities for entrepreneurial innovation through the development of new technologies that act as solutions to these problems (Adler & Florida, 2021; Wetzstein, 2017).

Work from the earlier part of the twentieth century by leading urban scholars already indicated the potential paradoxical nature of cities in terms of the challenges they raise for people living in densely populated places, while still accessing and experiencing the wealth of possibilities they may offer (Mumford, 1937; Park, 1915; Simmel, 1903; Wirth, 1938). For example, in his notion of the 'right to the city' Lefebvre (1968) articulates the idea of cities offering 'possible worlds' beyond capitalistic regimes (Purcell, 2014).

More recently, it has been suggested that contemporary capitalism is depriving people of the individual and collective agency required to implement alternative socio-economic systems (Bloom, 2018). Taking this systems approach to addressing capitalism (Nee and Swedberg, 2005; Rossi, 2017), it can be suggested that the growth of entrepreneurial innovation in cities is leading to new forms of behaviour amounting to a movement that is seeking to explore alternative forms of living and working within the confines of urban capitalism (Tavassoli et al., 2021).

From a theoretical perspective, this notion of the possibility of cities echoes with an emerging stream of studies that broadly crosses sociological, psychological and philosophical constructs to consider the meaning and conceptualisation of 'possibility' (Glăveanu, 2020). While spatial and geographical studies have yet to engage to any significant degree with these debates, it may prove useful to consider issues of urban and regional development from the perspective of 'possibility', given that it is generally framed as being embodied in places, relational spaces of action, agency, and occurs in clusters of interrelated ideas (Baron, 2023; Glăveanu, 2022; Seligman, 2023). To this end, possibility, defined as the nature of becoming rather than being, may be an appropriate term for considering the rise of entrepreneurial innovation in cities.

Building upon Autio et al.'s (2014) contextual framework for examining entrepreneurial innovation, it is important to establish an analytical framework to examine the growth of such activity in urban contexts that address the principal:

- (1) *Drivers* of change
- (2) *Mechanisms* of change
- (3) *Processes* of change.

A proposed framework for identifying the key (1) *Drivers* of change is likely to involve the interplay of capital, institutional, and behavioural forces (Huggins, 2016; Obschonka et al., 2021; Rodríguez-Pose, 2013). As outlined below, the (2) *Mechanisms* of change can occur through human agency, network dynamics, and knowledge flow within and across cities. Furthermore, economic change in the context of entrepreneurial innovation will manifest itself through the (3) *Processes* of urban entrepreneurship, innovation, and industrial path development.

As suggested above, cities evolving a more conducive environment for entrepreneurial innovation will depend on three key *Drivers*: capital accumulation (Huggins, 2016), institutional effectiveness (Rodríguez-Pose, 2013), and the nature of human behaviour (Obschonka et al., 2021). From the perspective of capital accumulation, endogenous capital accumulation theory focuses on the effective allocation of various capital types such as physical, human, research, entrepreneurship, and network capital (Capello and Nijkamp, 2009; Kedron et al., 2020).

TABLE 1 A framework for analysing entrepreneurial innovation as a source of urban economic change.

Key elements of urban entrepreneurial innovation	Key factors within each element
Drivers of urban entrepreneurial innovation	<ul style="list-style-type: none"> • Changes in access to capital • Changes in human behaviour • Changes in institutions
Mechanisms facilitating urban entrepreneurial innovation	<ul style="list-style-type: none"> • The role of human agency • The role of network dynamics • The role of knowledge flow
Urban entrepreneurial innovation processes	<ul style="list-style-type: none"> • The growth of entrepreneurship • New forms of innovation • New forms of industrial path development

From the perspective of institutional effectiveness, institutional theory highlights the role of economic, social, and political institutions, and emphasises the role of rules, constraints, incentives, and organisational arrangements (North, 2005; Rodríguez-Pose, 2020; Rodrik, 2000). Institutions, therefore, interact with behavioural traits that shape human agency within a city (Acemoglu & Robinson, 2012; Huggins & Thompson, 2021).

Huggins and Thompson (2021) highlight the impact of human behaviour on urban and regional transformation, emphasising the interplay between personality psychology and community culture. Therefore, the nature of human behavioural factors encompassing culture, psychology, and agency offer new perspectives on innovation, entrepreneurship, and development (Lee, 2017; Mewes et al., 2022; Obschonka et al., 2015). Indeed, while traditional urban economic development theories have focused on various capitals as primary growth drivers (Lucas, 1988; Storper & Scott, 2009), recent shifts are embracing a pluralistic approach that incorporates institutional and behavioural viewpoints.

In terms of the *Mechanisms* of urban entrepreneurial innovation, Obschonka et al. (2021) propose that entrepreneurial agents interacting in dynamic networks generate novel knowledge flows and economic behavioural patterns, contributing to the complexity of adaptive systems and fostering creativity, learning, and adaptability. While the observation of urban organised complexity dates back to Jacobs (1961), studies in recent years attribute this complexity to the activities of individual and collective agents forming intricate networks, especially in the context of entrepreneurial innovation (Adler & Florida, 2021; Powell et al., 2013; Sorenson, 2017, 2018).

While these mechanisms of change in the form of human agency, knowledge flow and network dynamics remain relatively intangible elements of change, the *Processes* of change relate more to the tangible and transparent outcomes of the underpinning mechanisms. In particular, entrepreneurial innovation is clearly likely to occur through processes related to industrial path development stemming from entrepreneurship and innovation (Isaksen & Jakobsen, 2017).

