

*Cumulative doctoral dissertation*

# **Exploring the Impact of Digital Platforms on Regional and Cluster Development**

*Inaugural Dissertation to Obtain the Academic Degree of Doctor rerum naturalum (Dr. rer. Nat.) in Geography, specializing in Economic Geography submitted at the Faculty of Mathematics and National Sciences at Kiel University Submitted by*

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# Table of Contents

Acknowledgments.....	i
Extended Abstract.....	iii
Erweiterte Zusammenfassung .....	iv
List of Figures.....	vi
List of Tables.....	vi
Chapter 1: Introduction.....	1
1.1    Background of the Research .....	1
1.1.1    The Era of Platform.....	1
1.1.2    The Development of China's Platform Economy .....	2
1.2    Research Motivation and Questions.....	2
1.3    Overview of the Dissertation .....	4
Chapter 2: Paradigms and Theories' Considerations .....	7
2.1    Paradigms in Economic Geography .....	7
2.2    Evolutionary and Relational Thinking in Economic Geography .....	7
2.3    Spatial Ontology in Human Geography .....	9
2.4    Spatial Unequal Development in Digital Geography .....	10
2.5    Key Concepts in Empirical Studies .....	12
2.3.1    Clusters as a Bridging Concept.....	12
2.3.2    Chain and Network Concepts.....	13
2.6    Interim Summary .....	15
Chapter 3: Research Design and Methodology .....	16
3.1    Overall Research Design for the Doctoral Thesis .....	16
3.2    Bibliometrics and Manual Reading for Literature Review .....	18
3.3    Empirical Research Design Based on Triangulation .....	18
3.4    Multi-Method for Empirical Studies .....	20
3.4.1    Data Collection Methods.....	20
3.4.2    Cases Background.....	21
3.4.3    Comparative Analysis Based on Qualitative Research .....	22
Chapter 4: Research Papers .....	24
Group A Reflections on Paradigm and Theories .....	25

Paper 1 Fragmented or Engaged Pluralism in Economic Geography? .....	25
Paper 2 Advancing Spatial Ontology in Evolutionary Economic Geography .....	54
Group B1 Regional Development in the Platform Era.....	69
Paper 1 Placing the Platform Economy: The Emerging, Developing and Upgrading of Taobao Villages as a Platform-based Place Making Phenomenon in China.....	69
Paper 2 Exploring the Mechanisms of Platform Empowered Cluster Development: Evidence from the Case of Taobao Villages in Rural China.....	86
Group B2 Cluster Development in the Platform Era.....	118
Paper 1 All Roads Lead to... Resilience?! Unravelling Cluster Resilience in the Polycrisis Era .....	118
Paper 2 From Smile Curve to Wicked Smile? On the Role of Digital Platforms to Empower Industries and Clusters in Emerging Economies .....	139
Paper 3 Market Coupling and Multi-Scalar Reorganizations in the Digital Platform Era: Evidences from Three Furniture Clusters in China.....	158
Chapter 5: Discussions and Conclusion.....	186
5.1 Main findings of the Studies .....	186
5.1.1 Regional Development in the Platform Era .....	186
5.1.2 Cluster Development in the Platform Era.....	187
5.2 Key Contributions to Economic Geography.....	188
5.3 Limitations and Future Research Directions .....	189
List of References .....	191
Appendix.....	203
Appendix 1 Taobao village Interview.....	203
Appendix 2 Furniture cluster Interview.....	206
Appendix 3 Furniture cluster Interview (Additional).....	213
Appendix 4 Curriculum Vitae.....	214
Eidesstattliche Erklärung.....	221



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## **Extended Abstract**

The aim of this dissertation is to deepen the understanding of the impacts on Regional and Industrial Cluster Development brought about by digitization, especially digital platforms, from an economic geography perspective. The emergence of the platform economy marks the latest phase of the current digital revolution, with the most powerful platforms becoming new social infrastructures. This study focuses on the impact of e-commerce platforms on regional economic development in China, which hosts the largest e-commerce markets in the world. These platforms are booming and affect not only as pivotal supports for economic digitalization but also as hubs for entrepreneurial practices. The opportunities created by platform-mediated marketplaces support the development of an ecosystem of producers, distributors, and professional service providers, and attract many entrepreneurs, known as platform-dependent entrepreneurs. Furthermore, an increasing number of underdeveloped and remote areas are also leveraging these platforms for entrepreneurship and innovation. Thus, platforms influence not only the existing industries within regional economies but also facilitate the emergence of new industries in some regions.

This dissertation explores the multifaceted impacts of digital platforms on regional development and industrial clusters within China from an economic geography perspective. Based on Critical Realism philosophy, the study employs a multi-scalar, multi-perspective, and multi-methodological framework to comprehensively understand how digital platforms such as e-commerce reshape economic landscapes and cluster dynamics.

The dissertation is structured into five main chapters, beginning with a thorough review of existing paradigms in economic geography, subsequently focusing on evolutionary economic geography and relational economic geography. It discusses the integration of these paradigms with spatial ontology in human geography, which challenges traditional concepts of space and place.

Empirical sections of the study detail how digital platforms influence regional economies differently across various locations in China from both regional and cluster subjects/scales, emphasizing the dual role of platforms in both enabling and constraining economic development. Through case studies of village and county-level regional analysis and three furniture clusters analysis, the dissertation illustrates the transformative potential of platforms in facilitating new economic industries and upgrading existing industries.

Key contributions of this research include advancing the concept of "engaged pluralism" within economic geography, refining the understanding of how digital platforms interact with regional economies through a lens that merges evolutionary and relational thinking, and offering a nuanced view of digital platform impacts on economic activities. The study's findings challenge the dominance of Western perspectives in economic geography, suggesting policy implications and strategies for leveraging digital platforms for long-term regional and cluster development.

Finally, the dissertation outlines the limitations of focusing predominantly on China and the manufacturing sector, proposing future research directions that could explore digital platform impacts across more diverse international contexts and other economic sectors. This work not only enriches academic discussions but also provides actionable insights for policymakers and stakeholders aiming to harness digital platforms for regional economic transformation.

## **Erweiterte Zusammenfassung**

Diese Dissertation zielt darauf ab, das Verständnis der Auswirkungen der Digitalisierung, insbesondere digitaler Plattformen, auf die regionale und industrielle Clusterentwicklung aus der Perspektive der Wirtschaftsgeographie zu vertiefen. Das Aufkommen der Plattformökonomie markiert die neueste Phase der aktuellen digitalen Revolution, wobei die mächtigsten Plattformen zu neuen sozialen Infrastrukturen werden. Diese Studie konzentriert sich auf die Auswirkungen von E-Commerce-Plattformen auf die regionale Wirtschaftsentwicklung in China, ein Land, das die größten E-Commerce-Märkte der Welt beherbergt. Diese Plattformen boomen und wirken nicht nur als entscheidende Unterstützung für die wirtschaftliche Umstrukturierung, sondern auch als Zentren für unternehmerische Praktiken. Die von plattformvermittelten Marktplätzen geschaffenen Möglichkeiten unterstützen die Entwicklung eines Ökosystems von Produzenten, Distributoren und professionellen Dienstleistern und ziehen viele Unternehmer an, die als plattformabhängige Unternehmer bekannt sind. Darüber hinaus nutzen auch eine zunehmende Anzahl unterentwickelter und abgelegener Gebiete diese Plattformen für Unternehmertum und Innovation. Somit beeinflussen Plattformen nicht nur die bestehenden Industrien innerhalb regionaler Volkswirtschaften, sondern erleichtern auch das Entstehen neuer Industrien in einigen Regionen.

Diese Dissertation untersucht die vielschichtigen Auswirkungen digitaler Plattformen auf die regionale Entwicklung und industrielle Cluster in China aus der Perspektive der Wirtschaftsgeographie. Basierend auf der Wissenschaftsphilosophie des Kritischen Realismus verwendet die Studie einen multi-skalar, multi-perspektivisch und multi-methodologischen Rahmen, um umfassend zu verstehen, wie digitale Plattformen, wie E-Commerce, die wirtschaftlichen Landschaften und Clusterdynamiken umgestalten. Die Dissertation ist in fünf Hauptkapitel gegliedert, beginnend mit einer gründlichen Überprüfung bestehender Paradigmen in der Wirtschaftsgeographie, um sich dann auf die evolutionäre Wirtschaftsgeographie und die relationale Wirtschaftsgeographie zu konzentrieren. Sie diskutiert die Integration dieser Paradigmen mit der räumlichen Ontologie in der Humangeographie, die eine Herausforderung für traditionelle Konzepte von Raum und Ort darstellt.

Empirische Abschnitte der Studie zeigen, wie digitale Plattformen regionale Ökonomien in verschiedenen Standorten in China unterschiedlich beeinflussen, sowohl aus einer regionaler als auch aus einer Clusterperspektive, wobei die Doppelrolle von Plattformen sowohl als Ermöglicher als auch als Begrenzer der wirtschaftlichen Entwicklung betont wird. Durch Fallstudien auf Dorf- und Kreisebene und drei Möbelcluster-Analysen veranschaulicht die Dissertation das transformative Potenzial von Plattformen, neue wirtschaftliche Branchen zu erleichtern und bestehende Industrien aufzuwerten.

Zu den wichtigsten Beiträgen dieser Forschung gehören die Weiterentwicklung des Konzepts des "engagierten Pluralismus" in der Wirtschaftsgeographie, die Verfeinerung des Verständnisses dafür, wie digitale Plattformen mit regionalen Volkswirtschaften interagieren, durch eine Perspektive, die das evolutionäre und relationale Denken miteinander verbindet, und eine nuancierte Sicht auf die Auswirkungen digitaler Plattformen auf wirtschaftliche Aktivitäten. Die Ergebnisse der Studie stellen die Dominanz westlicher Perspektiven in der Wirtschaftsgeographie in Frage und schlagen politische Implikationen und Strategien vor, um digitale Plattformen für eine langfristige regionale und

Clusterentwicklung zu nutzen.

Schließlich skizziert die Dissertation die Grenzen der Fokussierung überwiegend auf China und den Produktionssektor und schlägt zukünftige Forschungsrichtungen vor, die die Auswirkungen digitaler Plattformen in vielfältigeren internationalen Kontexten und anderen Wirtschaftssektoren erforschen könnten. Diese Arbeit bereichert nicht nur akademische Diskussionen, sondern bietet auch umsetzbare Erkenntnisse für politische Entscheidungsträger und Stakeholder, die digitale Plattformen für die regionale Wirtschaftstransformation nutzen möchten.

## **List of Figures**

Figure 1 Overall Research Design for the Doctoral Thesis .....	17
Figure 2 The Location of the Cases in China .....	21

## **List of Tables**

Table 1 Research Papers and Own Contributions .....	6
Table 2 Some Chain and Networks used in Economic Geography .....	14
Table 3 Triangulation-based Empirical Studies .....	19
Table 4 Basic Information about Shunde, Nankang and Suining .....	22
Table 5 Research Findings in Group B1 .....	186
Table 6 Research Findings in Group B2 .....	187

# Chapter 1: Introduction

## 1.1 Background of the Research

The rapid development of digitalization, aided by the increasingly widespread use of the internet, smartphones, 5G technology, and other information and communication technologies (ICT), represents a mega-trend that is profoundly influencing and transforming everyday life. This influence extends beyond social interaction to encompass significant shifts in economic activity. Over the past few decades, the impact of digitization on regional development has garnered widespread interest across multiple disciplines, including economic geography, regional economics, and sustainable studies. The emergence of the platform economy marks the latest phase in the current digital revolution, which Kenney and Zysman (2016) have termed the Platform Era.

### 1.1.1 The Era of Platform

*“If the industrial revolution was organized around the factory, today’s changes are organized around these digital platforms, loosely defined. Indeed, we are in the midst of a reorganization of our economy in which the platform owners are seemingly developing power that may be even more formidable than was that of the factory owners in the early industrial revolution.”*

—— Kenney and Zysman 2016, p.62

In this era, digital platforms have revolutionized daily life, consumption, and production, giving rise to new phenomena such as the platform economy, platform ecology, and digital entrepreneurs. These platforms, powered by the internet, function as spaces for various industries and act as crucial infrastructures that bridge virtual and physical economic activities (Repenning, 2022). Despite the significant role of digital platforms in reorganizing the geographical landscape of capitalist accumulation across macro, meso, and micro levels, their importance is still insufficiently recognized and addressed by economic geographers (Kenney et al., 2023). With the power of the internet, digital platforms have emerged as both a new virtual space for industry activities such as the digital content industry, mobile games, live streaming, online retail, and online ride-hailing, and as vital infrastructure and actors bridging a variety of economic activities in both virtual and physical spaces. Srnicek (2017) argues that the nature of platforms is a new and important business model that brings together different groups of people, relying on and also generating network effects. Consequently, digital platforms are an essential fulcrum for economic restructuring, reconnecting the flow of data, money, and ultimately power (Kenney et al., 2020). Amidst the global pandemic and the threat of a severe recession, platform giants have become more empowered and more powerful than ever.

Despite some studies recognizing the significance of China in the Platform Era, most research published in English still focuses on large American enterprises like FAANG (Facebook, Amazon, Apple, Netflix, and Google), often describing them as typical platforms with monopoly power, significant capital reserves, and their destabilizing impact on labor forces, while neglecting the geographical variations in these processes (Kenney & Zysman, 2020; Steinberg, 2020). As Zhang and Chen (2022, p. 1458) observe, “platform studies … tend to treat American and Silicon Valley experiences as universal

and other regional experiences as merely case studies of ‘universal theories’”. Liang et al. (2022, p. 14) emphasize that the facets of platform capitalism “... are all embedded in complex sociohistorical contexts that tend to be overlooked or set aside in discussions pertaining platform capitalism”. Therefore, this dissertation will focus on the development of the platform economy in China.

### **1.1.2 The Development of China's Platform Economy**

The rise of China's platform economy is closely linked to the macro-regional economic development, transitioning from labor-intensive export-oriented industries to heavy manufacturing and, more recently, to innovation-driven and R&D-intensive industries. Particularly in the 2000s, China's platform economy began to develop rapidly with the rise of both traditional giants like Baidu, Alibaba, and Tencent (BAT), and emerging digital platforms such as Shein, Temu, and TikTok (Coe & Yang, 2022; Zhang & Chen, 2022). The prevalence of digital platforms has driven a variety of online economic activities in China, including online education, online healthcare, online takeaway, and online travel booking, among which online retail has undoubtedly seen further explosive growth in the context of Covid-19. As *The Economist* (2021) aptly puts it, “Chinese apps are to 21st-century shopping what American malls were to last century's”. Moreover, a unique phenomenon in the development of China's platform economy is its empowerment of rural areas: “More obscure but no less enterprising, farmers and fishermen show off juicy apples or prize lobsters in short videos, digital showmanship accompanied by new delivery networks that allow city dwellers to procure the produce” (*The Economist*, 2021). Among the most significant and obvious developments enabled by digital platforms in rural areas are the numerous “Taobao villages.” The emergence of a large number of Taobao villages has boosted the economies of marginal areas, providing policy guidance for many regions to narrow the urban-rural gap and reduce regional inequalities and poverty. Poverty alleviation through e-commerce has gained widespread recognition not only in China but also internationally (Chao et al., 2021; Li et al., 2019; United Nations, 2015). With the digital economy burgeoning, the surplus rural workforce is being stimulated, and more and more local or returning residents are becoming platform-dependent entrepreneurs (World Bank, 2019). Concurrently, China's central and local governments have made a concerted effort to revitalize the economy in rural areas by issuing preferential regulations for digital platforms, particularly e-commerce platforms (Liu et al., 2020). According to incomplete statistics, e-commerce poverty alleviation has led to a total of 7.71 million farmers engaging in situ entrepreneurship and employment, driving 6.188 million poor people to increase their income (Ministry of Commerce People's Republic of China, 2021). Despite the significant focus on rural areas, as a major category among many platforms, digital e-commerce platforms exist as intermediaries, two-sided markets, and data aggregators (Kenney et al., 2023), having a substantial impact on both rural and urban regional economic development. However, how digital platforms enter the regional economy and how they affect existing regional industries and clusters still lack sufficient in-depth studies and explanations.

## **1.2 Research Motivation and Questions**

My motivation for undertaking this study primarily stems from my fascination with the formidable influence of digital platforms. In November 2020, as I commenced my doctoral studies, a remote pastoral area in Garzê Tibetan Autonomous Prefecture, Sichuan Province in Western China, suddenly received extensive attention due to a 7-second clip on Douyin (the Chinese version of TikTok). This clip, featuring a young local named Tenzing Tsondu (Chinese name: Ding Zhen) with a sincere and



unpretentious smile against the backdrop of the highland grasslands, sparked widespread admiration and a deep yearning for beauty and nature. In response, local government and tourism agencies swiftly capitalized on the heightened visibility provided by digital platforms to propel the development of the local tourism sector. Although this story primarily revolves around digital platforms' role in local marketing and the tourism industry, it inspired me to explore the relationships between digital platforms and regional development more broadly. Consequently, I delved into articles within the field of digital geography, which often discuss the relationship between the digital divide and regional development. On the one hand, digital technologies are considered beneficial for the development of marginalized, underdeveloped areas (Jha et al., 2016; Leong et al., 2016; Wu et al., 2020; Ye & Yang, 2020); on the other hand, they are seen as exacerbating regional development inequalities and causing significant disruption (Büchi et al., 2016; Davies et al., 2023; Niebel, 2018; Philip & Williams, 2019). Given my background in urban and rural planning from my master's degree, I was aware of the profound impact of digital e-commerce platforms on regional development across China, notably through the widespread phenomenon of "Taobao villages." Further exploration of international literature revealed that, although China leads in platform economy development, research on how Chinese digital platforms influence regional development is surprisingly limited. Moreover, I found that articles on the platform economy within economic geography often adopt perspectives that are either beyond regional development, such as digital territory or spaces (Morris, 2023; Zhang & Morris, 2023), platform capitalism and platform cultures (Dinh & Tienari, 2022; Howson et al., 2022; Langley & Leyshon, 2017; Steinberg et al., 2024), platform ecology (Ibert et al., 2022) and state platform capitalism (Rolf & Schindler, 2023), or that are smaller than the regional scale, focusing on micro perspectives such as platform-dependent entrepreneurs (Cutolo & Kenney, 2021; Tschang, 2021), gig workers (Barratt et al., 2020; Myhill et al., 2021; Qiao et al., 2023), digital labour (Berg et al., 2018; Graham et al., 2017; Johnston, 2020) and digipreneurs (Repenning & Oechslen, 2021, 2023). According to Acs (2023, p. 117), for instance, "the exact role of city-regions as local, national or global remains an open question as the *digital entrepreneurial ecosystem* that both creates the innovations and provides the money for the digital platform economy is global in its nature" [italics in original]. Therefore, despite the inability to conduct direct field research in China due to the pandemic at that time, I felt it was essential to investigate the interaction between the platform economy and meso-level regional and cluster development using China as a case study. This would not only address the deficiency of the "Anglo-American" bias in international research in economic geography (Hassink et al., 2019), but would also aim to make a pioneering contribution to the study of the interactions between the platform economy and regional economic and cluster development from an economic geographical perspective.

Based on these considerations, my initial research primarily utilized secondary data from Taobao villages and online interviews to answer how digital platforms influence regional development and under what conditions they can consistently empower such development. Subsequently, I discovered that the phenomenon of Taobao villages partly reflects the capability of digital platforms to empower regional industries from scratch, while another part enhances and expands existing industries. Curious about these differences, I sought to further explore whether the capabilities or mechanisms of platforms to impact regions or regional industries vary by location. For this purpose, I later studied three furniture industry clusters in the cities of Shunde, Nankang, and Suining. Suining represents an

industry cluster that developed from scratch through e-commerce platform empowerment, while Shunde and Nankang are traditional furniture industry clusters. My choice of the furniture industry and these clusters was driven by the case of Dongfeng Taobao village, whose furniture industry, initially at the village level and later expanding to the county level (i.e. Suining county), served as a prototype of digital platforms empowering regional industries from scratch. On the other hand, as I further studied the various paradigms within the field of economic geography, I hoped to find a globalized industry to comprehensively explore the endogenous and exogenous forces of regional development. As the largest furniture producer and exporter in the world today, China's furniture industry aligned with my research needs.

This dissertation aims to fill three interconnected but often overlooked gaps in the economic geography perspective on digital platforms and regional economic and cluster development: 1) some existing studies highlight the enabling power of digital technologies while others emphasize their negative impacts, lacking a triangulated empirical study for a more comprehensive approach; 2) the scale of research, with existing studies often focusing on beyond-national concepts or micro-scale individual experiences, lacking regional and local place-based research; 3) case background related to the research, as most platform economy studies are empirical studies outside China, despite China's importance in the platform economy. These motivations have shaped my overarching research question for my doctoral studies: How do digital platforms affect regional and cluster development, and how does this process vary by location in China?

Through the division into two research subjects/scales, five sub-questions are proposed:

For the region:

1. How do digital platforms impact regional development?
2. Under what conditions can digital platforms consistently empower regional development?

For clusters:

3. How do digital platforms affect regional existing industries (mature clusters), and is the impact consistent across different clusters?
4. Can digital platforms consistently empower emerging clusters to help less developed areas to catch up?
5. How should different types of clusters seize opportunities and adapt to the transformations brought by digital platforms?

### **1.3 Overview of the Dissertation**

This dissertation comprises five main chapters, including the introduction. The subsequent chapter presents the paradigms and theories related to the research overarching questions within the field of economic geography. Positioned at the intersection of digital geography, local development, and debates on uneven development, I begin by summarizing and categorizing different paradigms within economic geography to clarify diverse perspectives on regional and cluster development. This process helped distill key concepts critical to my research, particularly relational and evolutionary thinking. Furthermore, to accurately grasp the concept of "place" within scale-sensitive thinking, I revisit spatial ontology in the broader field of human geography. I consider the inequalities in spatial development

and the inherent paradoxes of digital technology, and briefly introduce two conceptual tools infused with relational and evolutionary thinking: clusters, and chains and networks. This review establishes a foundational theoretical mindset for the subsequent research.

Chapter 3 encompasses the overall research design based on Critical Realism (CR) and delineates the research methodologies involved in different sections of the study. The Chapter 4 "Research Papers" is divided into two main groups: "Group A: Reflections on Paradigm and Theories," culminating in two research papers Group A-paper 1 (Chu et al., 2023) and Group A-paper 2 (Chu & Hassink, 2023), and "Group B1 & B2: Regional and Cluster Development in the Platform Era," which collectively form a triangulated empirical research design. To obtain comprehensive and authentic research outcomes, the empirical investigations are triangulated, utilizing various data sources, methods, and theoretical perspectives to explore different subjects/scales and the development of regions and clusters, ultimately producing five research papers.

Chapter 4 comprises the seven articles that constitute this cumulative doctoral dissertation project (Table 1 displays some basic information of the seven papers and my own contributions). As mentioned earlier, Group A includes two theory-reflective papers. The first paper utilizes bibliometric methods for a comprehensive review of existing paradigms in economic geography, while the second paper, through further contemplation of the Evolutionary Economic Geography (EEG) paradigm, proposes a more refined, location- and scale-sensitive spatial ontology to better understand changes in regional economies. Group B1 focuses on regional development at the scale of Taobao villages. One paper investigates the emergence, development, and upgrading mechanisms of Taobao villages using secondary data and interviews both online and offline, eventually discovering that digital platforms facilitate "platform-based place-making" by expanding the enrollment of various actors within and outside the region in actor networks (Chu et al., 2023) (Group B1-paper 1). Another paper, a fuzzy-set qualitative comparative analysis (fsQCA) study based on 50 counties, conceptualizes the development and clustering of Taobao villages as "platform-empowered cluster development," identifying four patterns of long-term platform empowerment in regional development (Chu et al., 2024) (Group B1-paper 2). Group B2 includes three papers focusing on the furniture industry clusters. The first paper, through a comparative study of two mature furniture industry clusters, Shunde and Nankang, reveals that while digital platforms initially impacted the two differently, over time, they expanded the clusters' domestic and international market reach (especially overseas), providing a buffer and backup market in times of crisis (Group B2-paper 1). The second and third paper, based on studies of Shunde, Nankang, and Suining clusters, perform aggregated and comparative research. The former demonstrates that although digital platforms initially provided emerging clusters with entry opportunities, these clusters still struggle to catch up in the long run (Group B2-paper 2). The latter introduces the concept of market coupling, summarizing the different cluster network formations and barriers across offline domestic, offline cross-border, online domestic, and online cross-border markets (Group B2-paper 3).

The final chapter provides a brief review of the aforementioned studies and summarizes the main findings and theoretical contributions of the research. It further points out future research directions, aiming to address gaps and extend the discussion of platform economies in regional and cluster development from a more nuanced and comprehensive perspective.

Table 1 Research Papers and Own Contributions

	Title	Journal	Status	Sequence of Ownership	Own Contribution
Group A Paper 1	Fragmented or Engaged Pluralism in Economic Geography?	Progress in Human Geography	Published	Han Chu, Robert Hassink and Şükrü Yılmaz	Methodology, data collection and analysis (90%) Conceptualization and theoretical contribution (35%) Writing (35%) Revising (20%)
Group A Paper 2	Advancing Spatial Ontology in Evolutionary Economic Geography	Cambridge Journal of Regions, Economy and Society	Published	Han Chu and Robert Hassink	Methodology, data collection and analysis (---) Conceptualization and theoretical contribution (70%) Writing (50%) Revising (50%)
Group B1 Paper 1	Placing the platform economy: the emerging, developing and upgrading of Taobao villages as a platform-based place making phenomenon in China	Cambridge Journal of Regions, Economy and Society	Published	Han Chu, Robert Hassink, Dixiang Xie, and Xiaohui Hu	Methodology, data collection and analysis (85%) Conceptualization and theoretical contribution (100%) Writing (95%) Revising (65%)
Group B1 Paper 2	Exploring the mechanisms of platform empowered cluster development: evidence from the case of Taobao villages in rural China	Regional Studies	Published	Han Chu, Robert Hassink, Weigang Liu	Methodology, data collection and analysis (75%) Conceptualization and theoretical contribution (100%) Writing (90%) Revising (85%)
Group B2 Paper 1	All Roads Lead to... Resilience?! Unravelling Cluster Resilience in the Polycrisis Era	Journal of Economic Geography	Under review	Han Chu and Huiwen Gong	Methodology, data collection and analysis (100%) Conceptualization and theoretical contribution (90%) Writing (85%) Revising (---)
Group B2 Paper 2	From Smile Curve to Wicked Smile? On the Role of Digital Platforms to Empower Industries and Clusters in Emerging Economies	Regional Studies	Under review	Han Chu, Robert Hassink, Zhendong Luo	Methodology, data collection and analysis (95%) Conceptualization and theoretical contribution (95%) Writing (90%) Revising (---)
Group B2 Paper 3	Market Coupling and Multi-Scalar Reorganizations in the Digital Platform Era: Evidences from Three Furniture Clusters in China	Economic Geography	Under review	Han Chu	Methodology, data collection and analysis (100%) Conceptualization and theoretical contribution (100%) Writing (100%) Revising (---)

## **Chapter 2: Paradigms and Theories' Considerations**

### **2.1 Paradigms in Economic Geography**

According to some economic geographers, modern economic geography has been increasingly diversified over the last twenty years, concerning both its themes and its schools of thought, perspectives and paradigms (Barnes & Christophers, 2018; Barnes & Sheppard, 2010, 2024; Hassink & Gong, 2017), as well as language areas (Hassink et al., 2019). Particular concern has been expressed about so-called fragmented pluralism, as being problematic for the identification with the sub-discipline and the exchange of ideas both within economic geography and with neighboring social disciplines. Others have emphasized the advantages of so-called engaged pluralism, also emphasizing the role of so-called trading zones, boundary objects and bridging concepts for engaged pluralism (Martin, 2021). In this PartA-paper1 (Chu et al., 2023), together with my co-authors, I therefore aim to analyze the state of the art in economic geography based on a combination of a bibliometric and qualitative analysis, not only to map the degree of fragmentation but also to identify bridging avenues for future engaged pluralism in economic geography. Ultimately, I believe that, firstly, engaged pluralism facilitates the exploration of unexplored virgin territory and, secondly, it facilitates a more comprehensive and nuanced study of the topics that have been or are being explored.

Through the research described above, this dissertation identifies two overarching perspectives that permeate the empirical sections: evolutionary thinking and relational thinking. These ideas are primarily derived from the Evolutionary Economic Geography (EEG) paradigm and the Relational Economic Geography (REG) paradigm, respectively. Both EEG and REG share Critical Realism (CR) as an essential philosophical foundation (Bathelt & Glückler, 2003; Chu & Hassink, 2023; Gong & Hassink, 2020). Based on this, I have also established CR as the philosophical foundation for my dissertation. CR's unique ontological stance—that reality is composed of multiple layers, some of which are not directly observable—helps to address the limitations of empirical positivist approaches in economic geography, which often fail to capture the depth and nuances of regional and relational dynamics (Bhaskar, 1975; Fletcher, 2017; Sayer, 2006). CR aligns with the objectives of the EEG and REG paradigms, recognizing the complexity of phenomena, valuing context sensitivity, emphasizing the explanation of underlying mechanisms and the study of causal relationships, and advancing the processes of theorization and re-theorization. This philosophical foundation is important not only in the theoretical process but also will be instrumental in the research design in the next chapter. In the next section of this chapter, I will further introduce the two paradigms, EEG and REG.

### **2.2 Evolutionary and Relational Thinking in Economic Geography**

Long before the seminal paper by Boschma and Frenken (2006) on EEG, evolutionary thinking and methods were widely present and popular in economic geography and its related disciplines such as political economy (Menger, 1883; Veblen, 1898). Evolutionary thinking focuses on the process of economic activity and its spatial distribution, emphasizing that change is driven by the accumulation of economic behavior, technological progress, and social structure changes over historical processes (Arthur, 1989, 1994a, 1994b). The main ideas of EEG are integrated from Generalized Darwinism,

Complexity thinking, and Path dependence (Boschma & Martin, 2010), aiming to analyze and explain the process of economic landscape changes over time, such as production, circulation, exchange, distribution, and consumption. EEG not only focuses on the long-term impacts of past decisions and events on current and future economic activities, i.e., historical dependence and path dependence, but also on the contingencies and specifics of contexts, i.e., spatial dependence or place dependence (Boschma & Frenken, 2006). Based on path dependence and place dependence, together with my co-author, I have developed an advanced spatial ontology for EEG in PartA-paper2 (Chu & Hassink, 2023). Recently, economic geographers increasingly utilize evolutionary approaches to better understand the dynamics of regional development, sometimes in conjunction with Institutional Economic Geography (IEG) (Alos-Ferrer et al., 2010; Hodgson & Stoelhorst, 2014; Loasby, 2001; Nelson, 2003; Schamp, 2005). This thesis places particular emphasis on the interaction and exchange between EEG and REG, considering IEG and REG as adjacent paradigms, and viewing institutions as a specific type of relation (Hassink et al., 2014; Sunley, 2008).

The relational turn is also a significant analytical perspective in economic geography, where this relational approach integrates economic interactions of cultural, social, and regional aspects into heterogeneous, overlapping network relations. The key to REG is the belief that the mechanisms of social space change are created by, transformed by, and embedded within the relationships among people, companies, places, institutions across different scales, attempting to trace and explain the regional development process across locations, spaces, and scales, emphasizing networks and relationships rather than just studying the objects themselves (Bathelt & Glückler, 2003; Fløysand & Jakobsen, 2011; Yeung, 2005). Relational thinking focuses more on the networks and connectivity between economic activities, suggesting that economic behavior is influenced not only by geographical location but also by the relationships among actors (Bathelt, 2006). REG emphasizes thinking beyond traditional geographic boundaries, proposing that economic activities are conducted through multi-scalar social, economic, and technological networks, where trust, cooperation, and information flows are key to economic efficiency and innovation (Boggs & Rantisi, 2003; Murphy, 2018). According to Yeung (2024, p. 7), “relational-explanatory theorizing must not be prefabricated and fixed, but revisable and rejectable in dialogue with case-specific and cross case analyses”. Relational thinking also emphasizes the productivity of space; space is not just a container but a product of economic activity relationships. This implies a focus on the interactions and connections between economic actors and how these relationships shape the geographic distribution of economic activities (Antonio Belso-Martinez et al., 2017).

Many scholars have discussed various economic geography phenomena or policies by combining EEG and REG ideas. This type of engaged pluralism often helps to complement each other to overcome the limitations of single paradigms, thereby providing a more comprehensive and nuanced understanding of economic phenomena (Benner, 2014; Essletzbichler et al., 2023; Frenken et al., 2023; Gong et al., 2020; Hassink et al., 2014; Sanz-Ibáñez & Anton Clavé, 2014).

## 2.3 Spatial Ontology in Human Geography<sup>1</sup>

After a review of the research paradigms in economic geography, this section will revisit the broad spatial ontology of human geography. The goal is to reflect on the complexity and diversity of spatial ontology to stimulate different interpretations of the same phenomena in subsequent empirical research, thereby answering the research questions from various perspectives. As a conceptual framework within the field of philosophy, ontological issues hold profound significance across disciplines in the natural and social sciences (Liu et al., 2017; Taylor, 2023). Ontology is the philosophical study of the complex existence of objects, delving into the nature and essence of existence. Various ontological perspectives in geography can lead to different interpretations of geographic phenomena, potentially influencing researching and decision-making processes. In Group A-paper 2, together with my co-author, I integrate spatial ontology from the EEG paradigm with CR and Social Constructivism to develop a more place and scale-sensitive spatial ontology. In this section, I provide a more general review of spatial ontology in human geography, broadening the discussion to encompass a wider array of theoretical influences and applications.

In human geography, ontology plays a pivotal role in shaping the conceptualization of space and place. Geographers, holding diverse philosophical viewpoints, possess varying ontological beliefs, which, in turn, shape their epistemological, methodological, and axiological stances (Johnston, 1983, 2003). Early geography, especially location theory, was basically a study of 'space' (Massey, 1973), focusing on the location and spatial distribution of objects, with an emphasis on the scientific and quantitative analysis of space. Until the 1970s, the prevailing view among most human geographers perceived space as an "absolute container"—a blank canvas filled by human activities (Gleeson, 1996). Space was often regarded as something external to human existence, functioning more as a passive backdrop to human behavior than actively shaping social life. Since the 1970s, various strands of human geography, including spatial science, humanistic geography, Marxist geography, feminist geography, postmodernist and poststructuralist geography, as well as radical geography, have emerged and developed (Cresswell, 2024). Ontology has made significant contributions to my understanding of space and place. Different thinkers develop their theories and debates about space and place in different fields based on different kinds of ontology (Hubbard & Kitchin, 2011).

Cresswell (2014) summarizes place studies into three approaches, namely the descriptive, social constructionist and phenomenological approaches. This descriptive approach is "... representing a concern with the surface of the world as we see it ..." (2014, p. 56). Social constructionist approaches to place tend to focus on the process of constructing a place under different structural conditions, such as capitalism, patriarchy, colonialism, etc. Harvey (1996) focuses on the political economy of the construction of place in the context of capitalism, arguing that place is a product of social construction and closely related to capital, power and exclusion. According to Cresswell (2014, p. 42) place "... does not have meanings that are natural and obvious but ones that are created by some people with more power than others to define what is and is not appropriate". Pred (1984) argues that places are never 'finished' but always in 'becoming'. The process of constructing place, as well as places in becoming, is relevant in place-making (Chu et al., 2023; Devine-Wright, 2022) and place-branding (Kavaratzis

<sup>1</sup> In this section, I heavily draw text from Chu (2024)

and Kalandides, 2015). Within humanistic geography, ontological discussions explore whether places possess intrinsic qualities and whether their meanings are constructed through human perception and interaction. It is crucial to recognize that a single entity or type of entity existing in the geographical world may exhibit individual or cultural variations (Smith & Mark, 1998). In the perspective of Tuan (1977), the founder of humanistic geography, space is characterized as abstract, indifferent, generic, objective and material, while a place is concrete, subjective, experiential, intricate and fundamental. He argues that the difference between place and space is that place allows for a function of security and a sense of stability, but that the two are not strictly bounded, but rather transform and encompass each other (Tuan, 1977).

In the perspectives of David Harvey (Harvey, 1982, 1996, 2010), Soja (1998) and Soja & Hooper (2004), and Lefebvre (1991), space is never a purely neutral backdrop. As pivotal figures in spatial science, they developed their viewpoints on the operations of capital, urbanization, and modernization and argue that space is not just a passive container but is actively produced by social-cultural structures, while simultaneously shaping these very structures. Harvey (2001) introduces the concept of "spatial fix" to characterize the strategies employed by capitalism in overcoming economic crises, such as the tendency to reorganize space and expand into new territories to seek new markets, resources, and labor, thereby reshaping the spatial dynamics of regions and societies (e.g., the processes of globalization and urbanization). Consequently, the economic growth and development of certain regions, cities, or areas often come at the expense of sacrificing others, resulting in spatial imbalances and disparities.

Moreover, the dynamic and evolving nature of ontology and geography necessitates ongoing dialogue and adaptation to address emerging complexities, such as virtual space, space digitalization and the interaction between online and offline spaces (Cao, 2024; Graham, 2020; Ibert et al., 2022; Lee et al., 2017). Scholars in the field of geopolitical economy have expanded the understanding of virtual spatial boundaries through concepts such as "algorithmic sovereignty," "digital sovereignty," and "digital territory" (Gray, 2021; Möllers, 2021; Morris, 2023; Pohle & Thiel, 2020; Reviglio & Agosti, 2020; Zhang & Chen, 2022). In this dissertation, Group B2-paper 3 also addresses the transformation and interactions between online and offline markets. The future research trajectories of ontology and geography hold the potential to deepen my understanding of the fundamental nature of spatial existence. This collaboration has the capacity to enhance my abilities to navigate and interpret the complexities of the world in which we reside. In the next section, we will not discuss the distinctions and interactions between digital and physical spaces. Instead, we will explore the paradoxical impacts of digital technologies on spatial development from the perspective of digital geography.

## **2.4 Spatial Unequal Development in Digital Geography**

Digital economy has the self-contradictory nature, which means the simultaneously existing centrifugal (i.e., decreasing regional disparity) and centripetal (i.e., increasing regional disparity) characteristics of the digital economy (Haefner & Sternberg, 2020; Moriset & Malecki, 2009). On the one hand, many jobs can be outsourced or subcontracted and result in the offshoring of services based on platforms (Vallas & Schor, 2020), which makes the development of digital platform economic



activities in remote areas possible if the digital infrastructure is available. Many programs and initiatives (such as “eTrade for All<sup>2</sup>” or “Bridging the rural digital divide<sup>3</sup>”) work to expand and improve digital infrastructure to reduce economic inequalities and facilitate the overall catch-up process in regions that are lagging behind (Haefner & Sternberg, 2020). Additionally, when digital technologies are “new to the world,” they can also open a window of opportunity for less developed regions. These innovations provide a chance for these areas to leapfrog traditional stages of development by adopting cutting-edge technologies that can transform local economies, enhance access to global markets, and improve quality of life (Binz & Gong, 2022; Boschma, 1999; Foray, 2014; Isaksen, 2011; Walker & Storper, 1989). On the other hand, Briglauer et al. (2021) have shown that the positive impact of broadband internet (at least 50mb/sec) on GDP growth is higher in urban than in rural areas in Germany. This Matthew effect is mainly due to the “second level digital divide” i.e. still underdeveloped in digitalization despite the increased accessibility of the Internet due to a lack of capacity to use ICT (Büchi et al., 2016; Philip & Williams, 2019). Niebel (2018) found that there is no data evidence to suggest that underdeveloped countries benefit more from ICT than developed countries.

Another paradox is that the platform economy is not only global, but also local and personal (Kenney et al., 2020). Their market is theoretically global (although there are limitations in practice, such as political, infrastructural and language barriers), reducing the distance between consumers and producers, reducing the role of geographical proximity and creating in theory a borderless world, resulting in the death of distance and the end of geography (Cairncross, 1997; O'Brien, 1992; Quah, 1999; Tranos & Nijkamp, 2013). On the other hand, other scholars argue that the potential of the Internet to reduce the importance of distance has been exaggerated (Morgan, 2004), the platform economy is still embedded in local life, local regulation and local place (Ford & Graham, 2016). Even in the platform economy, positive localization externalities, such as local buzz, knowledge spillovers and non-traded interdependencies, cannot be ignored (Berg et al., 2018). Between the local and global scales, there are also studies that emphasize the national scale and boundaries, such as digital territory and sovereignty. These concepts explore how digitalization impacts state control and regulatory frameworks, affecting everything from data governance to the physical infrastructure that supports the internet and digital services (Couture & Toupin, 2019; Gray, 2021; Lake, 2003; Möllers, 2021; Morris, 2023; Pohle & Thiel, 2020; Reviglio & Agosti, 2020).