Based on the above, Table 1 summarises a framework for analysing entrepreneurial innovation as a source of urban economic change, indicating the key elements of the growth of this phenomenon as well as the key factors with these elements. It indicates that the *Drivers* of urban entrepreneurial innovation should focus on the nexus of changes related to capital provision, human behaviour and the institutional environment. The *Mechanisms* stemming from these drivers of urban entrepreneurial innovation refer to the role of agency as a means of triggering new flows and networks of knowledge. Finally, the *Processes* of urban entrepreneurial innovation concern the co-evolution of the growth of entrepreneurship, the forms and nature of innovation, and new forms of industrial path development.

3 | METHODOLOGY

The analysis presented below is based on a series of interviews across six cities that have emerged as centres of entrepreneurial innovation around the globe, particularly since the global financial crisis of 2008. The interviews were undertaken with 132 individuals in 2018/2019. Therefore, the analysis pre-dates the global pandemic of 2020 and represents a study in the context of recent contemporary history in terms of the rise of urban entrepreneurial innovation post the financial crisis and prior to the COVID-19 pandemic. The interviewees were initially identified through web searches, email and telephone correspondence as being individuals engaged in activities related to entrepreneurship and innovation in one of these six cities: Berlin, London, Los Angeles, New York, Shanghai, and Tokyo. These cities were chosen as examples of relatively large cities by international standards that, based on underlying data, were identified as being among a number of cities quickly transitioning to an economic environment of entrepreneurial innovation. They were also chosen as they provided a sample of cities across key global regions.

As indicated by Table 2, 69.7% of interviewees were representatives of the private sector, which includes entrepreneurs, executives of large corporate firms, venture capitalists, as well as directors and managers of business incubators, accelerators, and co-working spaces. A further 20.5% of interviewees represented government and the public sector, principally consisting of city government executives with a responsibility for economic development and/or a specific remit related to entrepreneurship and innovation in their respective city. Finally, 9.8% of interviewees were representatives of universities located in each city and were individuals with a responsibility for the commercialisation of knowledge produced by their respective university. The majority (125) of the interviews were undertaken face-to-face by the authors of this paper, and were administered during a field visit to each city. Data collected from each interview was analysed by identifying themes related to the conceptual framework outlined earlier. This allowed the formulation of a three dimensional data matrix consisting of key concepts (driver, mechanism, or process), sub-themes within each concept, and the city location.

As contextual background, Table 3 provides a summary of the demographics, economic size, industrial structure and measures of entrepreneurship and innovation. Although there are obvious differences in population and economic size, there is similarity in industrial structure with employment dominated by the service sectors. The exception is the relatively high level of manufacturing employment in Shanghai and to a lesser extent Tokyo. Although not shown in Table 2, it is worth noting that while there is a similar proportion of employment in the various service sub-sectors, Shanghai has lower levels of employment in public administration and professional and scientific occupations, which is offset by the higher level of manufacturing employment.

In terms of innovation measures, Tokyo has by far the highest rate of patenting followed by Los Angeles, which also has the highest rate of R&D expenditure as a percentage of Gross Domestic Product (GDP). London and New York have significantly lower rates of R&D expenditure as a percentage of GDP, which may be related to the very low levels of manufacturing found in these cities. Finally, it

TABLE 2 Interviewees by organisational representation and location.

	Berlin	London	Los Angeles	New York city	Shanghai	Tokyo	Total	Percentage of total
Private sector	24	17	10	14	8	19	92	69.7%
Government/Public sector	3	1	4	4	8	7	27	20.5%
University	1	3	1	3	1	4	13	9.8%
Total	28	21	15	21	17	30	132	100.0%

TABLE 3 Demographics, economic size, industrial structure, innovation and entrepreneurship in the case study cities.

City	Country	Population (000s)	Population density (people per square km)	GVA (\$ millions PPP 2015)	Industry structure (percentage of total employment) ^a				Patents (per million population) ^b	R&D spending (% of GDP) ^c	Global city startup ecosystem index (ranking in parentheses) 2023
					Services	Manufacturing	Construction	Agriculture			
Berlin	Germany	5,343	306	237,965	88.9	5.9	4.3	0	174.8	3.4	48.4 (11)
London	UK	12,451	1,785	834,205	94.2	2.2	3.4	0	98.2	1.2	127.4 (3)
Los Angeles	USA	17,788	212	1,161,342	93.6	5.5	3.3	0.1	379.9	4.8	116.9 (4)
New York	USA	19,785	829	1,775,382	96.7	2.9	3.4	2	127.5	1.5	223.4 (2)
Shanghai	China	24,240	2,946	748,733	74.7	20.2	4.4	0.1	87.1	3.9	67.6 (7)
Tokyo	Japan	36,231	3,198	1,761,815	80.2	11.6	6.1	0.6	640.1	3.5	44.1 (14)

Note: All data is extracted from OECD Statistics Regions and Cities theme (<https://stats.oecd.org/>) except where noted. The latest available data is presented for each city and measure.

^aEmployment data for Los Angeles and New York obtained from US Bureau of Labor Statistics (<https://www.bls.gov/>), London data obtained from NOMIS (<https://www.nomisweb.co.uk/>), Shanghai data draw from the China Statistical Yearbook (<http://www.stats.gov.cn/tjs/nds/2021/indexeh.htm>), Tokyo data from Statistics Bureau of Japan (<https://www.stat.go.jp/english/index.html>).

^bPatents data for Los Angeles and New York relate to the states of California and New York respectively, Tokyo data relates to the Southern-Kanto region.

^cR&D spending for Tokyo refers to Japan as a whole. The Global City Startup Ecosystem Index is sourced from StartupBlink (2023).

is useful to consider differences in entrepreneurial activity across the six cities and the final column of Table 3 presents the global city startup ecosystem index scores and rankings produced annually by the commercial data provider StartupBlink (2023). This aggregates data from sources such as Crunchbase for a host of indicators including numbers of start-ups, investors, co-working spaces, and accelerators for more than one thousand cities across the globe. All the case study cities are ranked in the top twenty, with New York ranked second (behind San Francisco), with London and Los Angeles in third and fourth respectively.

4 | THE DRIVERS OF ENTREPRENEURIAL INNOVATION

In terms of the drivers of entrepreneurial innovation, the majority of interviewees considered that the growth of venture finance led to significant investment in entrepreneurial capital, as well as the tangible and intangible capital underpinning entrepreneurial capital. As indicated by Table 4, this was coupled with a changing behavioural profile within these cities through the emergence of psychological and cultural (psychocultural) traits attuned to fostering an entrepreneurial culture and communities. Similarly, it was found that these cities evolved informal and formal institutions that enabled the attraction and support for entrepreneurs seeking to engage in innovative ventures.

In Berlin, a key driver was the evolution of the city's behavioural profile through the emergence of a socio-economic culture very much geared towards creative entrepreneurship, especially among young entrepreneurs from across Europe and elsewhere. Such was the diversity of nationalities, interviewees suggested that the English language almost became the accepted common language across this entrepreneurial community. This was supported by a number of institutional factors including the city government's policies concerning the provision of affordable accommodation and a tolerance to the changing cultural landscape. In terms of capital provision, venture capital in Berlin grew, but not as fast as in some of the other case study cities. The role of the Investitionsbank Berlin - which is the business development bank of Berlin for SMEs, start-ups and founders - was, according to many interviewees, important in providing complementary finance for entrepreneurship and growth.

As in Berlin, London was considered by interviewees to have gone through a period of behavioural change, whereby a diverse range of international talent was attracted to the city partly as a result of institutional changes. Interviewees indicated that in the past such talent would have probably accessed opportunities in the corporate sector, but as a result of the financial crash there was significantly increased growth in entrepreneurial behaviour. Institutionally, the establishment of new visa arrangements for overseas workers facilitated the attraction of this talent, as was the availability of tax relief for those investing in start-ups. Furthermore, a number of interviewees pointed to the disruptive role played by Brexit. In general, there was necessarily unease as to the impact on entrepreneurial innovation in the city, specifically some interviews suggested that it would negatively impact on access to global talent. In particular, the life sciences industry was considered to be highly vulnerable in this regard.

Clearly, London has long been a centre of private capital, but there was significant growth in venture capital that sought to invest in start-ups during the period (Caselli and Negri, 2021). Aligned with this private capital, it was indicated by interviewees that public sector investment played a major role in catalysing entrepreneurial tech-based innovation within the city. This was most manifest by the push of national, city and local government for the establishment of a new technology cluster through the so-called 'Tech City' initiative, and subsequently the emergence of the 'Silicon Roundabout' quarter, which is located adjacent to much of the city's financial and business service activities.

Interviews in Los Angeles and New York made it apparent that the appearance of new capital targeted at tech-based entrepreneurship was a key driver of change. In particular, it was seen as

TABLE 4 Principal drivers of urban entrepreneurial innovation.

City	Capital	Behavioural profile	Institutions
Berlin	Growth of venture capital but relatively modest compared with other cities. Role of corporate venturing capital and the Berlin business development bank	Creative and 'hipster' lifestyle with a city culture that is unique to the rest of Germany. The growing prevalence of the English language and a culture embedded in tolerance	An informal institutional environment based on diversity and equity, which is underpinned by formal rules that seek to ensure the affordability of housing
London	New capital attraction via the Tech City/Silicon Roundabout developments. Strong role of national and city government as a signaller of investment opportunities	The emergence of London as a key centre of European talent and its diverse cultures. A growing multicultural and tolerant entrepreneurial community	Changes in the legal and regulatory environment, particularly allowing 'tax breaks' for those employing overseas talent. New visa arrangements allowing the attraction of overseas talent
Los Angeles	Growing pools of capital especially through angel investment. New attraction of investment from Silicon Valley/Bay area	'Laid back' lifestyle coupled with an emerging culture of tech-based entrepreneurship; for example, Silicon Beach	Adoption of a set of informal rules that seek to offer a more diverse and inclusive location for entrepreneurial innovation than Silicon Valley
New York City	Significant investment from real estate into entrepreneurial ventures. Rapid growth of private markets managing large pools of finance	The adoption of the city's psychocultural traits of 'grittiness' and 'tenacity' to the field of tech-based entrepreneurship	New informal rules related to building a career through entrepreneurship. Universities playing a stronger role in tech-based entrepreneurship
Shanghai	Rapid growth of venture capital and more 'sophisticated' investors. In particular, the city attracted 'western' investment	A relatively 'liberal' lifestyle compared to other Chinese cities and very much a 'business minded' behavioural profile	Big push of the innovation agenda by the national government building upon the reforms and opening up of China in the 1980s
Tokyo	Capital for entrepreneurial innovation has largely consisted of corporate venture capital whereby the large incumbent corporations seek to source new ideas	Generally an introverted and conservative national culture but the city started to evolve away from a risk averse, no tolerance for mistakes and 'fear of failure' mindset.	Change of institutional values to an increased tolerance of diverse personalities and cultural traits. From a regulative perspective, there was less 'red tape' than in the past

marking the start of new systems, processes and mechanisms whereby investors began to look at locations other than Silicon Valley and the San Francisco Bay Area. This was most apparent in the rise of Los Angeles as a source of entrepreneurial innovation. According to interviewees, existing investors in the Bay Area became aware of new opportunities resulting from the cross-fertilisation of the growing digital media industry and Los Angeles's longstanding entertainment industry.