Deny the effects of the centrifugal and globalization effect from platform economy and “short-sighted analyses of the geography of the contemporary ‘digital capitalism’ might be tempted to ‘throw the baby out with the bath water’” (Moriset & Malecki, 2009, p. 257). So far, research on the platform economy tends to focus on urban areas, such as Los Angeles, Beijing, Tokyo, and Seoul (Brail, 2018; Kenney & Zysman, 2020; Nowak, 2021; Pon, 2016), while neglecting peripheries or rural areas. In the past, peripheral areas have often been stigmatised as simplistic, deficient, structurally handicapped, unimportant, underdeveloped, insignificant, subordinate to the core and helpless (Anderson, 2000; Dubois, 2016; Grabher, 2018). More recently, a growing number of scholars have begun to examine the evidence and advantages of innovation and entrepreneurship in peripheral areas, gradually viewing peripherality as an asset rather than a barrier to development (Duxbury, 2021; Eder, 2019;

<sup>2</sup> Source: <https://unctad.org/press-material/new-initiative-help-developing-countries-grasp-22-trillion-e-commerce-opportunity>

<sup>3</sup> Source: [https://www.oecd-ilibrary.org/science-and-technology/bridging-the-rural-digital-divide\\_852bd3b9-en](https://www.oecd-ilibrary.org/science-and-technology/bridging-the-rural-digital-divide_852bd3b9-en)

Eder & Trippel, 2019; Morales & Sario-Kluge, 2021). The periphery and the core are not in a static binary relationship, but are functionally and compositionally interdependent. Further, the relationship between them is dynamic and relative, with the periphery potentially becoming a new core and the core potentially becoming a new periphery (Grabher, 2018; Pugh & Dubois, 2021). By virtue of the weak regulatory and low-cost entrepreneurial environment in peripheral, here the entrepreneur or investor often exploit a shorter and simpler administration process in some necessary parts of the start-ups process (de Duren, 2018). Further, by tracing Simmel's concept of the 'stranger', Grabher argues that marginal actors are often less bound by the accepted canons, role expectations or peer pressures because they are far from the center and the mainstream, and are thus freer to experiment with unconventional ideas and thus to disrupt the status quo and be creative. Thus, "...novelty was generated by leveraging self-chosen peripherality..." (Grabher, 2018, p. 6). Peripheral regions may be able to break out and become new engines of regional growth. It is evident that scholars hold varied and uncertain views on the impacts of digital technologies, and economic geographers' perspectives on peripheral or less developed regions are also diverse. Reviewing these studies is beneficial for gaining a better understanding of how platforms differently affect various regions and clusters. This diversity in perspectives helps illuminate the complex ways in which digital technologies can either empower or marginalize different geographic areas, depending on numerous factors including existing infrastructures, policy environments, and local economic conditions.

## **2.5 Key Concepts in Empirical Studies<sup>4</sup>**

In this section, I will focus on the significant concept of 'cluster' in economic geography and the relationally oriented concepts of 'chains' and 'networks.' The former, increasingly influenced by evolutionary and relational thinking, has become an essential bridging concept in REG and EEG. The latter is being increasingly interpreted under the evolving perspective. Both play a crucial role in the empirical studies of this thesis.

### **2.3.1 Clusters as a Bridging Concept**

The concept of cluster comes from the concept of industrial district introduced by Marshall in the 19th century (Moulaert & Sekia, 2003; Vicente, 2018). Since Porter popularised this term in the 1990s, many efforts have been made to further understand the benefits and advantages of regional clusters, such as sharing labor pools and infrastructure, reducing transaction costs, enhancing the diffusion of knowledge and information and other agglomeration externalities, ultimately enhancing the competitiveness of firms, governments and even countries (Martin & Sunley, 2003; Maskell, 2001; Porter, 1990). Therefore initially, studies of clusters tended to take a static and closing perspective and focus strongly on the advantages of clusters, until Pouder and John (1996) added a temporal perspective to cluster studies and explained in detail the mechanisms of the different stages of clusters. After the launching of the paradigm of EEG in the 2000s (Boschma & Frenken, 2006), further attention has been paid to the evolutionary and dynamic development of clusters. Menzel and Fornahl (2010) provided a sound and comprehensive concept of the life cycle of clusters, while Martin and Sunley (2011) criticizes the life cycle model and develop the alternative cluster adaptive cycle model. These

<sup>4</sup> In this section, I draw some text from Chu & Hassink (2022)

studies argued that in the maturing and declining phases of cluster development, clustered firms are more likely to suffer from homogeneity and inertia than non-clustered firms (Kukalis, 2010; Martin & Sunley, 2011; Menzel & Fornahl, 2010; Pouder & John, 1996).

As a fuzzy concept, clusters have been facing criticism due to their blurred geographical boundaries/scales and the ambiguity surrounding the number or definition of industries (Martin & Sunley, 2003). Tracing back to Porter's Diamond Model, "A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities" (Porter, 1998, p. 199). From different perspectives, there are different views on the reasons for the emergence of clusters. Taking a current condition perspective, existing factors such as "firm-building capabilities, managerial skills, a substantial supply of skilled labor and connection to markets" are crucial to the take-off of new start of a cluster (Bresnahan et al., 2001, p. 1). In contrast to the macro perspective mentioned above, there are other scholars who take a micro perspective and place more emphasis on the role of technology gatekeepers in the renewal of clusters in the transformation of the 'old and new economy' (Hervas-Oliver & Albors-Garrigos, 2014). Also from a micro perspective, Vicente (2018) argues that technological interdependencies, untraded interdependencies and intangible assets especially knowledge spillover is crucial for cluster formation. Isaksen (2016) argues that existing research tends to attribute the emergence of clusters to two aspects, local previously existing capacities, routines and institutions, and a more or less functional chance event or historical accident. Fornahl et al. (2010) cover more comprehensively factors or conditions for the emergence of clusters such as infrastructure (railroadization) and related varieties (Schumpeterian new combinations), strategic actions, localization of knowledge generation, specific institutions, spin-offs, venture capital and start-ups, etc.

### **2.3.2 Chain and Network Concepts**

In economic geography and its related fields, various metaphors based on relational thinking, such as Global Commodity Chains (GCC), Global Supply Chains (GSC), Global Value Chains (GVC), and Global Production Networks (GPN), play a crucial role in elucidating the complex processes of global production and distribution<sup>5</sup>. Coe et al. (2008) and MacKinnon (2012) focus on comparing the concepts of GVC and GPN, and mentions GCC. While all these concepts - GCC, GSC, GVC, and GPN - relate to the process of producing and distributing goods and services around the world, there are some differences and overlaps among them. I added the concept of GSC and expanded the definitions and distinctions of the concepts of chains and networks in Table 4. Commodity chains, encompassing all activities in product design, production, and marketing process, can be categorized as producer-driven or buyer-driven (Gereffi, 1999). Producer-driven chains feature large transnational manufacturers coordinating production networks, typical in capital and technology-intensive industries like automotive. Buyer-driven chains, on the other hand, are normally led by large retailers and branded manufacturers establishing decentralized production networks in export countries. This model is prevalent in labor-intensive consumer industries. Companies fitting this model design and/or market, but do not produce, the products they order, such as Walmart, Nike, Xtep, Zara, and Uniqlo (Gereffi, 2001). Supply chain is an alliance of companies that pass forward materials, which involved in

<sup>5</sup> There are other chains or networks such as Blockchain (Sotoudehnia, 2021), Global transportation Chain/networks (Dirzka & Acciaro, 2022), etc., but I have only selected the four concepts that are most relevant to the content of this thesis for comparison.

manufacturing a product and delivering it to the end-user in the supply chain. It comprises entities like raw material and component producers, product assemblers, wholesalers, retailers, and transportation companies, all involved in upstream (i.e. supply) and downstream (i.e. distribution), managing the flow of products, services, finances, and information from source to customer (Christopher, 2016; La Londe & Masters, 1994; Lambert et al., 1998; Mentzer et al., 2001). Associated with the concept of value chains, GCC was replaced by the concept of GVC (Bair & Gereffi, 2003; Gereffi, 2005). A global value chain consists of a series of stages involved in the production and sale of products and services to consumers, each stage adding value (Antràs, 2020; Bair & Gereffi, 2003). Therefore, although it includes all stages such as design, production, marketing, distribution, and consumption as GCC, GVC places more emphasis on the generation of added value in each process. In contrast to GCC and GVC, GPN avoids the linear production limitation of the chain metaphor, aiming to encompass a wider array of actors and dynamics, such as regulators, non-governmental organizations, and financial institutions. However, some scholars still point out that the role of participants such as laborers, consumers, and civil society organizations is somewhat neglected in GPN (Coe et al., 2008, p. 272). It is defined as "the globally organised nexus of interconnected functions and operations by firms and non-firm institutions through which goods and services are produced and distributed" (Coe et al., 2004, p. 471). From a similarity perspective, all these concepts aim to explain the organization and governance of regional, transnational or global production and trade, providing a viewpoint for studying the spatial distribution of economic activities and the resulting economic and social outcomes. The differences among these concepts largely lie in their focus and analytical framework. GCC and GVC concentrate on the production chains and the role of different actors in adding value, while GSC more often concerns the technical and managerial aspects of global production and distribution. On the other hand, GPN provides a broader, more inclusive perspective, considering a wider range of actors and dynamics, including power relations and the embeddedness of networks. Irrespective of the form—chain or network—these models not only highlight the nodes within these mechanisms but also emphasize the relationships within these linking processes and the various forms of embedding or coupling, their density or intensity. In recent years, with the development of engaged pluralism, an increasing number of studies on chains and networks have emphasized the role of evolutionary thinking in this process, further enriching our understanding of global economic dynamics (Frenken et al., 2023; Glückler & Doreian, 2016; Juhasz & Lengyel, 2018; Sanz-Ibáñez & Anton Clavé, 2014; Strambach, 2017; Sunley, 2008; Yeung, 2021).

Table 2 Some Chain and Networks used in Economic Geography

	<b>GSCs</b>	<b>GCCs</b>	<b>GVCs</b>	<b>GPN 1.0s</b>	<b>GPN 2.0s</b>
<b>Main Attributed Disciplines</b>	Supply Chain Management; International Business; Operations Management	Economic Sociology	Economic Sociology; Development Studies; Industry Studies	Economic Geography; International political Economy	Economic Geography
<b>Emerged</b>	Early 1980s	Mid-1990s	Early 2000s	Early 2000s	Mid-2010s
<b>Object of enquiry</b>	Management, and optimization of supply chains	Inter-firm networks in global industries	Sectoral logics of global industries	Global network configurations and regional development (heuristic)	Global network configurations and regional development (heuristic)
<b>Intellectual</b>	Operations	World systems	International	REG; CCs/GVCs;	GVCs/GPN 1.0

<b>influences</b>	research; Business strategy; Globalization; Technological innovation.	theory; Organizational sociology	business literature; Trade economics	Varieties of capitalism	Resource-based firm theory; Financialization studies
<b>Orienting concepts</b>	Efficiency and responsiveness; Risk management; Technological and strategic improvements	Industry structure; Governance (producer-driven/buyer-driven distinction); Industrial upgrading	Value-added chains; Governance models (modular, relational, captive); Transaction costs; Industrial upgrading and rents	Value creation, enhancement and capture; Corporate, collective and institutional power; Societal, network and territorial embeddedness; Strategic coupling	Dynamic drivers; Organizational strategies; Value capture trajectories; Modes and types of strategic coupling

Sources: adapted from Coe and Yeung (2015, p. 13); Coe (2021, p. 8)

## 2.6 Interim Summary

After discussing paradigms, ontologies, the spatial unequal development, and the contradictions inherent in digital technologies, this dissertation has established a foundational theoretical mindset for empirical research. It adopts an engaged pluralistic perspective, integrating EEG and REG, and continuously applies evolutionary and relational thinking throughout the study. Furthermore, the research explores the complexity and diversity of spatial ontology, aiming to provoke diverse interpretations of the same phenomena through various ontological lenses. Moreover, this approach considers the inequalities in spatial development and the inherent contradictions of digital technologies to examine the mechanisms through which e-commerce platforms impact regional and cluster development. The primary theoretical tools employed in this research include concepts such as clusters, chains, and networks, which help to comprehensively consider both endogenous and exogenous perspectives on regional development. The establishment of this foundational theoretical mindset enables the research to capture the history of regional and cluster development, the local dynamics of regional economics and the broader interrelated networks that influence these dynamics. The next Chapter will introduce the research design and methodology of this dissertation. Within the methodology of comparative analysis based on qualitative research, researchers are enabled to travel between empirical information, explanations, and theories. In doing so, it is aligned to the multifaceted nature of economic geography, acknowledging that regional growth and cluster evolution are influenced not only by local conditions and historical paths but also by global interactions and digital transformations. These influences vary from one region to another. This dual focus helps to elucidate how digital platforms subtly facilitate or impede development, depending on specific regional contexts and stages and the nature of the involved networks.

## Chapter 3: Research Design and Methodology

### 3.1 Overall Research Design for the Doctoral Thesis

As mentioned in section 2.1, given the focus on the complexity of the mechanisms by which digital platforms affect regional and cluster development, Critical Realism (CR) serves not only as the philosophical foundation for the theoretical mindset of this study but also underpins the overall design of the research. CR advocates for the recognition of deep structures and mechanisms underlying phenomena and how these structures influence observed realities (Sayer, 2006; Yeung, 2023). First introduced by Bhaskar in 1975, CR has since been widely applied across the social sciences and humanities, including economic geography (Bhaskar, 1975; Cox, 2014; Cox & Evenhuis, 2020; Gong & Hassink, 2020; Sayer, 1989; Yeung, 1997). CR aims to provide an alternative to positivism (deductive approach) and hermeneutics (inductive approach), offering a profound perspective for understanding complex social phenomena (Gong, 2019; Gong & Hassink, 2020). CR posits that reality is stratified into multiple levels, including the directly observable empirical level (empirical), the actual level of physical existence (actual), and the deep generative mechanisms (real). The focus of research is to uncover these deep causal mechanisms, the actual forces and conditions causing phenomena to occur (Fletcher, 2017). Guided by this philosophical approach, the dissertation's research design is divided into two main parts: a reflection on paradigms and theories (Group A), and empirical studies based on triangulation (Group B).

In Group A, by summarizing and questioning existing paradigms and theories, a theoretical foundation is provided for empirical research, aiming to identify gaps and question some established theories. Group B employs triangulated empirical research to unearth the causal mechanisms behind surface events and to test, refine, and advance new theory generation. This approach aligns with the views of Gregory (1994) and Yeung (2023), who advocate for theory to be "a sort of moving self-reflectivity" (Gregory, 1994, p. 86) and "mid-range," which through developing new "substantive concepts" or "causal mechanisms" seeks to "provide practically adequate explanations of empirical events and outcomes in geographical reality" (Yeung, 2023, p. 352). Figure 1 illustrates the overall research design of this dissertation. Reflecting the overarching research question, the left side of Figure 1 shows a review of the economic geography literature involving spatial inequalities, platform economy, regional development, and industrial clusters, conducted through bibliometrics and manual reading. Within economic geography, numerous paradigms and non-paradigmatic theories and concepts exist, each offering different interpretations of the same events/phenomena through their inherent spatial ontologies. The right side of Figure 1 outlines the main approach to the empirical research design, which involves studying the subjects/scales of 'Region' and 'Cluster' using various theories and concepts applied through diverse data and methods. Through the content in Group A and B, the dissertation aims to answer the overarching research questions and provide a new round of reflections or critical supplements to advance past theories.

By delineating CR's philosophy in this research, the dissertation underscores its commitment to a comprehensive and nuanced exploration of how digital platforms affect regional and cluster development variably across different contexts in China. This systematic approach not only strengthens the academic rigour but also enhances the practical relevance of the study, iteratively bridging theoretical insights with real-world applications.

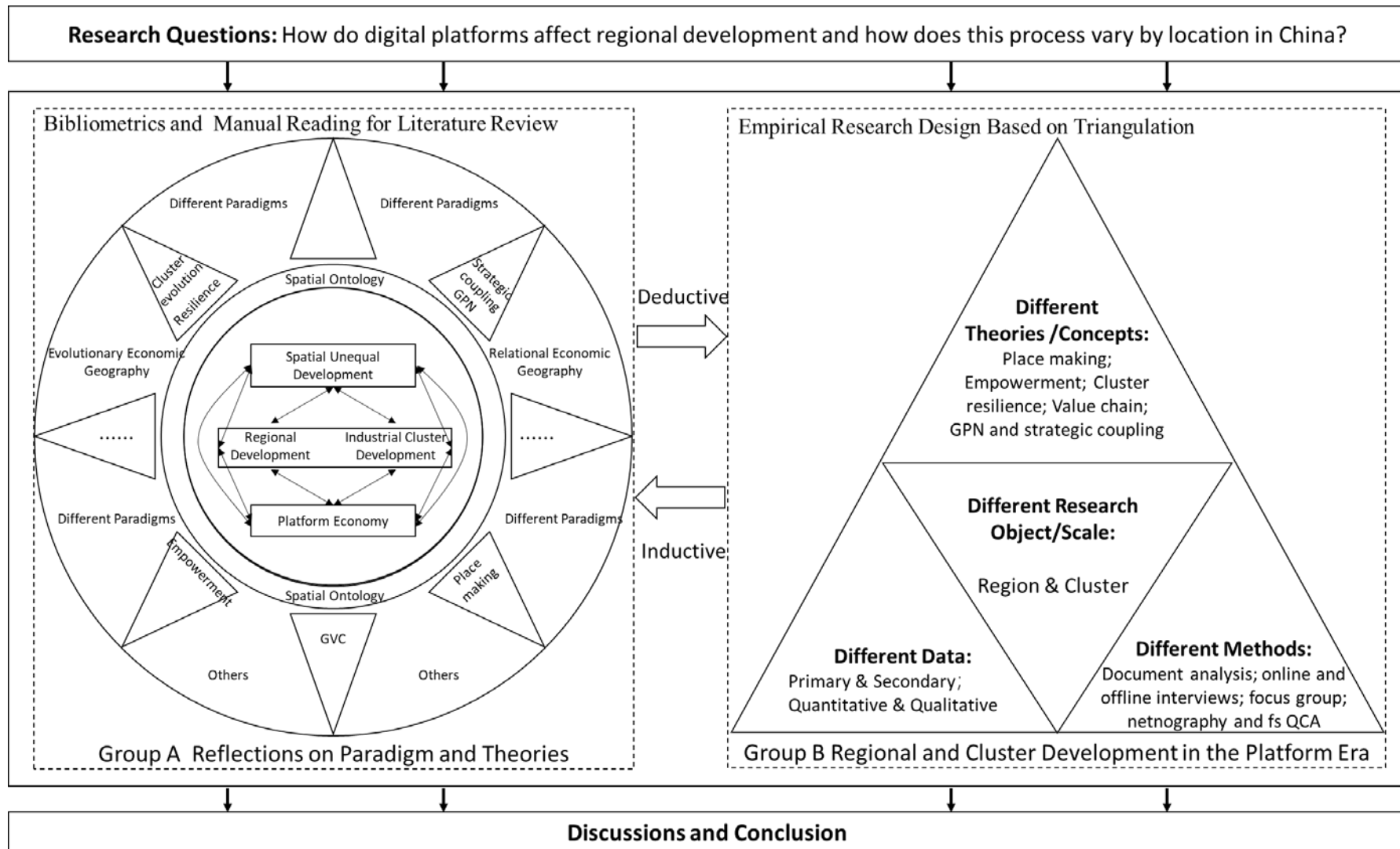


Figure 1 Overall Research Design for the Doctoral Thesis

### **3.2 Bibliometrics and Manual Reading for Literature Review**

Upon collecting the necessary literature, scholars can employ either manual reading or bibliometrics to conduct a comprehensive review. Since Pritchard (1969) introduced bibliometric methods, these approaches have been widely adopted and utilized across various disciplines such as human geography and regional studies (Fröhlich & Hassink, 2018; Newell & Cousins, 2015; Ng & Ducruet, 2014; Rosenman et al., 2020; Sedita et al., 2020; Smirnova et al., 2021; Zebracki & Xiao, 2021; Zhu et al., 2019). Bibliometrics not only facilitates performance analysis, such as tracking publication trends and evaluating the performance of scholars, institutions, and journals, but also enables topic identification, network analysis, and scientific mapping (Noyons et al., 1999). In this research, network analysis and scientific mapping were used to reveal extensive communication and borrowing among different research paradigms, illustrating that economic geography is a dialogic community rather than an isolated group of researchers (Group A-paper 1). Performance analysis was also utilized to evaluate the impact and performance of different paradigms since their inception (Group A-paper1, Group A-paper 2).

### **3.3 Empirical Research Design Based on Triangulation**

As Yeung (2024, p. 13) emphasizes, since “there may not be a simple one-to-one direct correspondence between onto-epistemology and research instruments and practices”, the choice between qualitative or quantitative methods should depend on the objectives and context of the research (Hammersley, 1992). In this study, I primarily employ “conjunctural analysis and relational comparison” based on triangulation (Yeung, 2024, p. 4). As Yeung highlights, this method aims to navigate “moving up and down through cases, contexts, and scales” (Yeung, 2024, p. 4). Triangulation is a method that integrates at least two or more theoretical perspectives, methodologies, data sources, investigators, or data analysis methods. Its purpose is to mitigate the limitations of a single strategy (Thurmond, 2001; Turner et al., 2017). Triangulation can take various forms, such as data, methodological, and investigator triangulation (Bruesch & Quinn, 2022; Gaber & Gaber, 1997; Gibson, 2017; Heale & Forbes, 2013; Scapens, 2004). Some forms of triangulation aim for complementarity, while others ensure methodological robustness (Hesse-Biber, 2010). Scholars generally agree that triangulation can increase confidence in research data, reveal different facets of a phenomenon, and provide greater insights (Jick, 1979; Renz et al., 2018; Thurmond, 2001). Table 2 cohesively displays the research subjects, key theoretical concepts, research questions, and methodologies used in the five empirical articles in the upcoming sections. These articles are based on a variety of methods, each corresponding to different empirical research processes and types of data.



Table 3 Triangulation-based Empirical Studies

	Research Subject/Scale	Key theories /concepts	Aiming to answer which questions in the whole study	Research Question within the paper	Research Methods
Group B1 Paper 1	Regional study based on multiple Taobao villages	Place making	How do digital platforms impact regional development?	How does the platform interact with place? Why do Taobao villages take different trajectories after their emergence? How does the platform exert its power in these processes?	Multiple Case Analysis: document analysis, online and offline interviews, focus group and netnography
Group B1 Paper 2	Regional study of Taobao village clusters in 50 counties	Empowerment	Under what conditions can digital platforms consistently empower regional development?	How can digital platforms interact with industrial clusters to empower place development? How do various place assets and actors interact with each other and jointly affect the performance of platform empowerment? Are there multiple patterns for different places to achieve high performance in platform empowerment? How does a region achieve high performance in platform empowerment in the absence of locational advantages?	Fuzzy-Set Qualitative Comparative Analysis: document analysis, quantitative data
Group B2 Paper 1	Study based on two mature furniture clusters	Cluster resilience	How do digital platforms affect regional existing industries (mature clusters), and is the impact consistent across different clusters?	How does platformization impact existing clusters, creating both challenges and opportunities? Do different clusters draw their resilience from the same sources during this process?	Comparative Case Analysis: document analysis, online and offline interviews, and netnography
Group B2 Paper 2	Study based on three furniture clusters	Smile curve and value chain	Can digital platforms consistently empower emerging clusters to help less developed areas to catch up?	How does the platformization process impact traditional value chains and further influence cross-regional power imbalances? Can platforms upgrade manufacturing clusters, enhance local economic development, and help them catch up within the context of late-coming manufacturing bases?	Multiple Case Analysis: document analysis, online and offline interviews, and netnography
Group B2 Paper 3	Study based on three furniture clusters	GPN and strategic coupling	How should different types of clusters seize opportunities and adapt to the transformations brought by digital platforms?	How digital platforms enter the local economy and how they affect existing regional industries and clusters and related chains and networks (C&N) and collaborations? What efforts have different clusters made on various levels to adapt to platformization?	Multiple Case Analysis: document analysis, online and offline interviews, and netnography

### **3.4 Multi-Method for Empirical Studies**

The selection and adoption of research methods must be grounded in specific research questions and contexts. Qualitative methods are necessary for exploring causal mechanisms, while quantitative or statistical research can interpret phenomena at a higher level of abstraction (Yeung, 2024). Accordingly, as outlined in Table 2, I have collected varied data and employed different research methods tailored to specific questions and research backgrounds. Group B1-paper 1, Group B2-paper 1/2/3 employ comparative and multiple case study analyses, utilizing document analysis, online and offline interviews, field observations, focus group interviews, and netnography for data collection. This approach facilitates qualitative analysis of similarities and differences among cases, often extracting universally applicable laws and principles, and reveals key factors that lead to different outcomes based on the unique characteristics of each case. Group B1-paper 2, a study based on fuzzy-set qualitative comparative analysis (fsQCA), also involves multi-case analysis but primarily utilizes secondary quantitative data. This multi-methodological approach allows this research to robustly address and dissect the overarching research questions, providing a nuanced understanding of how digital platforms influence regional development and the dynamics of industrial clusters. This comprehensive methodological framework not only strengthens the empirical grounding of the study but also enriches its theoretical contributions to the field of economic geography.

In the following sections, I will not reiterate or duplicate the specific methods involved in the individual research papers. Instead, after briefly introducing the data collection methods and case background involved in the five empirical papers, I will focus on elucidating the comparative analysis mindset that permeates all papers. This allows me to emphasize the interconnected analytical strategies and insights based on triangulation, thereby highlighting the overarching methodological advancements achieved through this research.

#### **3.4.1 Data Collection Methods**

This research involves a diverse array of data collection methods including desk research, document analysis, online interviews, netnography, semi-structured interviews, offline observations, informal interviews, and focus groups. Specifically, my empirical research comprises two main parts: the study on regional development based on Taobao villages (Group B1) and the study on the development of three furniture industry clusters (Group B2).

In Group B1-paper 1, desk research facilitated the collection of statistical data, research reports, and several books relevant to Taobao villages and counties over the years. I also conducted online interviews with entrepreneurs from Taobao villages, local officials, and other stakeholders, complemented by additional offline interviews conducted by co-authors (totaling 33 interviews). The interviews focused on how local economies leverage digital platforms for development, discussing the human and non-human actor networks involved (detailed interview questionnaires in Appendix 1). Furthermore, I joined several WeChat groups related to e-commerce and live-streaming commerce and monitored many initiatives from e-commerce platforms and related government policies through social media. In Group B1-paper 2, I primarily collected secondary data and statistical information, further interpreting the results of fsQCA studies based on information gathered during the desk

research phase.

The primary data for Group B2 came from two rounds of field research involving 113 interviews across three clusters, including 85 formal interviews (detailed participant list in Appendix in Group B2-paper 3). The players involved in the interviews include government officials, corporate leaders and employees, leaders from various associations, managers from different platforms, and academic experts. The first round, from August to December 2022, comprised 69 formal interviews across the Shunde, Nankang, and Suining case studies (detailed interview themes in Appendix 2), focusing on the impact of e-commerce platforms on local furniture clusters. The second round, from January to February 2024, involved 16 additional formal interviews centered on resilience in Shunde and Nankang, addressing the impact of various crises on local furniture clusters and local responses (supplementary questions in Appendix 3).

### 3.4.2 Cases Background

The cases involved in this research include multiple Taobao villages and three furniture industry clusters. The Taobao village cases are analyzed at two scales: village-level in Group B1-paper 1 and county-level agglomeration comparisons in PartB1-paper 2. Since Group B1 involves widely dispersed cases, which are thoroughly described in the research papers, further elaboration here is omitted. Group B2's paper focus on three furniture industry clusters located in Shunde, Nankang, and Suining (although PartB2-paper1 only involves two of these). These clusters are situated in Foshan City, Guangdong Province; Ganzhou City, Jiangxi Province; and Xuzhou City, Jiangsu Province, respectively (Figure 2).

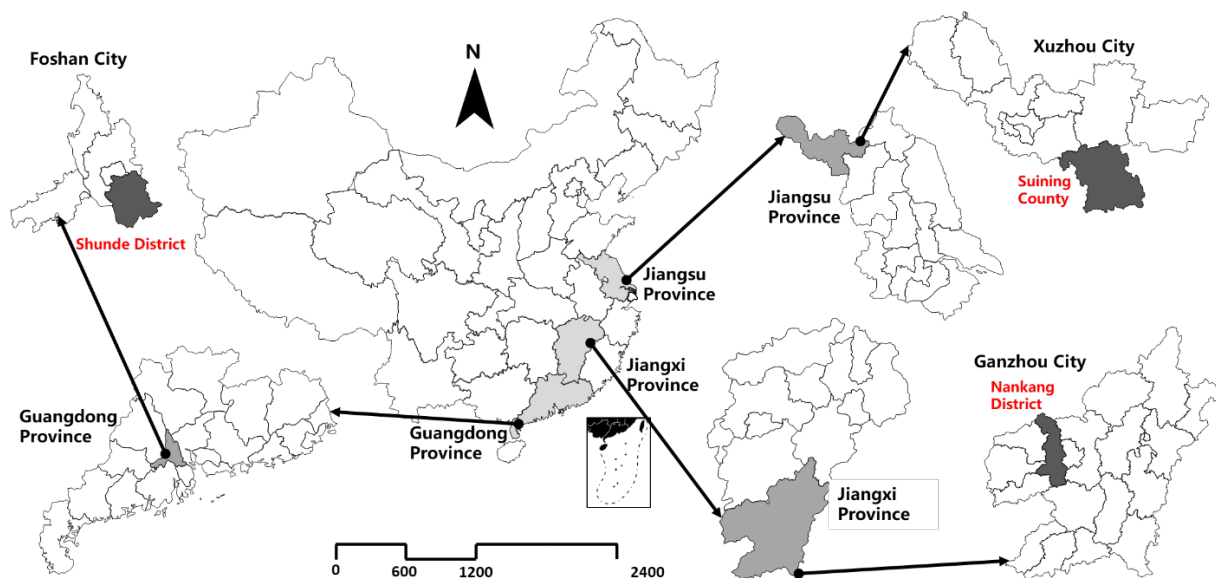


Figure 2 The Location of the Cases in China

In the context of a developed platform economy in China, all three clusters are actively exploring and developing their offline and online furniture industries. Detailed descriptions of each case are provided in the individual research papers, while general information about these locations is presented in Table 3.

Table 4 Basic Information about Shunde, Nankang and Suining

Basic information (end of 2022)	Shunde District	Nankang District	Suining County
Location	Foshan City, Guangdong Province	Ganzhou City, Jiangxi Province	Xuzhou City, Jiangsu Province
Administrative Level	District under the jurisdiction of a city	Transition from a county-level city to a district (in 2013)	County-level city
Population (in million)	Total resident population: 3.21	Total resident population: 0.83	Total resident population: 1.07
	Registered population: 1.62	Registered population: 0.78	Registered population: 1.39
GDP (in million yuan)	416639	44390	68000
per capita GDP (in yuan)	128517	53547	63551
Economic Focus	Home appliances, machinery equipment, jewelry, furniture hardware, textiles and apparel	Furniture, minerals, and electronics	E-commerce and home furnishings, textiles and apparel, home appliances, food and agricultural product processing
Title	China's Furniture Manufacturing Capital; China's Furniture Material Capital; China's Furniture Trade Capital	China's Solid Wood Home Capital	China's first town on furniture online sales
The beginning of furniture development:	1970s	1990s	2006+
Furniture target market	<b>Region:</b> Europe and America markets <b>Tier:</b> middle and higher-tier market <b>Segments:</b> diversified <b>Channel:</b> offline and online	<b>Region:</b> Southeast Asian markets <b>Tier:</b> middle and lower-tier market <b>Segments:</b> primarily wooden furniture <b>Channel:</b> offline and online	<b>Region:</b> Domestic markets <b>Tier:</b> lower-tier market <b>Segments:</b> Temporary assembly furniture, primarily wooden furniture <b>Channel:</b> primarily online

### 3.4.3 Comparative Analysis Based on Qualitative Research

Triangulation focuses on "making connections within particular cases and across different cases, scales, and contexts" (Yeung, 2024, p. 22), facilitating a continuous comparison of both intra-case and inter-case evolutionary and relational dimensions. To obtain comprehensive insights from both evolutionary and relational perspectives, qualitative data are essential. Denzin and Lincoln (2011, p. 3) define qualitative research as "... a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world". Cresswell and Poth (2016) view qualitative research as a process where researchers build a complex, holistic picture to explore and understand social or human problems, essentially acting as the research instrument themselves.

In Group B1-paper1, the rich background and interview data collected enabled a comparative analysis of common and unique features across multiple Taobao villages, identifying universal compulsory network actors and reasons behind different development trajectories. Group B1-paper2 used fsQCA to compare the conditions that maintain expansion of the Taobao villages in 50 counties, identifying four distinct conditions for enduring expansion. The diversity of data sources and the use of fsQCA helped to eliminate biases inherent in one-sided research findings (Adam, 2011). QCA provides a middle ground between quantitative variable research and qualitative case studies, effectively leveraging the strengths of both approaches. It also offers a systematic comparative method for

studies with midsize Ns (10-50), facilitating structured comparisons across cases (De Meur et al., 2009; Fiss, 2011; Grillitsch et al., 2022; Ragin, 2008; Rutten, 2019, 2020, 2022; Su & Fan, 2022).

In PartB2-paper1, I examined the impacts of various crises on Shunde and Nankang and their respective responses, including how digital platformization affects clusters with different backgrounds. In PartB2-paper2, although the primary analysis was based on three industrial clusters, the comparison extended across scales (manufacturing clusters and less developed areas or even countries) and through different stages of the platform economy (from its initial to its maturity phase). PartB2-paper3 also employed cross-scale (firm-cluster-chains & networks) and cross-temporal (traditional offline networks and emerging online networks) comparisons.

Drawing on rich, in-depth, and comprehensive case information and integrating various theoretical frameworks, these diverse forms of comparison enabled me to engage in repeated iterative processes of deductive and inductive reasoning (Figure 1). This approach allowed for a multifaceted examination and verification of how digital platforms influence local development from various perspectives. These methodological strategies not only highlight the complexity of digital transformation across different regions and industries but also enhance the robustness of the findings by addressing the dynamic interplay between historical legacies and transforming agencies.

## Chapter 4: Research Papers

### ➤ Group A Reflections on Paradigm and Theories

- Paper 1 Fragmented or Engaged Pluralism in Economic Geography?

The manuscript is published in *Progress in Human Geography*, in December 2023

Versions of this manuscript were presented by Han Chu at the following conference:

10/2023: Economic Geography Specialized Committee of the Geographical Society of China 2023 Academic Annual Conference, Wuhan, China.

- Paper 2 Advancing Spatial Ontology in Evolutionary Economic Geography

The manuscript is published in *Cambridge Journal of Regions, Economy and Society*, in November 2023

### ➤ Group B1 Regional Development in the Platform Era

- Paper 1 Placing the Platform Economy: The Emerging, Developing and Upgrading of Taobao Villages as a Platform-based Place Making Phenomenon in China

The manuscript is published in *Cambridge Journal of Regions, Economy and Society*, in March 2023

Versions of this manuscript were presented by Han Chu at the following conference:

06/2022: Global Conference on Economic Geography, Dublin, Ireland.

07/2022: The 6th Geography of Innovation Conference 2022, Milano, Italy.

- Paper 2 Exploring the Mechanisms of Platform Empowered Cluster Development: Evidence from the Case of Taobao Villages in Rural China

The manuscript is published in *Regional Studies*, in February 2024

Versions of this manuscript were presented by Han Chu at the following conference:

03/2023: Northern German Economic Geography Colloquium, Kiel, Germany.

### ➤ Group B2 Cluster Development in the Platform Era

- Paper 1 All Roads Lead to... Resilience?! Unravelling Cluster Resilience in the Polycrisis Era

The manuscript is submitted to *Journal of Economic Geography*, in April 2024

- Paper 2 From Smile Curve to Wicked Smile? On the Role of Digital Platforms to Empower Industries and Clusters in Emerging Economies

The manuscript is submitted to *Regional Studies*, in February 2024

Versions of this manuscript were presented by Han Chu at the following conference:

09/2023: Deutscher Kongress für Geographie, Frankfurt, Germany.

- Paper 3 Market Coupling and Multi-Scalar Reorganizations in the Digital Platform Era: Evidences from Three Furniture Clusters in China

The manuscript is submitted to *Economic Geography*, in March 2024

Versions of this manuscript were presented by Han Chu at the following conference:

06/2023: Regional Studies Association Annual Conference, Ljubljana, Slovenia.

12/2023: Regional Studies Association China Division Annual Conference, Zhuhai, China.

## **Group A Reflections on Paradigm and Theories**

### **Paper 1 Fragmented or Engaged Pluralism in Economic Geography?**

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# Fragmented or engaged pluralism in economic geography?

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## Abstract

According to some economic geographers, modern economic geography has been increasingly fragmented over the last twenty years, concerning both its themes and its paradigms. However, so far, no bibliometric analysis has been carried out to quantitatively measure the degree of fragmentation in economic geography concerning paradigms. In this paper, we therefore aim to analyze the state of the art in economic geography concerning paradigms and perspectives based on a combination of a bibliometric and qualitative analysis. We conclude that fragmented pluralism is less of a problem than stated in scholars' qualitative judgments.

## Keywords

bridging concepts, bibliometric analysis, economic geography, engaged pluralism, fragmented pluralism, paradigms

## 1 Introduction

Recently, there are increasing concerns in economic geography about intra-disciplinary fragmentation, particularly triggered with the proliferation of paradigms and perspectives<sup>1</sup> (Evolutionary Economic Geography, Relational Economic Geography, Institutional Economic Geography, Geographical Political Economy, and Alternative Economic Geographies), which renders economic geography pluralist and heterodox (Barnes and Christophers, 2018; Clark et al., 2018). First, Barnes (2009: 326) made a salient wake-up call: “economic geography’s future is not assured.” Subsequently, Barnes and

Sheppard (2010) lamented that intra-disciplinary plurality and variegation in economic geography have resulted in fragmented pluralism in which a range of insular coterie mainly produce monologues and hence rarely engage in dialogue. This diagnosis of fragmented pluralism has been subsequently uttered by other economic geographers, as well (see Aoyama et al., 2011a; Clare and Siemiatycki, 2014;

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Muellerleile et al., 2014; Sheppard et al., 2012; Suwala, 2023). In a reaction, Barnes and Sheppard (2010) suggested engaged pluralism with the help of trading zones, and recently, Martin (2021) similarly suggested boundary objects and bridging concepts as a solution to fragmented pluralism.

Although pluralism as such has many positive sides and is hence applauded by most economic geographers, as it allows for studying a complex economic world, conceptual and explanatory innovation, and policy relevance (Martin, 2021), *fragmented* pluralism has been regarded by many economic geographers, us included, as a problem. However, the discussions about fragmented and engaged pluralism are based on qualitative and sentimental judgments of scholars but have not been, to the best of our knowledge, analyzed in a systemic, quantitative way.

Inspired by concerns, discussions, and proposed solutions for fragmented pluralism, this study has two aims. First, we aim to uncover the extent of economic geographers' intra-disciplinary dialogue and conversation with the help of a bibliometric analysis. Although publications are not the only building blocks of science, they certainly are crucial elements in the process of intellectual communication. Therefore, bibliometric methods can provide a way to map the fragmentation and/or engagement in economic geography (Van Raan, 2004). Based on studies of interdisciplinary scientific research, we argue that with the help of the analysis of paradigm-specific citations pointing to other paradigms, we can indicate the level of dialogue between paradigms (see Glänzel et al., 2019; Moed et al., 2004; Wagner et al., 2011). By analyzing bibliographic coupling, direct citation, and keywords, we can reveal the extent of communication among economic geography scholars, since the breakdown of all publications cited or referenced in a specific paradigm cluster provides an interesting overview of its intra-disciplinary profile (Bordons et al., 2005; Leydesdorff et al., 2018; Leydesdorff and Amsterdamska, 1990; Weingart, 2010).

Our second aim is to identify, through a bibliometric analysis, potential bridging concepts as common communication points, permitting dialogical knowledge transfer between different paradigms, and

hence contributing to engaged pluralism and to strengthening economic geography's theoretical core.

In the following section of the paper, we first provide some context on economic geography, as well as on paradigms in general, then summarize the five paradigms and then review the discussion on fragmented and engaged pluralism in economic geography. Then, we lay out our bibliometric framework of analysis. In the next section, based on the results of our analysis, we discuss the implications for fragmentation and engagement in economic geography and show potential bridging concepts. We outline a brief conclusion in the final section.

## II Economic geography: Debating pluralism

As a historically evolving and heterogeneous nexus of objects, problems, theories, and methods (Barry et al., 2008), each discipline consists of a unique set of institutionalized intellectual communities arising at a specific point in history, paying particular attention to pragmatic academic issues and wider political concerns (Scott, 2005). Economic geography is a discipline that currently blossoms and has moved beyond its original focus(es) on industrial location and/or trade routes and modes of transportation (Aoyama et al., 2011b; Barnes and Christophers, 2018; Leyshon et al., 2011; Malecki, 2015; Suwala, 2023). In fact, economic geography has become a vibrant and productive field having "an impact that resonates increasingly far beyond the discipline of geography itself" (Scott, 2000: 497), with its high-ranking academic journals (such as the *Journal of Economic Geography* and *Economic Geography*), conferences (such as the *Global Conference on Economic Geography*), workshops, and summer schools, and its powerful role as a supplier of scientific knowledge for analysis and policy-making (Asheim, 2020; Barnes and Christophers, 2018; Clark et al., 2018).

The consensus among most economic geographers is that economic activities across space are the discipline's main research object (see Clark et al., 2018; Florida and Adler, 2020; Malecki, 2015; MacKinnon and Cumbers, 2019). According to the

broad definition of MacKinnon and Cumbers (2019: 15), economic geography can be defined as a discipline that "... is concerned with concrete questions about the location and distribution of economic activity, the role of uneven geographical development and processes of local and regional economic development. It asks the key questions of 'what' (the type of economic activity), 'where' (location), 'why' (requiring explanation) and 'so what' (referring to the implications and consequences of particular arrangements and processes)."

Since the discipline focuses on contextual (time and place) analysis (Asheim, 2020; Coe et al., 2013; Gong and Hassink, 2020; MacKinnon, 2009) and is closely linked to its empirical object of inquiry, economic geography and its theoretical frameworks, topical research orientations, and practices have been incessantly renewing, diversifying, and variegating in order to examine the constantly transforming spatial and economic structures of capitalism (Barnes et al., 2007; Sheppard et al., 2004, 2012).

Moreover, in order to cope with and explain the complex and nuanced world of economic geographies of the modern capitalist world, economic geography has been drawing heavily from neighboring disciplines, such as *heterodox economics*, *economic sociology*, *economic anthropology*, *political science*, and *business studies* (Barnes and Christophers, 2018; Hudson, 2006; MacKinnon and Cumbers, 2019). As Peck puts it, "extradisciplinary 'reading around' is normal practice" (Peck, 2005: 129). Particularly in the 1990s and the early 2000s, the "turns" emphasizing the cultural, institutional, and evolutionary foundations of the economic processes were affected by these neighboring disciplines. Proper economic geography, as a sub-discipline of human geography (Martin, 2011; Sunley, 2012), currently is a heterodox and pluralist discipline that is constituted by different paradigms, each emphasizing different phenomena, explanatory theories, and research questions. There are currently no fewer than five paradigms in the relatively small discipline (see Table 1): *Institutional Economic Geography (IEG)*, *Relational Economic Geography (REG)*, *Evolutionary Economic Geography (EEG)*, *Geographical Political Economy (GPE)*, and *Alternative Economic Geographies (AEG)* (Barnes and Christophers, 2018;

Clark et al., 2018; MacKinnon and Cumbers, 2019). Although differing regarding several issues mentioned above, they by and large "... share a critical stance towards positivistic thinking in geographical economics" (Gong and Hassink, 2020: 375).

Even though we use paradigms as a proxy for any other similar term, such as schools of thought or perspectives<sup>1</sup>, it is worthwhile to briefly elaborate more on Kuhn and what he meant by paradigms, paradigm shifts, and the incommensurability between paradigms (for more detailed accounts, see Anand et al., 2020; Kuhn, 2012; Nickles, 2003; Weichhart, 2012, 2018), as it potentially has consequences for the question about engaged versus fragmented pluralism. According to Martin (2021: 5), "geographers do not often refer to the later Kuhn, but his ideas ... seem much closer to how economic geography has developed in recent decades" (Martin, 2021: 5). In Kuhn's original work on paradigms, defined as "universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners" (Kuhn, 2012: xlii), normal science and revolutionary science were distinguished and one paradigm at the time would dominate, which is supposed to be incommensurable with a new paradigm because of methodological, ontological, and epistemological differences. Later on, Kuhn (1990) weakened his statements on incommensurability, confining it to semantic differences (Sankey, 1993). Particularly in social sciences, such as human geography, the co-existence of several paradigms (paradigmatic pluralism, Martin, 2021: 4) with only semantic incommensurability is common (Bassett, 1999; Weichhart, 2012, 2016). Concerning economic geography, Martin (2021: 5) rightly observes that "... the evolution of the discipline over recent decades would seem to be characterised by an increasing array of subfields ... rather than any simple succession of one dominant or hegemonic approach or paradigm by another" (Martin, 2021: 5). It "... does tend to consist of numerous distinct 'epistemic communities' that subscribe to different paradigmatic combinations of ontology, theory and method" (Martin, 2021: 5).

As pointed out above, we currently witness a multi-paradigmatic situation in proper economic geography, without strong incommensurabilities, as the

**Table 1.** Overview of current paradigms of economic geography with key characteristics.

Paradigm	Key theoretical background	Key concepts	Key questions/topics	Methods	Main view on place/space
EEG	Evolutionary economics	Routines; path dependence/creation; lock-ins; (un)related variety; branching	Evolutionary processes of economic activities	Deductive and inductive	Neutral space => real place (territorial context)
REG	Relational turn in social sciences; economic sociology	Networks; power; social agency; embeddedness	Interaction and interrelations between different agents and their influence on economic activities	Inductive	Multi-scalar places—space as perspective
IEG	Institutional economics; the French Regulation School	Formal institutions; informal institutions; structure-agency	The role of institutional settings on economic performance	Inductive	Real places at different scales, place dependence
GPE	Political economy; Marxian economics	Capitalism; labor; capital; inequalities;	Capitalism and uneven spatial development; the relationships between the state, labor, and capital	Inductive	National places
AEG	Cultural economy, post-structuralism	Performativity; discourse; context	Non-capitalist relations and practices; de-growth; diverse economies; fair trade	Inductive	Socially constructed space

Source: (Bathelt and Glückler, 2003; Barnes et al., 2012; Boschma and Frenken, 2018; Gertler, 2010; MacKinnon and Cumbers, 2019).

paradigms share a critical stance towards positivism and have other philosophies of science as their basis (Gong and Hassink, 2020). This makes engaged pluralism a realistic option and a gestalt shift not necessary. The situation differs, however, between proper economic geography and geographical economics, which is strongly based on critical rationalism and positivism, and which is therefore largely incommensurable to paradigms in proper economic geography. Sunley (2012) writes about critical or even antagonistic pluralism between geographical economics and proper economic geography. We therefore focus in the rest of the paper on the five paradigms within proper economic geography from which we can expect engaged pluralism and leave the discussion about dialogue and exchange between proper economic geography and geographical economics to others (Bathelt et al., 2017; Garretsen and Martin, 2010; Gaspar, 2021; Overman, 2004; Sunley, 2012).

In the remainder of this section, we summarize the five paradigms. We discuss both launching and core papers which define the paradigms, as well as some more peripheral literature which is also relevant for understanding their key aims, theories, and questions, but which might, in some cases, be less close their core. The purpose is not to critically discuss how close literature belongs to the core of each paradigm, which we leave to others, but to give an overview as a basis for discussing fragmented and engaged pluralism.

### *I Institutional economic geography*

Influenced by the French regulation theory and institutional economics, sociology, and political science, and nourished by the growing recognition of the “the socio-cultural” within economic geography (Martin, 2000), institutional economic

geography (IEG) aims to explain the roles and impact of institutions on the way economic activities are organized across space (Gertler, 2018). Moreover, it illuminates why economic activities are organized the way they are by investigating the co-evolution of economic activities and institutions (Gong and Hassink, 2019).

According to IEG, actors are bounded rationalities and their economic activities are socially constructed and territorially embedded phenomena, and hence institutions either enable or constrain them (Gertler, 2010; Rodríguez-Pose, 2013). Therefore, IEG emphasizes that economic life in space and its changes can be uncovered by referring to institutions which surround economic actors and link “the economic” and “the social” (MacKinnon, 2020). Notably, since the substantive implication of institutions shaping economic processes varies due to broader institutional framework particularities of places, the analytical focus and geographical orientation of IEG are on the place(s) at different spatial scales and their institutional specificities.

Institutions comprise both formal institutions including codified rules, regulations, and arrangements (e.g., property rights) and informal ones including conventions, values, expectations, and norms (e.g., trust between actors) (Pike et al., 2015). Rather than separating them, IEG scholars analyze their complex inter-relationships (see Zukauskaite et al., 2017) and how they are related to the variation of institutional regimes across space shaping local economic outcomes.

Overall, even if conceptualizations of institutions differ, also between the paradigms in economic geography, IEG has been interested in understanding more broadly how institutions shape and constrain all forms of economic behavior and practices, from innovation, organizational change, and entrepreneurship to inter-firm relations and learning, from labor and capital markets to environmental responses to climate challenges (Gertler, 2018; Rodríguez-Pose, 2020). While this interest initially mainly focused on national institutions, influenced by neighboring disciplines, it has expanded to include interactions of regional institutions with national and supra-national institutions, as well (see Amin and

Thrift, 1995; Gertler, 2004; Pike et al., 2015; Rodríguez-Pose and Di Cataldo, 2015; Rodríguez-Pose and Storper, 2009).

## 2 Relational economic geography

Influenced mainly by economic sociology and heterodox economics, REG assumes that the causal factors of socio-spatial changes in economic landscapes are created by, transformed by, and embedded in relationships and interdependencies between people, places, institutions, and firms, at local, regional, national, and global scales (Bathelt and Glückler, 2011; Rantisi and Boggs, 2020; Yeung, 2005). Space is seen “as a perspective” (Bathelt and Glückler, 2003: 124) for inquiring economic phenomena, rather than being an explanatory variable for economic actions and their consequences. Correspondingly, through the “geographical lens,” REG attempts to analytically trace and explain localized economic processes across places, spaces, and scales (Bathelt and Glückler, 2003; Bathelt, 2006).

Since micro-entities, such as firms and organizational structures and their actions, are not isolated atoms but closely linked to their suppliers, customers, and institutional context in which they operate, economic action and change are fundamentally contextual (Bathelt and Glückler, 2018). Therefore, REG highlights networks and relationships as analytical focus in which actors are embedded, without prioritizing a particular scale per se (Boggs and Rantisi, 2003; Murphy, 2018; Yeung, 2005).

Moreover, economic actions are considered having a path-dependent character, that is, economic action enables, constrains, and transforms the localized material and institutional conditions of future economic action (Bathelt and Glückler, 2003). Institutions centrally influence the evolution of economic landscapes as the socio-institutional context creates opportunities for economic action and interaction that would otherwise not exist (Bathelt and Glückler, 2003, 2011). However, institutions are not conceptualized as entities that structurally determine economic activities but rather as important mediators having top-down and bottom-up effects across scales, which stabilize economic relations (Bathelt and

Glückler, 2011; Glückler and Lenz, 2018). The emphasis on path dependence and institutions shows how relational economic geography has been influenced by different parts of heterodox economics, namely, evolutionary economics and institutional economics, respectively.

Furthermore, the principle of contingency is emphasized, that is, the strategies and actions of agents can deviate from existing development paths (Bathelt and Glückler, 2011). Even if firms as economic agents operate under the same conditions, they may produce different outcomes in terms of specialization and competitive behavior (Bathelt and Glückler, 2003, 2018).

To understand how, why, and to whom/where resources flow, REG emphasizes “the ties or interconnections—their strength, density, symmetry, and range—between economic actors embedded in historically derived institutional environments as well as social networks” (Murphy, 2018: 162). With this emphasis, REG has been influential in research on clusters, networks, value chains, and global production networks, where tacit knowledge, social interactions, and/or interpersonal trust play a key role in determining who participates, innovates, and performs better or worse (Murphy, 2018: 162).

### 3 Evolutionary economic geography

Based on Darwinian thinking (biology) and guided by Schumpeter’s notion of creative destruction and informed by evolutionary economics (Nelson and Winter, 1982), EEG studies “how geography matters in determining the nature and trajectory of the evolution of the economic system,” as well as “the processes by which the economic landscape — the spatial organisation of economic production, circulation, exchange, distribution and consumption — are transformed from within over time ...” (Boschma and Martin, 2010: 6, 7). Moreover, to analyze and understand the (uneven geographical) evolution of economies, EEG emphasizes historically acquired organizational routines determining the behavior and location of firms (Boschma and Frenken, 2006). Routines, as organizational skills and capabilities, play a vital and decisive role in the

capacities of firms to adapt, survive, and compete in a dynamic environment (Boschma and Frenken, 2009).

Accordingly, the evolution of the economy, which is regarded as a dynamic, irreversible, and self-organizing system (Rafiqui, 2008), is understood as the result of the creation and retaining of new organizational routines, and of their selective transmission and diffusion (Boschma and Frenken, 2011; Kogler, 2015). Since economic actors and firms operate in territorial context (*real places*) (Boschma and Frenken, 2006), their activities are both *path-* and *place-dependent* (Martin and Sunley, 2006).

Therefore, drivers and mechanisms for evolution and change of the economy do not originate and operate evenly across space (Boschma and Martin, 2010). The bounded rationality and cognitive constraints of actors and firms as well as the existence of enabling or constraining conditions (such as institutions) in real places affecting the creation and diffusion of routines can make the routine transmission process imperfect. “This leads to uneven geographical patterns, as embodied in agglomerations, center-periphery patterns, clusters, and networks” (Boschma and Frenken, 2018: 214).

Evolutionary economic geography contributes to explaining and analyzing novelty (new products and technologies, new firms, and new industries), knowledge, and innovation emergence and diffusion, the emergence of spatial economic structures from the micro-behavior of economic agents, and differences in regional economic growth (Boschma and Frenken, 2018; Kogler, 2015; Martin and Sunley, 2015). EEG research is mainly carried out through three interrelated strands: First, path dependence (Martin and Sunley, 2006; Strambach, 2010), lock-ins (Grabher, 1993; Hassink, 2007, 2010), spatial evolution of industries (especially diversification, branching, and variety) (Boschma et al., 2013; Boschma and Wenting, 2007; Frenken et al., 2007; Neffke et al., 2011, 2018; Wenting, 2008), and path development (Grillitsch et al., 2018; Isaksen, 2015; Simmie, 2012; Trippel et al., 2018); secondly, clusters and their evolution (Martin and Sunley, 2003, 2011; Maskell and Malmberg, 2007; Menzel and Fornahl, 2010; Popp and Wilson, 2007); and thirdly, networks



and their evolution (Balland, 2012; Broekel and Boschma, 2012; Giuliani, 2013; Morrison and Rabellotti, 2009; Ter Wal, 2014).

#### 4 Geographical political economy

Emerged in the 1970s from the attempts in economic geography to address issues of urban and regional restructuring by getting insights from Marxist political economy and affected by economic sociology and economic anthropology (Bok, 2019; MacKinnon and Cumbers, 2019) as well as by seminal work of Harvey (1982) and Smith (1984), GPE's core focus is on capitalism and its geographies, as a specific social, economic, and political formation. Their trajectories are formed by class and geographical conflict, as well as by the unintended effects of economic decisions and political actions (Sheppard, 2006).

According to geographical political economy scholars, "the economic" goes beyond simple market exchange, including capitalist commodity production having a spatial-temporal nature being far from equilibrium (Sheppard, 2018). The geography of capitalism is not assumed exogenous to the economy but actively produced through the development and restructuring of the economy (Lefebvre, 1991; MacKinnon and Cumbers, 2019; Sheppard, 2011). Moreover, space and place are transformed, the nature and significance of geographical scales are altered, and distance and connections are re-constructed through their fundamental relations with capitalism (Pike, 2020; Sheppard, 2018).

By analyzing relationships between the state, power, labor, and capital, GPE tries to capture the moving (unequal) spatial matrix of "the economic" which is affected by unstable and crisis-prone processes under capitalism (Hu and Lin, 2011; Jones, 2008). It is particularly interested in how labor processes, wage relations, regulatory architectures, and technological systems, which make up an historical regime of capital accumulation, enable, constrain, and influence the dynamics and interaction of firms, industries, labor markets, institutions, and regional patterns of development, which together make up the space economy of capitalism (Sheppard, 2011). Research topics vary from deindustrialization to financialization and the production of scale (see

Brenner, 2004; Peck and Whiteside, 2016; Pike, 2005, 2006; Wainwright, 2012).

#### 5 Alternative economic geographies

Influenced by post-structuralism stressing the social construction of meaning, identity, and representation and the cultural turn (MacKinnon and Cumbers, 2019; Sheppard et al., 2004), an alternative approach can be identified in economic geography, called "Alternative Economic Geographies," by Barnes and Christophers (2018). It is "broadening out from Marxism and feminism and drawing eclectically on economic anthropology, economic sociology, institutional economics, area studies, and studies of the underground and informal economies" (Gibson-Graham, 2008: 615). AEG is a paradigm, a diverse economy research program, or movement (Smith, 2012), reframing both "the economic" and "the geography" of economic geography research (Gibson-Graham, 1996; Gibson-Graham and Dombroski, 2020a).

Challenging mainstream economy thinking, it signals "alternative," previously neglected, marginalized, and non-capitalist economic activities, practices, and processes (Hudson, 2006; Sheppard et al., 2004). AEG attempts to open up to the capitalism's others who also contribute to maintaining livelihoods alongside, supporting those who earn wages, and generate new wealth (Gibson-Graham and Dombroski, 2020a), by conceptualizing "economic geographies [that] are so much more than mere spatial manifestations of a singular and autonomous economic logic" (Lee, 2011: 378)

Since it is assumed that what counts as "the economy" is constituted in and distributed over space via a diverse and complex mix of social relations, understandings, representations and interpretations, and practices (Hudson, 2005), economic geographies are conceptualized as phenomena organized and driven in diverse ways, rather than a singular one (Lee, 2006, 2011). Across the socially constructed spaces, "the economy" diversifies with a complex interdependency of economic relations within the variously constituted households, volunteers, self-employed, family businesses, prisons, and illegals, as well as industrial markets and sectors (Gibson-Graham, 2003).

Overall, AEG tries to illuminate the alternative economic, social, and ecological practices in different aspects of the economy (Gibson-Graham et al., 2013). AEG arguably represents the most open-ended, context-dependent economic geography, with research on topics ranging from worker cooperatives, to anti-mafia enterprises, violent economies, precarious labor, to care-full economies (Gibson-Graham and Dombroski, 2020b; Leyshon et al., 2003).

## 6 Debating pluralism in economic geography

As mentioned in the introduction, particularly since Barnes and Sheppard's (2010) article, pluralism has been debated in economic geography with different nuances concerning what is good and bad about pluralism, whether the discipline needs a core and if so, how it should look like, and what the consequences are of pluralism for the identity of the discipline.

On the one hand, some economic geographers argue in favor of the interdisciplinary structure and decentered and heterodox intellectual culture of economic geography, characterized by the existence of these five different paradigms. This culture reflects the discipline's intellectual vitality and strength rather than being a problem or weakness (Barnes et al., 2012; Barnes and Christophers, 2018; Peck, 2005; Sheppard et al., 2004; Weichhart, 2018; Martin, 2021). For instance, Hudson (2006: 55) emphasized the necessity for plurality to deal with the complex and nuanced nature of the modern capitalist world, which would not be explicable by one all-encompassing theoretical position. Similarly, according to Agnew (2012: 567) the pluralist character of economic geography goes beyond "the idealized image of 19<sup>th</sup> Century physics as the ultimate model of knowing." Moreover, in Markusen's (2006) view, economic geography offers scholars, policy-makers, and students a remarkable arena for harnessing the best of sciences to understand change because it is not hindered by strict orthodoxies and limiting normative underpinnings. Indeed, these arguments in favor of intra-disciplinary plurality are quite justified. Because in the face of economic geography's context (place and space)-dependent

nature, an intellectual lock-in induced by scientific monism would impede it in dealing with and understanding and explaining a multifaceted and complex reality.

On the other hand, as has been stated in the introduction, recently concerns have been rising in economic geography about the flip sides of pluralism. Barnes and Sheppard (2010: 193) argued that "economic geography has become increasingly fragmented into a series of intellectual solitudes that has created isolation, producing monologues rather than conversation, and raising the question of how knowledge production should proceed." They called this situation fragmented pluralism. Moreover, according to Aoyama et al. (2011a: 111) "the increasingly specialized and fragmented nature of the discipline and the resulting 'disappearing of the middle' lead to fewer dedicated scholars, which, in turn, endangers the survival of the discipline." Relatedly, this would lead to difficulties "to isolate a disciplinary core" (Muellerleile et al., 2014: 11), coming at "the expense of disciplinary cohesiveness, which is sorely lacking" (Clare and Siemiatycki, 2014: 6). Similarly, fragmented pluralism in economic geography led to the question of the *raison-d'être* of economic geography vis-à-vis geographical economics and other neighboring social sciences (Sheppard et al., 2012; Peck, 2015: 32).

In a reaction to these threats of fragmented pluralism and related specialization traps, Sheppard and Plummer (2007) and Barnes and Sheppard (2010) developed the idea of engaged pluralism, as a prescription for treatment. It has the potential to enable mutually productive exchanges, through "trading zones" in which different theoretical and intellectual traditions are brought together through intersecting research and discussion. Although there are some doubts about what engaged pluralism means in practice (see Simandan, 2011; Sunley, 2012), calls for engaged pluralism have until now resonated in the discipline (see Clare and Siemiatycki, 2014; Mann, 2012; Rosenman et al., 2020). Some initiatives explore ways in which some degree of combination, amalgamation, fusion, or synthesis of different perspectives and theories might be achievable (see Hassink et al., 2014; Hassink and Gong, 2017; MacKinnon, 2012; Martin and Sunley,

2015; Pike, 2020). For instance, MacKinnon (2012) proposed a geographical political economy of evolution (GPPE) approach trying to link EEG and IEG, incorporating a social and pluralist conception of institutions and agency, in order to be able to assess the evolution of economic landscapes. Hassink et al. (2014) followed the engaged pluralism argument in order to attempt to combine evolutionary, relational, and institutional economic geography in certain respects. Moreover, seeking to foster engagement, dialogue, and mutual learning, Pike (2020) outlined a geographical political economy approach to economic evolution and focus on geographically differentiated pathways and institutions.

Recently, Martin (2021) proposed the ideas of “integrative pluralism” and “boundary objects” to economic geographers, as ways of pursuing communication and knowledge exchange between different epistemic communities while nevertheless preserving the advantages of theoretical and perspectival pluralism. Inspired by Mitchell (2004), Martin (2021: 15) categorized the integrative initiatives in economic geography (such as Hassink and Gong, 2017; Martin and Sunley, 2015) as “local theoretical unification,” which explore possible overlaps and complementarities between different paradigms or propose “foundational” or “spanning” frameworks for uniting particular viewpoints. He labeled other attempts (such as Sheppard, 2016, 2018) as “foundational pluralism,” which propose one or more common “organizing principles” to which different perspectives can (or should) subscribe and under which they can be unified. Moreover, Martin (2021) proposed boundary objects and bridging concepts as ways to facilitate integrated pluralism across economic geography between different epistemic communities, while nevertheless preserving the advantages of theoretical and perspectival pluralism. Boundary objects refer to objects that are dynamic, egalitarian, and flexible concerning interpretations and have “... sufficient acceptance across different scholars and disciplines of the idea in broad terms ... as to permit the exchange (‘trade’) of ideas between different perspectives” (Martin, 2021: 21). Bridging concepts go one step further and actually actively link

“... fields and stimulates dialog” in an integrative way (Baggio et al., 2015: 2). Martin (2021) mentioned several examples of the latter, such as clusters, path dependence, resilience, sustainability, inequality, globalization, agglomeration, global production networks, and governance.

Overall, discussions about fragmented pluralism in economic geography and the proposals for engaged or integrative pluralism as well as for boundary objects and bridging concepts are mostly based on narratives of economic geographers, that is, their qualitative judgments (for an exception, see Rosenman et al., 2020). In our view, arguments for fragmented pluralism related to the communication structure of economic geography first need to be subject to empirical analysis. The bibliometric network of economic geography publications can help to learn more about intra-paradigm dialogue and communication patterns. The use of bibliometrics can quantitatively help to understand the research foundation, the current state of research, and the research trends in a given field (Boyack and Klavans, 2019; Van Eck and Waltman, 2014; Zupic and Čater, 2015). Therefore, based on three analyses, we tried to empirically explore the relationships and interactions among the five abovementioned paradigms in order to provide a solid basis for these discussions and to uncover both the extent of communication among paradigms and their communication points (as boundary objects and bridging concepts).

### III Data collection and methodological approach

#### I Data collection

After several rounds of data collection and analysis between June 2022 and August 2022, we finalized a set of data collection and retrieval methods shown in Table 2. For each paradigm, we collected literature in English in two ways. First, we collected papers citing the “launching paper(s)” of each paradigm in economic geography (see Table 2, first column); secondly, we collected papers through a series of keywords (see Table 2, second column).



Since the data collected by these two methods will overlap, the final data will be less than the sum of the data collected by both methods. For example, although we collected 318 and 383 articles for the EEG literature by using “launching papers” and “keywords,” respectively, we only obtained 560 articles. Furthermore, we acknowledge that there might be some papers that did not cite the launching paper or use corresponding keywords, yet still belong to one or more of the paradigms. To prevent the omission of significant recordings, based on multiple rounds of data collection using several different search strings, we manually read some papers with high citations, but which are not included in this set of retrieval methods, and eventually added 5, 7, 18, and 6 additional articles for EEG, REG, IEG, and GPE, respectively (we put these manually added articles in [Appendix I](#)).

Finally, we obtained 1034 pieces of data. Due to the overlap of data obtained from searching through the five paradigms search strings in [Table 2](#), 162 papers occupied 358 spaces among these 1034 pieces of data. This means that these 162 papers involved at least two

paradigms. By manually reading these 162 papers, we eventually found 53 papers that take engaged pluralism seriously (we categorize them as EP *a priori*) and the remaining papers that simply referred to multiple paradigms. By referring to the Local Citation Score (LCS)<sup>2</sup> as well as manual checks, we assigned the remaining 109 papers into the paradigm with the highest LCS based on the different single paradigms. We acknowledge that not all papers citing a particular launching paper or using special keywords necessarily belong to, or are exclusively attributed to, that paradigm. However, as the subsequent analysis in this paper is mainly based on bibliometric analysis, such instances are not predominant and do not affect the main conclusions. Moreover, through the manual check process described above about the EP category, and the use of the LCS indicator, we are well positioned to identify papers that are widely cited and recognized within the paradigm, while excluding those that may not truly embody the core ideas of their respective paradigms (since such articles often do not have a high LCS).

**Table 2.** Data collection and retrieval strings.

Citing launching paper(s) AND All = (“economic geograph*”)	Research string with keywords	Manual adding	Total 1034
<a href="#">Boschma and Frenken, 2006</a> →318	All = (((“evolutionary perspective*” OR “evolutionary approach*” OR “evolutionary turn*”) AND “economic geograph*”) OR (“evolutionary economic geograph*”))→383	5	EEG-560-565
<a href="#">Bathelt and Glückler, 2003; Yeung, 2005</a> →282	All = (((“relational perspective*” OR “relational approach*” OR “relational turn*”) AND “economic geograph*”) OR (“relational economic geograph*”))→100	7	REG-312-319
<a href="#">Gertler, 2010; Martin, 2000</a> →148	All = (((“institutional perspective*” OR “institutional approach*” OR “institutional turn*”) AND “economic geograph*”) OR (“institutional economic geograph*”))→45	18	IEG-181-199
<a href="#">Gibson-Graham, 1996, 2008; Leyshon et al., 2003</a> →70	All = (((“Alternative economic activit*” OR “Diverse econom*” OR “Alternative Economic Space*” OR “Alternative Economic Geograph*” OR “The proliferative econom*” OR “Alternative Financial Space*” OR “Alternative Retail Space*” OR “Alternative Work Space*” OR “Alternative Employment Space*” OR “Alternative Exchange Space*” OR “Alternative lifestyle Space*”) AND “economic geograph*”)→31	0	AEG-83-83
<a href="#">Sheppard, 2011</a> →35	All = (((“Geographical political econom*” OR “regional political econom*”) AND “economic geograph*”)→34	6	GPE-58-64

## 2 Choice of bibliometric networks

We used three bibliometric networks to map the relationships and interactions among the five paradigms (Table 3). First, a bibliographic coupling (BC) network was used to measure the degree of overlap of prior knowledge or the proximity of the relationships among the five paradigms. BC is about the overlap of the reference lists in different publications (Van Eck and Waltman, 2022). It “... uses the number of references shared by two documents as a measure of the similarity between them. The more the bibliographies of two articles overlap, the stronger their connection” (Zupic and Čater, 2015: 434). Secondly, we used a direct citation (DC) network to reflect the interaction between the five paradigms to determine whether the existing literature can be characterized as fragmented or engaged in terms of communication and knowledge exchange. Compared to BC networks, DC more directly shows the first-order links between two documents, tracing the citation of one publication by another (Boyack and Klavans, 2019). We acknowledge that DC between a few articles may not adequately reflect the communication (engaged pluralism) among paradigms, as such citation is unidirectional. When paper A cites paper B, it only represents B’s influence on A and hardly reflects A’s impact on B (since the premise for B being cited is often that it has already been published). However, when viewed from the perspective of the entire group of paradigm papers and over an extended time frame, direct citations become a very indicative measure of the dialogue and exchange among paradigms. Inspired

by Newell and Cousins (2015), we added a time dimension to this network (we call this Direct Citation with Time, DCT) to reflect the evolutionary relationships between the paradigms. Finally, we used a keyword-based (KB) analysis to find bridging concepts among different paradigms. To complete the four analyses described above, we used bibliometric software including VOSviewer, Pajek, and HistCite.

## IV Results of bibliometric analysis

### I Trend

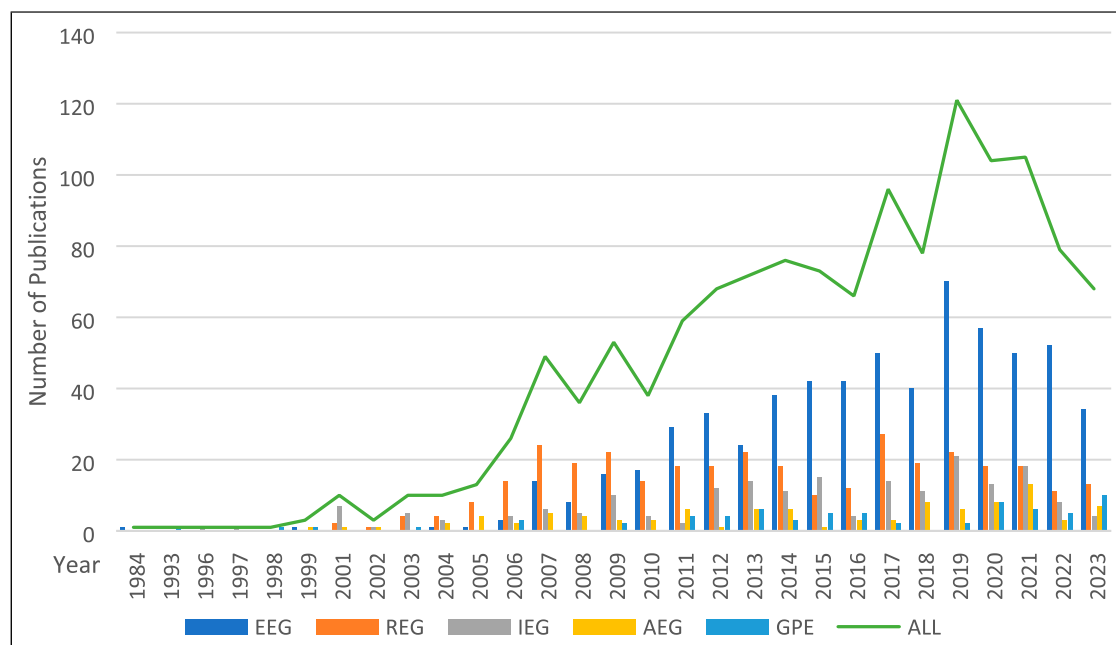
Based on the data collected above, we counted the output of articles of different paradigms for each year and obtained Figure 1. Overall, we recently see an, in our view, worrisome overall trend of declining reference to current paradigms.

Figure 1 also shows that EEG is the largest of all paradigms. REG rose before EEG but did not do as well as EEG after 2009. Based on the year-by-year number of all paradigm papers, we roughly divided it into three phases: before 2007 (the start-up phase), from 2007 to 2017 (the rapid growth phase), and after 2017 (the fluctuating development phase). Figure 1 also shows that some paradigms, such as GPE and AEG, are not often referred to.

The popularity of EEG can be partly explained by the active role of its main scholars organizing special sessions at conferences, such as Dieter Kogler who organized during a long time successfully special sessions at the AAG Annual Meeting with EEG in its

**Table 3.** Three bibliometric networks.

Bibliometric networks	Core of the network	Answer the questions in this article
1. Bibliographic coupling (BC)	The overlap of the reference lists in different publications	How much their prior knowledge differ across paradigms?
2. Direct citation (DC)	Mixed citation and cited relationships, as both reflect the “trade” between the publications	How much fragmented or engaged pluralism there among the different paradigms?
2a. Direct citation with time (DCT)	Adding a time dimension to DC makes the origin and evolution of the literature more intuitive, visible, and straightforward	How the different paradigms evolve conditioned by each other?
3. Keywords-based analysis (KB)	The frequency status of keywords appearing simultaneously in different fields	How do the different paradigms bridge to each other?



**Figure 1.** Output trend of five paradigms.

title, as well as special issues, such as in *Regional Studies* (Kogler, 2015) and the *Cambridge Journal of Regions, Economy and Society* (Kogler et al., 2023). The main scholars of the other paradigms have been less active in this respect. Other reasons for the waxing and waning of paradigms are generational transitions and related life cycles, empirical research showing the decreasing of their explanatory power, and a lacking fit to societal needs. Concerning the latter, arguably, given current crisis-ridden times, GPE might gain momentum in the near future, given its emphasis on the state and macro-scale analysis, as suggested recently by Essletzbichler et al. (2023). It would go beyond the scope of this paper to discuss these issues in much more detail here, but they need to be included in future debates about paradigms and pluralism in economic geography.

## 2 To what extent does prior knowledge differ across paradigms?

As stated in Section III.2, BC shows the relationship of a common reference between two papers (citing paper).

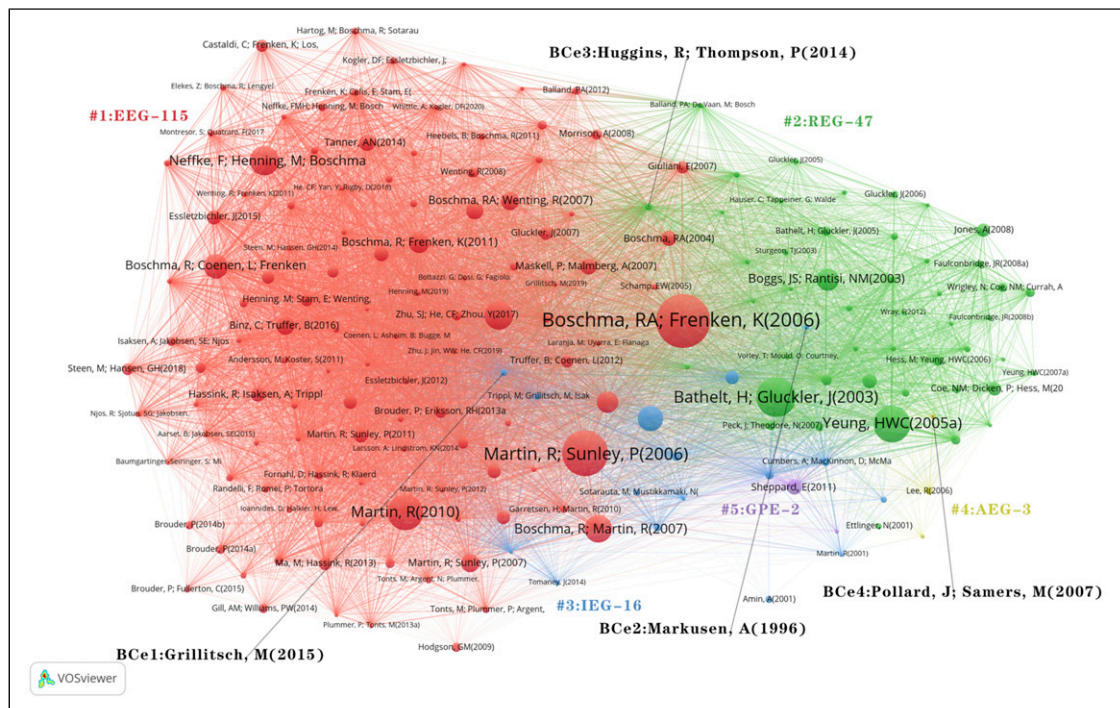
The higher the number of the same references (cited articles), the more they share the same research base, the higher the similarity between these two papers (citing paper). When we analyze from the BC network perspective, the more links there are between two paradigms, the fewer differences or deviations there are between these two. According to the algorithm of VOSviewer, the closer the location of different nodes in the BC network in the visualization, the stronger the coupling relationship will be. In other words, paradigms that are close to each other tend to share common prior knowledge, which means they are more similar. Vice versa, paradigms that are far from each other usually do not cite the same publications, which means they are more different.

We have formed two BC networks based on different filtering criteria, which are visualized in Figures 2 and 3, respectively. Figure 2 shows the BC networks of the five paradigms (after deducting the 53 EP papers). We retained 183 papers according to the threshold of LCS no fewer than 5. Of these, EEG contributed 115, REG 47, IEG 16, AEG 3, and GPE 2 papers<sup>3</sup>. Through Figure 2, we can easily observe that the coupling relationships between EEG and REG are overall independent, indicating that they are overall

distanced and dissimilar to each other. However, as the most and second most cited articles within EEG (identified by the node size in Figure 2), Boschma and Frenken (2006) and Martin and Sunley (2006) are, respectively, closely coupled to REG and IEG, which indicates that the important contributions of EEG are closely related to REG and IEG. Moreover, it shows that IEG is strongly coupled with both EEG and REG. In particular, example BCe1 (Grillitsch, 2015) and example BCe2 (Markusen, 1996), although both articles belong to the IEG paradigm, strongly share research foundations with EEG and REG, respectively (using the same principle, we have labeled 10 such special articles in Figures 2 and 3). In addition, although the coupling density is lower than the ones of REG, EEG, and IEG, GPE also is bibliographically coupled with IEG. Finally, AEG is only slightly close to REG and IEG and has almost no coupling relationship with EEG.

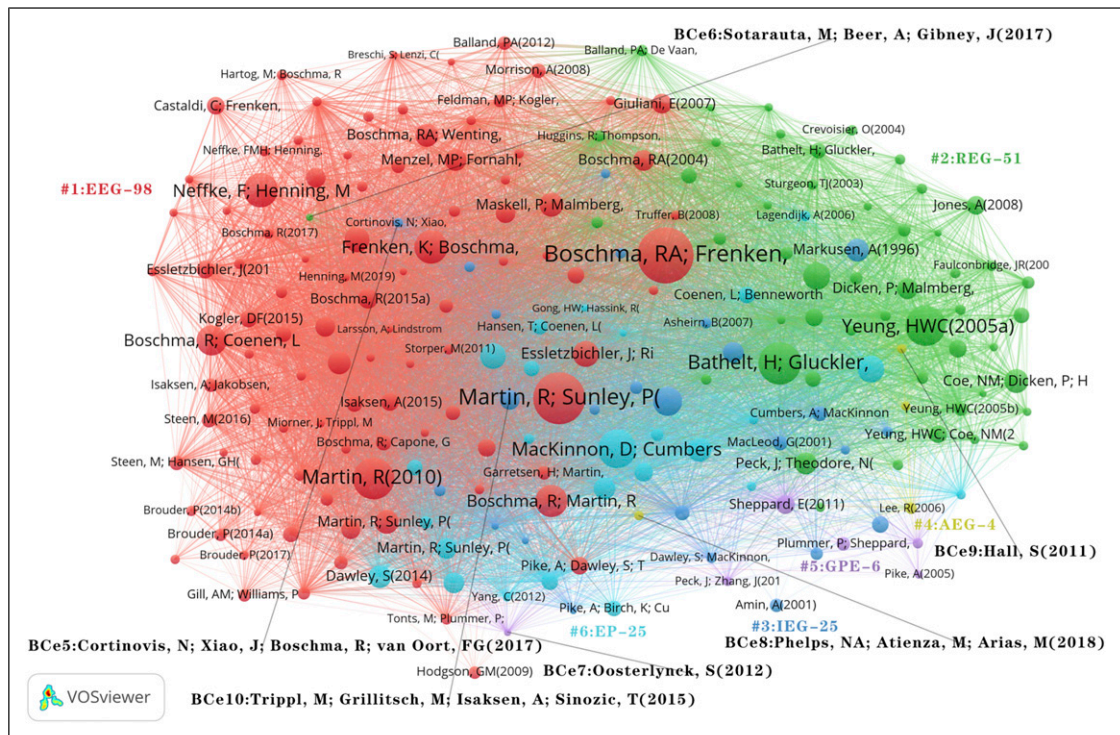
Figure 3 shows the BC networks of five paradigms and 53 EP articles. In this figure, we filtered out 209 articles using a threshold of LCS1034 no fewer than

7. Among them, we obtained 98 EEG, 47 REG, 25 IEG, 4 AEG, and 6 GPE articles. At the same time, the remaining 25 EP articles from the original set of 53 EP articles were added as the sixth cluster to the network. By examining the changes in the number of papers for different paradigms in Figures 2 and 3, we found that except for the EEG paradigm, which has decreased in size, all other paradigms have increased in size as the filtering criterion changed from  $LCS \geq 5$  to  $LCS1034 \geq 7$ . This to some extent indicates that the EEG paradigm has a higher internal self-citation rate than the other paradigms. In other words, EEG has a more closely connected internal network, which validates our argument in Section IV.1 that the popularity of EEG is due to its active internal interactions, including conferences, special issues, and of course, internal self-citations. Figure 3 also confirms our interpretation of Figure 2, that IEG has the highest number of couplings with other paradigms because it has the most overlapping bibliography with EP. Finally, as the node size is represented by LCS1034, we can also identify articles that are



**Figure 2.** Bibliographic coupling networks of five single paradigms (node size represents LCS,  $LCS \geq 5$ , 183 nodes).





**Figure 3.** Bibliographic coupling networks of five single paradigms and “engaged pluralism cluster” (node size represents LCS1034, LCS1034  $\geq$  7,209 nodes).

important in all paradigms by the size of the node. This can help us to identify some articles that may not be very important in their own paradigm but are important in the overall paradigm research, or vice versa. For example, the LCS of BCe10 is 3, so the node in Figure 2 is very small. However, its LCS1034 is 13 (thus the node is larger). This indicates that although BCe10 (Trippel et al., 2015) is cited less in the IEG field, it is cited many times in other paradigm studies. Therefore, Trippel et al. (2015) is an important article for other paradigm papers.