From a human perspective, there was a conscious effort from the emerging entrepreneurial community to build a cultural environment that did not incorporate the traits of exclusivity, which was perceived to be the case in Silicon Valley. Rather than seeking to imitate the apparent culture

of 'living in fear' within Silicon Valley, the emphasis was placed on creating a set of informal institutional rules based on embedding a more tolerant and 'laid back' approach to entrepreneurship and innovation. In comparison with Silicon Valley, a culture of inclusivity in terms of both of the types of entrepreneurs establishing start-ups and the diversity of ideas in Los Angeles led to a broader and more open approach, with interviewees indicating that entrepreneurial communities in the city were less 'Ivy League' than Northern California and also less dependent on key venture capital networks.

During this period, New York experienced a large scale change in investment flows to tech-based entrepreneurial innovation (Zukin, 2020). Interviewees from the city made it clear that significant investment stemming from the real estate and property industry helped fund a cadre of young entrepreneurs across the city. Also, there was the rapid rise of the involvement of private markets in incubation and acceleration programmes. From a behavioural perspective, interviewees revealed that the city's business community had long considered itself to be based on values such as tenacity, commitment and openness, and these appeared to have permeated through to the field of entrepreneurship. This is important institutionally given that while existing values continued, new informal arrangements emerged whereby entrepreneurship was no longer considered to be a weaker career option in comparison with a position in a large corporate firm. This was reflected in the activities of many of the city's universities which established new programmes related to entrepreneurship and innovation.

Within Asia, Shanghai has established itself as an important centre of entrepreneurial innovation on the global stage (Zheng, 2011). The city has, to some extent, evolved by following the examples of leading cities in North America and Europe. Interviewees indicated that the city's municipal government's aim is to compete with London, New York and the like, with the national government also pushing forward a strong innovation-led agenda to promote growth. While Beijing has been the main recipient of the investments stemming from these policies, Shanghai has also benefitted (Shen et al., 2020). Institutionally and culturally, Shanghai's colonial history has meant that there is an underlying influence of 'western' behaviour and interviewees indicated that this is connected to the adoption of innovation-led strategies based on entrepreneurship. This has been coupled with investment from sources outside of China and the rapid growth of venture capital activity in the city.

Change in Tokyo was somewhat slower than in Shanghai, which in many ways is an outcome of the behavioural profile of Japan as a whole. According to interviewees, this profile represents a cultural and psychological mindset embedded in values related to humility and humbleness, which are traits that may constrain the adoption of an entrepreneurial culture. Within Tokyo, however, there was clear evidence of change connected with a range of push and pull factors stimulating change from the traditional introverted and conservative national culture. For example, interviewees considered that slow economic growth during the period led to less government jobs being available than in the past.

Furthermore, the metropolitan government engaged in new initiatives to promote and support innovation and entrepreneurship. At the national level, the government also sought to reduce the 'red tape' associated with entrepreneurship and SME development (Okamuro et al., 2019). According to interviewees, the city began to evolve towards a more open entrepreneurial culture, which was more tolerant of the diverse personalities associated with urban entrepreneurial communities. From a capital perspective, like the other cities studied, interviewees indicated that entrepreneurship was triggered by large corporates seeking access to innovation from outside of the boundaries of their firms, with corporate venture capital being the principal source of entrepreneurial finance in Tokyo.

5 | THE MECHANISMS OF ENTREPRENEURIAL INNOVATION

As indicated by Table 5, the evidence from interviews across all six cities suggests that the mechanisms of entrepreneurial innovation generally stem from the agency of a small group of entrepreneurially minded individuals who catalysed and championed entrepreneurial-led innovation. These agents can be viewed as providing legitimacy for entrepreneurship across a wider group of individuals who interact with each other and form networks that evolve to encompass both professional and social interests. The dimensions of these networks vary in terms of their spatiality, density and composition

TABLE 5 Principal mechanisms facilitating urban entrepreneurial innovation.

City	Human agency	Network dynamics	Knowledge flow
Berlin	Key role played by the founders of Rocket Internet which led to a cascade effect whereby a new networked community of high-tech entrepreneurs located themselves in the city	Networks embedded in the city's social environment which is based on openness, creativity and sociality. Co-working spaces were a key source of network development	Key sources of knowledge flow were connected to the creative industries. Much of this is facilitated through a large community of freelancers
London	Significant role of advocates and champions of the tech sector in the city. New pool of likeminded entrepreneurial agents	New city-based network development but also networks with Oxford and Cambridge, as well as other locations across Europe	Large business and finance corporates facilitating new modes of knowledge flow by outsourcing innovation related projects to start-ups
Los Angeles	Attraction of entrepreneurs from Silicon Valley/Bay Area to the city. A new band of venture capitalists from other parts of the US and Europe	Expansion of new diverse and inclusive social networks. Networks operating as small community clusters within the city's microenvironments	Two key knowledge flows concern creative content for digital media and engineering technology especially that flowing from universities
New York City	Key role of the then city mayor Michael Bloomberg and prominent financiers in the city. New value given to the role of entrepreneurial agency	New strategic networking across public and private sectors. Proliferation of a culture of entrepreneurial networking	New knowledge from corporates such as Google that opened new offices in the city. Knowledge from existing industries being used in novel ways
Shanghai	Celebrity entrepreneurs, especially Jack Ma. The attraction back to the city of a diaspora (the so-called 'Sea Turtles')	Networks across the city tend to be relatively place-based and focused around particular co-working spaces, incubators and science parks	Emerging connectivity between domestic Chinese ecosystems and international ecosystems. Increased role of universities as knowledge suppliers
Tokyo	Those individuals in key corporates, universities and the metropolitan government that have sought to foster a culture of entrepreneurship	A predominance of tightly-bound entrepreneurial networks. Networks tend to be district based with Shibuya being the most prominent	Knowledge flow remains relatively limited compared with other cities but increased exchange is championed by international corporates located in the city