### 3 How much fragmented or engaged pluralism is there among the different paradigms?

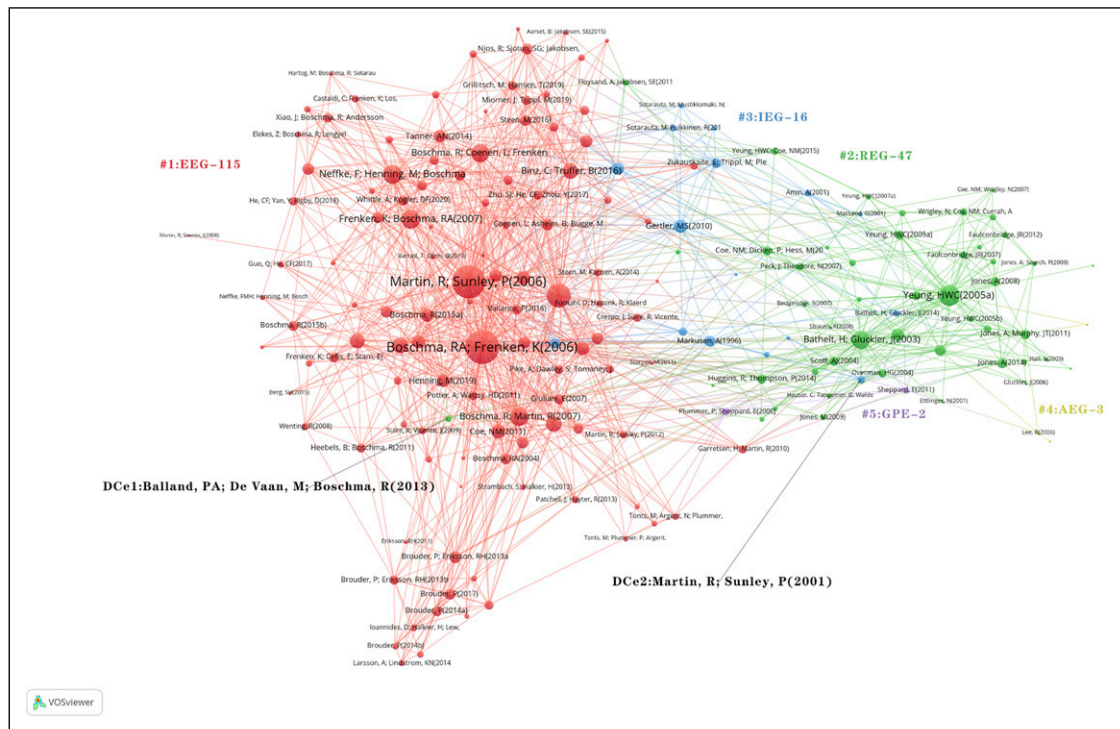
In fragmented pluralism, it is expected that self-referencing dominates, that the centrifugal forces

are strong and communication is “closed” towards the other paradigms, and that evaluation of the relevance and quality of research are limited to the members of the respective paradigm (Bernstein, 2005; Weingart, 2010). However, this expectation is just a qualitative judgment made by scholars and should not be treated to be true a priori. Moreover, the engaged pluralism judgment in economic geography was made 10 years ago, and we hence urgently need to quantitatively verify it.

As mentioned in Section III.2, DC networks are helpful in clarifying the citation relationship between two articles and recognizing research direction (with time dimension). “As the authors referring to prior literature have to be selective as they cannot cite all relevant literature on the studied topic, direct citation link among two documents is created intentionally ... reflecting which paper consider communication with another one as relevant and important” (Thijs, 2019:

216). In general, DC networks are depicted with arrows pointing from the cited references to the citing references. Alternatively, in the absence of arrows, the timeline can be used to represent the relationship between cited papers and citing papers, as it is not possible for past publications to cite publications that are published in the future. However, in this section, we will disregard the direction of citation arrows because from the overall thinking, no matter whether a reference is cited by or cites another reference, it reflects the “dialogue” and “trade” between paradigms. Therefore, in this section, we adopt a citation network without arrows (i.e., without a time dimension) to visually represent the dialogue between different paradigms. In the next section, we will use a citation network with a time dimension to reflect the evolution of the mutual influence between different paradigms.

Similar to the logic in section IV.2, Figures 4 and 5 show the DC networks of the 183 and 209 articles, respectively. Similarly, relying on the algorithm of VOSviewer, we can identify the strength of the dialogue between different paradigms (i.e., the amount of mutual citation) by the distance between their locations on the visualization map. Based on Figure 4, we can see that although there are a few citation relationships between paradigms, such as DCe1 (Balland et al., 2013) and DCe2 (Martin and Sunley, 2001), overall, the relationships between paradigms are very sparse. EEG is minimally associated with REG, and most of these connections occur after 2010 (e.g., Balland et al., 2013; Fløysand and Jakobsen, 2011). REG overall is almost unaffected by EEG, so there is still a strong separation between the two. AEG is mainly associated with REG and to a lesser extent with GPE, but not with the overall popular EEG.



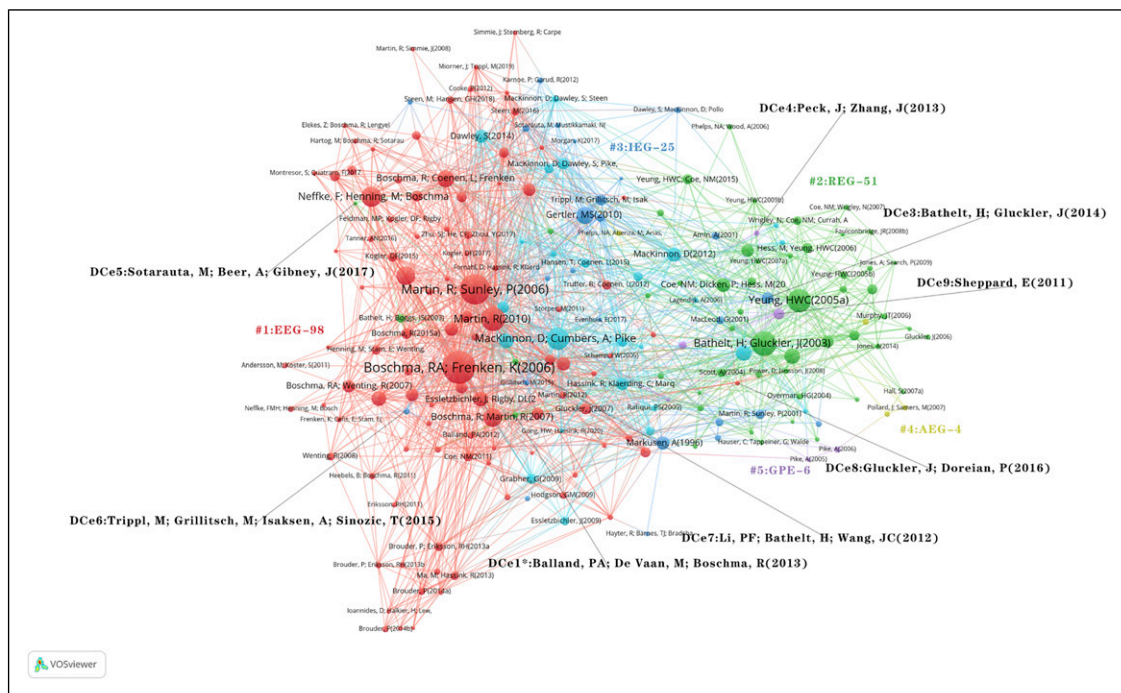
**Figure 4.** Direct citation networks of five single paradigms (node size represents LCS, LCS  $\geq 5$ , 183 nodes).

It seems that we may need to consider this as fragmented pluralism. However, Figure 5 seems to give us other evidence. First, “the use of direct citations often leads to very sparse networks (i.e., networks with only a very small number of edges)” (Van Eck and Waltman, 2014: 287). Secondly, Figure 4 was constructed by excluding 53 articles defined as EP. By comparing Figures 4 and 5, we believe that the fragmentation mentioned above may be due to the small number of articles in Figure 4. Through Figure 5, we found that except for AEG, each paradigm has the intellectual lending or borrowing with other paradigms, although the degree of interaction may be uneven. For example, although IEG has extensive dialogue with both EEG and REG, it has relatively more dialogue with REG than with EEG. In addition, there is a strong dialogue between GPE and REG, although the BC network in Section IV.2 did not find much overlap between them in terms of research base. Combining Figures 4 and 5, we have marked a total of nine papers (from DCE1 to

DCE9) that clearly communicate with other paradigms.

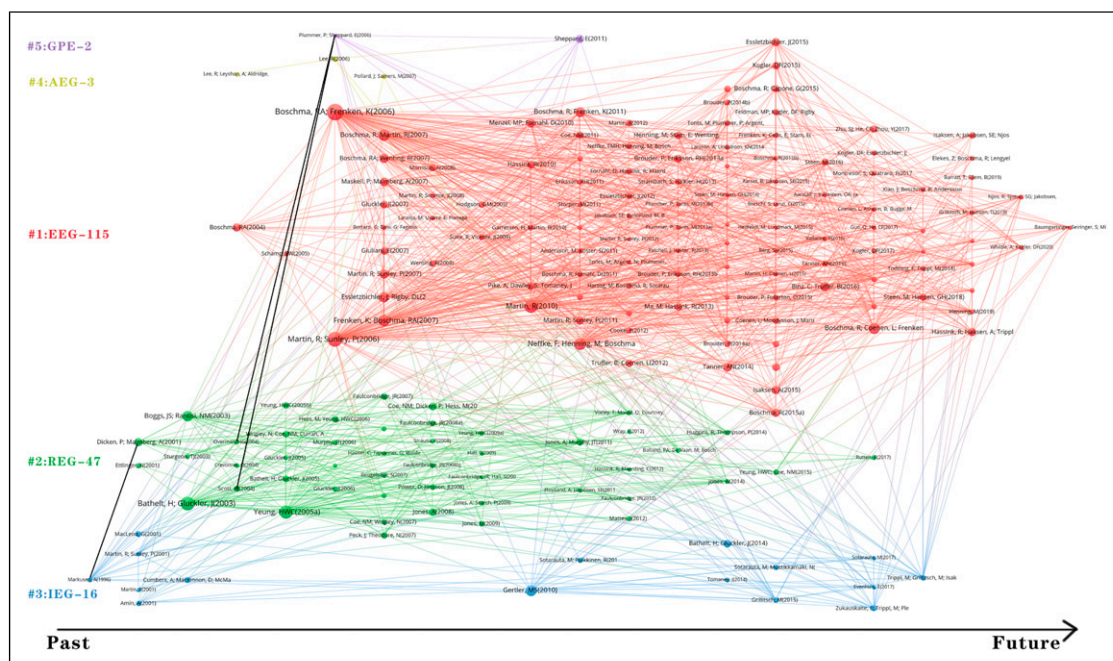
#### 4 How did the different paradigms evolve and affect each other?

Similar to the previous two sub-sections, Figures 6 and 7 show five clusters and six clusters including the “engaged pluralism cluster” for the DCT networks, respectively. It can be seen from Figure 6 that EEG, despite being launched later than IEG and REG, has developed into the largest paradigm since the publication of the two papers by Boschma and Frenken (2006) and Martin and Sunley (2006). It is worth noting that, although the development of IEG and REG predates the development of EEG, the earliest economic geography articles with an evolutionary perspective did not explicitly draw inspiration from these two paradigms. Instead, as can be seen from Figure 6, the development of REG was based on the foundation



**Figure 5.** Direct citation networks of five single paradigms and “engaged pluralism cluster” (node size represents LCS1034, LCS1034 ≥ 7,209 nodes).





**Figure 6.** Direct citation networks of five single paradigms (node size represents LCS,  $LCS \geq 5,183$  nodes). The figure shows from the left to right the older and newer papers. In each cluster, papers with larger LCS are located at the top and bottom, and articles with smaller LCS are located in the middle.)

of IEG (Markusen, 1996), while the emergence of GPE relied on the foundation of REG (Scott, 2004).

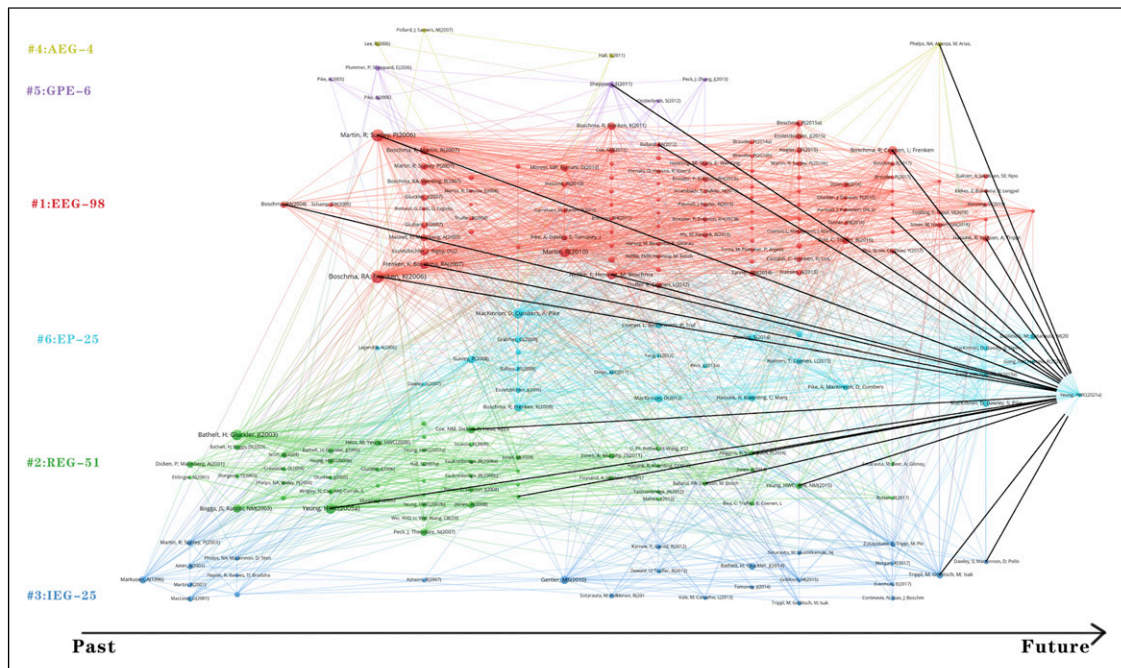
As can be seen in Figure 7, “Engaged Pluralism” has gradually emerged since 2009 and has become more common. More or less after the beginning of the debate on engaged pluralism and fragmented pluralism in the discipline, there has been an increasing number of articles from a multi-paradigm perspective that have reconciled with the limitations implied by using one paradigm in terms of object of study, research topic, explanatory strategies, methods, and tools. It clearly shows the increasing concern in the economic geography community about fragmented pluralism and the embodied practices of engaged pluralism. These studies have sought and considered ways of engaged dialogue, synthesis, or integration with the frameworks of other paradigms, clearly showing that communication is not “closed” towards the other paradigms. Taking the latest EP paper as an example (Yeung, 2021), it not only commonly involves EEG and REG

but also includes considerations of IEG, GPE, and AEG.

### 5 How do the different paradigms bridge to each other?

After cleaning the keywords (in addition to the usual merging of singular and plural and keywords, such as “cluster/clusters,” or “catching-up/catching up”), we merged “policy/policies,” “economy/economics,” and “globalization/globalisation” in the field of economic geography. The keywords of all paradigms and the keywords of each paradigm were counted by year and then we filtered the keywords with frequencies greater than 20 in all paradigms and those with frequencies greater than 10 in a single paradigm. After deleting the retrieval keywords such as “economic geography” and “evolutionary economic geography,” we ended up with 29 important keywords, and the following keyword graph was obtained (Figure 8).





**Figure 7.** Direct citation networks of five single paradigms and “engaged pluralism cluster” (node size represents LCS1034,  $LCS1034 \geq 7,209$  nodes). The figure shows from the left to right the older and newer papers. In each cluster, papers with larger LCS1034 are located at the top and bottom, and articles with smaller LCS1034 are located in the middle).

In Figure 8, the year is shown on the left (the three colors from the bottom to the top are the three phases of start-up-rapid growth-fluctuating development), the paradigms on the right, and the 29 important keywords mentioned above in the middle.

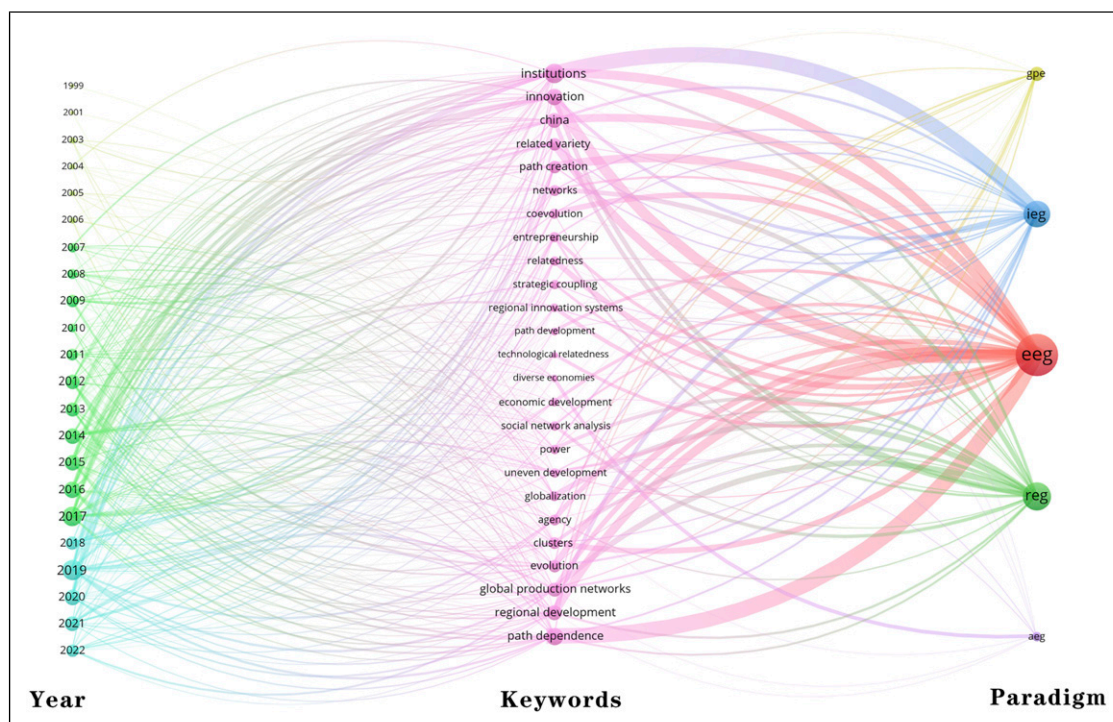
First, we can identify some of the most important keywords in the paradigm papers, which are ranked at the top and bottom of the middle column, such as path dependence, regional development, institution, innovation, and cluster.

Secondly, we can obtain information about timing, connection, and thickness. For example, institutions, clusters, path dependence, and evolution are developed in the initial phase, while relatedness, regional innovation system, related variety, agency, path creation, and co-evolution are developed during the rapid growth phase. Some words, such as globalization and networks, have become less popular in recent years. In the same way, we can find important keywords within each paradigm. For

example, uneven development is particularly important for GPE, while diverse economy is particularly important for AEG, and technology relatedness is unique to EEG.

Last but not least, this figure allows us to identify some bridging concepts. For example, the cluster concept bridges EEG, REG, and IEG, and especially REG and EEG, institutions bridge EEG, REG, IEG, and GPE, and especially IEG and EEG, and the diverse economy bridges GPE and AEG.

These bridging concepts may have different functions in the paradigms, such as object of study, research topic, explanatory strategy, method, and tool. For example, globalization might be the object of study and social network analysis the method. However, the usefulness of these concepts for bridging paradigms needs to be debated on an individual basis. In our view, they are particularly useful, if they contribute to strengthening the core of economic geography, as a context- and place-



**Figure 8.** Frequency of keywords (node size represents the number of keywords).

sensitive discipline (Gong and Hassink, 2020; Chu and Hassink, 2023).

## V Conclusions

Concerns about fragmented pluralism in economic geography, which we share, were the main motivation to write this paper. Like many other economic geographers, we are in favor of engaged pluralism. Moreover, we want to debate the discipline's identity and core, without having a normative, politically driven agenda. We see the discussion about bridging concepts as an interesting way forward to achieve the aims of engaged pluralism and finding a theoretical core.

Although our bibliometric analysis showed a complex knowledge landscape in economic geography, it did not confirm the worries expressed in the economic geography literature about fragmented pluralism. First, through the BC network, we verified that there is a large amount of common use of prior

knowledge between IEG and EEG, IEG and REG, and IEG and GPE. Secondly, we observe considerable direct citing among different paradigms by DC networks, pointing to interaction, intellectual lending, and borrowing among different paradigms. Thirdly, we could also observe an increasing number of papers arguing in favor of engaged pluralism, with concrete suggestions for complementarities between paradigms, particularly between EEG, REG, and IEG. Finally, therefore, although economic geography is pluralistic in terms of paradigms, networks of communication between paradigms point to a conversational community, with engaged dialogues and exchange between paradigms, rather than fragmented pluralism where intellectual monocultures engage only in self-validating research. A closer look at the individual scholars also reveals that not only do some scholars appear in several paradigms, such as Ron Martin, but they also play an active role as intermediaries in the engaged pluralism literature. This observed engaged pluralism is possible because

of a high level of commensurability between the paradigms, as they share a critical stance towards positivism (Gong and Hassink, 2020), as some have critical realism as an underlying philosophy of science (Chu and Hassink, 2023) and as most draw on heterodox economics. Moreover, and related to the previous point, it arguably also shows that in fact some of the paradigms are more overlapping than their main protagonists make us believe, because they represent speciation, rather than radical new paradigms, with a high degree of commensurability.

We see the discussion about bridging concepts as an interesting way to further strengthen engaged pluralism and to debate about a theoretical core (Muellerleile et al., 2014), whether it is desirable and whether it should change, and see our first analysis as an invitation to contribute to these debates. In our view, criteria for proposing or selecting bridging concepts between paradigms should be their contribution to understanding and exploring the core questions of economic geography and they should bridge paradigms in such a way that the theoretical core will be strengthened. Such a theoretical core is by no means fixed and once-and-forever, and can change through time, as paradigms and bridging concepts change through time, as well.

However, our observed increasing engaged pluralism and the related debate about bridging concepts are no reasons for economic geographers to sit back and relax because our analysis has also shown a worrisome decreasing overall reference to paradigms in the literature (Figure 1), and there are arguably few alternatives to the currently existing paradigms on the horizon. In our view, existing paradigms need to be more challenged and criticized and potential alternatives, such as recently mentioned by Yeung (2023), need to be discussed. They could consist of environmental economic geography (Braun et al., 2018; He et al., 2022), the geography of sustainability transitions (Hansen and Coenen, 2015), financial geography (Gibadullina, 2021; Wójcik, 2022), global production networks (Coe and Yeung, 2019), and the platform economy (Kenney and Zysman, 2020). However, in our view, these alternatives could be regarded as topic-related “major research foci and communities” (Yeung, 2023: 1), rather than paradigms with theories that are helpful

for generally understanding and explaining economic activities in space. Concerning the latter, one might, given the current crisis-ridden times in which nation-states play a key role, expect geographical political economy to become more important in the near future (see also Essletzbichler et al., 2023).

Using a bibliometric method analyzing paradigmatic pluralism, although promising, is not without limitations. First, we took launching papers as a starting point for demarking the paradigms, but maybe some of the influence is more indirectly and implicit without citing the launching literature and this might also differ from paradigm to paradigm. Secondly, we only use English-speaking literature. In some other main language areas, there might be influential paradigms that are slightly different from the internationally discussed ones, such as *Raumwirtschaftslehre* in Germany (Suwala, 2023), loosely translated with regional science by Bathelt and Glückler (2011: 22). Thirdly, due to the limited information that static pictures can reveal, we cannot distinguish between one-directional and two-directional engagement between paradigms.

However, despite these limitations, we are convinced that our bibliometric analysis provides a solid basis for a much-needed debate in economic geography about pluralism, identity, the theoretical core of the discipline, and about its paradigmatic future.

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## Supplemental Material

Supplemental material for this article is available online.

## Notes

1. In economic geography, different terms have been used to identify the dominant theoretical views, such as schools of thought, perspectives, and paradigms, and their changes, such as turns, transitions, and paradigm shifts (see Barnes and Christophers, 2018). Although we realize the variety of terms and their slightly different meanings, for the sake of simplicity we will largely confine ourselves to the term paradigms in this paper.
2. The Local Citation Score (LCS) is the frequency with which a paper is cited by other papers in the local collection. In contrast, the Global Citation Score (GCS) provides the frequency of citations for the full count of Web of Science at the time the data was downloaded (Barreiro, 2015). Since this paper prefers to assign more precisely the papers that are important for the paradigm, two LCSs are used in this paper, namely, LCS and LCS1034. The former consists of the number of citations for each article within the paradigm to which it belongs, and the latter of the number of citations for each article in 1034 articles (i.e., all paradigm articles).
3. We understand that using the same LCS threshold for paradigms of different sizes is unfair, thus we will supplement with LCS1034 as the filtering threshold in Figure 3. However, Figure 2 is necessary because it can present the BC networks among different paradigms

more independently and purely conditioned by excluding the 53 EP articles.

## References

- Agnew J (2012) Putting politics into economic geography. In: Barnes TJ, Peck J and Sheppard E (eds) *The Wiley-Blackwell Companion to Economic Geography*. Chichester: Wiley-Blackwell, 567–580.
- Amin A and Thrift N (1995) Institutional issues for the European regions: from markets and plans to socio-economics and powers of association. *Economy and Society* 24(1): 41–66.
- Anand G, Larson EC and Mahoney JT (2020) Thomas Kuhn on paradigms. *Production and Operations Management* 29(7): 1650–1657.
- Aoyama Y, Berndt C, Glückler J, et al. (2011a) Emerging themes in economic geography: outcomes of the economic geography 2010 workshop. *Economic Geography* 87(2): 111–126.
- Aoyama Y, Murphy JT and Hanson S (2011b) *Key Concepts in Economic Geography*. London: Sage.
- Asheim BT (2020) Economic geography as regional contexts' reconsidered – implications for disciplinary division of labour, research focus and societal relevance. *Norsk Geografisk Tidsskrift - Norwegian Journal of Geography* 74(1): 25–34.
- Baggio JA, Brown K and Hellebrandt D (2015) Boundary object or bridging concept? A citation network analysis of resilience. *Ecology and Society* 20(2): 2.
- Balland PA (2012) Proximity and the evolution of collaboration networks: evidence from research and development projects within the global navigation satellite system (GNSS) industry. *Regional Studies* 46(6): 741–756.
- Balland PA, De Vaan M and Boschma R (2013) The dynamics of interfirm networks along the industry life cycle: the case of the global video game industry, 1987–2007. *Journal of Economic Geography* 13(5): 741–765.
- Barnes TJ (2009) Economic geography. In: Kitchen R and Thrift N (eds) *International Encyclopedia of Human Geography*. Oxford: Elsevier, 315–327.
- Barnes TJ and Christophers B (2018) *Economic Geography: A Critical Introduction*. Chichester: John Wiley & Sons.
- Barnes TJ and Sheppard E (2010) 'Nothing includes everything': towards engaged pluralism in Anglophone



- economic geography. *Progress in Human Geography* 34(2): 193–214.
- Barnes T, Peck J, Sheppard E, et al. (2007) Methods matter: transformations in economic geography. In: Tickell A, Sheppard E, Peck J, et al. (eds) *Politics and Practice in Economic Geography*. London: Sage Publications, 1–24.
- Barnes TJ, Peck J and Sheppard E (eds) (2012) *The Wiley-Blackwell Companion to Economic Geography*. Malden, MA: Wiley-Blackwell.
- Barreiro EW (2015) Using histcite software to identify significant articles in subject searches of the web of science. ArXiv Preprint arXiv:1512.07069.
- Barry A, Born G and Weszkalnys G (2008) Logics of interdisciplinarity. *Economy and Society* 37(1): 20–49.
- Bassett K (1999) Is there progress in human geography? The problem of progress in the light of recent work in the philosophy and sociology of science. *Progress in Human Geography* 23(1): 27–47.
- Bathelt H (2006) Geographies of production: growth regimes in spatial perspective 3 - toward a relational view of economic action and policy. *Progress in Human Geography* 30(2): 223–236.
- Bathelt H and Glückler J (2003) Toward a relational economic geography. *Journal of Economic Geography* 3(2): 117–144.
- Bathelt H and Glückler J (2011) *The Relational Economy: Geographies of Knowing and Learning*. Oxford: Oxford University Press.
- Bathelt H and Glückler J (2018) Relational research design in economic geography. In: Clarke G, Feldman M, Gertler M, et al. (eds) *New Oxford Handbook of Economic Geography*. Oxford: Oxford University Press, 179–195.
- Bathelt H, Coe NM, Kerr WR, et al. (2017) Editorial: economic geography IMPULSES. *Journal of Economic Geography* 17(5): 927–933.
- Bernstein RJ (2005) *The New Constellation: The Ethical-Political Horizons of Modernity, Postmodernity*. Cambridge: Polity Press.
- Boggs JS and Rantisi NM (2003) The ‘relational turn’ in economic geography. *Journal of Economic Geography* 3(2): 109–116.
- Bok R (2019) ‘By our metaphors you shall know us’: the ‘fix’ of geographical political economy. *Progress in Human Geography* 43(6): 1087–1108.
- Bordons M, Morillo F and Gómez I (2005) Analysis of cross-disciplinary research through bibliometric tools. In: Moed HF, Glänzel W and Schmoch U (eds) *Handbook of Quantitative Science and Technology Research*. Dordrecht: Kluwer Academic Publishers, 437–456.
- Boschma R and Frenken K (2006) Why is economic geography not an evolutionary science? Towards an evolutionary economic geography. *Journal of Economic Geography* 6(3): 273–302.
- Boschma R and Frenken K (2009) Some notes on institutions in evolutionary economic geography. *Economic Geography* 85(2): 151–158.
- Boschma R and Frenken K (2011) The emerging empirics of evolutionary economic geography. *Journal of Economic Geography* 11(2): 295–307.
- Boschma R and Frenken K (2018) Evolutionary economic geography. In: Clarke G, Feldman M, Gertler M, et al. (eds) *New Oxford Handbook of Economic Geography*. Oxford: Oxford University Press, 213–229.
- Boschma R and Martin R (2010) The aims and scope of evolutionary economic geography. In: Boschma R and Martin R (eds) *The Handbook of Evolutionary Economic Geography*. Cheltenham: Edward Elgar, 3–39.
- Boschma RA and Wenting R (2007) The spatial evolution of the British automobile industry: does location matter? *Industrial and Corporate Change* 16(2): 213–238.
- Boschma R, Minondo A and Navarro M (2013) The emergence of new industries at the regional level in Spain: a proximity approach based on product relatedness. *Economic Geography* 89(1): 29–51.
- Boyack KW and Klavans R (2019) Creation and analysis of large-scale bibliometric networks. In: Glänzel W, Moed HF, Schmoch U, et al. (eds) *Springer Handbook of Science and Technology Indicators*. Cham: Springer, 187–212.
- Braun B, Oßenbrügge J and Schulz C (2018) Environmental economic geography and environmental inequality: challenges and new research prospects. *Zeitschrift für Wirtschaftsgeographie* 62(2): 120–134.
- Brenner N (2004) *New State Spaces*. Oxford: Oxford University Press.
- Broekel T and Boschma R (2012) Knowledge networks in the Dutch aviation industry: the proximity paradox. *Journal of Economic Geography* 12(2): 409–433.
- Chu H and Hassink R (2023) Advancing spatial ontology in evolutionary economic geography. *Cambridge Journal of Regions, Economy and Society* 16(3): 391–404.

- Clare K and Siemiatycki E (2014) Primacy or pluralism: future directions in economic geography. *The Professional Geographer* 66(1): 4–10.
- Clark GL, Feldman MP, Gertler MS, et al. (eds) (2018) *The New Oxford Handbook of Economic Geography*. Oxford: Oxford University Press.
- Coe NM and Yeung HWC (2019) Global production networks: mapping recent conceptual developments. *Journal of Economic Geography* 19(4): 775–801.
- Coe NM, Kelly PF and Yeung HW-C (2013) *Economic Geography: A Contemporary Introduction*. Hoboken, NJ: Wiley-Blackwell.
- Essletzbichler J, Scholz-Wäckerle M, Gerdes L, et al. (2023) Geographical evolutionary political economy: linking local evolution with uneven and combined development. *Cambridge Journal of Regions, Economy and Society* 16(3): 543–560.
- Florida R and Adler P (2020) Economic geography. In: Kobayashi A (ed) *International Encyclopedia of Human Geography*. Oxford: Elsevier, 25–28.
- Fløysand A and Jakobsen SE (2011) The complexity of innovation: a relational turn. *Progress in Human Geography* 35(3): 328–344.
- Frenken K, Van Oort F and Verburg T (2007) Related variety, unrelated variety and regional economic growth. *Regional Studies* 41(5): 685–697.
- Garretsen H and Martin R (2010) Rethinking (new) economic geography models: taking geography and history more seriously. *Spatial Economic Analysis* 5(2): 127–160.
- Gaspar JM (2021) New economic geography: history and debate. *The European Journal of the History of Economic Thought* 28(1): 46–82.
- Gertler MS (2004) *Manufacturing Culture: The Institutional Geography of Industrial Practice*. Oxford: Oxford University Press.
- Gertler MS (2010) Rules of the game: the place of institutions in regional economic change. *Regional Studies* 44(1): 1–15.
- Gertler MS (2018) Institutions, geography, and economic life. In: Clarke G, Feldman M, Gertler M, et al. (eds) *New Oxford Handbook of Economic Geography*. Oxford: Oxford University Press, 230–242.
- Gibadullina A (2021) The birth and development of Anglophone financial geography: a historical analysis of geographical studies of money and finance. *Geoforum* 125: 150–167.
- Gibson-Graham JK (1996) *The End of Capitalism (As We Knew it): A Feminist Critique of Political Economy*. Oxford: Blackwell.
- Gibson-Graham JK (2003) Poststructural interventions. In: Sheppard E and Barnes TJ (eds) *A Companion to Economic Geography*. Oxford: Blackwell Publishing, 95–110.
- Gibson-Graham JK (2008) Diverse economies: performative practices for ‘other worlds’. *Progress in Human Geography* 32(5): 613–632.
- Gibson-Graham JK, Cameron J and Healy S (2013) *Take Back the Economy: An Ethical Guide for Transforming Our Communities*. Minneapolis, MN: University of Minnesota Press.
- Gibson-Graham JK and Dombroski K (2020a) Introduction to the handbook of diverse economies: inventory as ethical intervention. In: Gibson-Graham JK and Dombroski K (eds). *The Handbook of Diverse Economies*. Cheltenham: Edward Elgar, 1–24.
- Gibson-Graham JK and Dombroski K (eds) (2020b) *The Handbook of Diverse Economies*. Cheltenham: Edward Elgar.
- Giuliani E (2013) Network dynamics in regional clusters: evidence from Chile. *Research Policy* 42(8): 1406–1419.
- Glänzel W, Moed HF, Schmoch U, et al. (eds) (2019) *Springer Handbook of Science and Technology Indicators*. Cham: Springer.
- Glückler J and Lenz R (2018) Drift and Morphosis in institutional change: evidence from the ‘Wolz’ and public tendering in Germany. In: Glückler J, Suddaby R and Lenz R (eds) *Knowledge and Institutions*. Cham: Springer, 111–133.
- Gong H and Hassink R (2019) Co-evolution in contemporary economic geography: towards a theoretical framework. *Regional Studies* 53(9): 1344–1355.
- Gong H and Hassink R (2020) Context sensitivity and economic-geographic (re)theorising. *Cambridge Journal of Regions, Economy and Society* 13(3): 475–490.
- Grabher G (1993) The weakness of strong ties. The lock-in of regional development in the Ruhr area. In: Grabher G (ed), *The Embedded Firm: On the Socioeconomics of Industrial Networks*. London, New York, NY: Routledge, 255–277.
- Grillitsch M (2015) Institutional layers, connectedness and change: implications for economic evolution in regions. *European Planning Studies* 23(10): 2099–2124.

- Grillitsch M, Asheim B and Trippel M (2018) Unrelated knowledge combinations: the unexplored potential for regional industrial path development. *Cambridge Journal of Regions, Economy and Society* 11(2): 257–274.
- Hansen T and Coenen L (2015) The geography of sustainability transitions: review, synthesis and reflections on an emergent research field. *Environmental Innovation and Societal Transitions* 17: 92–109.
- Harvey D (1982) *The Limits to Capital*. Oxford: Basil Blackwell.
- Hassink R (2007) The strength of weak lock-ins: the renewal of the Westmünsterland textile industry. *Environment & Planning A: Economy and Space* 39(5): 1147–1165.
- Hassink R (2010) Locked in decline? On the role of regional lock-ins in old industrial areas. In: Boschma R and Martin R (eds) *The Handbook of Evolutionary Economic Geography*. Cheltenham: Edward Elgar, 450–468.
- Hassink R and Gong H (2017) Sketching the contours of an integrative paradigm of economic geography. *Papers in Innovation Studies 2017/12*. Lund: Lund University, CIRCLE - Centre for Innovation Research.
- Hassink R, Klaerding C and Marques P (2014) Advancing evolutionary economic geography by engaged pluralism. *Regional Studies* 48(7): 1295–1307.
- He C, He S, Mu E, et al. (2022) Environmental economic geography: recent advances and innovative development. *Geography and Sustainability* 3(2): 152–163.
- Hu FZY and Lin GCS (2011) Situating regional advantage in geographical political economy: transformation of the state-owned enterprises in Guangzhou, China. *Geoforum* 42(6): 696–707.
- Hudson R (2005) *Economic Geographies: Circuits, Flows and Spaces*. Thousand Oaks, CA: Sage.
- Hudson R (2006) The ‘new’ economic geography? In: Bagchi-Sen S and Lawton Smith H (eds) *Economic Geography: Past, Present and Future*. London: Routledge, 47–56.
- Isaksen A (2015) Industrial development in thin regions: trapped in path extension? *Journal of Economic Geography* 15(3): 585–600.
- Jones M (2008) Recovering a sense of political economy. *Political Geography* 27(4): 377–399.
- Kenney M and Zysman J (2020) The platform economy: restructuring the space of capitalist accumulation. *Cambridge Journal of Regions, Economy and Society* 13(1): 55–76.
- Kogler DF (2015) Editorial: evolutionary economic geography – theoretical and empirical progress. *Regional Studies* 49(5): 705–711.
- Kogler DF, Evenhuis E, Giuliani E, et al. (2023) Re-Imagining evolutionary economic geography. *Cambridge Journal of Regions, Economy and Society* 16(3): 373–390.
- Kuhn TS (1990) The road since structure. *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*. Cambridge: Cambridge University Press, 1–13.
- Kuhn TS (2012) *The Structure of Scientific Revolutions*. Chicago, IL: University of Chicago Press.
- Lee R (2006) The ordinary economy: tangled up in values and geography. *Transactions of the Institute of British Geographers* 31(4): 413–432.
- Lee R (2011) Ordinary economic geographies: can economic geographies be non-economic? In: Leyshon A, Lee R, McDowell L, et al. (eds) *The Sage Handbook of Economic Geography*. London: Sage, 368–382.
- Lefebvre H (1991) *The Production of Space*. London: Blackwell Publishing.
- Leydesdorff L and Amsterdamska O (1990) Dimensions of citation analysis. *Science, Technology & Human Values* 15(3): 305–335.
- Leydesdorff L, Wagner CS and Bornmann L (2018) Betweenness and diversity in journal citation networks as measures of interdisciplinarity—a tribute to Eugene Garfield. *Scientometrics* 114(2): 567–592.
- Leyshon A, Lee R and Williams CC (eds) (2003) *Alternative Economic Spaces*. London: Sage.
- Leyshon A, Lee R, McDowell L, et al. (eds) (2011) *The Sage Handbook of Economic Geography*. London: Sage.
- MacKinnon D (2009) Institutionalism/institutional geographies. In: Kitchin R and Thrift N (eds) *International Encyclopedia of Human Geography*. Oxford: Elsevier, 499–506.
- MacKinnon D (2012) Beyond strategic coupling: re-assessing the firm-region nexus in global production networks. *Journal of Economic Geography* 12(1): 227–245.
- MacKinnon D (2020) Institutionalism/institutional geographies. In: Kobayashi A (ed) *International Encyclopedia of Human Geography*. Oxford: Elsevier, 349–355.
- MacKinnon D and Cumbers A (2019) *An Introduction to Economic Geography: Globalisation, Uneven Development and Place*. New York, NY: Routledge.