across cities, but within each they provide an important mechanism for knowledge flow and collective agency. This is often complemented by the formal networks that enable interaction across firms, universities, and entrepreneurs.

The interviews undertaken in Berlin found that the mechanisms of change in the city can be traced to the emergence of the firm 'Rocket Internet'. The firm was led by the brothers Marc, Oliver and Alexander Samwer who were responsible for many original important digital media start-up companies. From this, there was a cascade effect whereby a multitude of new entrepreneurs and start-ups were born in the city. These tended to locate themselves in specific districts of city, especially Kreuzberg, which offered affordable accommodation and was the site of many of the most significant and original co-working spaces. Interviewees pointed to a strong social culture emerging in these districts with new networks developing.

The focus on the creative economy in the city meant that there were a high number of freelance entrepreneurs who, according to interviewees, acted as network brokers connecting members of emerging entrepreneurial communities. Many of these entrepreneurs and freelancers were of a relatively young age, and tended to move in and out of the city quite frequently. Indeed, they could be considered as one of the original types of entrepreneurs who were later labelled as 'digital nomads'. This movement of people lent itself toward the generation of highly dynamic networks across space.

Partly as a result of the Tech City and Silicon Roundabout initiatives, London became home to a number of high profile advocates of tech-based entrepreneurship, and these helped gain significant media and policy attention for the new entrepreneurial communities emerging in the city. As in Berlin, these communities tended to locate in particular parts of the city, which were initially relatively affordable, but over time became more gentrified. Therefore, new entrepreneurial locations continued to evolve in and around London. Interviewees indicated that the informal networks developed were often based on a strong social culture.

Furthermore, given that many new entrepreneurs were from other parts of Europe, these networks tended to be highly diverse culturally. Alongside informal networks, more formal networks emerged with the cities of Oxford and Cambridge, especially through their respective universities. According to interviewees, an important component of knowledge flow was the outsourcing of innovation-based projects to start-ups by large corporates, as part of their fledgling open innovation strategies. In effect, this led to the development of new networks bringing together start-ups that operated as the innovation project delivery teams for the corporates.

The mechanisms facilitating entrepreneurial innovation in New York and Los Angeles can both be considered to have stemmed from a number of agents promoting change. According to interviewees from New York, this was most manifest by the role played by the city mayor Michael Bloomberg. Although Los Angeles did not have the same type of leadership provided by Bloomberg in New York, interviewees indicated that the move of high profile entrepreneurs such as Peter Thiel to the city was important in terms of providing a signal to the investment community. This led to the development of a new community of venture capitalists who were seeking to capitalise on the opportunities within the city, as well as taking advantage of the lifestyle the city is seen to afford. These financiers and entrepreneurs tended to locate in various localities of the city, most notably the area that came to be known as 'Silicon Beach'.

As well as transplants from Silicon Valley, through the interviews it became clear that these communities attracted significant numbers of individuals from other parts of the US and also Europe. Alongside these communities, the city's universities fostered more entrepreneurial networking, with interviewees suggesting that as a result of differing network routes and layers two primary forms of knowledge flow emerged. The first was the development of creative content for digital media, and the other engineering technologies developed in universities.

In the case of New York, public and private sector levers were orchestrated by Michael Bloomberg when he was mayor, alongside other agents such as venture capitalist Fred Wilson and his colleagues. As a result, new value was given to the role of entrepreneurial agency in the city, particularly within the tech industry. This led to a rapid explosion of both entrepreneurs and entrepreneurial networks facilitated through the rapid growth of meet-up events, which were often managed by co-working spaces and incubators as a means of fostering collective agency in the city. More formal networks were established between key individuals from both the public and private sectors, with both parties being aware that the city itself was a large market and test-bed for innovation. This was also the case for large corporates such as Google, Facebook and Microsoft, which all opened offices in the city. It is clear that the corporates sought to tap into the perceived innovations being developed by start-ups, which led to significant new knowledge flow across a number of industries.

Shanghai is perhaps one of the world's most unique cities in terms of the mechanisms that sparked entrepreneurial innovation. On the one hand, there are the large 'old style' science and innovation parks led by the state, which provide quite formal programmes for start-ups and their founders. On the other hand, there are many private sector-led incubators and innovation centres, some of which are the home for many 'Western' entrepreneurs. Interviewees indicated that part of the growth in entrepreneurial innovation can be related to the influence of Jack Ma (the former flamboyant head of the Alibaba corporate) and a group of diaspora entrepreneurs, known as 'Sea Turtles' who were attracted back to the city. The growing numbers of entrepreneurs in the city tended to form networks based on their location, especially the co-working spaces and incubators in which they were often based. The international nature of business in the city lent itself to increased knowledge flows both domestically and overseas, but by far the most dominant knowledge flows were those with China's big four technology companies, namely Baidu, Alibaba, Tencent and Xiaomi (BATX). These firms each established their own ecosystems with relevant start-ups in Shanghai as well as other Chinese cities.