- Malecki EJ (2015) Economic geography. In: Wright JD (ed) *International Encyclopedia of the Social & Behavioral Sciences*. Oxford: Elsevier, 33–37.
- Mann G (2012) Release the hounds! The marvelous case of political economy. In: Barnes TJ, Peck J and Sheppard E (eds) *The Wiley-Blackwell Companion to Economic Geography*. Malden, MA: Wiley-Blackwell, 61–73.
- Markusen A (1996) Sticky places in slippery space: a typology of industrial districts. *Economic Geography* 72(3): 293–313.
- Markusen A (2006) Economic geography and political economy. In: Bagchi-Sen S and Lawton Smith H (eds) *Economic Geography: Past, Present and Future*. London: Routledge, 47–56.
- Martin R (2000) Institutional approaches in economic geography. In: Sheppard E and Trevor JB (eds) *A Companion to Economic Geography*. Oxford: Blackwell, 77–94.
- Martin R (2011) The “new economic geography”: credible models of the economic landscape? In: Leyshon A, Lee R, McDowell L, et al. (eds) *The Sage Companion to Economic Geography*. London: Sage, 53–71.
- Martin R (2021) Putting the case for a pluralistic economic geography. *Journal of Economic Geography* 21(1): 1–28.
- Martin R and Sunley P (2001) Rethinking the “economic” in economic geography: broadening our vision or losing our focus? *Antipode* 33(2): 148–161.
- Martin R and Sunley P (2003) Deconstructing clusters: chaotic concept or policy panacea? *Journal of Economic Geography* 3(1): 5–35.
- Martin R and Sunley P (2006) Path dependence and regional economic evolution. *Journal of Economic Geography* 6(4): 395–437.
- Martin R and Sunley P (2011) Conceptualizing cluster evolution: beyond the life cycle model? *Regional Studies* 45(10): 1299–1318.
- Martin R and Sunley P (2015) Towards a developmental turn in evolutionary economic geography? *Regional Studies* 49(5): 712–732.
- Maskell P and Malmberg A (2007) Myopia, knowledge development and cluster evolution. *Journal of Economic Geography* 7(5): 603–618.
- Menzel M-P and Fornahl D (2010) Cluster life cycles--dimensions and rationales of cluster evolution. *Industrial and Corporate Change* 19(1): 205–238.
- Mitchell SD (2004) Why integrative pluralism? *Emergence: Complexity and Organization* 6(1–2): 81–91.
- Moed HF, Glänzel W and Schmoch U (eds) (2004) *Handbook of Quantitative Science and Technology Research: The Use of Publication and Patent Statistics in Studies of S & T Systems*. Dordrecht: Kluwer Academic Publishers.
- Morrison A and Rabelotti R (2009) Knowledge and information networks in an Italian wine cluster. *European Planning Studies* 17(7): 983–1006.
- Muellerleile C, Strauss K, Spigel B, et al. (2014) Economic geography and the financial crisis: full steam ahead? *The Professional Geographer* 66(1): 11–17.
- Murphy JT (2018) The relational turn in economic geography. In: Cook G, Johns J, McDonald F, et al. (eds) *The Routledge Companion to the Geography of International Business*. New York, NY: Routledge, 161–173.
- Neffke F, Henning M and Boschma R (2011) How do regions diversify over time? Industry relatedness and the development of new growth paths in regions. *Economic Geography* 87(3): 237–265.
- Neffke F, Hartog M, Boschma R, et al. (2018) Agents of structural change: the role of firms and entrepreneurs in regional diversification. *Economic Geography* 94(1): 23–48.
- Nelson RR and Winter SG (1982) *An Evolutionary Theory of Economic Change*. Cambridge, MA and London: Belknap Press.
- Newell JP and Cousins JJ (2015) The boundaries of urban metabolism: towards a political-industrial ecology. *Progress in Human Geography* 39(6): 702–728.
- Nickles T (ed) (2003) *Thomas Kuhn*. Cambridge: Cambridge University Press.
- Overman HG (2004) Can we learn anything from economic geography proper? *Journal of Economic Geography* 4(5): 501–516.
- Peck J (2005) Economic sociologies in space. *Economic Geography* 81(2): 129–175.
- Peck J (2015) Navigating economic geographies. *Keynote Speech at the Fourth Global Conference on Economic Geography*. Oxford: University of Oxford.
- Peck J and Whiteside H (2016) Financializing detroit. *Economic Geography* 92(3): 235–268.



- Pike A (2005) Building a geographical political economy of closure: the case of R&DCo in North East England. *Antipode* 37(1): 93–115.
- Pike A (2006) 'Shareholder value' versus the regions: the closure of the Vaux brewery in Sunderland. *Journal of Economic Geography* 6(2): 201–222.
- Pike A (2020) Coping with deindustrialization in the global North and South. *International Journal of Urban Sciences* 26(1): 1–22.
- Pike A, Marlow D, McCarthy A, et al. (2015) Local institutions and local economic development: the local enterprise partnerships in England, 2010–. *Cambridge Journal of Regions, Economy and Society* 8(2): 185–204.
- Popp A and Wilson J (2007) Life cycles, contingency, and agency: growth, development, and change in English industrial districts and clusters. *Environment & Planning A: Economy and Space* 39(12): 2975–2992.
- Rafiqui PS (2008) Evolving economic landscapes: why new institutional economics matters for economic geography. *Journal of Economic Geography* 9(3): 329–353.
- Rantisi NM and Boggs JS (2020) Economic geography, relational. In: Kobayashi A (ed) *International Encyclopedia of Human Geography*. Oxford: Elsevier, 29–34.
- Rodríguez-Pose A (2013) Do institutions matter for regional development? *Regional Studies* 47(7): 1034–1047.
- Rodríguez-Pose A (2020) Institutions and the fortunes of territories. *Regional Science Policy & Practice* 12(3): 371–386.
- Rodríguez-Pose A and Di Cataldo M (2015) Quality of government and innovative performance in the regions of Europe. *Journal of Economic Geography* 15(4): 673–706.
- Rodríguez-Pose A and Storper M (2009) Better rules or stronger communities? On the social foundations of institutional change and its economic effects. *Economic Geography* 82(1): 1–25.
- Rosenman E, Loomis J and Kay K (2020) Diversity, representation, and the limits of engaged pluralism in (economic) geography. *Progress in Human Geography* 44(3): 510–533.
- Sankey H (1993) Kuhn's changing concept of incommensurability. *The British Journal for the Philosophy of Science* 44(4): 759–774.
- Scott AJ (2000) Economic geography: the great half-century. *Cambridge Journal of Economics* 24(4): 483–504.
- Scott AJ (2004) A perspective of economic geography. *Journal of Economic Geography* 4(5): 479–499.
- Scott J (2005) Sociology and its others: reflections on disciplinary specialisation and fragmentation. *Sociological Research Online* 10(1): 71–78.
- Sheppard E (2006) The economic geography project. In: Bagchi-Sen S and Lawton Smith H (eds) *Economic Geography: Past, Present and Future*. London: Routledge, 11–23.
- Sheppard E (2011) Geographical political economy. *Journal of Economic Geography* 11(2): 319–331.
- Sheppard E (2016) *Limits to Globalization: The Disruptive Geographies of Capitalist Development*. Oxford: Oxford University Press.
- Sheppard E (2018) Heterodoxy as orthodoxy: prolegomenon for a geographical political economy. In: Clarke G, Feldman M, Gertler M, et al. (eds) *New Oxford Handbook of Economic Geography*. Oxford: Oxford University Press, 159–178.
- Sheppard E and Plummer P (2007) Toward engaged pluralism in geographical debate. *Environment & Planning A: Economy and Space* 39(11): 2545–2548.
- Sheppard E, Barnes TJ, Peck J, et al. (2004) Introduction: reading economic geography. In: Barnes TJ, Peck J, Sheppard E, et al. (eds) *Reading Economic Geography*. Oxford: Blackwell, 1–10.
- Sheppard E, Barnes TJ and Peck J (2012) The long decade: economic geography, unbound. In: Barnes TJ, Peck J and Sheppard E (eds) *The Wiley-Blackwell Companion to Economic Geography*. Malden, MA: Wiley-Blackwell, 1–24.
- Simandan D (2011) Is engaged pluralism the best way ahead for economic geography? Commentary on Barnes and Sheppard (2009). *Progress in Human Geography* 35(4): 568–572.
- Simmie J (2012) Path dependence and new technological path creation in the Danish wind power industry. *European Planning Studies* 20(5): 753–772.
- Smith N (1984) *Uneven Development: Nature, Capital and the Production of Space*. Oxford: Basil Blackwell.

- Smith A (2012) The insurmountable diversity of economies. In: Barnes TJ, Peck J and Sheppard E (eds) *The Wiley-Blackwell Companion to Economic Geography*. Malden, MA: Wiley, 258–274.
- Strambach S (2010) Path dependence and path plasticity: the co- evolution of institutions and innovation – the German customized business software industry. In: Boschma R and Martin R (eds) *The Handbook of Evolutionary Economic Geography*. Cheltenham: Edward Elgar, 406–431.
- Sunley P (2012) Inheritance or exchange? Pluralism and the relationships between economic geography and economics. In: Barnes TJ, Peck J and Sheppard E (eds) *The Wiley-Blackwell Companion to Economic Geography*. Malden, MA: Wiley, 581–593.
- Suwala L (2023) Wirtschaftsgeographie – neuere Entwicklungen und Konturen einer Disziplin. In: Suwala L (ed) *Schlüsselbegriffe der Wirtschaftsgeographie*. Stuttgart: UTB, 17–30.
- Ter Wal ALJ (2014) The dynamics of the inventor network in German biotechnology: geographic proximity versus triadic closure. *Journal of Economic Geography* 14(3): 589–620.
- Thijs B (2019) Science mapping and the identification of topics: theoretical and methodological considerations. In: Glänzel W, Moed HF, Schmoch U, et al. (eds) *Springer Handbook of Science and Technology Indicators*. Cham: Springer, 213–233.
- Trippl M, Grillitsch M, Isaksen A, et al. (2015) Perspectives on cluster evolution: critical review and future research issues. *European Planning Studies* 23(10): 2028–2044.
- Trippl M, Grillitsch M and Isaksen A (2018) Exogenous sources of regional industrial change: attraction and absorption of non-local knowledge for new path development. *Progress in Human Geography* 42(5): 687–705.
- Van Eck NJ and Waltman L (2014) Visualizing bibliometric networks. In: Ding Y, Rousseau R and Wolfram D (eds) *Measuring Scholarly Impact: Methods and Practice*. Cham: Springer, 285–320.
- Van Eck NJ and Waltman L (2022) VOSviewer Manual 1.6.18. 1(0). Available at: [https://www.vosviewer.com/documentation/Manual\\_VOSviewer\\_1.6.18.pdf](https://www.vosviewer.com/documentation/Manual_VOSviewer_1.6.18.pdf)
- Van Raan AFJ (2004) Measuring science: capita selecta of current main issues. In: Moed HF, Glänzel W and Schmoch U (eds) *Handbook of Quantitative Science and Technology Research*. Dordrecht: Springer Netherlands, 19–50.
- Wagner CS, Roessner JD, Bobb K, et al. (2011) Approaches to understanding and measuring interdisciplinary scientific research (IDR): a review of the literature. *Journal of Informetrics* 5(1): 14–26.
- Wainwright T (2012) Number crunching: financialization and spatial strategies of risk organization. *Journal of Economic Geography* 12(6): 1267–1291.
- Weichhart P (2012) Wie “funktioniert” ein Paradigma? In: Fassmann H and Glade T (eds). *Geographie für eine Welt im Wandel*. Vienna: Vienna University Press, 53–64.
- Weichhart P (2016) Der Kieler Geographentag 1969 – Modernisierungsschub, Mythos, Paradigmenwandel oder vergessene Geschichte? *Geographica Helvetica* 71(1): 7–13.
- Weichhart P (2018) *Entwicklungslinien der Sozialgeographie; Von Hans Bobek bis Benno Werlen*. Stuttgart: Franz Steiner Verlag.
- Weingart P (2010) A short history of knowledge formations. In: Frodeman R, Klein JT and Mitcham C (eds) *The Oxford Handbook of Interdisciplinarity*. Oxford: Oxford University Press, 3–14.
- Wenting R (2008) Spinoff dynamics and the spatial formation of the fashion design industry, 1858–2005. *Journal of Economic Geography* 8(5): 593–614.
- Wójcik D (2022) Financial geography III: research strategies, designs, methods and data. *Progress in Human Geography* 46(1): 245–254.
- Yeung HWC (2005) Rethinking relational economic geography. *Transactions of the Institute of British Geographers* 30(1): 37–51.
- Yeung HWC (2021) Regional worlds: from related variety in regional diversification to strategic coupling in global production networks. *Regional Studies* 55(6): 989–1010.
- Yeung HWC (2023) Troubling economic geography: new directions in the post-pandemic world. *Transactions of the Institute of British Geographers* 48(4): 672–680.
- Zukauskaitė E, Trippl M and Plechero M (2017) Institutional thickness revisited. *Economic Geography* 93(4): 325–345.
- Zupic I and Čater T (2015) Bibliometric methods in management and organization. *Organizational Research Methods* 18(3): 429–472.

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## Paper 2 Advancing Spatial Ontology in Evolutionary Economic Geography

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# Advancing spatial ontology in evolutionary economic geography

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Although evolutionary economic geography has been popular in economic geography, it has also been criticized for, among others, a weak geographical conceptualization, which has become evident, particularly in empirical research on related and unrelated variety. Therefore, this paper advances a spatial ontology, which is embedded in critical realism and social constructivism, and will empower evolutionary economic geography to understand and explain the impact of both economic crises and grand societal challenges on regional economic change, in a more place and scale-sensitive manner. Moreover, and relatedly, it will enable a better understanding of the main drivers of regional economic change.

**Keywords:** evolutionary economic geography, spatial ontology, place, regional economic change

**JEL Classification:** B52, R11, R58

## Introduction

After its launch by Boschma and Frenken (2006), an increasing number of economic geographers accepted evolutionary economic geography (EEG) as a main paradigm in economic geography proper (Zhu et al., 2019), and started to carry out empirical work from an evolutionary perspective in the mid-2010s. According to Boschma and Martin (2007, 539) EEG aims at analyzing and explaining ‘... the processes by which the economic landscape – the spatial organisation of economic production, circulation, exchange, distribution and consumption—is transformed over time’. This overall definition refers to a changing economic landscape in more general terms, whereas several research questions refer to the differentiation and particularities of regional economic change (Henning, 2022; Martin and Sunley, 2006), such as: why do some regional economies get stuck in negative path dependence, whereas others manage to successfully re-structure? How do established regional resources (such as labour, infrastructure or institutions) condition economic change? And how do regional resources develop over time to accommodate economic change?

Since EEG’s launch, much empirical research has been carried out on its key concepts, such as path dependence, relatedness and resilience (for an overview, see Boschma

and Frenken, 2018). Moreover, over the years it has increasingly influenced other areas within economic geography, such as tourism geography (Brouder, 2014; Sanz-Ibáñez and Anton Clavé, 2014), global value chains and global production networks (Boschma, 2022; Yeung, 2021) and it has been discussed in relation to regional innovation policy (Coenen et al., 2017; Martin and Sunley, 2023).

However, scholars have observed conceptual limitations of EEG, for instance in dealing with time (Henning, 2019; Martin and Sunley, 2022), the state, institutions and economic agency (Kogler et al., 2023; MacKinnon et al., 2019) and in dealing with real places and context (Gong and Hassink, 2020). Concerning the latter criticism, although originally arguing in favour of moving from a neutral space to a real place (Boschma and Frenken, 2006), empirically, much research in EEG works with container space. Moreover, and partly related, conceptually, real places and context have not been worked out to a large extent in EEG. Existing definitions of real places in economic geography focus mainly on local characteristics seen from an external scholarly perspective without paying enough attention to inside actors. As a result, there is a tendency to work with superficial place characteristics and ignore agency, and the interpretations and practices

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of the actors and how they influence, and are influenced by, real places. Moreover, the dynamics, openness and socially constructed nature of place and scale are not much considered.

In their most recent overview paper on EEG, [Martin and Sunley \(2023, 18\)](#) state that is time for EEG ‘... to construct its own spatial evolutionary ontology, and associated epistemology and theoretical frameworks, based on specifically geographical concepts ...’ as ‘... so far we have taken only small steps in this direction’. They refer to, among others, various types of proximity, geographic space and the dialectic between the ‘space of places’ and the ‘space of flows’.

Against this background, this paper aims at advancing EEG’s spatial ontology. We are convinced that only if EEG constructs its own particular ontology of spatial evolution with a clear recognition of its own strengths, it will be empowered to understand and explain the regional economic change in a more place and scale-sensitive manner, which, relatedly, leads to a better and more comprehensive understanding of the main drivers of regional economic change that go beyond the market-driven logic of innovation ([Coenen and Morgan, 2020](#)). The latter will also enable EEG to get a better understanding of the geographically differentiated impact of grand societal challenges, such as climate change.

In the following, we will first summarize the main critique of EEG. Then we will analyze in more depth its geographical conceptual foundations from a critical perspective. In the following core sections of the paper, we will advance spatial ontology by first defining the key con-

cepts and then showing how they are related to each other in a framework. In the final section, we will conclude by summarizing and emphasizing the key contributions of the paper.

### Evolutionary economic geography and its critique

Drawing from generalized Darwinism, path dependence and complexity theory, EEG has been launched by [Boschma and Frenken \(2006\)](#), as well as [Boschma and Martin \(2007, 2010\)](#). Over the years, it has been taken up by many scholars with both a heterodox economics and geography background. After the publication of the launching paper by [Boschma and Frenken \(2006\)](#), influential publications followed, such as the Handbook of EEG, edited by [Boschma and Martin \(2010\)](#), the special issue in *Regional Studies* guest edited by [Kogler \(2015\)](#), and the Chapter in the New Oxford Handbook of Economic Geography ([Boschma and Frenken, 2018](#)). Recently, [Henning \(2022\)](#) published the first textbook on EEG in English. Overall, the number of journal articles, both of conceptual and empirical nature, not only soared over the years, but it has also grown much stronger than the other paradigms and perspectives in economic geography, and can hence be regarded as the dominating paradigm or perspective (see [Figure 1](#)).

Although the paradigm has been thriving concerning the number of publications through time, it has also been criticized from time to time, as has been indicated

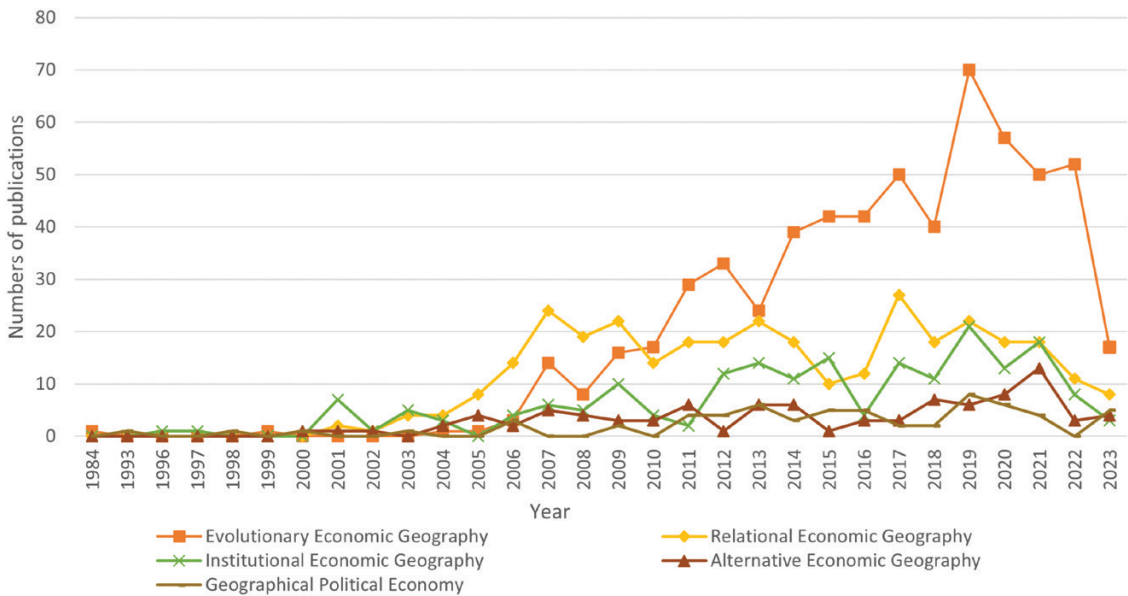


Figure 1. Development of a number of published articles on the main five paradigms and perspectives of economic geography.

in the introduction, and some of that criticism is in our view related to the limited geographical conceptualization.

First, a criticism that has been expressed early on, is the relegation of institutions and agency in EEG (Boschma and Frenken, 2018; MacKinnon et al., 2009). According to Boschma and Frenken (2018, 221), ‘this critique is understandable given that many empirical studies in EEG did not pay explicit attention to the institutional contexts in which economic processes take place, or “bracketed” such processes in dummy variables or “fixed effects”’. Meanwhile, however, there is a considerable body of theoretical and empirical work that pays more attention to institutions and agency, albeit to different extents. The work on coevolution emphasizing the mutual interrelations between institutions and industrial development (Murmah, 2003) has been recently extended (Benner, 2022; Gancarczyk et al., 2023; Gong and Hassink, 2019). Moreover, there have been studies on lock-ins emphasizing the role of institutions, agencies and policies for some time (Grabher, 1993; Hassink, 2005; Wenting and Frenken, 2011). Other studies have emphasized institutional relatedness (Carvalho and Vale, 2018; Punt et al., 2022), as well as the relationship between institutions and diversification (Boschma and Capone, 2015). Finally, the recent new stream of qualitative path literature opens up to institutions and social agencies (Hassink et al., 2019; MacKinnon et al., 2019), as shown in studies by Dawley (2014), Pike et al. (2016), Njøs et al. (2020), Steen (2016), Isaksen and Trippel (2017), Bækkelund (2021), Miörner and Trippel (2017), Binz and Gong (2022), Grillitsch and Sotarauta (2020), Chlebna et al. (2023) and Benner (2023).

Secondly, EEG had a narrow understanding of the drivers of economic development and structural change, mainly confined to market-based innovation. Innovation can be regarded as the most significant driver of economic actors and activities, as has been stressed in the economic geography literature for nearly two decades (Aoyama et al., 2010; Shearmur et al., 2016). Innovation, as a driver of economic activities, is obviously linked to place by classical agglomeration advantages as well as by the stickiness of collective tacit knowledge creation in clusters and industrial districts, as has been emphasized in the EEG literature. However, there is a much broader and increasingly heterogeneous range of drivers than just innovation and related entrepreneurship and competitiveness (Coenen and Morgan, 2020) that has been paid little attention to in the EEG literature. Currently an increasing number of different, sometimes conflicting drivers both affect economic activities in place and are affected by place-specific context. They include, for instance, creativity (Gong and Hassink, 2017), financial profit (stock exchange), sustainability and social entrepreneurship (Smith and Stevens, 2010).

Thirdly, EEG has been criticized for its weak spatial ontology, as has already been pointed out in the introduc-

tion. Essletzbichler (2012, 191) for instance, stated that in EEG “... space is simply filled by firms or technologies with no further explanatory role provided for a place in explaining the evolution of industries or technologies ...” (see also Sheppard, 2016; Yeung, 2021). According to him, EEG should move from the evolution of entities in space (as containers) to the evolution of places. In a similar vein, Bathelt et al. (2017, 930) are critical of related variety studies, as ‘... it is this specific role of local, regional or other territorial and non-territorial context that is often not adequately considered ...’ (see also Bathelt and Storper, 2023). In addition, Boschma (2017) pleads for including more geographical wisdom in analyzing regional diversification processes. Arguably, the weak spatial ontology in EEG might be related to some critical issues around the concept of neutral space, which is chosen as a starting point for theoretical reasons in the launching paper in order to abstract from the local context (Boschma and Frenken, 2006). However, the concept is easily confused with empty or absolute space in neoclassical economic geography, chosen for reasons of abstraction and related modelling. Since Boschma and Frenken (2006, 290) admit that there are degrees of neutrality of space (or different degrees of openness of windows of locational opportunity for new industries), depending on the importance of regional conditions, the distinction between neutral space and the real place is somehow artificial and misleading. In our view, it is more accurate to distinguish between different degrees of particularity of real places rather than using neutral space. Regional conditions always differ from place to place and not only include territorial institutions but also the existence and history of a specific set of related industries with competencies and skills. Moreover, Boschma and Frenken (2006) only used the emergence of new industries in space as an example to emphasize the importance of neutral space in EEG and to illustrate the transformation from neutral space to a real place. Even in that case, they admit that there are different degrees of neutrality of space (or window openness). For other phenomena in economic geography, such as the decline of regional industries and regional industrial restructuring, real places play an even larger role. Therefore, in our view, neutral space should be confined to neoclassical economic geography. In both evolutionary and institutional economic geography real places matter, albeit to different extents and degrees, depending on the empirical question at hand.

Overall, although currently different versions and streams of EEG take geography seriously, they do so in different and overall insufficient ways. Even though a weak geographical conceptualization might suffice to analyze and explain a changing economic landscape in more general terms, it is insufficient to understand and explain the differentiation and particularities of regional economic change, one of the key research questions in EEG, in a place and scale-sensitive way. In the next section, we will



further elaborate on EEG's geographical conceptual foundations from a critical perspective.

## Evolutionary economic geography and its geographical conceptual foundations: a critical view

EEG heavily draws on evolutionary economics as its theoretical foundation (Boschma and Frenken, 2006). Although evolutionary economics makes some reference to geographical terms, such as the selection environment of firms, and the local dimension (Nelson and Winter, 1982), it does so in a superficial way, without considering context, institutions and culture, for instance, and without referring to the human geography literature. Moreover, EEG's key foundational literature are largely aspatial, namely the neo-Schumpeterian literature on technological change, the path dependence literature stemming from evolutionary economics and the literature on organizational routines.

In launching the EEG paradigm, therefore, it was logical to emphasize that history matters, while conceptualizing geography has been more challenging. Boschma and Frenken (2006) distinguish the newly launched paradigm from what they defined as existing paradigms and perspectives at the time, namely neoclassical and institutional economic geography. They did so by discussing several interrelated elements, namely methodology, key assumptions, the conceptualization of time, but also geography, which is the main focus of this paper. They used two central geographical terms to discuss the differences and similarities between their newly launched paradigm (EEG) and existing neoclassical and institutional economic geography (Boschma and Frenken, 2006). First, they refer to neutral space or also to uniform space. Neoclassical economic geography is regarded as the study of neutral space, which is also discussed as the virgin landscape assumption (Martin, 2021). The precise location does not matter, as long as it is somewhere in space. However, Boschma and Frenken (2006, 290) also state that neutral space is not the same as empty space '... because it would be wrong to rule out the impact of regional conditions when a new industry emerges'. What exactly these regional conditions are, is left open, although they might refer more to industrial structures than to institutions and cultural context. Secondly, Boschma and Frenken (2006) use real places to express local specificity which is, in turn, related to institutions and practices. According to them, real places are mainly researched in institutional economic geography. They also refer to place dependence as belonging to institutional economic geography without defining it, whereas path dependence is a key issue in EEG. In fact, according to Boschma and Frenken (2006, 290) '... regional development is more about path dependence than place dependence ...'.

For EEG the question is '... whether, and if so in what way, geography matters, rather than theoretically preassuming that it matters in all cases' (Boschma and Frenken, 2006, 288). Boschma and Frenken (2006, 289,290) even state concerning the emergence of new industries and networks in regions, that evolutionary economic geography '... has theoretical reasons to assume that firms operate in neutral space ...'. One of the key propositions is that EEG is different from other paradigms and perspectives in economic geography because it takes neutral space as a starting point, which is then transformed into real places over time. Boschma and Frenken (2006) illustrate this with the emergence of new sectors and networks, building on the windows of the locational opportunity concept (Storper and Walker, 1989). The open windows of locational opportunity, when new industries emerge, can be regarded as neutral space. Boschma and Frenken (2006, 290) argue that 'place-specific features do not determine the location of new sectors, because ... the environment is considered to be of minor importance at the initial stage of development of a sector ...' since '... a gap is likely to exist between the requirements of the new firms (in terms of knowledge, skills, etc.) and its environment ... The crucial inputs, being sector-specific knowledge and skills, are to be developed by firms themselves as their organizational routines evolve over time. For this reason, one can expect firms in new sectors to emerge in many different locations ... Over time, the initial neutral space is transformed in real places as the new sectors and new infrastructure networks become spatially concentrated in some regions according to a path dependent process, and trigger the institutional base of these regions to transform and adapt ... Institutions play only a generic role at the start of a new sector, and become more specific and better developed in those areas where a critical mass of firms locates'. They illustrate this with the emergence of the synthetic dye industry in Germany in a coevolutionary, in which industry and institutions influence each other mutually over time (Murmman, 2003). However, these statements and questions about neutral space transforming into real places are subsequently neither taken up and confirmed much in empirical research, nor are they developed further in theoretical work.

In addition to neutral space and real places, Boschma and Frenken (2006) also refer to a so-called multilayer scheme. In a similar way, Dopfer et al. (2004) refer to the macro, meso and micro levels in evolutionary economics. However, it is more a way to categorize their empirical focus on routines in firms (micro), the evolution of networks and industries (meso) and the evolution of a spatial system (macro), than a truly geographical conceptualization of scales. In fact, they only refer to regions and cities in very general terms, when they discuss the spatial system. Schröder (2010) has discussed this in the economic geography context.



Overall, the main geographical concepts introduced by Boschma and Frenken (2006) are neutral space, real place and the micro, meso and macro level and the main proposition is that EEG takes neutral space as a starting point, which is then transformed into real places. The level of geographical conceptualization is however low and also in their more recent overview paper, Boschma and Frenken (2018) do not add much to geographical conceptualization. Other than referring to place dependence as an important addition to path dependence and discussing proximity, which was ignored in the founding paper (Boschma and Frenken, 2006), they do not further conceptualize real places or other geographical concepts. Moreover, and related to the thin conceptualization, in the ample empirical research which has been carried out since its launch, scholars seldom refer to geographical concepts. We, therefore, need a stronger spatial ontology in the EEG theoretical framework, one that strengthens the understanding of differentiation and particularity around place dependence and real places. In order to achieve that, economic geographers can draw on relevant parts of the spatial ontology in human geography, which will be done in the following section.

## Advancing spatial ontology in evolutionary economic geography

As outlined in the introduction and further discussed in the preceding sections, there is a clear gap in EEG regarding its spatial ontology. This gap, we argue, stems from a lack of clarity regarding EEG's underlying philosophy of science, which inherently influences its geographical conceptualization. Scholars working with a positivist or critical rationalist philosophy of science, such as neoclassical economic geographers, confine their geographical conceptualization to neutral or absolute space, as their aim is to develop spatial laws with strong abstraction in order to be able to predict the behaviour of economic actors. EEG is like other modern perspectives and paradigms in economic geography critical towards a positivist philosophy of science (Gong and Hassink, 2020). However, in key EEG paradigmatic work (Boschma and Frenken, 2006, 2018; Boschma and Martin, 2007, 2010), no clear position has been taken on the underlying philosophy of science to be used instead. This is in contrast to relational economic geography, whose protagonists have clearly stated critical realism to be the basis of their perspective or paradigm (Bathelt and Glückler, 2003).

In our view, economic geography is a context-sensitive discipline<sup>1</sup> (Asheim, 2020; Gong and Hassink, 2020; Sunley, 1996), as are its modern paradigms and perspectives, such as EEG. Hence, a philosophy of science is needed that gives room to context-related contingency and particularity, but also looks for underlying mechanisms and generalizations. Of all philosophies of science, critical realism fits this re-

quirement best (Gong and Hassink, 2020; Sayer, 1992; Waite, 2022; Yeung, 2023). Moreover, critical realism also fits well with the kind of questions that are at the core of EEG. Since the definitions of EEG given in the introduction of our paper hint at transformation and change processes, EEG is mainly asking 'why' and 'how' questions, instead of 'what' and 'how much' questions (see for instance Henning (2022, 19): how processes of regional economic change work and how they are conditioned by space and time). Given the importance of context and 'how' and 'why' questions, in our view, EEG should, in addition to critical realism, also be built on social constructivism. Context is socially constructed (see Gong and Hassink, 2020), so social constructivism, as part of interpretivism (Geels, 2022), is another philosophy of science influencing geographical conceptualization<sup>2</sup>.

Our aim is therefore to develop a spatial ontology that is embedded into critical realism and social constructivism as philosophies of science, and that is stronger rooted in human geography<sup>3</sup> than the current version of EEG, which insufficiently distinguishes underlying mechanisms from context (see Gong and Hassink (2020) concerning related and unrelated variety, see also Bathelt and Storper (2023)). As written before, we consider advancing a spatial ontology essential for empowering EEG to understand and explain the impact of both economic crises and grand societal challenges on regional economic change, in a more place and scale-sensitive manner, and relatedly, the main drivers of regional economic change that go beyond the market-driven logic of innovation.

What does the spatial ontology in human geography look like in broader terms, and from which parts should EEG draw to advance its spatial ontology? Human geography consists of different streams, such as spatial science, humanistic geographies, Marxist geographies, feminist geographies, postmodernist and poststructuralist geographies (Cresswell, 2013; Yeung, 2023), each with their own more or less explicit geographical conceptualization, which is, in turn, related to certain philosophies of science and epistemologies. Given the choice for critical realism and social constructivism as the philosophies of science forming the basis of EEG, certain spatial concepts, such as neutral space, used in spatial science, and spatial fix, developed in Marxist geographies, are not further considered, as they are based on other philosophies of science. During humanistic geographies, which emerged at the end of the 1970s, geographical conceptualization around place and space has been strongest (Cresswell, 2013), and this conceptualization also fits critical realism and social constructivism. Humanistic geography developed in a reaction to spatial science and structuralism and emphasized experience and meaning in human relationships (Cresswell, 2013, 105). It had '... a profound influence on human geography ... In many ways its insights ... [are] part of the very bedrock of the disciplinary common sense' (Cresswell, 2013, 119). Moreover, 'the most

enduring legacy of humanistic geography is theoretical engagement with notions of space and place’ (Cresswell, 2013, 112).

We advance EEG’s spatial ontology by taking two existing concepts as a starting point, namely real places, the key existing spatial concept in EEG, as has been laid out in the previous section, and place dependence. We add two concepts derived from humanistic geography, namely place and placelessness, sense of place (including global sense of place) (Agnew, 2011; Cresswell, 2014a; Holt-Jensen, 2018; Massey, 1973, 1994, 2005; Norberg-Schulz, 1980; Peet, 1998; Relph, 1976; Tuan, 1977, 1990), and constructed scales (see Table 1)<sup>4</sup>, concepts so far neglected by key scholars in EEG.

We have chosen these concepts, as they are not only closest to the existing concepts in EEG, real place and place dependence, but also because they complement each other in a way that will help us to understand the differentiation, contingencies and particularities of regional economic change, as well as place-related decision-making and attachment. In the following, we will first introduce the concepts, and their relations will be elaborated in a framework in the next section.

Real place

Real places refer to the local specificity of industry structures, regional assets and resources, and institutions and practices and can be regarded as the opposite of neutral space. In contrast to Boschma and Frenken (2006), who stated that they only become important after starting from a neutral space perspective, we regard them as key to understanding regional economic change from the beginning and reject neutral space as a term in EEG. Real places are key to EEG as ‘... they are also the result of historical place-making from different periods of time, each layered on top of the period before. This historical layering process is another reason why no two places are alike ...’ (Coe et al., 2019, 19). Real places are not static, closed systems of institutions or cultures; they are fluid and open. The development of a regional industry, for instance, may start out as a small cluster based in a village or town, but as the industry develops, it may also become a cross-city cluster. In this process, the industrial

structure changes, the dynamics of industrial development change, the geographical context of industrial development changes, and the concept of ‘place’ changes. Studying and analyzing real places does not mean confining oneself to emphasizing particularity: ‘Place is a process. This is not to say that each place is not unique. It is. But this uniqueness reflects the particular outcome of the general (and thus theorizable) process that is the interaction of extra-local relations ...’ (Barnes and Christophers, 2018, 122). Such theorizable processes can be found in EEG, with theoretical concepts such as related and unrelated variety. We find them in many regional economies, but how exactly they work out differs from place to place, which makes real places a key concept in the spatial ontology of EEG.

Place dependence

Strongly related to real places is the existing concept of place dependence, which ‘... stems from the local reproduction of localized knowledge, territorial institutions and vested interests embedded in places ...’ (Boschma et al., 2017, 37). Place dependence is often discussed in relation to path dependence (Boschma et al., 2017; Martin and Sunley, 2006). Path dependence and place dependence are in fact two aspects of dependence in the evolutionary process, mutually influencing and shaping each other. As Martin and Sunley (2006, 425) argued, ‘... path dependence not only produces places, but place dependence is also responsible for path dependence’. Whereas path dependence emphasizes the importance of time and historical events, place dependence stresses the inter-embeddedness and dependence of multiple actors on a place, which affects their decision-making and hence regional economic change, albeit to different extents. In our view, the concept of place dependence is therefore strongly related to embeddedness (Granovetter, 1985; Hess, 2004; Polanyi, 2001). However, place dependence is neither static nor confined to local places. The dependence of actors in places might increase or decrease over time, and it may depend on local-global relationships, for example in terms of its (changing) position in global value chains or global production networks (Yeung, 2021), or coevolutionary processes in a multi-scalar context (Gancarczyk et al., 2023; Gong and

Table 1. Overview of spatial ontology in EEG.

Concepts	Characteristics
Real place	Existing place-related concepts in EEG
Place dependence	Existing place-related concepts in EEG
Place and placelessness	Place-related concepts to strengthen existing concepts drawing from human geography literature
Sense of place	Place-related concept to strengthen existing concepts drawing from human geography literature
Constructed scales	Additional concept drawing from human geography literature

Hassink, 2019). According to Martin and Sunley (2006, 427) 'taking place dependence seriously suggests that there will be alternative perspectives on the local causal factors that influence the creation of new paths, and why these factors are activated in some places and not others. Even in the case of Silicon Valley, for example, there is difficulty and disagreement about the identification and timing of the initial causes'. However, as mentioned earlier, both real places and place dependence could benefit from stronger interaction with further geographical concepts derived from human geography theorizing.

## Place and placelessness

Place is a very complex and essential concept in human geography. Place is concrete, subjective and empirically affective, as opposed to abstract, objective and material space. Cresswell (2014b, 56–57) summarizes place studies into three approaches, namely the descriptive, social constructionist and phenomenological approaches. Early geography, especially location theory, was basically a study of 'space' (Massey, 1973), focusing on the location and spatial distribution of objects, with an emphasis on the scientific and quantitative analysis of space. This descriptive approach is '... representing a concern with the surface of the world as we see it ...' (Cresswell, 2014b, 56). Social constructionist approaches to place tend to focus on the process of constructing a place under different structural conditions, such as capitalism, patriarchy, colonialism, etc. Harvey (1996) focuses on the political economy of the construction of place in the context of capitalism, arguing that place is a product of social construction and closely related to capital, power and exclusion. According to Cresswell (1996) place '... does not have meanings that are natural and obvious but ones that are created by some people with more power than others to define what is and is not appropriate' (Cresswell, 2014b, 42). Pred (1984) argues that places are never 'finished' but always in 'becoming'. The process of constructing place, as well as places in becoming, is relevant in place-making (Chu et al., 2023; Devine-Wright, 2022) and place-branding (Kavaratzis and Kalandides, 2015), also in relation to cluster development (Nathan et al., 2019), which have clear implications for EEG.

Particularly in humanistic geography pioneered by geographer Tuan (1976), the concept of place depends on people's relationship with places, their place-related experiences, memories, feelings and meanings, rather than on place as a separate objective entity. This approach emphasizes subjectivity and the richness of human experience rather than '... the cool, hard logic of spatial science' (Cresswell, 2014b, 35), and represents '... a deep universal sense of what place means to humanity' (Cresswell, 2014b, 56). Tuan (1977) argues that the difference between place and space is that place allows for a function of security and a sense of stability, but that the two are not strictly

bounded, but rather transform and encompass each other. In Tuan's eyes, a space can only be called a place if it is imbued with cultural meaning, with spiritual and value significance<sup>5</sup>.

However, if a place lacks distinctiveness, its traditional fabric is destroyed and the emotional connection of its people to the place disappears, which represents 'placelessness'. In addition, the homogeneous character of space also implies a placelessness landscape (Augé, 1995; Relph, 1976; see also Jones, 2023; Phelps, 2017). Placelessness also affects decision-making by actors in regional economies and hence regional economic change.

In the more qualitative research in EEG, 'places' are considered according to their 'outside' characteristics, that is, place specificity or locality, such as their historical heritage, geographical location, unique resources, knowledge base, etc. This has led to the development of 'context sensitivity' and 'place-based policies' in economic geography (Gong and Hassink, 2020; Hassink, 2020), although these characteristics are not sufficient as they often only provide a static, closed view of the place from an 'outsider', but lack the 'being there' and dynamic, open understanding of place. This inadequacy is caused by the neglect of the practical dimension based on experience and human-place interaction and the power, relations and institutional dimensions based on the constructivism of place (Cresswell, 2014b). We will add these aspects in the following paragraphs on the sense of place.

## Sense of place

Most people, including actors relevant to regional economies, have a special emotional bond to the places they live in, which stems from the deep connection between people and their surroundings over time (Agnew, 2011; Cresswell, 2014b; Norberg-Schulz, 1980; Williams, 2002, 2014). A sense of place not only requires that the place's spatial substance has the characteristics of the place but also that the protagonists have an emotional investment in the place (Atta-Owusu and Fitjar, 2022; Cartel et al., 2022; Kohlbacher et al., 2015). Sense of place mainly includes place attachment, place belonging, place identity, etc. Place attachment emphasizes the deep-rooted sense of attachment to one's environment, or 'topophilia' (Tuan, 1990). According to Relph (1976) attachment to place means having a secure foothold from which to view the world and hold one's place in the order of things. Place identity is the acknowledgement to place, an ongoing process of human perception of place. To the extent that place identity is strengthened, it can be transformed into place belonging (Brown et al., 2021).

A sense of place emphasizes the experience of 'being there' and everyday life in a way that economic geography research hardly considers (for an exception see Gertler, 1995), although it is key to understanding drivers of innovation that go beyond the market. Indeed, decision-making

among key actors and agents, such as place leaders, is usually based on tacit knowledge related to such 'internal' practices associated with places. Recent examples of empirical work show the potential of including a sense of place in the spatial ontology of EEG. Cappellano et al. (2023), for instance, study the role of place embeddedness and sense of place in the Finnish, Italian and U.S. craft beer industries, potentially influencing the local emergence and evolution of these industries. Devine-Wright (2022) discusses the sense of place and place-making as concepts useful to understand processes of the decarbonization of industrial clusters in the UK.

However, in addition to a sense of place, also the global sense of place is emphasized in the literature, which is very different from the sense of place, emphasizing the power of different social communities and individuals rather than the affection for place. Massey's (1993) conception of place is not closed and static, as mentioned above, but diverse, open, fluid and complex. She argues that the particularity of a place does not derive from its own history, but rather from the fact that each place is a unique mixture of its own social relations with the outside of it (Massey, 1993). She proposes to abandon the theoretical opposition between the 'global' and the 'local' and favours the description of the place as a process without fixed borders and full of internal conflicts (Massey, 1994). Finally, Massey (1994) takes a more diversified and complex view of the meaning of place, arguing that the construction of place identity is inherently diverse even for a single place. We see clear advantages of including a global sense of place into the spatial ontology, as it strengthens recent extensions of EEG in the direction of exogenous sources (Isaksen and Trippel, 2017), global value chains and global production networks (Boschma, 2022; Yeung, 2021), and multi-scalar coevolution (Gancarczyk et al., 2023; Gong and Hassink, 2019). As a progressive view of place, a global sense of place perspective is better able to contribute to our understanding of the complexity of the causal logic of regional economic change.

## Constructed scales

In addition to the place-related concepts, we also consider constructed scales important for strengthening a broader spatial ontology of EEG. Linked to previous comments on scales for instance when dealing with the concept of a global sense of place, EEG needs to work stronger with theories of constructed scales developed in human geography (MacKinnon, 2011; see also Madsen, 2022). Scales have been mentioned in the EEG literature in one form or another (multilayer scheme or micro-meso-macro), but so far, they have been used in a relatively simple way to categorize empirical data. We are critical of the concept of flat ontology, discussed in human geography (Ash, 2020), which suggests abandoning scales altogether. Scales are perceived and constructed by economic actors and agents,

and these constructions are not fixed, but contested and fluid and change through time, which makes them relevant to EEG. In fact, such an approach can overcome the scalar trap, which theoretically assumes one scale is a priori dominant over others, and which takes certain characteristics of scales for granted, hence having a '... tendency to consider scale ontologically given and in possession of inherent and static characteristics' (Madsen, 2022, 341). Recent literature on the geography of sustainability transitions has shown the dynamic, constructed and contested nature of scales, as well as processes of rescaling empowering and disempowering agencies temporarily, opening or closing ways for transition (Madsen, 2022).

## Towards a framework

As shown in Figure 2, we see the interrelationships between path dependence and place dependence as the key to the spatial ontology in EEG. Real places are considered to be an essential part of place dependence. Real places are strongly linked to both industrial structures, regional assets and resources (Boschma, 2017; Henning, 2022), and to actors and agencies and their drivers. The latter takes the key decisions that result in regional structural change. In a long-term view, regional economies are characterized by several rounds of structural changes, which can differ in their extent. During and after crises, for instance, one might expect larger structural changes. Each round of structural change and decision-making generates new 'path dependence\*', updating the old 'real place' into new 'real places\*', forming new 'place dependence' and leading to a new round of 'structural change' and 'decision-making\*' (Figure 2; the next round is indicated with \*\*). Under the influence and among the interaction of path dependence, place dependence, crises/grand societal challenges, decision-making and structural change, the place is always 'becoming' and therefore an iterative process and might be changed in the process of place-making.

For describing the spatial ontology of EEG, we zoom into place dependence (see Figure 2). It exists of both existing concepts and links in EEG, as well as advanced ones, building together a framework for future research in EEG. The essential part of the ontology consists of the existing concepts of path dependence and place dependence and their iterative relation.

We take place and placelessness as a starting point for understanding real place and place dependence. Places have different degrees of specificity and sense of place. The former affects the characteristics of industrial structure, regional assets and resources, whereas the latter is linked to actors and agencies and their drivers, which in turn influences decision-making. Places are a fluid and open concept, mainly emphasizing but not confining to the local scale and therefore should be understood from a constructed multi-scalar perspective. Place specificity

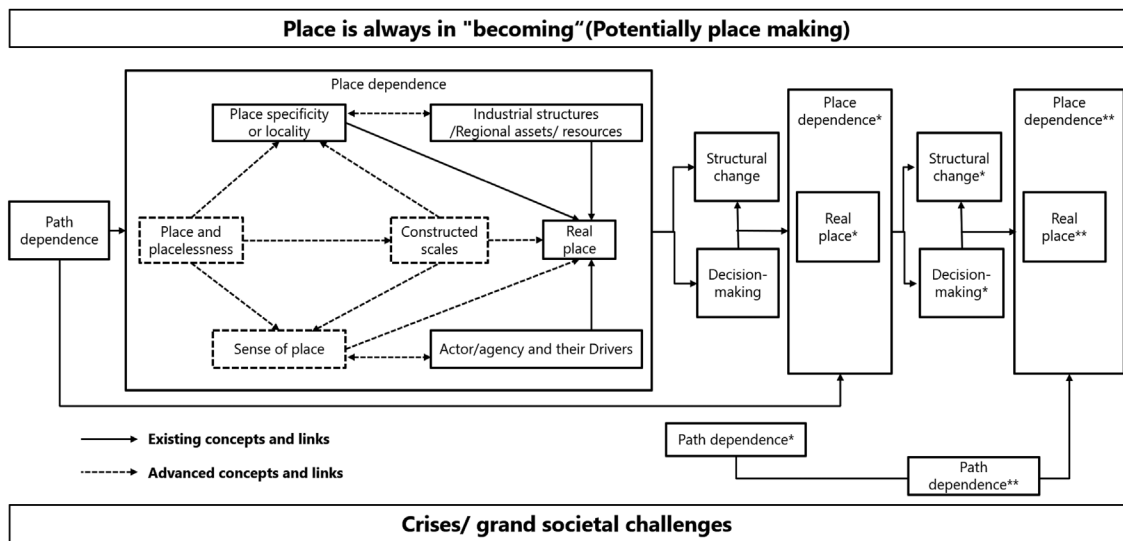


Figure 2. Advanced space ontology in EEG.

and sense of place are influenced and (re)constructed by among other actors and agencies and they do so by the process of comparing their place with different places and scales. These processes can lead to increasing or decreasing place specificity and sense of place. The different concepts are crystalized into real places, the key concept of place dependence. Real places, therefore, not only include the physical specificity of places, such as their industrial structure, but also the sense of place, related to their history and collective memory, as well as the self-constructed position in comparison with the outside.

## Conclusions

While EEG has successfully uncovered underlying mechanisms, such as related and unrelated variety and path dependence, it has shown limitations in addressing geographical differentiation, contingency and particularities due to a relatively underdeveloped geographical conceptualization. Places are no containers; they are socially constructed, which influences the behaviour and decisions of citizens and political and economic actors, thus affecting regional structural change.

In response to these limitations, this paper proposed a spatial ontology, consisting of two existing concepts in EEG, as well as three new concepts for EEG. We are convinced that this enriched spatial ontology can advance the paradigm by revealing place-specific drivers and untapped, endogenous potential for development. It will also facilitate a more detailed analysis of socially constructed, place-specific informal institutions, such as norms, values, conventions and traditions, affecting the economy, for example in the sense of risk-taking or risk aversion.

Moreover, it will enable EEG to comprehend the impact of economic crises, as well as grand societal challenges, such as climate change, on regional economic change in a more place and scale-sensitive manner. This is particularly pertinent as many current works in EEG on the regional effects of grand societal challenges, such as the recent study by [Van den Berge et al. \(2020\)](#) on cleantech, have a limited structural view of these issues, only emphasizing a related variety, without looking at geographically differentiated, place-based policies, institutions and the social constructions and narratives. Advanced spatial ontology could help to improve these kinds of studies to get a more nuanced understanding of why regions react differently.

However, to fully understand the spatial organization of capitalism and its crises, EEG might also have to draw strongly from geographical political economy and its emphasis on the state and macro-scale analysis, as suggested recently by [Essletzbichler et al. \(2023\)](#). The advanced spatial ontology, in turn, which is sensitive to history, context and internal dynamics, could help us to understand why different regions and countries may be affected in different ways and to different degrees by the same global crisis. Moreover, since different places have different histories, social structures and agencies, they also have different urgencies, motivations and capabilities, and will hence also see the contested and disputed need for transitions in different ways. Furthermore, the emphasis on real places and a sense of place resonates well with recent discussions about and increasing popularity of place-based regional policies and their role in fostering structurally weak regions ([Barca, 2019](#); [Hassink, 2020](#)), which put a strong emphasis on several aspects related to place, such as the economic, social and cultural



contexts and also concentrate on the place-specific needs, worries and wishes of citizens.

Our plea for a stronger geographical conceptualization of EEG is also a plea for moving the paradigm to the core of what economic geography proper is, a sub-discipline of human geography '... essentially about describing, analyzing and explaining economic activities in real places' (Gong and Hassink, 2020, 475). This move, however, does not mean a regression to idiosyncratic economic geography, only describing the development of real places. In fact, it will allow us to distinguish more clearly between context-dependent empirical results and the underlying mechanisms that are more relevant for generalizable theorizing (Barnes and Christophers, 2018, 122; Gong and Hassink, 2020), or as Martin and Sunley (2022, p.74) stated: '... it is important that we recognise all theories as being derived from a time and place, both to avoid universalisms and anachronisms that are blind to context and difference, and to recognise that we need to learn theory from a much more diverse variety of places ...'. In order to be able to make these distinctions, in our view, EEG needs to be based on critical realism and social constructivism as underlying philosophies of science. The methodological consequence would be that we need a better and complementary combination of quantitative and qualitative methods (Frenken, 2022).

Overall, we are convinced that strengthening the spatial ontology of EEG along the lines we have laid out in this paper will empower it to understand and explain the impact of economic crises and grand societal challenges on regional economic change in a more place and scale-sensitive manner, a manner that takes better into account the place-specific socially constructed and contested nature of regional structural change, as well as the role of perceptions, visions and expectations. When adopting a more advanced and expanded spatial ontology, localities and the agency of actors and the relationships between them (sense of place) will be more considered and the complexity of the interaction between path dependence and place dependence can be better understood. Finally, it will enable a better understanding of the main drivers of regional economic change that go beyond the market-driven logic of innovation.

## Endnotes

- 1 According to Gong and Hassink (2020, 476) '... context in human and economic geography is defined as associated objects and events of/in social life, situated in specific or particular spatial and temporal settings'. They acknowledge that it is not a passive background but can be changed and constructed and that is also seen in different ways in different paradigms and perspectives in economic geography.

- 2 We follow here recent developments in the literature on socio-technical transitions (Geels, 2020, 2022), which also strongly draws on evolutionary economics and recently clearly states that critical realism is the most appropriate philosophy of science, and to a lesser extent also draws on social constructivism (Geels, 2020).
- 3 For similar attempts to develop a spatial ontology in the literature on the geography of sustainable transition, see Binz et al. (2020), Hansen and Coenen (2015) and Hansmeier (2021).
- 4 Of course, there are other concepts related to space or place that could help to stretch the spatial ontology, such as geographical proximity (Boschma, 2005), proximity dynamics (Balland et al., 2015), relational space, topical space (Suwala, 2021, 2023; Knoblauch and Löw, 2017), opportunity space (Grillitsch and Sotarauta, 2020), territory (Coe et al., 2019), digital space and virtual space etc. (Aslesen et al., 2019). However, we will focus for the moment only on the selected key concepts of the spatial ontology, as they contribute clearest to a place and scale-sensitive EEG, but leave extensions to future conceptualization.
- 5 This can also be linked to Lefebvre's (1991) concept of 'space' and the 'production of space'. According to him, each society, each mode of production and its variants, produces its own space. In other words, by space, Lefebvre refers not only to the empirical production of things but also to an attitude and habitual practice. In Lefebvre's (1991, 69) view, it can be understood as 'production of knowledge, or ideologies, or writings and meanings, of images, of discourses, of language, of signs and symbols ...'.

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## References

- Agnew, J. (2011) Space and place. In J. Agnew and D. N. Livingstone (eds.) *The SAGE Handbook of Geographical Knowledge*, pp. 316–331. London: SAGE.
- Aoyama, Y., Murphy, J. T. and Hanson, S. (2010) *Key Concepts in Economic Geography*. London: Sage.
- Ash, J. (2020) Flat ontology and geography, *Dialogues in Human Geography*, **10**: 345–361.
- Asheim, B. T. (2020) Economic geography as regional contexts' reconsidered—implications for disciplinary

- division of labour, research focus and societal relevance, *Norsk Geografisk Tidsskrift*, **74**: 25–34.
- Aslesen, H. W., Martin, R. and Sardo, S. (2019) The virtual is reality! On physical and virtual space in software firms' knowledge formation, *Entrepreneurship and Regional Development*, **31**: 669–682.
- Atta-Owusu, K. and Fitjar, R. D. (2022) Engaging for the love of place? The role of place attachment in academics' regional engagement efforts. *Regional Studies*, **56**: 2074–2085.
- Augé, M. (1995) *Non-Places: Introduction to an Anthropology of Supermodernity*. London: Verso.
- Bækkelund, N. G. (2021) Change agency and reproductive agency in the course of industrial path evolution, *Regional Studies*, **55**: 757–768.
- Balland, P. A., Boschma, R. and Frenken, K. (2015) Proximity and innovation: from statics to dynamics, *Regional Studies*, **49**: 907–920.
- Barca, F. (2019) Place-based policy and politics, *Renewal*, **27**: 84–95.
- Barnes, T. J. and Christophers, B. (2018) *Economic Geography: A Critical Introduction*. Chichester: Wiley-Blackwell.
- Bathelt, H., Coe, N. M., Kerr, W. R. and Robert-Nicoud, F. (2017) Economic geography IMPULSES, *Journal of Economic Geography*, **17**: 927–933.
- Bathelt, H. and Glückler, J. (2003) Toward a relational economic geography, *Journal of Economic Geography*, **3**: 117–144.
- Bathelt, H. and Storper, M. (2023) Related variety and regional development: a critique, *Economic Geography* (forthcoming).
- Benner, M. (2022) Retheorizing industrial-institutional coevolution: a multidimensional perspective, *Regional Studies*, **56**: 1524–1537.
- Benner, M. (2023) Making spatial evolution work for all? A framework for inclusive path development, *Cambridge Journal of Regions, Economy and Society*, rsad015.
- Binz, C., Coenen, L., Murphy, J. T. and Truffer, B. (2020) Geographies of transition—from topical concerns to theoretical engagement: a comment on the transitions research agenda, *Environmental Innovation and Societal Transitions*, **34**: 1–3.
- Binz, C. and Gong, H. (2022) Legitimation dynamics in industrial path development: new-to-the-world versus new-to-the-region industries, *Regional Studies*, **56**: 605–618.
- 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. (2022) Global value chains from an evolutionary economic geography perspective: a research agenda, *Area Development and Policy*, **7**: 123–146.
- Boschma, R. and Capone, G. (2015) Institutions and diversification: related versus unrelated diversification in a varieties of capitalism framework, *Research Policy*, **44**: 1902–1914.
- Boschma, R., Coenen, L., Frenken, K., Truffer, B. (2017) Towards a theory of regional diversification: combining insights from evolutionary economic geography and transition studies, *Regional Studies*, **51**: 31–45.
- 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.
- Boschma, R. and Frenken, K. (2018) Evolutionary economic geography. In G. L. Clark, M. P. Feldman, M. S. Gertler and D. Wojcik (eds.) *The New Oxford Handbook of Economic Geography*, pp. 213–229. Oxford: Oxford University Press.
- Boschma, R. and Martin, R. (2007) Constructing an evolutionary economic geography, *Journal of Economic Geography*, **7**: 537–548.
- Boschma, R. and Martin, R. (eds.) (2010) *The Handbook of Evolutionary Economic Geography*. Cheltenham: Edward Elgar.
- Brouder, P. (2014) Evolutionary economic geography and tourism studies: extant studies and future research directions, *Tourism Geographies*, **16**: 540–545.
- Brown, B. B., Altman, I., Werner, C. M. (2021) Place attachment. In S. J. Smith (ed.) *International Encyclopedia of Housing and Home*, pp. 183–188. Amsterdam: Elsevier.
- Cappellano, F., Rizzo, A., Makkonen, T., Anversa, I. G. and Cantafio, G. (2023) Exploring senses of place and belonging in the Finnish, Italian and US craft beer industry: a multiple case study, *Journal of Cultural Geography*, **40**: 64–90.
- Cartel, M., Kibler, E. and Dacin, M. T. (2022) Unpacking 'Sense of Place' and 'Place-making' in organization studies: a toolkit for place-sensitive research, *The Journal of Applied Behavioral Science*, **58**: 350–363.
- 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.
- Chlebna, C., Martin, H. and Mattes, J. (2023) Grasping transformative regional development—Exploring intersections between industrial paths and sustainability transitions, *Environment and Planning A*, **55**: 222–234.
- Chu, H., Hassink, R., Xie, D. and Hu, X. (2023) Placing the platform economy: the emerging, developing and upgrading of Taobao villages as a platform-based place making phenomenon in China, *Cambridge Journal of Regions, Economy and Society*, **16**: 319–334.
- Coe, N. M., Kelly, P. F. and Yeung, H. W. (2019) *Economic Geography: A Contemporary Introduction*. Chichester: John Wiley & Sons.
- Coenen, L., Asheim, B., Bugge, M. M. and Herstad, S. J. (2017) Advancing regional innovation systems: what does evolutionary economic geography bring to the policy table? , *Environment and Planning C*, **35**: 600–620.
- Coenen, L. and Morgan, K. (2020) Evolving geographies of innovation: existing paradigms, critiques and possible

- alternatives, *Norsk Geografisk Tidsskrift—Norwegian Journal of Geography*, **74**: 13–24.
- Cresswell, T. (1996) *In Place/Out of Place: Geography, Ideology and Transgression*. Minneapolis: University of Minnesota Press.
- Cresswell, T. (2013) *Geographic Thought: A Critical Introduction*. Chichester: John Wiley & Sons.
- Cresswell, T. (2014a) Place. In R. Lee, N. Castree, R. Kitchin, V. Lawson, A. Paasi, C. Philo, S. Radcliffe, S. M. Roberts and C. Withers (eds.) *The SAGE Handbook of Human Geography*, pp. 3–21. London: Sage.
- Cresswell, T. (2014b) *Place: An Introduction*. Chichester: John Wiley & Sons.
- Dawley, S. (2014) Creating new paths? Offshore wind, policy activism, and peripheral region development, *Economic Geography*, **90**: 91–112.
- Devine-Wright, P. (2022) Decarbonisation of industrial clusters: a place-based research agenda, *Energy Research & Social Science*, **91**: 102725.
- Dopfer, K., Foster, J. and Potts, J. (2004) Micro-meso-macro, *Journal of Evolutionary Economics*, **14**: 263–279.
- Essletzbichler, J. (2012) Evolutionary economic geographies. In T. Barnes, J. Peck and E. Sheppard (eds.) *The Wiley-Blackwell Companion to Economic Geography*, pp. 183–198. Chichester: Wiley-Blackwell.
- Essletzbichler, J., Scholz-Wäckerle, M., Gerdes, L., Wieland, H. P. and Dörninger, C. (2023) Geographical evolutionary political economy: linking local evolution with uneven and combined development. *Cambridge Journal of Regions, Economy and Society*, rsad014.
- Frenken, K. (2022) Beyond case studies and regression. In Panel Contribution, Global Conference on Economic Geography, Dublin, June 2022.
- Gancarczyk, M., Najda-Janoszka, M., Gancarczyk, J. and Hassink, R. (2023) Exploring regional innovation policies and regional industrial transformation from a co-evolutionary perspective: the case of Małopolska, Poland, *Economic Geography*, **99**: 51–80.
- Geels, F. W. (2020) Micro-foundations of the multi-level perspective on socio-technical transitions: developing a multi-dimensional model of agency through crossovers between social constructivism, evolutionary economics and neo-institutional theory, *Technological Forecasting and Social Change*, **152**: 119894.
- Geels, F. W. (2022) Causality and explanation in socio-technical transitions research: mobilising epistemological insights from the wider social sciences, *Research Policy*, **51**: 104537.
- Gertler, M. S. (1995) 'Being There': proximity, organization, and culture in the development and adoption of advanced manufacturing technologies, *Economic Geography*, **71**: 1–26.
- Gong, H. and Hassink, R. (2017) Exploring the clustering of creative industries, *European Planning Studies*, **25**: 583–600.
- Gong, H. and Hassink, R. (2019) Co-evolution in contemporary economic geography: towards a theoretical framework. *Regional Studies*, **53**: 1344–1355.
- Gong, H. and Hassink, R. (2020) Context sensitivity and economic-geographic (re)theorizing, *Cambridge Journal of Regions, Economy and Society*, **13**: 475–490.
- Grabher, G. (1993) The weakness of strong ties: the lock-in of regional development in the Ruhr area. In G. Grabher (ed.) *The Embedded Firm: On the Socioeconomics of Industrial Networks*, pp. 255–277. London, New York: Routledge.
- Granovetter, M. (1985) Economic action and social structure: the problem of embeddedness, *American Journal of Sociology*, **91**: 481–510.
- Grillitsch, M. and Sotarauta, M. (2020) Trinity of change agency, regional development paths and opportunity spaces, *Progress in Human Geography*, **44**: 704–723.
- Hansen, T. and Coenen, L. (2015) The geography of sustainability transitions: review, synthesis and reflections on an emergent research field, *Environmental Innovation and Societal Transitions*, **17**: 92–109.
- Hansmeier, H. (2021) Geography of eco-innovations vis-à-vis geography of sustainability transitions: two sides of the same coin?. In *GEIST-Geography of Innovation and Sustainability Transitions*, 07.
- Harvey, D. (1996) *Justice, Nature and the Geography of Difference*. Chichester: Wiley-Blackwell.
- Hassink, R. (2005) How to unlock regional economies from path dependency? From learning region to learning cluster, *European Planning Studies*, **13**: 521–535.
- Hassink, R. (2020) Advancing place-based regional innovation policies. In M. González-López and B. T. Asheim (eds.) *Regions and Innovation Policies in Europe; Learning from the Margins*, pp. 30–45. Cheltenham: Edward Elgar.
- Hassink, R., Isaksen, A., Tripl, M. (2019) Towards a comprehensive understanding of new regional industrial path development, *Regional Studies*, **53**: 1636–1645.
- Henning, M. (2019) Time should tell (more): evolutionary economic geography and the challenge of history, *Regional Studies*, **53**: 602–613.
- Henning, M. (2022) *Evolving Regional Economies*. Newcastle: Agenda.
- Hess, M. (2004) 'Spatial' relationships? Towards a reconceptualization of embeddedness, *Progress in Human Geography*, **28**: 165–186.
- Holt-Jensen, A. (2018) *Geography: History and Concepts*. London: Sage.
- Isaksen, A. and Tripl, M. (2017) Exogenously led and policy-supported new path development in peripheral regions: analytical and synthetic routes, *Economic Geography*, **93**: 436–457.
- Jones, C. (2023) The Triumph of the Placeless. *Regional Studies*, **17**: 1–4.
- Kavaratzis, M. and Kalandides, A. (2015) Rethinking the place brand: the interactive formation of place brands and the role of participatory place branding, *Environment and Planning A*, **47**: 1368–1382.
- Knoblauch, H. and Löw, M. (2017) On the spatial re-figuration of the social world, *Sociologica*, **11**: 1–27.



- Kogler, D. F. (2015) Evolutionary economic geography—theoretical and empirical progress, *Regional Studies*, **49**: 705–711.
- Kogler, D. F., Boschma, R., Evenhuis, E., Giuliani, E., Martin, R., Uyarra, E. (2023) Re-imagining evolutionary economic geography, *Cambridge Journal of Regions, Economy and Society*, rsad014.
- Kohlbacher, J., Reeger, U. and Schnell, P. (2015) Place attachment and social ties—migrants and natives in three urban settings in Vienna, *Population, Space and Place*, **21**: 446–462.
- Lefebvre, H. (1991) *The Production of Space*. London: Blackwell Publishing.
- MacKinnon, D. (2011) Reconstructing scale: towards a new scalar politics, *Progress in Human Geography*, **35**: 21–36.
- MacKinnon, D., Cumbers, A., Pike, A., Birch, K. and McMaster, R. (2009) Evolution in economic geography: institutions, political economy, and adaptation, *Economic Geography*, **85**: 129–150.
- MacKinnon, D., Dawley, S., Pike, A. and Cumbers, A. (2019) Rethinking path creation: a geographical political economy approach, *Economic Geography*, **95**: 113–135.
- Madsen, S. H. J. (2022) A constructivist approach to the spatial organization of transformative innovation policy, *Environmental Innovation and Societal Transitions*, **42**: 340–351.
- Martin, R. (2021) Path dependence and the spatial economy: putting history in its place. In M. M. Fischer and P. Nijkamp (eds.) *Handbook of Regional Science*, pp. 1265–1287. Berlin: Springer.
- Martin, R. and Sunley, P. (2006) Path dependence and regional economic evolution, *Journal of Economic Geography*, **6**: 395–437.
- Martin, R. L. and Sunley, P. (2022) Making history matter more in evolutionary economic geography, *ZfW—Advances in Economic Geography*, **66**: 65–80.
- Martin, R. L. and Sunley, P. J. (2023) Why an evolutionary economic geography? The spatial economy as a complex evolving system. In K. Dopfer, R. Nelson, J. Potts and A. Pyka (eds.) *Routledge Handbook of Evolutionary Economics*. London: Routledge (forthcoming).
- Massey, D. (1973) Towards a critique of industrial location theory, *Antipode*, **5**: 33–39.
- Massey, D. (1993) Power geometry and a progressive sense of place. In J. Bird, B. Curtis, T. Putnam, G. Robertson and L. Tickner (eds.) *Mapping the Futures*, pp. 59–69. London: Routledge.
- Massey, D. (1994) *Space, Place and Gender*. Cambridge: Polity Press.
- Massey, D. (2005) *For Space*. London: Sage.
- Miörner, J. and Trippel, M. (2017) Paving the way for new regional industrial paths: actors and modes of change in Scania's games industry, *European Planning Studies*, **25**: 481–497.
- Murmann, J. P. (2003) *Knowledge and Competitive Advantage. The Co-evolution of Firms, Technology, and National Institutions*. Cambridge: Cambridge University Press.
- Nathan, M., Vandore, E. and Voss, G. (2019) Spatial imaginaries and tech cities: place-branding East London's digital economy. *Journal of Economic Geography*, **19**: 409–432.
- Nelson, R. R. and Winter, S. G. (1982) *An Evolutionary Theory of Economic Change*. Cambridge (Mass): Harvard University Press.
- Njøs, R., Sjøtun, S. G., Jakobsen, S. E. and Fløysand, A. (2020) Expanding analyses of path creation: interconnections between territory and technology, *Economic Geography*, **96**: 266–288.
- Norberg-Schulz, C. (1980) *Genius Loci: Towards a Phenomenology of Architecture*. New York: Rizzoli.
- Peet, R. (1998) *Modern Geographic Thought*. Malden: Blackwell.
- Phelps, N. A. (2017) *Interplaces: An Economic Geography of the Inter-Urban and International Economies*. Oxford: Oxford University Press.
- Pike, A., MacKinnon, D., Cumbers, A., Dawley, S. and McMaster, R. (2016) Doing evolution in economic geography, *Economic Geography*, **92**: 123–144.
- Polanyi, K. (2001) *The Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon Press.
- Pred, A. (1984) Place as historically contingent process: structuration and the time-geography of becoming places, *Annals of the Association of American Geographers*, **74**: 279–297.
- Punt, M. B., Bauwens, T., Frenken, K. and Holstenkamp, L. (2022) Institutional relatedness and the emergence of renewable energy cooperatives in German districts, *Regional Studies*, **56**: 548–562.
- Relph, E. (1976) *Place and Placelessness*. London: Pion.
- Sanz-Ibáñez, C. and Anton Clavé, S. (2014) The evolution of destinations: towards an evolutionary and relational economic geography approach, *Tourism Geographies*, **16**: 563–579.
- Sayer, A. (1992) *Method in Social Science: A Realist Approach*. London: Routledge.
- Schröder, H. (2010) Anwendungsmöglichkeiten des Mikro-Meso-Makro-Ansatzes in der Wirtschaftsgeographie, *Geographische Zeitschrift*, **98**: 1–21.
- Shearmur, R., Carrincazeaux, C. and Doloreux, D. (2016) The geographies of innovations: beyond one-size-fits-all. In R. Shearmur, C. Carrincazeaux and D. Doloreux (eds.) *Handbook on the Geographies of Innovation*, pp. 1–16. Cheltenham, Edward Elgar.
- Sheppard, E. (2016) *Limits to Globalization: The Disruptive Geographies of Capitalist Development*. Oxford: Oxford University Press.
- Smith, B. R. and Stevens, C. E. (2010) Different types of social entrepreneurship: the role of geography and embeddedness on the measurement and scaling of social value, *Entrepreneurship and Regional Development*, **22**: 575–598.
- Steen, M. (2016) Reconsidering path creation in economic geography: aspects of agency, temporality and methods, *European Planning Studies*, **24**: 1605–1622.

- Storper, M. and Walker, R. (1989) *The Capitalist Imperative: Territory, Technology and Industrial Growth*. Oxford: Basil Blackwell.
- Sunley, P. (1996) Context in economic geography: the relevance of pragmatism, *Progress in Human Geography*, **20**: 338–355.
- Suwala, L. (2021) Concepts of space, refiguration of spaces, and comparative research: perspectives from economic geography and regional economics, *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, **22**: 3, (Article No.) 11.
- Suwala, L. (2023) Raum. In L. Suwala (ed.) *Schlüsselbegriffe der Wirtschaftsgeographie*, pp. 31–44. Stuttgart: Verlag Eugen Ulmer.
- Tuan, Y.-F. (1976) Humanistic geography, *Annals of the Association of American Geographers*, **66**: 266–276.
- Tuan, Y.-F. (1977) *Space and Place: The Perspective of Experience*. Minneapolis: University of Minnesota Press.
- Tuan, Y.-F. (1990) *Topophilia: A Study of Environmental Perception, Attitudes, and Values*. New York: Columbia University Press.
- Van den Berge, M., Weterings, A. and Alkemade, F. (2020) Do existing regional specialisations stimulate or hinder diversification into cleantech?, *Environmental Innovation and Societal Transitions*, **35**: 185–201.
- Waite, D. (2022) Critical realist perspectives on the urban growth system, *Environment and Planning A*, **54**: 1219–1235.
- Wenting, R. and Frenken, K. (2011) Firm entry and institutional lock-in: an organizational ecology analysis of the global fashion design industry, *Industrial and Corporate Change*, **20**: 1031–1048.
- Williams, D. R. (2002) Leisure identities, globalization, and the politics of place, *Journal of Leisure Research*, **34**: 351–367.
- Williams, D. R. (2014) Making sense of 'place': reflections on pluralism and positionality in place research, *Landscape and Urban Planning*, **131**: 74–82.
- Yeung, H. W. C. (2021) Regional worlds: from related variety in regional diversification to strategic coupling in global production networks, *Regional Studies*, **55**: 989–1010.
- Yeung, H. W. C. (2023) *Theory and Explanation in Geography*. Chichester: Wiley (RGS-IBG Book Series) (forthcoming).
- Zhu, S., Jin, W. and He, C. (2019) On evolutionary economic geography: a literature review using bibliometric analysis, *European Planning Studies*, **27**: 639–660.

## **Group B1 Regional Development in the Platform Era**

Paper 1 Placing the Platform Economy: The Emerging, Developing and Upgrading of Taobao Villages as a Platform-based Place Making Phenomenon in China

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# Placing the platform economy: the emerging, developing and upgrading of Taobao villages as a platform-based place making phenomenon in China

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The actions of platforms and their all-inclusive impact on place development is coined platform-based place making in this article. We use the actor-network theory to analyse a typical e-commerce platform-based place making, namely the emergence, development and upgrading of Taobao villages in China, and to explore the mechanisms of platform place making power. Our study shows that platforms ‘make’ places by platform–place interactions of progressively expanding the enrolment of intra-regional and extra-regional actors. In addition, our research advances the actor-network theory and its application and transcends the urban and production-side bias of economic geography.

**Keywords:** platform economy, platform-based place making, Taobao villages, actor-network theory

**JEL Classifications:** R1

## Introduction

The emergence of the platform economy marks the latest phase of the current digital transformation, which Kenney and Zysman (2016) call the platform economy era. In this era, the most powerful platforms, such as Amazon, Facebook, Airbnb, Spotify, TikTok, Uber, etc., are becoming the new digital infrastructure, as they are changing people’s daily lives, as well as modes of businesses’ and industries’ operations (Plantin et al., 2018). Amidst the global pandemic and the threat of a severe recession, platforms have become more powerful than ever (Kenney and Zysman, 2020a; Kenney et al., 2020). Although some scholars are aware of the growing power of platforms and hence study the new forms of monopoly, labour precariousness, surveillance capitalism, and other ‘platform capitalism’ phenomena (Langley and Leyshon, 2017; Srnicek, 2017; Zuboff, 2019; Graham, 2020; Kenney and Zysman,

2020b; Kenney et al., 2020; Sadowski, 2020a, 2020b), not enough attention has been paid to how digital platforms exert their power on place making. Therefore, the aim of this article is to investigate the mechanisms by which platforms influence places.

The impact of digital platforms on places is multifaceted. At the regional level they can influence local urbanisation, place brands, gentrification and culture, such as Airbnbification (Lin, 2019; Taecharungroj, 2019; Mermet, 2022; Törnberg, 2022), or the development of a certain local industry, such as the tourism, agri-food or fashion industry (Quaranta and Salvia, 2017; Chun and Gurova, 2019; Su et al., 2021). The platforms can even empower regions to alleviate poverty, as evidenced in both China and India (Jha et al., 2016; Wu et al., 2020). At the individual level, which refers to local practices and experiences, platforms can influence the employment rates of local residents,

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their households' entrepreneurship, incomes, everyday life, collective sense-making and their aesthetic imagination of place (Mei et al., 2020; Leszczynski and Kong, 2022; Liu, 2022; Tang et al., 2022). We coin these actions and impact of platforms on place development in an all-inclusive sense as platform-based place making.

In China, the famous (or rather, notorious) online ecosystem under strong state interventions has facilitated the strong growth of platforms and the platform economy (Keane, 2016; Cunningham et al., 2019). However, for reasons related to the dominance of Anglo-American economic geography (Hassink et al., 2019a), so far, the study of China's platform economy is relatively undervalued in the international economic geography literature (for a recent exception, see Zhou, 2022). As a uniquely Chinese concept and practical phenomenon at the intersection of the platform economy and economic geography, Taobao villages, despite gaining attention of international organisations, such as the World Bank and Alibaba Group (2019) and UNCTAD (2015), have not figured prominently in international journals. Coined by Aliresearch (the research arm of Alibaba Group), the concept of Taobao villages has been used both in Chinese and international journals (Xu et al., 2017; Qi et al., 2019; Wei et al., 2020). Taobao villages are those villages that are included in the 'Annual Taobao Village List' issued by Aliresearch when they meet specific criteria. These criteria include being located in a rural village; having a total annual turnover on the Taobao platform of more than 10 million RMB; and having more than 100 online Taobao shops or more than 10% of local households operating online Taobao shops.

When Aliresearch lists a traditional village as a Taobao village, we consider it an emerging Taobao village. After its emergence, a Taobao village may grow or decline (we collectively call this Taobao village development), and may also upgrade (see E-Commerce and Taobao villages in China: background overview). The transformation of a traditional village into a Taobao village and the subsequent development or upgrading process, all can be seen as platform-based place making phenomena.

On the one hand, the platform economy is theoretically global (although there are limitations in practice, such as political, infrastructural and language barriers), with a strongly reduced distance between consumers and producers, creating in theory a borderless world, resulting in the death of distance and the end of geography (Cairncross, 1997; Tranos and Nijkamp, 2013). On the other hand, the platform economy is still embedded in localised life, local regulations and local places (Ford and Graham, 2016). Positive localisation externalities, such as local buzz, knowledge spillovers and untraded interdependencies, still play a role in the platform economy (Berg et al., 2018). Therefore, the platform provides a technological infrastructure that enables social actors to enact and utilise networks with global reach (Ibert et al., 2021). Considering this local and global nature of platforms, but also as a re-

sponse to the call for considering both endogenous and exogenous factors when studying regional development paths (Hassink et al., 2019b), actor-network theory (ANT), based on the principle of generalised symmetry, can contribute to the study of platform-based place making. Despite some criticism on ANT from a flat ontology perspective (Sunley, 2008), its generalised symmetry advocates that human and non-human actors are considered at the same time, which helps us to analyse platforms as non-human actors. Moreover, it refuses various dualisms, such as from market to supply, from offline to online, from structure to action, from endogenous to exogenous, and from local to the global (Müller, 2015; Mwenya and Brown, 2017). Since platform-based place making involves both sides of all these supposed dualisms, we are convinced that ANT is appropriate to analyse and understand it.

Based on the above elaborations on the platform economy, platform-based place making, Taobao villages and ANT, this article investigates the mechanisms by which platforms influence places by answering the following three questions: (i) how does the platform interact with place? (ii) why do Taobao villages take different trajectories after their emergence? and (iii) how does the platform exert its power in these processes? Although the answers to these three questions are based on the emergence, development or upgrading of Taobao villages (the three phases), the three answers can actually be extended to the whole process of Taobao villages. The remaining sections of the article are structured as follows. The next section introduces an overview of e-commerce development and Taobao villages in China. After that we present a framework for answering the research questions based on ANT, while the next section then describes the research methods and data. Then, the penultimate section presents the analysis and results to the three questions. Finally, we briefly summarise the contributions of this article and present a future research agenda.

## E-Commerce and Taobao villages in China: background overview

In the following, we summarise the empirical transformation of e-commerce based on the entry of new platforms in China as well as a brief review of Taobao villages to better understand the emergence, development or upgrading of Taobao villages.

### Transformation of e-commerce

With the emergence of various platforms, traditional e-commerce has also undergone big changes. Roughly speaking, two sets of e-commerce logic (online business model) currently exist in China: traditional and emerging e-commerce. The former is following the traditional logic of 'consumers seeking goods' in the traditional retailing shelf sales model, while the latter is following the logic of

'goods seeking consumers'. The former is generally based on a traditional e-commerce platform, while the latter is more like a "half-e-commerce platform", i.e. a 'social platform + e-commerce platform' or 'entertainment platform + e-commerce platform'.<sup>1</sup> Both correspond to different mobile digital platforms (Table 1). Because the 'half-e-commerce platform' is sometimes closely associated with influencers, live streamers or key opinion leaders, it is also referred to as 'Wanghong e-commerce', which is, in turn, part of the Wanghong economy. The Wanghong economy can be seen as a kind of e-commerce based on Internet celebrities and social media marketing<sup>2</sup> (Cunningham et al., 2019; Craig et al., 2021: 105-134: 105-134; Han, 2021; Wang and Picone, 2021). These models are not distinct, separate or clear-cut, many e-commerce practitioners, in fact, tend to operate with hybrid traditional e-commerce platforms (we call this the multi-channel platform operation) or recently with mixed traditional and half-e-commerce platforms (we call this multi-platform matrix operation).

### E-commerce platform-based place making: Taobao villages

In recent years, Taobao villages continue to emerge (Figure 1). After analysing Aliresearch's 'Annual Taobao Village List', we found that some Taobao villages persist and influence neighbouring villages to become Taobao villages, while others disappear from the list, which reflects the growth and decline of Taobao villages. When a Taobao village starts to move from a single (just Taobao) platform operation to a multi-platform operation, we conceptualise this as village upgrading based on platform expansion. Although, both above-mentioned two operations (multi-channel platform operation and multi-platform matrix operation) are on multiple platforms, the former's mul-

tiple platforms are all traditional e-commerce platforms such as Taobao, Jingdong, Pinduoduo, Suning, Alibaba, etc. So, it tends to sell the same or similar products on different traditional e-commerce platforms from a village perspective, which is ultimately just an expansion of the platform market. This may cause the expansion of a particular industry for the village, but is unlikely to trigger the growth in other fields. Since the emerging e-commerce platforms are more interest-based or social-based, they are able to attract almost everyone to be involved in user content production, without requiring industry-specific practitioners as with the multi-channel platform operations. Their digital content (picture, text, video or livestreaming) may cover the various aspects of the village as each individual's practice in the village is different, thus allowing for a bigger exploration of the village's resource endowment.

The available literature on Taobao villages in Chinese and to a less extent in international journals has studied them with quantitative and qualitative methods. The former analyses the spatial distribution pattern and agglomeration factors with a large sample of Taobao villages at the macro (national) (Zhu et al., 2016; Xu et al., 2017; Liu et al., 2020) and meso (sub-national regional) levels, such as Zhejiang province (Lin et al., 2022) and Jiangsu province (Zhou et al., 2017). The latter focuses on individual case studies to analyse the drivers and the socio-economic impacts of Taobao villages (Guo et al., 2014; Zhou, 2018; Mei et al., 2020; Tang and Zhu, 2020; Wei et al., 2020; Wang et al., 2021; Zhou et al., 2021).

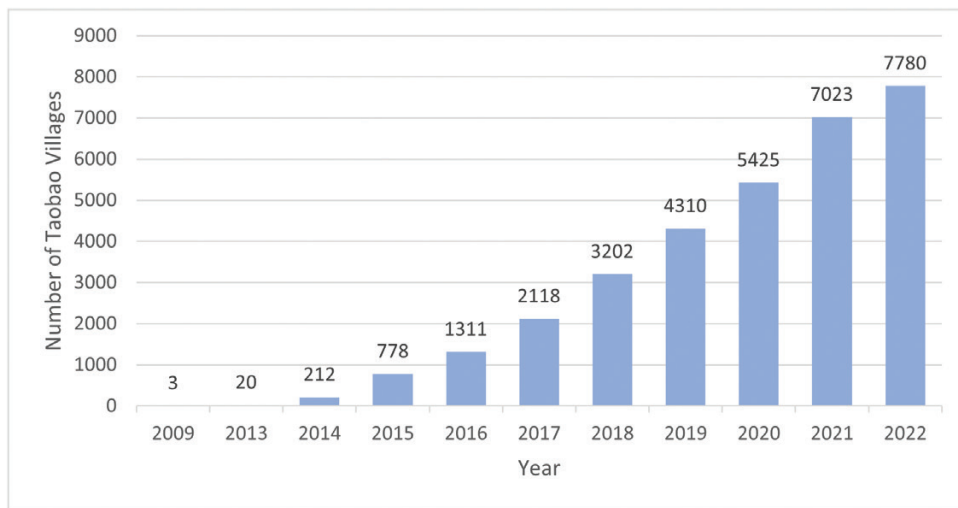
However, overall, international journals still pay little attention to Taobao villages, and the literature on the platform economy pays little attention to this phenomenon, as well. Further, there are two research gaps in the studies on Taobao villages, no matter whether published in

**Table 1.** E-commerce transformation with corresponding e-commerce platforms and "half-e-commerce platform".

E-commerce types	Traditional e-commerce	Emerging e-commerce
<b>Business model logic</b>	Consumers seeking goods	Goods seeking consumers
<b>Consumer buying behavior</b>	Already in demand → search on the platform → purchase	Leisure on the platform → impulse demand → purchase
<b>Form of demand to be filled (relatively speaking)</b>	Already in demand, rational demand, real demand	Future demand, potential demand, false demand
<b>Physical counterpart (relatively speaking)</b>	Supermarket → shopping	Shopping mall/ a shopping center where you can consume or just spend time for leisure → Window shopping
<b>Mainstream platforms in China (with *) and their counterparts outside of China</b>	<b>Shelf-based:</b> Taobao*, T-Mall*, Pinduodou*, Jingdong*, Suning* Amazon, eBay, Tradeindia, Alibaba, AliExpress, Trendyol, Wish, Shein, Shopee	<b>Social/Content (text, picture, short-video, livestreaming)-based:</b> WeChat*, Weibo*, Xiaohongshu*, Weibo*, Douyin*, Kuaishou* Instagram, Facebook, TikTok

Source: authors.