Tokyo has been highly innovative for many years, but this was largely led by its world leading multinationals (Ursic & Imai, 2020). However, this changed with the onset and adoption of a more entrepreneurial culture across Japan and the rapid growth of new innovation spaces, funding and mentorship for would-be entrepreneurs. However, interviewees indicated that it was some of Japan's multinationals, especially the large investment bank Softbank, which steered this change in tandem with those entrepreneurially minded individuals in the city's universities and metropolitan government. Furthermore, the arrival of Google and other foreign-owned corporates increased opportunities for entrepreneurial innovation. Given the relatively closed and conservative behavioural profile in Japan, interviewees argued that networks have been slower to develop than elsewhere and tended to be quite tightly bound. A number of innovation districts have developed across the city, with Shibuya being the most visible of these, and are the site of most start-ups and international corporates.

6 | THE PROCESSES OF ENTREPRENEURIAL INNOVATION

As shown by Table 6, despite differing drivers and mechanisms across the cities, the interviews indicated a significant degree of commonality in the processes through which entrepreneurial innovation was enacted. First, the nature of entrepreneurship within the cities changed via an influx of tech-based start-ups that there were often founded by relatively young entrepreneurs. These were by and large highly educated individuals who were experimenting with entrepreneurship and the innovative ideas they were generating. Second, the nature of innovation significantly changed during the period, which partly facilitated changes in the nature of entrepreneurship.

The emergence of new open innovation practices was seen to be a prime source of innovation capacity. Alongside traditional joint ventures and collaborations, larger firms increasingly engaged in

TABLE 6 Key elements of the processes of urban entrepreneurial innovation.

City	Entrepreneurship	Innovation	Industrial path development
Berlin	Influx of international 'experimental entrepreneurs' attracted to the 'Berlin Cool' brand. Prevalence of micro-businesses often based on entrepreneurial lifestyles	An open innovation culture that consists of collaborative project working often related to digital media. Parallel stream of innovation also emerged in electronics and life sciences due to the existence of corporates and leading universities in the city	A focus on the creative industries and digital media, which has been enhanced by the attraction of corporates in the field. Emerging new paths connecting healthcare with the growth in digital media
London	Entrepreneurship was very much associated with young individuals looking to mix their professional and social lives. A significant amount of experimental entrepreneurship present, particularly as founding a business was perceived as 'fashionable'	New processes of co-creation and open innovation. Corporates across the city starting their own innovation labs. Significant innovation in the fields of business and finance	Large scale growth of the digital media and fintech (e.g. AI, blockchain, cryptocurrency) sectors coupled with significant entrepreneurship in biotechnology, particularly that associated with universities
Los Angeles	Creative talent turning its attention to tech-based entrepreneurship. Attraction of new entrepreneurs from outside the city	Bootstrap approach to innovation. Using the city and its diverse population as a test-bed for new ideas	Building on existing strengths especially aerospace and entertainment. Rapid growth in digital media, for example, Snap
New York City	Many young new venture founders who may have previously been attracted to working for big corporates in business and finance	New technological innovation applicable to the city's industry mix. A new culture of collaborative and open innovation across the city	As well as path extension in areas such as fintech, the creation of new paths in life sciences and biotechnology
Shanghai	New entrepreneurs tend to be young and very well educated. A strong competitive edge exists across the city's entrepreneurship community	Large scale increases in the city's innovation infrastructure supported by both public and private finance. Open innovation practices are often led by 'western' firms and entrepreneurs	Significant new development paths in fintech, digital media, creative industries and healthcare
Tokyo	Entrepreneurship has tended to spinout from incumbent large corporations. Most new entrepreneurs are former executives at large corporates	Growth of open innovation practices and platforms but slower to adopt compared with other cities. The catalysts for innovation are often the newly formed 'innovation centres' housed in the corporates	A growing AI and digital innovation focus based on extending the paths of the industries in which Japan has traditionally possessed a competitive advantage

practices such as corporate acceleration, the establishment of open access innovation centres, innovation scouting, and innovation competitions specifically targeted at entrepreneurs. These were an important spur for urban entrepreneurial innovation and led to the development of industrial paths within their cities. The specific nature of these processes are summarised in Table 5, with the process of change in Berlin stemming from the relatively large influx of entrepreneurs who wished to be associated with the 'Berlin Cool' brand and style of living. Interviewees stated that entrepreneurial open innovation developed through start-ups and micro-businesses increasingly collaborating with each other. Other innovations occurred in electronics and life sciences, whereby companies such as Siemens and Bayer sought to develop more interaction with start-ups and universities. Industrial path development was principally related to the digital media and creative industries. Digital health also emerged, although southern Germany remained the hotbed of the nation in terms of scientific knowledge (Fritsch & Wyrwich, 2021a).

The process of change in London was also closely related to the attraction for many young people of engaging in entrepreneurship for a range of social and professional reasons. Many of these can best be termed 'experimental entrepreneurs' whereby they spend time considering the feasibility of entrepreneurship as a legitimate career path. Not all new entrepreneurs were imports from elsewhere, with new start-ups also spinning out from existing firms in the city, many of which established innovation labs and centres. Interviewees suggested that this led to an experimental environment across firms of differing sizes, which resulted in new processes of co-creation and innovation. Digital media and fintech were two areas with significant path development, with technologies related to AI, blockchain and cryptocurrencies advancing rapidly. In parallel to this, there was a greater involvement of universities in the commercialisation of scientific knowledge, resulting in further entrepreneurial activity in areas such as biotechnology.

In both New York and Los Angeles the processes of entrepreneurial innovation were embedded in the growth of tech-based start-ups, with entrepreneurs seeking to use the city as a test-bed to explore new technologies and innovations. Given the embryonic nature of tech-based entrepreneurship in Los Angeles, there was often a bootstrap approach to innovation, with this gradually changing as more local venture finance became available. The city had less indigenous entrepreneurs than New York, and these often focused on developing a cross-pollination of ideas from the entertainment industry coupled with digital media. The growth of the company Snap fuelled a range of start-ups related to this. Furthermore, the city has a long history of activity in the aerospace industry and Elon Musk's high profile SpaceX venture was clearly part of the growth of start-ups related to this industry.

As in Los Angeles, the process of change in New York is one rooted in industrial path extension, whereby existing sectors in the city evolved rapidly as a result of digital technological developments. In particular, the city's industry mix related to finance, fashion and real estate was perceived by interviewees to have been ripe for the introduction of new technological innovations. In this way, the city acted as a test-bed for entrepreneurial innovation undertaken by many young start-up founders who previously would have probably been employed by larger firms.

As well as these path extensions, the city started a route of new path creation whereby it sought to make a serious presence in the fields of biotechnology and life sciences. This was largely led by the university sector coupled with support from both the state and city governments, with the aim being to challenge the dominance of Boston in these industries. Given Boston's longstanding strengths, this was a tall order, but through an entrepreneurial approach – especially fostering university spinouts – the interviews clearly indicated that the city did make inroads in this direction.

Shanghai witnessed significant change during the period through a new band of entrepreneurs, who were largely young and well-educated and who housed themselves in the growing number of co-working spaces and incubators across the city. This new innovation infrastructure stemmed from

investments by both the public and private sector. Coupled with this, new open innovation practices were being adopted from international firms headquartered in North America and Europe with offices and facilities in the city. Interviewees indicated that larger state-owned businesses were slower to adopt these practices or innovation more generally. As a result, entrepreneurial innovation led the process of change often in conjunction with BATX firms. Significant developments in a range of technology-based industries occurred most prominently in fintech, digital media, the creative industries and healthcare.

In Tokyo, interviewees indicated that the process of change was marked by the role of new entrepreneurs who were previously employed by the large corporations. Often these entrepreneurs founded start-ups that received venture capital from the corporates. Furthermore, they were often housed in new innovation centres sponsored by these firms. Therefore, entrepreneurial innovation involved a strong relationship between entrepreneurs and the corporate sector. This led to the emergence of open innovation but not at the pace of other case study cities. Nevertheless, entrepreneurial innovation in the city catalysed new industrial paths related to AI and digital innovation more broadly.

Clearly, for many years Japan had an international competitive advantage in areas such as high-tech electronics and the embedded knowledge from these industries supported the emergence of digital technologies and industries. Finally, it should be noted that while Tokyo is by far the largest city in Japan, other cities, especially Kyoto, had a growing entrepreneurial presence and these multiple bases led to the rise of a growing band of digital nomads operating across a number of cities.

7 | THE DARKER SIDE OF ENTREPRENEURIAL INNOVATION

Insights from the interviews in the preceding three sections indicate that all six cities have to some extent become cities of possibility, with increased numbers of residents and new arrivals in these cities having the potential to engage in and prosper through entrepreneurial innovation. However, as noted above, there is also the possibility that entrepreneurial innovation may lead to increased income inequality, both at the top and bottom ends of the income distribution, and result in reduced well-being (Halvarsson et al., 2018; Oishi et al., 2011). Indeed, across the interviews there was a clear perception that the growth of entrepreneurial innovation was coupled with a range of more negative and darker developments. Most particularly it was acknowledged that during this period issues of inequality became more apparent, especially in Berlin, London, Los Angeles and New York. Increased poverty, the growth of the homeless and a lack of affordability were considered to be a feature of urban economic change, which is also addressed by studies such as Wetzstein (2017). Such inequality was not viewed as being divorced from the rise of entrepreneurial innovation, but partly an outcome of the drivers, mechanisms and processes of this change. As these cities became a more attractive location for perceived high returns from innovation, negative externalities related to the cost of living, the availability of affordable housing and commercial space became accentuated.

In both Berlin and London the rise of entrepreneurial innovation led to the rapid expansion of gentrification across many of the locations where new entrepreneurs lived and worked. Much of this was considered to be associated with the role of the large corporate firms that developed new offices in these locations. For example, the opening of offices by Google in Berlin proved to be highly contentious. In London, interviewees indicated that developments led to the continuation of the 'crowding out' of already disadvantaged communities from these places, as well as economic changes that were not always racially and gender inclusive. This was also the case in Los Angeles whereby there was a distinct acknowledgement that the city should seek to avoid the perceived pitfalls of Silicon Valley in terms exclusivity and elitism, as well as addressing growing inequalities.

TABLE 7 Entrepreneurial innovation and equality.

	Equality	Entrepreneurial innovation
Berlin	0.95	48.4
London	0.78	127.4
Los Angeles	0.77	116.9
New York	0.70	223.4
Shanghai	0.37	67.6
Tokyo	0.92	44.1

Note: Entrepreneurial Innovation measured by total ecosystem score from StartupBlink (2023); Equality measured as $1 - \text{Gini coefficient}$ for Neighbourhood Income Inequality taken from the Urban Environment and Social Inclusion Index (2020).