**Figure 1.** The emergence trend of Taobao villages (data based on Aliresearch's 'Annual Taobao Village List').

international or Chinese journals. First, few publications focus on the decline and upgrading of Taobao villages, they normally only study their emergence and growth (Wu et al., 2020; Zhou et al., 2021, for one exception see Fu et al., 2019). Secondly, existing studies mainly focus on intra-regional factors, such as grassroots entrepreneurs, main products, facilities support, governments support, location, education, transportation infrastructure, etc. (Qi et al., 2019; Luo and Qiao, 2021), but not on extra-regional factors, such as market preferences and market competition on at least the national scale. Therefore, an analytical framework that considers both the different phases of the emergence, development or upgrading of Taobao villages and the internal and external factors of the region is necessary. Based on ANT, such a framework for filling the above-mentioned two gaps will be constructed in the next section. It will help us to explore the mechanisms of the typical platform-based place making phenomenon in the Section on The mechanisms of platform-based place making.

## Analytical framework based on ANT

As mentioned in the introduction, we introduce ANT as an analytical framework to break through the binary divisions of online/offline, technological/social, market/production, human/non-human, and global/local to analyse the volatile process of a platform-based place making phenomenon represented by Taobao villages. ANT is a sociological analysis method proposed by the sociologists Bruno Latour, Michel Callon and John Law (Callon, 1986; Latour, 1990; Law and Callon, 1992). Although it is a sophisticated device that can contribute to the social analysis of a technology from an economic geography perspective, Müller (2015) observed only a 'half-hearted romance' between

economic geography and ANT. This article follows Müller's (2015) call to deepen and broaden the ANT vocabulary in the field of economic geography.

Similar to Fornazin and Joia (2016), Joia and Soares (2018) and Stanforth (2006), our research is primarily based on two key frameworks in the ANT literature, namely the translation framework (Callon, 1984, 1986) and the local-global networks framework (Law and Callon, 1992). Table 2 lists the main concepts of these two ANT frameworks. As 'sociology of translation' (Callon, 1984; McLean and Hassard, 2004), ANT is applied to different practice fields, such as the quality of education (Grimaldi and Barzanò, 2014), wildlife tourism (Rodger et al., 2009), technological change (Heeks and Stanforth, 2015), e-government projects (Stanforth, 2006; Fornazin and Joia, 2016), etc. Applying translation to the analysis of the mechanisms of Taobao village emerging is beneficial, particularly to explore the crucial role of the platform as a non-human actor. Although the former framework is more well-known and more widely applied, we resonate with Gasson (2006); Lea et al. (1995); Heeks and Stanforth (2007) and Joia and Soares (2018) to explore the potential appeal of the latter, as well, because it involves both volatile trajectories from a local and global perspective simultaneously. This article understands 'local network actors' as 'intra-regional factors' and 'global network actors' as 'extra-regional factors' for two reasons. First, although Law and Callon (1992) denote local and global networks as 'outside' and 'inside' actors of a single project, here, instead, we map the different directions of development and upgrading of different Taobao villages in a single bi-dimensional chart. Thus, through this study, we explore the potential power of ANT at a multi-case level. Secondly, since local and global have a specific meaning in economic geography, we adapted these terms into 'intra-/extra-regional', in order

to avoid misunderstandings. Therefore, the application of the intra-/extra-regional network framework facilitates the analysis of the different directions of Taobao village development and upgrading. Then, in order to explore the mechanisms of platform-based place making, as stated in the introduction, we ask the three research questions based on the two ANT frameworks mentioned above and three phases of Taobao villages (Table 2).

## Research methods and data collection

In order to implement the analytical and explanatory framework for Taobao villages, this article uses multiple cases' materials and various interviews. The main methods used in this article are literature review and document analysis, interviews, focus group and netnography (Wu, 2022). Table 3 shows the specific data and information collected by using different methods.

**Table 2.** Key concepts of ANT and analytical framework.

Main framework literatures	Borrow/adaptively adopt concept	Definition and main ideas	Questions for mechanisms of Taobao villages (platform-based place making)
Translation framework (Callon, 1984)	Actor	Actors are the sources of action, the entity that interacts and is active in the network regardless of its status as human or non-human.	1) how does the platform interact with place?
	Actor-network	Actor-networks are heterogeneous networks of aligned interests, including human and non-human actors.	
	Allies	In order to become capable of action, entities need to form aggregates and find allies in order to produce an actor-network.	
	Translation	The process of aligning the interests of diverse actors with those of the focal actors. Translation includes the four moments of Problematisation, Intersement, Enrollment, and Mobilisation, which can overlap with each other.	
	Problematisation	The focal actor tries to make itself indispensable and attempts to negotiate a common problem and solution (OPP: Obligatory passage point) with others. Problematisation is a simple conjecture and is expected to be transformed into mobilisation.	
	Intersement	The focal point tries to lock allies into defined roles and isolates them from potential entities that oppose the OPP.	
	Enrollment	The intersement does not necessarily lead to alliances, i.e. actual enrollment, so multilateral negotiations within the networks are needed to define and coordinate the roles of other actors. Intersement leads to enrolment if it is successful.	
	Mobilisation	The focal actors attempt to ensure that the representatives represent each actor group without betraying each other, and they themselves can be the spokesmen for other actors.	
	Displacements and transformation	Displacements continually occur at every moment of translation, normally it means the displacement of goals and interests.	
	Dissidence (controversy-betrayal)	Dissidence consists of betrayals and controversies, they are mainly caused by the displacement and the failure of the representative to represent his/her group of actors.	
Local-global networks (Law and Callon, 1992)	Local network actors→intra-regional factors	In the ANT, the local and global networks of projects are relative terms. A project's local network often refers to the "inside" relationships of the project's actors who actually execute the project.	2) why do Taobao villages take different trajectories after their emergence?
	Global network actors→extra-regional factors	In the ANT, a project's global network refers more to the relationships among actors "outside" of the project, such as those providing financial or political support for the project.	3) how does the platform exert its power in these processes?

Source: adapted after Bengtsson and Lundström, 2013; Callon, 1986; Callon and Latour, 1981; Latour, 1987; Müller, 2015.



**Table 3.** Main research methods and data collection.

Methods	Documents/Interviewees/Materials	Details
Literature review and document analysis	<ul style="list-style-type: none"><li>• "Annual China Taobao Village Reports" and "Annual Taobao Village List" (2013-2021) from Aliresearch (They will be abbreviated to REPORT+year, e.g. REPORT 2019 below)</li></ul>	Acquired via email to Aliresearch. The lists are used in a comparative way to identify disappeared Taobao villages in order to target informants in these villages (Taobao village with decline direction).
	<ul style="list-style-type: none"><li>• BOOK A: Internet+County: Book about County E-commerce</li><li>• BOOK B: China Taobao Villages</li><li>• BOOK C: Selected Excellent Cases of Taobao Villages in China</li><li>• BOOK D: Fifteen Years of Shaji Model: The Productive Life of Chinese Farmers' Online Business in the Information Era</li><li>• Other secondary materials</li></ul>	Four Taobao villages' casebooks. All four books are in Chinese. Book A is authored by Taobao University and Aliresearch; Book B and Book C are authored by Alibaba and are the outcome of The Fifth China Taobao Village Summit Forum; Book D is authored by the county official in charge of the e-commerce department. All four books deal with 27 e-commerce counties, ten Taobao towns, 39 Taobao villages.
	<ul style="list-style-type: none"><li>• Governments officials at different levels (G1-G4)</li><li>• Village Cadres (V1-V6)</li><li>• Association leaders (A1-A3)</li><li>• Logistics managers (L1-L2)</li></ul>	Policy documents, official reports, media reports, reports from consultants, and related initiatives and plans. Informants were acquired by acquaintances and snowball sampling. Interview questions about actors' positions in the regional e-commerce development process and their relationships with other actors.
Interviews with 33 informants	<ul style="list-style-type: none"><li>• Entrepreneurs (E1-E18) In the following industries: sporting goods industry (2), flower and plant industry (1), furniture industry (2), bicycle industry (3), agricultural products industry (2), garment industry (5), livestreaming industry (3).</li><li>• "Hanging out" on traditional and emerging e-commerce platforms and observing the operation processes of e-commerce.</li><li>• Interviewees' WeChat moments posts (11).</li></ul>	Acquaintances and snowball sampling, six of them were employed in e-commerce platform directly and compensated by 100 RMB for their time and participation.
Netnography	<ul style="list-style-type: none"><li>• "Hanging out" on traditional and emerging e-commerce platforms and observing the operation processes of e-commerce.</li><li>• Interviewees' WeChat moments posts (11).</li><li>• WeChat Group for E-Commerce Association (1).</li><li>• WeChat Group for Livestreaming E-Commerce Exchange (3).</li><li>• WeChat Group for Multi-Channel Network Service of Wanghong (2).</li></ul>	"Hanging out" on different platforms, such as Taobao, Jingdong, Pinduoduo, Alibaba, Xiaohongshu, Douyin, Kuaishou, Weibo. Examining WeChat moment posts (similar to the socialising function offered by Facebook) from some interviewees who were interviewed via WeChat phone, which was helpful in finding historical details. Some informants invited the authors to join certain pre-existing discussion groups after interviews.

Source: authors.

Between January 2022 and May 2022, we conducted in-depth interviews with 33 informants. These informants include governments officials (indicated in the text as G1,

G2, etc.), village cadres<sup>3</sup> (V1, V2, etc.), association leaders (A1, A2, etc.), logistics managers (L1, L2, etc.) and entrepreneurs (E1, E2, etc.). Thirteen of the interviews were

conducted offline by Dixiang Xie in two Taobao villages in Guangdong Province, whereas the others were conducted by Han Chu via phone and WeChat.

Finally, we transcribed the recordings into text and imported them into MAXQDA along with some selected documents for coding of multiple actors, translations, dissent, intra-regional networks, extra-regional networks, emerging, growth, decline, upgrading, platform entry, etc., to complete further interpretive analysis.

## The mechanisms of platform-based place making

Although Taobao villages differ concerning their basic conditions and development models (Wei et al., 2020), the platform plays a constant and important role in their emergence, development or upgrading. We use the translation framework to explain how the platform interacts with place and adopt intra-regional and extra-regional networks to explore different directions after the emergence and how the platform exerts its power in these processes.

### How does the platform interact with place?

We view the process of the transformation of a village into a Taobao village as a process of translation i.e. problematisation, intersement, enrolment and mobilisation. This process involves at least five actors: (i) Platform: Taobao, (ii) Purchasers, (iii) Village Endowment, (iv) Grassroots Entrepreneurs (online vendors) and (v) Warehouse Logistics (Figure 2), each with their own interests. Focal actors, i.e. the Taobao platform, attempt to negotiate a solution for a

common problem by a simple conjecture, Taobao villages, which is the obligatory passage point (OPP) for this network. This interest alliance is a minimum requirement, we call it 'compulsory allies', for Taobao villages' emergence. Figure 2 illustrates the emergence mechanisms of Taobao villages, which is mainly the problematisation and intersement process of translation.

In fact, the translation process is not straightforward and effortless. Intersement does not mean that enrolment, displacement and transformation can be found everywhere, and dissidence occurs between actors due to controversy and betrayal. As a result, the translation may fail, i.e. in which case no Taobao village is formed. Figure 3 illustrates the network of different actors enrolled and mobilised by the platform, and also the potential dissidence among them.

Figures 2 and 3 show that platforms interact with places and further 'make' places by progressively expanding the enrolment of different actors. Through this kind of translation process, 'compulsory allies' can associate with other different human and non-human actors (pending allies in Figures 2 and 3), such as village committees, designers, returning entrepreneurs, financial support, regulations, entrepreneurial climate, etc. To reduce the complexity of the network, we present here some exact moments of translation and dissidence in compulsory allies.

### Problematisation and intersement

Taobao started in 2003 and connected consumers with small vendors and entrepreneurs. At the time, Taobao was a kind of virtual open-air bazaar, but provided a better shopping experience for customers compared to offline stores.

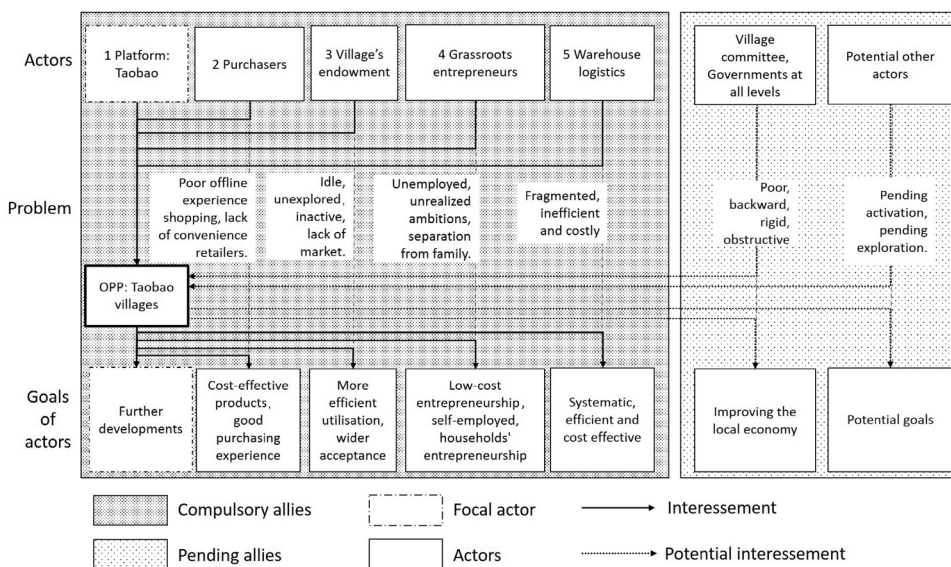
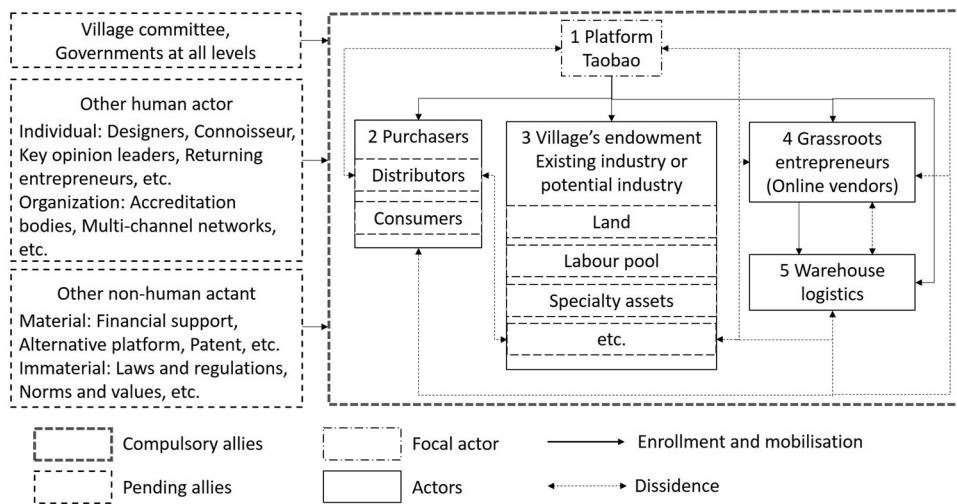


Figure 2. The establishment of obligatory passage points (OPP) (Taobao villages). Source: authors.



**Figure 3.** The translation of Taobao villages' emergence. Source: authors.

*"To put it bluntly, the main problem at the time was that consumers' living standards had risen but their spiritual needs, such as personal dignity, were hollow. In 2003 and 2004, when you went offline to buy a suit, the salesperson really looked down on people who were wearing shabby clothes. But when you buy in Taobao, customer service is saying 'Dear', 'Boss'... all the time price is also lower than in the physical store, so people are reasonably likely to choose to shop online rather than offline" (E5).*

The same problematisation process occurs with grassroots entrepreneurs, the unemployed rural labour force pursuing self-employment and the rural migrant workers, who work separately from their families and really desire to work at home or close to home (V2). Through problematisation, the problems of human and non-human actors are identified by the focal actors, hence the conjecture of potential OPP, i.e. Taobao village is proposed. In this process, by defining the identity and interests of other actors aligned with their own interests, the Taobao platform acquires a key role in the network.

In addition to attracting allies, the focal actors try to lock them in by isolating them from interferences in the interestment process. On 2 June 2012, for example, Jingdong Vice President Kui Yingchun posted a blog denouncing Alibaba, accusing Tmall of forcing merchants to 'choose one or the other'. This means that if a merchant chooses to sell a brand on Taobao, it cannot be sold on Jingdong. Despite Alibaba's official denial of these monopolistic rules, an e-commerce association leader (A2) revealed that he had received 'internal information', which alerted e-commerce entrepreneurs that if they participated in Jingdong Mall's 618 promotion, they would not receive traffic from all T-mall e-commerce festivals in the second half of the year, including Double 11 promotion. Double 11, initially driven

by Taobao in 2009, has become the biggest online shopping festival in the world, similar to Black Friday in the USA and Boxing Day in the UK. From 2010 onwards, similar to Double 11, Jingdong runs 618 as online shopping day.

### Enrolment and mobilisation

Here we focus on the enrolment of the village endowment and warehouse logistics. The enrolment process differs depending on the village endowments. For some village endowments, the platform only serves as an expanded market channel for offline channels. However, there are some village endowments that are not easily enrolled, such as fruit and fresh products. In that case, negotiations and alignments with other actors, such as warehousing and logistics, are required to achieve the alliance, which is illustrated by the Yangcheng Lake hairy crabs case.

*"After years of development, Yangcheng Lake has completed the construction of e-commerce logistics infrastructure, such as a special cold chain network, special packaging, which ensures the survival and freshness rate of hairy crabs and plays a vital role in the e-commerce transformation of Yangcheng Lake hairy crabs" (Aliresearch, 2015: 149) (BOOK B).*

In fact, the translation process can only be completed, if all 'compulsory allies' are mobilised. Conventional villages are transformed into a Taobao village through this process. The focal actors, the platforms, then, having gained widespread acceptance of and engagement with other actors' interests, are able to speak on behalf of a group of heterogeneous actors with different interests through the network mobilised by them. For example, when faced with 'pending allies', such as a village committee or governments at all levels, the translated 'compulsory alliance' can speak on behalf of the

grassroots entrepreneurs or village endowments, in order to request specific financial support or storage land. Dividing 'compulsory alliance' and 'pending allies' helps to identify the incremental process of network construction. Moreover, it also helps the key actor to assess the importance of allies and the urgency of dissidence.

### Dissidence

Dissidence is ubiquitous throughout the whole translation process (the above four moments, which can overlap with each other). Through attempts to eliminate dissidence, some translations succeed in the formation of an alliance, whereas others do not. In 2011, the Taobao platform released a new investment plan that changed the annual technical service fee of 6000 RMB to require a 5% deduction on each single transaction. This displacement is a betrayal of the original network, causing widespread and strong dissent amongst entrepreneurs.

*"This change was fine for the big merchants, but the small ones couldn't survive because they can neither accept a 5% deduction nor compete with the big brands in the T-mall" (A3).*

Furthermore, despite the promise of honest transactions by entrepreneurs' representatives, there are still some entrepreneurs who 'review farm', that is, recruit buyers to make fake transactions and write positive comments, trying to gain more traffic on the platform (E10). These dissidences and displacements continuously exist in the network, affecting the stability of the network.

### Why do Taobao villages take different trajectories after their emergence?

This section and the next focus on explaining different possible directions of Taobao village development and upgrading and the power of platform in these processes through the intra-regional and extra-regional framework by different cases (B1-B4 for development directions and C1-C2 for upgrading in Figure 4).

#### The development directions (growth/decline) of Taobao villages

As shown in Figure 4, we analyse the growth and decline directions of Taobao villages in terms of both the degree of mobilisation of the intra-regional network and the degree of attachment to the extra-regional network, indicated as B1-B4. We see intra-regional factors as organisational relationships on the production side, while on the extra-regional side we put more emphasis on demand criteria of the market side. In the following, we describe the growth or decline directions of Taobao villages due to intra-regional mobilisation and extra-regional attachment, respectively, through simple case illustrations.

#### Growth/decline due the degree of mobilisation of intra-regional network actors

The growth of mobilisation of intra-regional network actors can be further divided into quantitative and qualitative mobilisation. The former emphasises the number of intra-regional actors, while the latter emphasises the

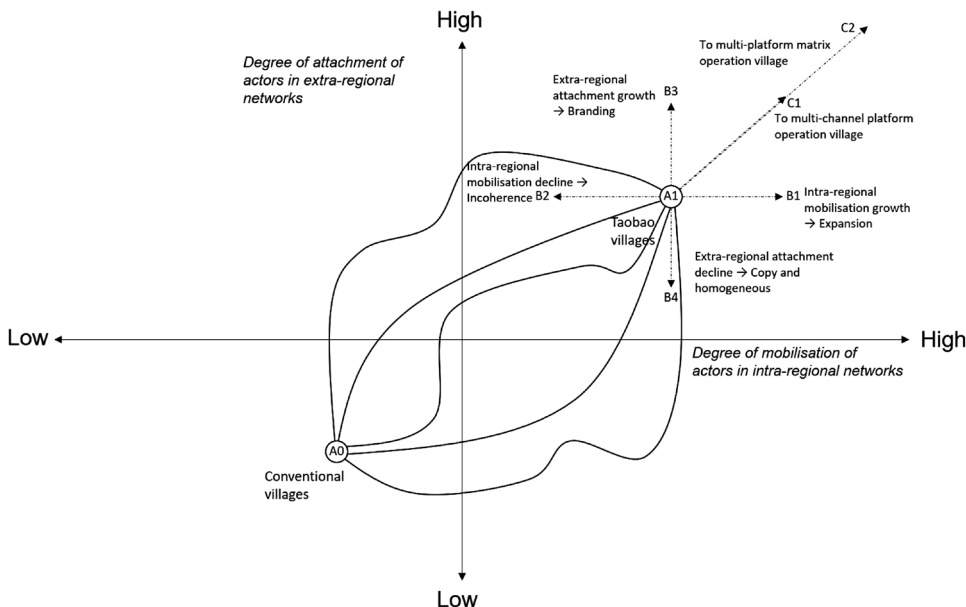


Figure 4. Emerging trajectories and directions of development and upgrading of Taobao villages. Source: authors.



quality of the mobilisation network of actors, such as the degree of mutual trust and matching.

#### **Direction B1: Intra-regional mobilisation growth**

→ **Expansion** The main emphasis here is on the clustering developments of Taobao villages, as they tend to agglomerate in one town or expand within a county. Our examples come from Dinglou Village, Daji Township, Cao County, Shandong Province, and Dongfeng Village, Shaji Township, Jiangsu Province. Both are characterised by spatial expansion as well as production chain lengthening, which both rely on mutual trust and close ties among actors and the increase in the number of intra-regional actors. In all cases, government departments fund the establishment of a small loan guarantee company to provide guarantee services for e-commerce loans. In 2012, Dinglou Village had more than 300 households, of which more than 280 households had Taobao online stores. Over the years, Dinglou Village's rural e-commerce business expanded from the village to the entire county. The number of Taobao villages in Cao County reached 168 in 2021, with in total nearly 70,000 online stores, whereas e-commerce sales reached 19 billion RMB, making it one of the largest clothing industry clusters in China (E8).

Dongfeng Village provides a typical example of production chain lengthening: *"The online store business started from scratch and quickly spread in Dongfeng Village, as the villagers quickly learned and copied the model. The number of logistics courier companies has reached 138, there were 30 photography companies, three e-commerce operation service companies, 73 raw material suppliers, 67 mattress processing factories, 19 paint sales companies, 38 hardware fittings manufacturers, and 18 accounting service companies by the end of 2018"* (Aliresearch, 2019: 49) (REPORT 2019).

#### **Direction B2: Intra-regional mobilisation decline**

→ **Mutual distrust** Some Taobao villages have declined because of their disadvantageous location far away from the next town centre, which leads to challenges concerning attracting enough network actors, such as logistics actors (quantitative mobilisation). Others declined because of low quality intra-regional mobilisation networks among the actors.

*"We have not contacted the e-commerce association because they are generally scamming to pay membership and tuition fees ... The organisation will give you valueless knowledge to entice you, and then you pay your money and learn nothing ... The village committee and government did not give any support either. We don't want them to know about our turnover either, otherwise wouldn't we always have to pay something?"* (E8)

Since Taobao villages are identified by the Taobao platform through backstage sales data, some town governments and even village committees do not know of the existence of local Taobao villages or that the village is identified as a Taobao village.

*"Although Xi Jinping's anti-corruption efforts have been extensive and tough, some grassroots entrepreneurs still think village cadres and government officials use their positions to solicit favours from the public in the course of serving them or Chi Na Qia Yao (吃拿卡要)"* (A2).

Because of this distrust, entrepreneurs are reluctant to ask for public support (for example, government-backed small loans or requests for changes of land use from rural homesteads to industrial plants/warehouses) and hence developing and clustering of e-commerce is limited.

#### **Growth/decline due the degree of attachment to extra-regional network actors**

The degree of attachment to extra-regional network actors has been similarly divided into two aspects: quantity and quality. The former is the exposure to the market, e.g. by participating in promotions organised by the platform, such as the Double 11 mentioned above, one can gain exposure to the store's products. The latter refers to products and operations that are more in line with the needs of the market, e.g. having a brand effect or an innovative business model.

#### **Direction B3: Extra-regional attachment growth**

→ **Branding** Although a vast number of Taobao villages operate their products without a brand, some grassroots entrepreneurs consciously realised the importance of branding from the very beginning. The following is an example from the outdoor products industry in Beishan village, Jinyun County, Zhejiang Province, which is called the 'Beishan model' (Wei et al., 2020), illustrating the importance of branding for the attachment to extra-regional factors (market demand).

Beishan Village started to develop rural e-commerce in 2006. In 2008, Lv Zhenhong, a grassroots entrepreneur from Beishan Village, started his Taobao business with the outdoor brand 'Beishan Wolf'. 'Beishan Wolf' controls R&D and distribution and outsources production to factories out of village. It also manages the brand throughout the distribution network. Ninety percent of the online businesses in Beishan Village are distributors, who can sell Beishan Wolf products directly without paying any extra fees (E3). From 2006 to 2018, the average annual income of Beishan villagers grew from 3300 to almost 14,000 RMB (Wu et al., 2020). This shows that through branding, villages are able to grow by gaining broader attachment to extra-regional factors.

#### **Direction B4: Extra-regional attachment decline**

→ **Homogeneous** In contrast to Direction B3, Taobao

villages in Direction B4 lack sensitivity to the market. They know neither how to operate the online store actively, nor how to communicate with the emerging online market. Moreover, their products often lack design and innovativeness. The homogenisation of products not only makes a poor fit with the e-commerce industry, it also leads to a focus on intra-regional networking and attaches little to extra-regional factors, which leads to decline.

*"All our products are taken directly from the manufacturer, we just stock them and sell them... There is no design yet... I may see someone else selling one product very well, then I may use a lower price to stock this product, then I can use a lower price to grab its market, which may be grabbed away tomorrow. Some exclusive product owners with style and fashion have the ability to develop special styles, they have the pricing power and do not need to fight price wars" (E2).*

## How does the platform exert its power in these processes?

### The upgrading directions of Taobao villages

As stated in Table 1, in the process of e-commerce transformation, two models of combined operation have emerged, namely the multi-channel platform operation model, which is a hybrid model with traditional e-commerce platforms, and the multi-platform matrix operation model, which is a mix of traditional and emerging e-commerce platforms. No matter which model, the entry of each platform is able to simultaneously and powerfully increase both the mobilisation of intra-regional network actors and the degree of attachment to extra-regional networks, which has important implications for place making.

Two upgrading directions are based on the new entry platform, as described below (shown in Figure 4, C1-C2).

**Direction C1: To a multi-channel platform operation village** Multi-channel operations (multiple traditional e-commerce platforms) are critical due to the simultaneous mobilisation of intra-regional networks and attachment to extra-regional networks by the platform. In Yijie Village, Wangqingtu Town, Wuqing District, Tianjin, more than 70% of the labour force is engaged in bicycle production-related industries, and is known as 'the first bicycle town in China' (E5). In 2016, many factories rapidly expanded their production capacity due to a boom in shared bicycles in China. With the promulgation of the 'No bicycle drop-off' for shared bicycles in many places and the closure of many shared bicycle companies, orders for shared bicycles plummeted, and many factories cannot even collect the final payment. Through online interviews and netnography via WeChat (Figure 5), we found out that while domestic sales decreased, most of the manufacturers have alleviated their sales problems through cross-border e-commerce via Alibaba's International Station (E5, E6, E7). Therefore, the newly entered platform, Alibaba International Station, can facilitate an overall upgrading to place making, not only by mobilising intra-regional actors but also by attaching to extra-regional actors. However, this multi-platform only expands the sales channels and turns Taobao villages into e-commerce villages in a broad sense.

**Direction C2: To a multi-platform matrix operation village** In contrast to the e-commerce village, the multi-platform matrix operation village (a combination



Figure 5. Screenshot of E6 WeChat moment (enterprise name has been anonymized).

of traditional e-commerce platforms and half-e-commerce platforms) combines the platform economy and Wanghong economy. With the impetus of the government, many digital platforms for short videos and livestreaming have deliberately created sections related to rural areas. As reported in *The Economist* (2021: 1): “More obscure but no less enterprising, farmers and fishermen show off juicy apples or prize lobsters in short videos, digital showmanship accompanied by new delivery networks that allow city dwellers to procure the produce”. Peixie Village, Xiaochi Town, Xinluo District, Longyan City, Fujian Province, is an excellent template for the upgrading of Taobao villages. The village has set up an eco-rural tourism co-operative and built a melon and fruit corridor, a farmhouse hotel, an ecological tea garden, a fruit-picking area, a farmers’ park, a begonia garden and other attractions and leisure projects, thus enriching the village’s industrial portfolio (Aliresearch, 2016: 17) (REPORT 2016). Peixie Village first met the Taobao Village criteria because of its bamboo products and tea industry, but now, through the operation of the platform matrix, Peixie Village synergistically develops its e-commerce industry, tourism and agriculture, and together contributes to the construction of platform-based place making. This multi-platform matrix operation, characterised by an extremely high information exchange density and explosive expansion, undoubtedly further promotes the mobilisation of both intra-regional networks and the attachment to extra-regional networks, which is more thorough, more sustainable as well as more resilient than a multi-channel platform operation village (Direction C1).

By describing the six directions of development or upgrading after the emergence of Taobao villages, we find that the ups and downs of Taobao villages’ developments depend on the degree of mobilisation of intra-regional network actors or the degree of attachment to extra-regional network actors. Their upgrading depends on the growth of both intra- and extra-regional sides simultaneously by the newly entered platform. In contrast to previous articles, our study takes a full intra- and extra-regional perspective, focussing not only on the emergence and growth of Taobao villages, but also on their upgrading and decline.

## Conclusions

Using the emergence, development and upgrading of Taobao villages as a platform-based place making phenomenon, this study applies ANT networks to a combined study of economic geography and the platform economy. By analysing Chinese Taobao villages, it contributes to placing the platform economy by tackling three research

questions, i.e. (i) how does the platform interact with place? (ii) why do Taobao villages take different trajectories after their emergence? and (iii) how does the platform exert its power in these processes? Together they reveal the mechanisms by which the platform exerts its place making power. First, platforms interact with places and further ‘make’ places by progressively expanding the enrolment of different actors. Secondly, the different directions after the emergence of Taobao villages are due to the quantitative and qualitative changes in each village’s mobilisation of intra-regional network actors and of the attachment to extra-regional network actors. Thirdly, the upgrading depends on the simultaneous increase and promotion of intra- and extra regional activities by newly entered platforms. This article expands existing understanding by analysing the whole process of Taobao villages from a platform perspective, including not only the emergence and growth of Taobao villages, but also their decline and upgrading.

Moreover, this article has the following three conclusions and contributions. First, based on translation processes of Taobao villages, the concept of ‘compulsory allies’ and ‘pending allies’ is proposed, refining and progressing the allies concept in ANT. The different development and upgrading directions of different Taobao villages are profiled with the platform as a key actor, which explores the potential of ANT for applying in multi-case analysis in economic geography. Secondly, this article refines the local-global networks framework by further dividing quantitative and qualitative aspects concerning the degree of mobilisation of intra-regional network actors and the degree of attachment of actors to extra-regional networks. Finally, this study transcends the urban and production-side bias of economic geography by considering the important role of market factors in regional development through a practical context based on rural areas and a theoretical orientation that balances intra-regional and extra-regional networks.

We see this article as a first step to placing the platform economy and to getting a more nuanced understanding of the inter-relations between the platform economy and economic geography. We hence see much potential for the following four future research avenues along the lines laid out in this article around platform-based place making. First, although this study has taken Taobao villages in China as an object of study, future research is needed on similar phenomena in other countries with a good internet infrastructure and well-functioning digital platforms, in order to work out similarities and differences concerning platform-based place making in different contexts. Secondly, in this article, we could only give a general overview and identify trends. However, we see clear potential in the future for more in-depth research on case studies of individual places and how their economies are affected by the platform economy. Thirdly, in this article, we found out that even in e-commerce clustering effects and

actor mobilisation are important factors. However, more in-depth research is needed on these factors for platform-based regional development in order to tease out the differences with factors postulated in conventional theories around clustering and agglomerations, and hence to give stronger feedback to classical cluster theory. Finally, future research on platform-based regional development could be linked to empirical research on cluster evolution (Fornahl et al., 2015) and to smart specialisation (Foray, 2018).

## Endnotes

- 1 The most important of these 'half-e-commerce platforms' is the short video or live streaming platform, i.e. Douyin and Kuaishou in China, which are important fronts for 'short video e-commerce' or 'livestream e-commerce'. Although some traditional e-commerce platforms have opened up short videos and live streaming functions for this e-commerce transformation, the operational logic is still different from that of 'half-e-commerce platforms'.
- 2 Wanghong (网红), as a noun, originally refers to celebrities who are famous on the Internet. At present, it is also used as an adjective in many cases, referring to people, things, objects, or places, etc., which spark heated discussions through the Internet and stimulate people to imitate similar behaviour or share the same experience, such as Wanghong sights, Wanghong brands, Wanghong furniture, Wanghong dance, Wanghong clothes and Wanghong makeup style. The digital economy based on attracting the attention of internet users is in China known as the Wanghong economy and Wanghong e-commerce is part of the Wanghong economy (Cunningham et al., 2019).
- 3 Village cadres are a special, marginalised group distinguished from national civil servants, not working full-time. They exercise village public authority, manage public affairs, provide public services and enjoy certain public subsidies in the village (Wang and Mou, 2021).
- 4 Chi (吃): accepting banquets from the public, taking kickbacks; Na (拿): by virtue of the power, regardless of whether the public is willing or not, forcefully take the public's goods; Qia (卡): shirk things, with other purposes, not in accordance with the rules and regulations to work quickly, deliberately making things difficult. Problems are not solved unless the public gives benefits to the officials; Yao (要): Solicit money or goods from the public by obvious or inconspicuous means.

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## References

- Aliresearch (2015) *China Taobao Village*. Beijing: Publishing House of Electronics Industry, ISBN 9787121250750 (in Chinese).
- Aliresearch (2016) A new breakthrough in Taobao Village, 2016 Report on China Taobao Villages (in Chinese).
- Aliresearch (2019) Ten years of Taobao Village: Digital Economy Promotes Rural Revitalization, System Report on China Taobao Villages: 2009–2019 (in Chinese).
- Bengtsson, F. and Lundström, J. (2013) ANT-Maps: visualising perspectives of business and information systems. ICIS 2013 Proceedings. Available online at: <https://aisel.aisnet.org/icis2013/proceedings/ResearchMethods/4>.
- Berg, J., Furrer, M., Harmon, E., Rani, U., Silberman, M. S. (2018) *Digital Labour Platforms and the Future of Work. Towards Decent Work in the Online World*. Geneva: International Labour Office.
- Cairncross, F. (1997) *The Death of Distance: How the Communications Revolution Will Change Our Lives*. Boston: Harvard Business School Press.
- Callon, M. (1984) Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay. *The Sociological Review*, **32**(1\_suppl): 196–233. doi:10.1111/j.1467-954X.1984.tb00113.x.
- Callon, M. (1986) The sociology of an actor-network: the case of the electric vehicle. In M. Callon, J. Law, A. Rip (eds.) *Mapping the Dynamics of Science and Technology: Sociology of Science in the Real World*, pp. 19–34. London: Palgrave Macmillan. doi:10.1007/978-1-349-07408-2\_2.
- Callon, M. and Latour, B. (1981) Unscrewing the big Leviathan: how actors macro-structure reality and how sociologists help them to do so. In K. Knorr-Cetina and A. V. Cicourel (eds.) *Advances in Social Theory and Methodology: Toward an Integration of Micro-and Macro-Sociologies*, pp. 227–303. London: Routledge & Kegan Paul.
- Chun, N. and Gurova, O. (2019) Place-making the local to reach the global: a case study of Pre-Helsinki. *Fashion Practice-the Journal of Design Creative Process & the Fashion Industry*, **11**: 26–52. doi:10.1080/17569370.2018.1507168.
- Craig, D., Lin, J., Cunningham, S. (2021) *Wanghong as Social Media Entertainment in China*. New York: Springer.
- Cunningham, S., Craig, D., Lv, J. (2019) China's livestreaming industry: platforms, politics, and precarity. *International Journal of Cultural Studies*, **22**: 719–736. doi:10.1177/1367877919834942.