Similarly, many interviewees in New York expressed the view that the next stage of development for the city should be to address issues of welfare and the engagement of more disadvantaged people within the process of change. From the perspective of the two Asian cities, these issues were less apparent to interviewees. In Tokyo it was argued that Japan as a whole escaped these challenges in a relative sense given its more equity-driven societal values. In Shanghai, however, issues of affordability and the continued negative environmental externalities of development were acknowledged.

Although a lack of specific data makes it difficult to confirm this perceived increase in inequality and its association with entrepreneurial innovation, Table 7 presents a measure of both entrepreneurial innovation and income (in)equality across neighbourhoods in the case study cities. It indicates that in general higher rates of entrepreneurial innovation are associated with higher rates of inequality, such as in the case of London, Los Angeles and New York. Both Berlin and Tokyo have lower rates of entrepreneurial innovation but also have higher levels of equality ($1 - \text{the Gini coefficient}$). Shanghai is an outlier with extreme levels of inequality compared to the other cities, which is likely to reflect the need to consider the role of institutions in terms of the promotion of entrepreneurial innovation, the form it takes, and its consequences (Acemoglu & Robinson, 2012; Huggins & Thompson, 2021). Overall, this association suggests that the perception of a darker side to entrepreneurial innovation in these cities is a reality.

Such darker sides indicate that the nature of contemporary economic change may lead to cities increasingly becoming exclusive machines of entrepreneurial innovation. In this sense, it is important to recognise that across the interviews it became apparent that entrepreneurial-led innovation is in many ways a function of the agency and power of large corporate concerns. Through their pushes for more open innovation practices they have increasingly leant on urban-based start-ups for innovative capacity and capability. This has allowed these large firms to de-risk their innovation activities by shifting this risk and associated costs to a growing community of often 'experimental entrepreneurs', which some interviewees considered to be a process of 'innovating on the cheap'. Therefore, the asymmetrical distribution of power between large established firms and new business ventures, alongside growing negative externalities in large cities, raises significant questions as to the future evolution of the geography of innovation.

8 | DISCUSSION AND CONCLUSION

The above analysis consists of a qualitative exploration of the recent contemporary history of the economic change and rise of entrepreneurial innovation in six large and economically important cities across the globe. This history consists of an examination of the period from the first decade of the 21st

century, especially from the onset of the financial crisis in 2008, to the period immediately prior to the COVID-19 pandemic in 2020. It indicates how the case study cities have forged new and extended development paths for themselves through entrepreneurship-led innovation via co-creation network dynamics, whereby key human agents have often been pivotal in these networks and developments. Within this context, the analysis indicates the range of complex and interrelated factors that led to the rise of entrepreneurial innovation in these cities during this period. In order to try and make sense of the role of these factors and the form of causality across these factors, the analysis has been undertaken through a novel conceptual framework that has sought to adopt a pluralistic approach meshing a range of socio-economic theories of urban economic development.

Overall, the rise of entrepreneurial innovation across cities from different global environments has had strong elements of commonality. The growth of venture capital, entrepreneurial agents, cultures and communities, coupled with institutional policy change, the engagement of universities, and the changing role of the corporate sector in the innovation economy, are relatively common elements in the respective stories of change across the cities. Most noticeably, perhaps, is the finding that entrepreneurship-led innovation was inextricably linked to changes within large corporates, particularly in the aftermath of the financial crisis. The outsourcing and opening of innovation channels by these firms in leading cities to new ventures helped propel at speed the emergence of urban entrepreneurial ecosystems (Audretsch et al., 2021).

Through the networks within these systems, the entrepreneurial environment became increasingly complex and adaptive through the expansion of entrepreneurial infrastructure such as the rapid growth of co-working spaces and innovation incubators. Similarly, the fact that each city is relatively large in size led to them being used as a test-bed for new ideas and innovation. It is these mechanisms that catalysed the changes in the industrial trajectory of the cities. As well as the commonalities, a number of comparative differences are found and these largely concern varieties in the form of institutional frameworks and behavioural profiles across cities. Clearly, these impacted on change, particularly the emergence of the darker side of innovation and the growth of urban poverty, lack of affordability, and homelessness. In practical terms, it appears that in the 'western' cities analysed these problems increased faster alongside the growth of entrepreneurial innovation.

Despite growth challenges, there is little doubt that these cities have acted as places of possibility for a large swathe of individuals who previously may have been unlikely to engage in entrepreneurship. An obvious issue stemming from this finding concerns the extent to which such possibility is limited to these types of cities or it is a phenomenon to be found across other different types of cities and regions. The available evidence suggests the latter is likely to be the case. First, evidence over time suggests that entrepreneurial innovation has not been limited to urban hotspots but is more spatially distributed than is often considered, with more 'peripheral' places often possessing significant possibility (Fritsch and Wyrwich, 2021a, 2021b; Shearmur, 2015; Fitjar & Rodríguez-Pose, 2020). Second, more recent evidence, especially since the COVID-19 pandemic, suggests the acceleration in the spatial distribution of entrepreneurial innovation, particularly the growth of activity in second-tier cities as well as other smaller locations (StartupBlink, 2023).

It is highly difficult and foolhardy to predict future trends in this respect and much will depend on the extent to which new and alternative forms of living and working emerge and become embedded. Similarly, it remains to be seen if the existence of the model of entrepreneurial innovation found in this paper, whereby the availability of venture capital has been cornerstone of urban entrepreneurial innovation, will remain intact. New models based on crowdfunding and the like are increasing in traction, but their future will depend on outcomes to changes in a system of capitalism that is increasingly under pressure (Wolf, 2023). Indeed, in the future entrepreneurial innovation may well act as the wellspring for changes and alternatives to the current system.

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