- Economist (2021) The next big thing in retail comes with Chinese characteristics. <https://www.economist.com/business/2021/01/02/the-next-big-thing-in-retail-comes-with-chinese-characteristics> [2 January 2021].
- Foray, D. (2018) Smart specialisation strategies and industrial modernisation in European regions-theory and practice. *Cambridge Journal of Economics*, **42**: 1505–1520. doi:[10.1093/cje/bey022](https://doi.org/10.1093/cje/bey022).
- Ford, H. and Graham, M. (2016) Provenance, power and place: linked data and opaque digital geographies. *Environment and Planning D: Society and Space*, **34**: 957–970.
- Fornahl, D., Hassink, R., Menzel, M. P. (2015) Broadening our knowledge on cluster evolution. *European Planning Studies*, **23**: 1921–1931.
- Fornazin, M. and Joia, L. A. (2016) Techno-government networks: actor-network theory in electronic government research. In H. J. Scholl, O. Glassey, M. Janssen, et al. (eds.) *Electronic Government*, pp. 188–199. Cham: Springer. doi:[10.1007/978-3-319-44421-5\\_15](https://doi.org/10.1007/978-3-319-44421-5_15).
- Fu, Z. N., Luo, Z. D., Qiao, Y. B. (2019) Disappearing under the growth: spatial distribution patterns and evolution mechanisms of Taobao Villages, Shanghai Chengshi Guihua. *Shanghai Urban Planning Review*, **2**: 124–130. in Chinese.
- Gasson, S. (2006) A genealogical study of boundary-spanning IS design. *European Journal of Information Systems*, **15**: 26–41. doi:[10.1057/palgrave.ejis.3000594](https://doi.org/10.1057/palgrave.ejis.3000594).
- Graham, M. (2020) Regulate, replicate, and resist—the conjunctural geographies of platform urbanism. *Urban Geography*, **41**: 453–457.
- Grimaldi, E. and Barzanò, G. (2014) Making sense of the educational present: problematising the ‘merit turn’ in the Italian eduscape. *European Educational Research Journal*, **13**: 26–46.
- Guo, G. H., Qian, L., Luo, G. F. (2014) Effects of clusters on China’s E-Commerce: evidence from the Junpu Taobao village. *International Journal of Business and Management*, **9**: 180–186.
- Han, X. (2021) Historicising Wanghong economy: connecting platforms through Wanghong and Wanghong incubators. *Celebrity Studies*, **12**: 317–325. doi:[10.1080/19392397.2020.1737196](https://doi.org/10.1080/19392397.2020.1737196).
- Hassink, R., Gong, H., Marques, P. (2019a) Moving beyond Anglo-American economic geography. *International Journal of Urban Sciences*, **23**: 149–169. doi:[10.1080/12265934.2018.1469426](https://doi.org/10.1080/12265934.2018.1469426).
- Hassink, R., Isaksen, A., Trippel, M. (2019b) Towards a comprehensive understanding of new regional industrial path development. *Regional Studies*, **53**: 1636–1645. doi:[10.1080/00343404.2019.1566704](https://doi.org/10.1080/00343404.2019.1566704).
- Heeks, R. and Stanforth, C. (2007) Understanding e-Government project trajectories from an actor-network perspective. *European Journal of Information Systems*, **16**: 165–177. doi:[10.1057/palgrave.ejis.3000676](https://doi.org/10.1057/palgrave.ejis.3000676).
- Heeks, R. and Stanforth, C. (2015) Technological change in developing countries: opening the black box of process using actor–network theory. *Development Studies Research*, **2**: 33–50.
- Ibert, O., Oechslen, A., Repenning, A., Schmidt, S. (2021) Platform ecology: a user-centric and relational conceptualization of online platforms. *Global Networks*, **22**: 564–579.
- Jha, S. K., Pinsonneault, A., Dubé, L. (2016) The evolution of an ICT platform-enabled ecosystem for poverty alleviation: the case of eKutir. *MIS Quarterly*, **40**: 431–446.
- Joia, L. A. and Soares, C. D. (2018) Social media and the trajectory of the ‘20 Cents Movement’ in Brazil: an actor-network theory-based investigation. *Telematics and Informatics*, **35**: 2201–2218. doi:[10.1016/j.tele.2018.08.007](https://doi.org/10.1016/j.tele.2018.08.007).
- Keane, M. (2016) Internet+ China: unleashing the innovative nation strategy. *International Journal of Cultural and Creative Industries*, **3**: 68–74.
- Kenney, M. and Zysman, J. (2016) The rise of the platform economy. *Issues in Science and Technology*, **32**: 61–69.
- Kenney, M. and Zysman, J. (2020a) COVID-19 and the increasing centrality and power of platforms in China, the US, and beyond. *Management and Organization Review*, **16**: 747–752.
- Kenney, M. and Zysman, J. (2020b) The platform economy: restructuring the space of capitalist accumulation. *Cambridge Journal of Regions, Economy and Society*, **13**: 55–76.
- Kenney, M., Zysman, J. and Bearson, D. (2020) Transformation or structural change? What Polanyi can teach us about the platform economy. *Sociologica*, **14**: 227–240.
- Langley, P. and Leyshon, A. (2017) Platform capitalism: the intermediation and capitalization of digital economic circulation. *Finance and Society*, **3**: 11–31.
- Latour, B. (1987) *Science in Action: How to follow Engineers and Scientists through Society*. Cambridge: Harvard University Press.
- Latour, B. (1990) Technology is society made durable. *The Sociological Review*, **38**(1\_suppl): 103–131. doi:[10.1111/j.1467-954X.1990.tb03350.x](https://doi.org/10.1111/j.1467-954X.1990.tb03350.x).
- Law, J. and Callon, M. (1992) The life and death of an aircraft: a network analysis of technical change. In W. E. Bijker and J. Law (eds.) *Shaping Technology/Building Society: Studies in Sociotechnical Change*, pp. 21–52. Cambridge, MA: MIT Press.
- Lea, M., O’Shea, T., Fung, P. (1995) Constructing the networked organization: content and context in the development of electronic communications. *Organization Science*, **6**: 462–478.
- Leszczynski, A. and Kong, V. (2022) Walking (with) the platform: bikesharing and the aesthetics of gentrification in Vancouver. *Urban Geography*, (forthcoming). doi:[10.1080/02723638.2022.2036926](https://doi.org/10.1080/02723638.2022.2036926).
- Lin, Y. (2019) E-urbanism: E-commerce, migration, and the transformation of Taobao villages in urban China. *Cities*, **91**: 202–212. doi:[10.1016/j.cities.2018.11.020](https://doi.org/10.1016/j.cities.2018.11.020).
- Lin, J., Li, H., Lin, M., Li, C. (2022) Rural e-commerce in China: spatial dynamics of Taobao Villages development in Zhejiang Province. *Growth and Change*, **53**: 1082–1101. doi:[10.1111/grow.12560](https://doi.org/10.1111/grow.12560).
- Liu, C. (2022) Imag(in)ing place: reframing photography practices and affective social media platforms. *Geoforum*, **129**: 172–180. doi:[10.1016/j.geoforum.2022.01.015](https://doi.org/10.1016/j.geoforum.2022.01.015).

- Liu, M., Zhang, Q., Gao, S., Huang, J. (2020) The spatial aggregation of rural e-commerce in China: an empirical investigation into Taobao Villages. *Journal of Rural Studies*, **80**: 403–417. doi:10.1016/j.jrurstud.2020.10.016.
- Luo, Z. and Qiao, Y. (2021) New countryside in the internet age: the development and planning of E-Commerce Taobao villages in China. In L. Bian, Y. Tang, Z. Shen (eds.) *Chinese Urban Planning and Construction: From Historical Wisdom to Modern Miracles*, pp. 245–273. Cham: Springer. doi:10.1007/978-3-030-65562-4\_12.
- McLean, C. and Hassard, J. (2004) Symmetrical absence/symmetrical absurdity: critical notes on the production of actor-network accounts. *Journal of Management Studies*, **41**: 493–519. doi:10.1111/j.1467-6486.2004.00442.x.
- Mei, Y., Mao, D., Lu, Y., Chu, W. (2020) Effects and mechanisms of rural E-commerce clusters on households' entrepreneurship behavior in China. *Growth and Change*, **51**: 1588–1610. doi:10.1111/grow.12424.
- Mermet, A. C. (2022) Can gentrification theory learn from Airbnb? Airbnbification and the asset economy in Reykjavík. *Environment and Planning A: Economy and Space* **54**: 1147–1164. doi:10.1177/0308518X221094616
- Müller, M. (2015) A half-hearted romance? A diagnosis and agenda for the relationship between economic geography and actor-network theory (ANT). *Progress in Human Geography*, **39**: 65–86. doi:10.1177/0309132513518833.
- Mwenya, J. and Brown, I. (2017) Actor-network theory in IS research: critique on application of the principle of generalized symmetry. In Masinde, M. (ed.) *Proceedings of the South African Institute of Computer Scientists and Information Technologists*, pp. 1–10. New York: Association for Computing Machinery. doi:10.1145/3129416.3129448.
- Plantin, J. C., Lagoze, C., Edwards, P. N., Sandvig, C. (2018) Infrastructure studies meet platform studies in the age of Google and Facebook. *New Media & Society*, **20**: 293–310. doi:10.1177/1461444816661553.
- Qi, J., Zheng, X., Guo, H. (2019) The formation of Taobao villages in China. *China Economic Review*, **53**: 106–127. doi:10.1016/j.chieco.2018.08.010.
- Quaranta, G., Salvia, R. (2017) Participatory approach to a place-based sustainable rural development: E-market platform for a resilient agri-food Chain. *Journal of Environmental Protection and Ecology*, **18**: 616–622.
- Rodger, K., Moore, S. A., Newsome, D. (2009) Wildlife tourism, science and actor network theory. *Annals of Tourism Research*, **36**: 645–666. doi:10.1016/j.annals.2009.06.001.
- Sadowski, J. (2020a) Cyberspace and cityscapes: on the emergence of platform urbanism. *Urban Geography*, **41**: 448–452. doi:10.1080/02723638.2020.1721055.
- Sadowski, J. (2020b) The internet of landlords: digital platforms and new mechanisms of rentier capitalism. *Antipode*, **52**: 562–580.
- Smrček, N. (2017) The challenges of platform capitalism: understanding the logic of a new business model. *Juncture*, **23**: 254–257. doi:10.1111/newe.12023.
- Stanforth, C. (2006) Using actor-network theory to analyze e-government implementation in developing countries. *Information Technologies & International Development*, **3**: 35–60.
- Su, M. M., Wall, G., Wu, B., Xu, H., Fu, X., Deng, Y. (2021) Tourism place making through the bioluminescent 'Blue Tears' of Pingtan Islands, China. *Marine Policy*, **133**: 104744. doi:10.1016/j.marpol.2021.104744.
- Sunley, P. (2008) Relational economic geography: a partial understanding or a new paradigm? *Economic Geography*, **84**: 1–26.
- Taecharungroj, V. (2019) User-generated place brand identity: harnessing the power of content on social media platforms. *Journal of Place Management and Development*, **12**: 39–70. doi:10.1108/JPM-11-2017-0117.
- Tang, K., Xiong, Q., Zhang, F. (2022) Can the E-commercialization improve residents' income? –Evidence from 'Taobao Counties' in China. *International Review of Economics & Finance*, **78**: 540–553. doi:10.1016/j.iref.2021.12.019.
- Tang, W. and Zhu, J. (2020) Informality and rural industry: rethinking the impacts of E-Commerce on rural development in China. *Journal of Rural Studies*, **75**: 20–29. doi:10.1016/j.jrurstud.2020.02.010.
- Törnberg, P. (2022) Platform placemaking and the digital urban culture of Airbnbification. *Urban Transformations*, **4**: 1–26. doi:10.1186/s42854-022-00032-w.
- Tranos, E. and Nijkamp, P. (2013) The death of distance revisited: cyber-place, physical and relational proximities. *Journal of Regional Science*, **53**: 855–873.
- UNCTAD (2015) *Information Economy Report 2015: Unlocking the Potential of E-Commerce for Developing Countries*. New York and Geneva: United Nations. doi:10.18356/d00a8fcc-en.
- Wang, C. C., Miao, J. T., Phelps, N. A., Zhang, J. (2021) E-commerce and the transformation of the rural: the Taobao village phenomenon in Zhejiang Province, China. *Journal of Rural Studies*, **81**: 159–169. doi:10.1016/j.jrurstud.2020.10.017.
- Wang, J. and Mou, Y. (2021) The paradigm shift in the disciplining of village cadres in China: from Mao to Xi. *The China Quarterly*, **248**: 181–199.
- Wang, X. and Picone, I. (2021) The art of attracting attention: a process model of Chinese toubu vloggers' strategies to create online identities and self-brands. *Celebrity Studies*, **0**: 1–17. doi:10.1080/19392397.2021.1991408.
- Wei, Y. D., Lin, J., Zhang, L. (2020) E-commerce, Taobao villages and regional development in China. *Geographical Review*, **110**: 380–405. doi:10.1111/gere.12367.
- World Bank and Alibaba Group (2019) *E-commerce Development: Experience from China*. Available online at: <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/552791574361533437/E-commerce-Development-Experience-from-China> [Accessed 19 May 2022].
- Wu, D. (2022) More than a solo method: netnography's capacity to enhance offline research methods. *Area*, **54**: 88–95. doi:10.1111/area.12750.

- Wu, W., Zhang, Y., Fan, Y. (2020) ICT Empowers the formation and development of rural E-Commerce in China, *IEEE Access*, **8**. Piscataway: 135264–135283. doi:[10.1109/ACCESS.2020.3011593](https://doi.org/10.1109/ACCESS.2020.3011593).
- Xu, Z. B., Wang, Z. H., Zhou, L., Wang, H. R. (2017) The spatial distribution characteristics and driving factors of “taobao village” in China, Jingji Dijì. *Economic Geography*, **37**: 107–114. in Chinese.
- Zhou, J. (2018) Influence of e-commerce on the development of Suzhou Xiaojing village and planning reflections, Chengshi Guihua. *City Planning Review*, **9**: 102–126. in Chinese.
- Zhou, Y. (2022) Trapped in the platform: Migration and precarity in China’s platform-based gig economy. *Environment and Planning A: Economy and Space* (forthcoming). doi:[10.1177/0308518X221119196](https://doi.org/10.1177/0308518X221119196).
- Zhou, J., Yang, Z. Y., Gao, W. (2017) The development characteristics and mechanism analysis of Taobao villages in Jiangsu province under E-commerce economy, Chengshi Fazhan Yanjiu. *Urban Development Studies*, **2**: 9–14. in Chinese.
- Zhou, J., Yu, L., Choguill, C. L. (2021) Co-evolution of technology and rural society: The blossoming of Taobao villages in the information era, China. *Journal of Rural Studies*, **83**: 81–87. doi:[10.1016/j.jrurstud.2021.02.022](https://doi.org/10.1016/j.jrurstud.2021.02.022).
- Zhu, B. Y., Song, Y. X., Li, G. Z., Yu, T. T. (2016) Spatial aggregation pattern and influencing factors of “taobao village” in China under the C2C e-commerce mode, Jingji Dijì. *Economic Geography*, **36**: 92–98. in Chinese.
- Zuboff, S. (2019) *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York: Public Affairs.

## Paper 2 Exploring the Mechanisms of Platform Empowered Cluster Development: Evidence from the Case of Taobao Villages in Rural China

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# Exploring the mechanisms of platform empowered cluster development: evidence from the case of Taobao villages in rural China

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## Abstract

By studying a Chinese characteristic phenomenon, the expansion of Taobao villages at the county level, we coin the term "platform empowered cluster development (PECD)". Based on cluster theory and empirical knowledge of Taobao villages, we analyze the pre-existing context, the process forces and outcome of Taobao village expansion in 50 counties with a fuzzy-set qualitative comparative analysis (fsQCA). The following four patterns of PECD are finally identified: A: Local government driven without pre-existing context; B: Pre-existing advantages driven without process forces; C: First-mover advantage, grassroots driven with locational advantage; D: Dual driven without pre-existing context.

**Keywords:** Platform, Platform Empowered Cluster Development, QCA, Taobao Villages, China

## 1 INTRODUCTION

The concept of "empowerment" can be traced back to Rappaport (1987, p. 122) in the field of psychology, in which "empowerment" is defined as the process "by which people, organizations, and communities gain mastery over their affairs". By the 1980s and 1990s, empowerment became a widely popular concept in American social sciences and was extensively applied in the study of individuals, groups, and organizational and community development across disciplines, such as organizational studies, community psychology and urban planning (Rogers & Singhal, 2003). In recent years, there has been a growing attention in research towards the empowerment and related socio-economic sustainability brought to rural regions by information and communication technologies (ICT) or digital technologies, including digital platforms (Jha et al., 2016; Leong et al., 2016; Wu et al., 2020; Ye & Yang, 2020). The booming digital platform economy has led to the latest stage of digitalization, known as the platform economy era (Kenney & Zysman, 2016). While most studies on the relationship between platforms and places emphasize the negative impacts (Davies et al., 2023), cases in rural China have shown that platforms also empower development in certain regions (Chu et al., 2023), changing the way business and industry are operated and organised, which forces us to rethink regional and industrial cluster development. The rise of e-commerce platforms, such as Taobao,

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a platform owned by Alibaba, has brought new opportunities to rural areas in China, even contributing to narrowing the urban-rural gap and poverty alleviation in the central and western regions of the country (World Bank, 2016). Local governments encourage the integration of local traditional industrial clusters with rural e-commerce, attracting the attention from scholars in economic geography and regional studies both to this topic and to the emergence of e-commerce industry clusters (Guo, 2022; Liu, 2022; Ma, 2016). Both highlight the empowerment effect of e-commerce platforms on local development and cluster development. However, existing literature has mainly focused on the results and processes of empowerment, rather than its antecedents. Furthermore, according to Rappaport (1987), empowerment manifests itself differently for different people, organizations, and settings. Similarly, we argue that platform empowered development and related socio-economic sustainability differ from place to place. In other words, platforms do not empower all places equally and indiscriminately. Therefore, the research questions addressed in this article are:

- How can digital platforms interact with industrial clusters to empower place development?
- How do various place assets and actors interact with each other and jointly affect the performance of platform empowerment?
- Are there multiple patterns for different places to achieve high performance in platform empowerment?
- How does a region achieve high performance in platform empowerment in the absence of locational advantages?

Based on evidence from Taobao villages in China, in this article, we align with Leong et al. (2016) in recognizing Taobao villages as a form of digital/platform empowerment development. Drawing on existing empirical knowledge and literature on Taobao Village and cluster theory, we conceptualize the expansion of Taobao Villages as a process called Platform Empowered Cluster Development (PECD), which exemplifies the expansion of Taobao Village as a concrete manifestation of the more abstract 'platform empowered place development' process. Building on this concept, this paper's research aim is to explore the mechanisms of high-performance, long-term and effective forms of PECD. Furthermore, we present a mechanism framework suggesting that PECD is contingent upon local pre-existing conditions and process forces. The pre-existing conditions encompass initial development foundation and first-mover advantages, while process forces encompass top-down and bottom-up power. We propose that the mechanisms of PECD may arise from various configurations of these factors. Hence, our aim is to examine the diverse expansion outcomes of Taobao villages in 50 counties across China over a specific period, in order to identify different patterns of PECD and ultimately address our research questions. We conducted a research design that followed the procedures of fuzzy-set qualitative comparative analysis (fsQCA), which is an emerging research method in regional

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studies and economic geography (Grillitsch et al., 2022; Rutten, 2019).

The paper is divided into five sections. In the next section, we first introduce the empirical background of Taobao villages and then discuss the concept of industrial clusters and explain the relationship between e-commerce, industrial clusters and e-commerce industrial clusters in the context of Taobao villages, proposing the key concept of PECD. In the third section, we present a mechanism framework that guides the QCA analysis. The fourth section provides a detailed description of the QCA analysis process, including the measurement and calibration of conditions and variables and the selection of cases. The fifth section presents our findings, illustrating four patterns for different places and particularly their corresponding qualitative empirical evidence, showing different configurations of high performance of PECD in different rural areas. Finally, we provide a discussion and conclusions of the study.

## **2 EMPIRICAL BACKGROUND AND CONCEPTUALISATION**

### **2.1 Taobao villages: some background information**

Taobao is the largest digital e-commerce platform in East Asia and has played a leading role in the development of e-commerce and rural e-commerce in China. Despite facing competition from various e-commerce platforms or half-e-commerce platforms in recent years (Chu et al., 2023), Taobao holds significant importance for the development of rural e-commerce in China, especially from 2009 to 2020. The concept of “Taobao village” was coined by Ali Research, which is a research institute belonging to Alibaba Group. When a village<sup>1</sup> is defined as a “Taobao Village,” it means the annual total turnover of the village on the Taobao platform exceeds ten million yuan (1.57million US dollars) and there are either more than 100 online Taobao shops operated by local households or more than 10% of local households operate online Taobao shops (Ali Research, 2016). Although this criterion only mentions online turnover and the scale of operations of online shopping, most of the products in fact come from either local villagers’ household production (courtyard economy), newly founded factories, or are produced and processed in a large number of local small, family-run businesses and privatized township and village enterprise (TVE) factories (Jin & Qian, 1998; Yu & Cui, 2019; Zhang, 2023, p. 10). Taobao Village is a unique phenomenon in China, combining e-commerce and rural industrial clusters. It has propelled traditional rural economies in China into a new era based on Internet development (Yong, 2022). On the one hand, Taobao Villages arise in regions that already possess a solid industrial foundation or specialized/comprehensive markets,

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<sup>1</sup> The term “village” refers to an administrative village, which is the smallest basic autonomous unit in the local administrative system in China. It has clear boundaries and designated officials. The governing body of the administrative village is the “Village Committee,” and its leader is the director of the Village Committee, commonly referred to as the “village head/chief”.

leveraging pre-existed assets for further development (Bellandi & Lombardi, 2012; Yang, 2022; Zeng et al., 2019). On the other hand, there are cases where Taobao Villages emerge in regions without pre-existing industrial foundations (concerning both production and markets). These Taobao Villages that develop from scratch against the background of e-commerce create new conditions for industrial development and foster the growth of nascent industrial clusters (Yong, 2022). The emergence and development of Taobao Villages can be based on agriculture products, such as flowers, trees, fruits, tea, hairy crabs, walnuts, etc., or manufacturing industries such as garment, furniture, sports equipment, etc. (Cui et al., 2019; Leong et al., 2016; Wu et al., 2020; Zeng et al., 2019).

The concept of Taobao Village was officially proposed in 2009 when there were only three Taobao Villages in China. Since 2012, Ali Research has been releasing "Annual China Taobao Village Reports" and the "Annual Taobao Village List" every year. These reports have demonstrated that the number of Taobao Villages in China has grown from the initial three in 2009 to 7,780 in 2022. Additionally, Ali Research has introduced further concepts such as Taobao Towns, Taobao Village Groups, Large-scale Taobao Village Groups, and Super Large-scale Taobao Village Groups based on different criteria (Ali Research, 2019). We have provided a comprehensive overview of these concepts and presented the corresponding figures for the year 2022 in Table 1.

Table 1. Concepts related to Taobao villages

Concept	Definition	No. in 2022
Taobao Village	Within a village, the annual total turnover of the village on the Taobao platform exceeds ten million yuan (1.57 million US dollars) and there are either more than 100 online Taobao shops operated by local households or more than 10% of local households operating online Taobao shops.	7780
Taobao Town	Within a town, the number of Taobao villages reached or exceeded 3 OR the annual e-commerce sales on the Taobao platform exceed 30 million yuan, and there are more than 300 active online stores, regardless of whether there are officially designated "Taobao Villages".	2429
Taobao Village Group	Within a county (district, county-level city), the number of Taobao villages reached or exceeded 10.	161
Large Taobao Village Group	Within a county (district, county-level city), the number of Taobao villages reached or exceeded 30.	72
Super Large Taobao Village Group	Within a county (district, county-level city), the number of Taobao villages reached or exceeded 100.	13

From these concepts, we can observe that Taobao Villages often experience rapid growth in the form of agglomerations. As rural e-commerce expands from Taobao Villages to Taobao Towns and super Large-scale Taobao Village Groups, the corresponding scale of physical industrial



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clusters also continues to expand synchronously (Guo, 2022). However, the lasting development/expansion of Taobao villages cannot be taken for granted. For some Taobao villages, the empowerment of the platform will continue to expand, resulting in their neighboring villages also becoming Taobao villages. For other Taobao villages, the empowerment provided by the platform may be limited or short-lived, and its impact is confined to only one or a few villages and it does not spread further. In some cases, Taobao villages declined and eventually disappeared from the Annual Taobao Village List after a few years, ceasing to spread to other villages. Due to the similarity and close interaction between Taobao village expansion and industrial cluster growth, we present our research aim based on the concept of industrial clusters in Section 2.2.

## 2.2 Conceptualization: clusters, e-commerce and e-commerce industrial cluster

Industrial clusters, as a common phenomenon in industrial development, have been defined by Porter (1998, p. 197) as "Geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standards agencies, and trade associations) in particular fields that compete but also co-operate". Despite the long-standing history and extensive development, the concept of clusters still faces various controversies and confusions (Chu & Hassink, 2022). Martin and Sunley (2003) pointed out that the most obvious problem with defining clusters is the lack of clear industry and geographical boundaries. On the one hand, "defining the boundaries of clusters appears to be about deriving a detailed reclassification of industries that more accurately reflects the range of specialized economic activity" (Martin & Sunley, 2003, p. 11). On the other hand, the concept of geographical proximity is so "highly and ridiculously elastic" that clusters can be "found at almost any level of spatial aggregation" (Martin & Sunley, 2003, p. 11). Among the numerous concepts of "clusters" summarized by Martin & Sunley (2003), some emphasize the similarity of industries and activities within clusters (such as Crouch & Farrell, 2001; Swann & Prevezer, 1996), while others highlight their complementarity and heterogeneity (such as Feser, 1998). The diversification vs. specialization question has been recently debated at "Rethinking Clusters" conferences (Lazzeretti et al., 2019). In this context, some new concepts have also been proposed, such as Clusters of Innovation (COI), which is composed of core components, namely entrepreneurs, venture capital investors and major corporations, and supporting components, namely universities, government, service organizations, start-ups management, etc. (Engel, 2023).

Due to the unclear boundaries of the cluster concept (both from a sectoral and geographical perspective) and the definition criteria of Taobao villages (to some extent, concentration/agglomeration requirements), scholars regard one or more Taobao villages in

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some cases as an e-commerce industrial cluster (Cui et al., 2019; Guo et al., 2014; Li et al., 2010; Li & Chen, 2017; Xia, 2020). In other cases, one or more Taobao Villages are seen by scholars as a combination of agricultural or manufacturing industry clusters and e-commerce (Guo, 2022; Liu, 2022; Yang, 2022). Indeed, the former perspective often involves modifying Porter's cluster concept to define e-commerce industry clusters as geographically proximate and interconnected groups of enterprises that utilize the internet as a sales platform. It combines online and offline channels to share resources and exploit complementary advantages, transcending rigid single industry upstream and downstream boundaries, adapting to the evolving nature of e-commerce. Ultimately, it contributes to regional economic development through innovation, employment generation, and enhancing competitiveness in the e-commerce sector (Hu et al., 2022; Li et al., 2010; Li & Chen, 2017; Xia, 2020). This perspective recognizes the specific characteristics and dynamics of e-commerce and regard Taobao villages as a distinct new type of industrial cluster. The latter perspective treats e-commerce as a tool or transformation background of local industry development, emphasizing the role of ICT in shaping and influencing traditional agriculture or manufacturing industrial clusters. In this perspective, e-commerce acts as an enabler for cluster reconstruction, growth, expansion, or innovation (Guo & Chen, 2022; Steinfield & Scupola, 2006; Wang et al., 2022; Xiao & Gang, 2017; Yang, 2022). It recognizes the empowerment impact of e-commerce on traditional industries and their clusters.

In this paper, we have intentionally coined a new concept, "Platform Empowered Cluster Development (PECD)", to represent the development/expansion of Taobao villages, as we believe that the aforementioned two perspectives, namely, the empowerment brought about by the emergence of e-commerce industrial clusters and the impact of e-commerce empowerment on traditional industries and their clusters, coexist. PECD simultaneously encompasses the existence of these two effects, thereby providing a reflection of the true significance of Taobao villages and their expansion, as well as a more comprehensive understanding of the empowerment of the digital platform for cluster development. Therefore, by reifying the process of platform empowerment place development, this concept reflects the varying degrees of long-term effects of platform empowered development by examining the different outcomes of Taobao village expansions within different counties. Ultimately, our research aims to explore the mechanisms of high performance PECD.

### **3 UNDERPINNING THEORIES OF PECD MECHANISMS**

Through the description in Section 2, we learned that Taobao villages can emerge both in places with existing industrial/market foundations and in places without such foundations. The former strengthens the growth and expansion capabilities of existing clusters through e-commerce,

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while the latter promotes the emergence of physical clusters alongside the formation of e-commerce agglomeration from scratch. Both forms can be summarized as PECD process. Therefore, unlike previous studies (Avgerou & Li, 2013; Zeng et al., 2015; Zeng & Guo, 2016; Zou & Liang, 2015), the focus of this paper is not on the diverse industry foundations and driving forces during the emergence process or on differentiating between these two forms with several Taobao villages. Instead, we extend the temporal scope and broaden the geographic scale to study the antecedent conditions of PECD i.e., the development/expansion of Taobao villages, at the county level. This approach allows us to explore the mechanisms of long-term and effective platform empowerment for clusters and places. If the number of Taobao villages in a county increase more than in other counties in the same time period, it means that the performance of the platform in empowering the development of that county is more lasting and higher in that county. On the contrary, if the number of Taobao villages in a county increase less than in other counties or even decreases, it means that the performance of the platform in empowering the county's development is short-lived and lower in that county. According to the above, the concept of PECD is based on the expansion of Taobao villages (which also implies the emergence of neighboring Taobao villages), which can be understood as both the emergence of new clusters and the expansion of old clusters, and is also related to the transformation and upgrading of clusters. However, regardless of the form of understanding, it represents a cluster development empowered by the platform.

There are three theoretical perspectives to identify the conditions for PECD. First, different critical actors, such as grassroots leaders, associations, third-party e-commerce service providers, and institutional supporters are involved in the emergence and development of Taobao villages (Leong et al., 2016; Wu et al., 2020). In addition, it is also very dependent on initial resource conditions, e.g. industrial advantage, being close to the supply chain or pre-existing structure, e.g. external economy, social network (Li & Chen, 2017; Xia, 2020). The local industrial base, neighborhood effects, geographic location, and socioeconomic conditions also have an important impact on the aggregation of Taobao villages (Liu et al., 2020). In this process, both bottom-up grassroots breakthroughs and top-down interventions are likely to be needed in the face of the inevitable limitations of the periphery (Tim et al., 2021). Secondly, in terms of the elements contributing to the emergence of industrial clusters, they are typically attributed to two aspects (Isaksen, 2016; Walker & Storper, 1989). On the one hand, some emphasize the role of local pre-existing capacities, routines and institutions, such as “firm-building capabilities, managerial skills, a substantial supply of skilled labor and connection to markets” (Bresnahan et al., 2001, p. 1). On the other hand, others highlight the role of triggering factors, such as chance events or historical accidents (Boschma, 1999; Walker & Storper, 1989), opening up windows of locational opportunity and providing greater locational freedom.

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Clustering effects often occur as first-movers gain advantages through spin-offs and knowledge spillovers (Boschma, 1999; Isaksen, 2011; Walker & Storper, 1989). Last but not least, in terms of cluster transformation or upgrading, both government and market forces are emphasized (Isaksen, 2011). The institutional setting can support digital transformation by facilitating the integration of industry with innovation and research (Morales & Sariego-Kluge, 2021; Sedita & Ozeki, 2022). Firms play a crucial role in regional-scale digital transformation through the modification and alignment of their assets (Isaksen et al., 2019; Wei et al., 2020).

Based on these three underpinning theoretical perspectives, we categorize the potential causes of PECD into the following six antecedent conditions:

1 & 2 Locational conditions (macro-location and micro-location): Clusters are often expected to be located in urban areas as it is there where we can expect locational advantages related to agglomeration effects. However, core urban agglomerations and periphery are not in a static binary relationship, but are functionally and compositionally interdependent. In the past, peripheral areas have often been stigmatized as structurally weak, underdeveloped, insignificant, and subordinate to the core (Anderson, 2000; Dubois, 2016; Grabher, 2018). More recently, a growing number of scholars have begun to examine the evidence and advantages of innovation and entrepreneurship in peripheral areas, gradually viewing peripherality as an asset rather than a barrier to development (Duxbury, 2021; Eder, 2019; Glückler et al., 2023; Grabher, 2018; Mahon et al., 2018; Morales & Sariego-Kluge, 2021). Through a literature review of Taobao villages in Section 2 and our empirical knowledge of Taobao villages, we found that Taobao villages are not only located in developed eastern provinces but also in less developed western provinces. Due to the large differences between the east and west of China, we need to differentiate between the macro-location (province of the county) and micro-location (county's location within the province) in the later analysis.

3 Industrial base: The term “industrial base” primarily refers to physical offline industries, which are inherently significant. A strong industrial base indicates that the region possesses higher initial resources, external economic activities, and knowledge density compared to other places. The presence of diverse knowledge and industrial sectors enhances the potential for knowledge spill-overs, thereby creating favorable conditions for the emergence of new clusters (Boschma & Fornahl, 2011; Isaksen, 2016).

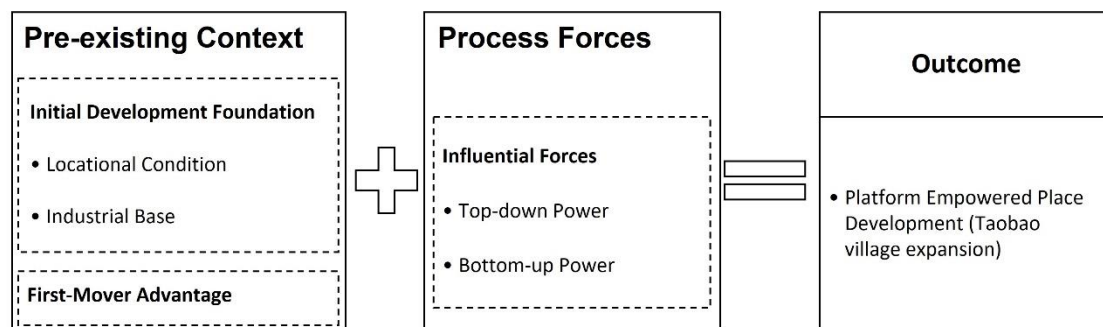
4 First mover advantages: The emergence of digital platforms arguably opens a window of locational opportunity for the emergence of PECD in a region. In the case of Taobao villages, the county in which the first Taobao village emerged got first mover advantages. Counties where several Taobao villages emerged in 2014 got higher first mover advantages. First mover advantages not only imply short-term achievements, but examples from both the cluster and firm level show that first-movers are also prone to having long-term competitive

advantages (Boschma, 1999; García-Villaverde et al., 2020; Ketchen Jr et al., 2004; Paija, 2001). However, their 'incumbent inertia' may also lead to vulnerability (Lieberman & Montgomery, 1988).

5 Top-down power: This encompasses various driving forces, agencies and dynamics during the process of the development and expansion of clusters. A top-down approach is important in guiding local development, especially in peripheral areas (Morales & Sariego-Kluge, 2021). As a “developmental and entrepreneurial state”, China's government typically has a strong influence on place development (Wei et al., 2020).

6 Bottom-up power: Other dimensions and other types of agencies also form a type of process power. We call the two main ones, namely the power of the nascent company and the power of the new association, together bottom-up forces. As the main actor of the new cluster emergence, start-ups are quite important for place development, while the association is an important 'soft' asset representing a type of social capital (Aragón et al., 2014; Ji et al., 2022; Wei et al., 2020). We categorize the above six conditions into initial development foundation, first mover advantages, and process forces, forming the following framework (Figure 1), where the first two are further classified as the pre-existing context.

Figure 1. Potential antecedents for PECD



## 4 RESEARCH DESIGN WITH QCA

As “complex adaptive systems”, cluster development and its transformation are difficult to explain using linear dynamics due to various feedback loops and self-reinforcing interactions (Martin & Sunley, 2011). Consequently, the different conditions of PECD interact and dependent on each other. They operate as a configuration rather than separate and independent factors, exerting influence on the final outcome in a non-additive manner (Cui et al., 2020; Kane et al., 2017). QCA, as an approach focusing on the complex influence of conditional configurations, is well-suited to address intricate causal relations. It diverges from the common statistical approach, which treats success factors as universal causes, and instead explores the “case-specific effect of conditions as causes, and examine which more general patterns transpire

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from examining multiple cases” (Lagendijk et al., 2020, p. 1; Miller, 1987).

In different situations, the same condition may have different or even opposite effects, as it is not the condition itself that deterministically causes the outcome, but it rather possesses causal power (Davies & Mare, 2021; Rutten, 2019). This approach overcomes the ecological fallacy inherent in traditional statistical techniques and supports the logics of equifinality, which suggests that multiple paths can lead to the same outcome (Cui et al., 2020, p. 1; Lagendijk et al., 2020; Meyer et al., 1993). QCA provides a middle ground between quantitative variables research and qualitative case studies, leveraging the advantages of both approaches (Fiss, 2011; Rutten, 2020, 2022; Su & Fan, 2022). While QCA, including crisp-set QCA (csQCA), multi-valued QCA (mvQCA) and fuzzy-set QCA (fsQCA), is commonly employed in organization and management studies, it has only been limitedly applied in regional studies and economic geography. Some recent exceptions include Cui et al. (2020), Grillitsch et al. (2022), Huang & Fan (2021), Kuras et al. (2020), Ruhlandt et al. (2020), Rutten (2019) and Su & Fan (2022). Based on the empirical background and the form of the data, we adopt fsQCA like most of the above studies.

#### 4.1 Conditions measurement and variables calibration

Based on the above research aim and mechanism framework, this study uses the difference between the number of Taobao villages in a county in 2021 and the number of Taobao villages in a county in 2014 as the outcome variable. The research period is set at 2014-2020 for several reasons. First, it takes several years to observe whether PECD is long-lasting. Secondly, one of our conditions, Top-down power, relies on the frequency of e-commerce keywords in the 13<sup>th</sup> Five-Year Plans (2016-2020)<sup>2</sup>, which were prepared before the planning period (around 2014). Thirdly, due to the issue of limited diversity and the requirement for in-depth knowledge of the research cases, QCA is most suitable for studies with a midsize Ns (10-50) (De Meur et al., 2009; Ragin, 2008; Rutten, 2020). Choosing 2013 or 2015 as the starting point would result in too few (18) or too many (180) cases in our study, respectively. Regarding the condition variables, firstly, the micro locational condition is the distance from a county to the city where it is located plus the distance from a county to the capital city of the province where it is located. The macro location condition is measured by the GDP per capita in 2014 of the provinces where a county is located. The industrial base is the number of "above-scale enterprises (Guishang Qiye, 规上企业)<sup>3</sup>" in 2014. The first-mover advantage is

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<sup>2</sup> The Five-Year Plan is the most important government document in China. It is the programmatic document for a series of economic and social development initiatives, indicating the direction, path and goals of development and guiding the construction of development for the next five years (Shiu & Lam, 2004). The Five-year plan is clearly documented at the national, provincial, city and county levels.

<sup>3</sup> Above-scale enterprises (Guishang Qiye, 规上企业) describe enterprises that meet or exceed certain government-defined criteria in terms of revenue, assets, or employee count. The presence of more above-scale enterprises in a region generally indicates a stronger industrial foundation,

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the number of Taobao villages in a county in 2014. The top-down power is represented by the frequency of "e-commerce (Dianzi Shangwu, 电子商务)" and "eCommerce (Dianshang, 电商)" mentioned in the 13<sup>th</sup> Five-Year Plan by county governments. The bottom-up power is determined by the number of new e-commerce related firms and the number of new e-commerce related associations from 2014 to 2021, which are calibrated and summed. A key step in fsQCA is the conversion of each variation into a fuzzy set to determine the case's membership on each variable, as not all variations are considered important (Ragin, 2008). Commonly used calibration methods include direct calibration and indirect calibration. In this study, direct calibration using a five-valued fuzzy set rule was employed for all outcome and conditions variables, enabling the conversion of the variables into their corresponding fuzzy sets. The anchor points used were 75% for membership, 50% for crossover, and 25% for no membership. The adopted measurement and calibration anchors are shown in Table 2.

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as these enterprises typically have higher production capacity, robust research and development capabilities, and significant market share.



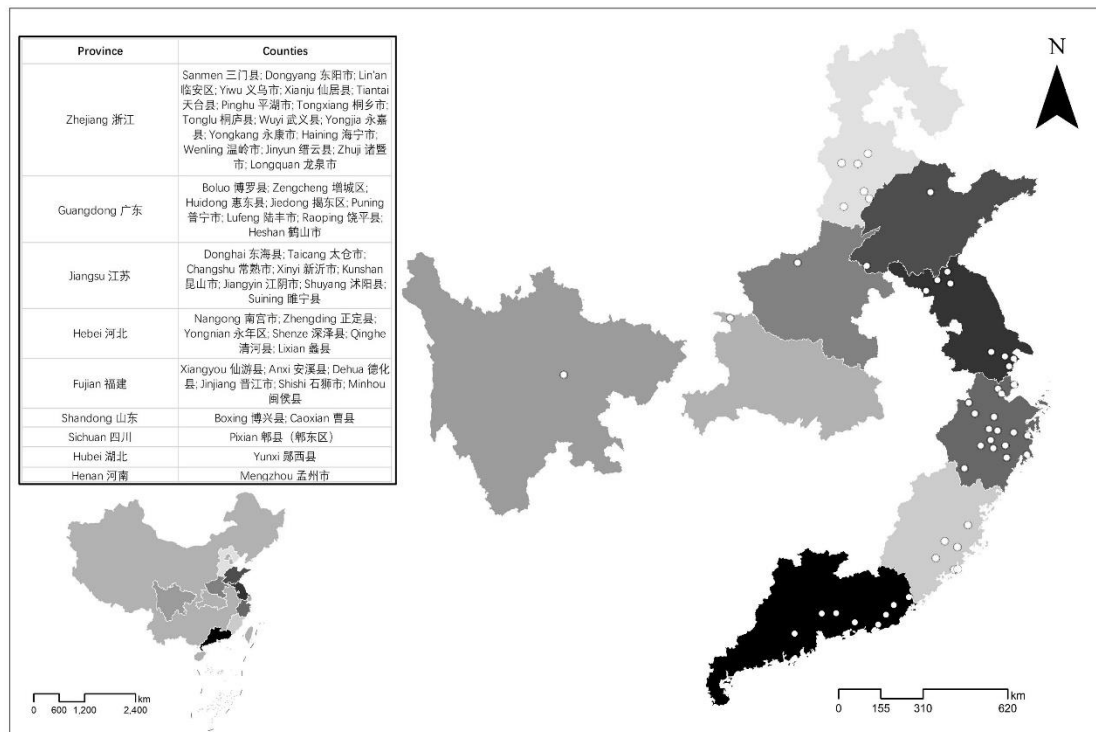
Table 2. Variable descriptions and data sources

Type	Variables	Measurement and data source	Calibration anchors	Measure descriptive			
				Mean	SD	Maximum	Minimum
Outcome	Taobao-No	Number of Taobao villages in a county in 2021 minus the number of Taobao villages in a county in 2014. Data source from Ali Research	57- 23.5- 10	40.78	46.82	192	0
Locational Condition	Micro-location	Geometric distance of a county from the city in which it is located plus the geometric distance from the capital city of the province in which it is located. Data source from AutoNavi	71.29-156.64-216.88	158.82	91.87	361.64	12.91
	Macro-location	GDP per capita of the province in which a county is located in 2014. Data source from National Bureau of Statistics of China	77212.53-47900.81-27032.53	67268.15	68460.23	389344	10228.85
Initial Development Foundation	First-mover advantage	Number of Taobao villages in a county in 2014. Data source from the Ali Research	5-1.5-1	2.84	2.39	9	1
	Industrial base	Number of industrial enterprises above state designated scale of a county in 2014. Data source from China County Statistical Yearbook	637-348-151	503.24	451.98	1926	36
Influential Forces	Top-down	Frequency of "e-commerce (Dianzi Shangwu, 电子商务)" and "eCommerce (Dianshang, 电商)" in the 13 <sup>th</sup> Five-Year Plan for Economic and Social Development of the People's Republic of China (2016-2020). Data source from relevant public documents on each county government's website	26-17.5-12	19.8	11.61	51	0
	Bottom-up	The new numbers of e-commerce related association and firms from 2014-2021, summed after calibration. Data source from China Social Organization Website <a href="http://www.chinapo.gov.cn">www.chinapo.gov.cn</a> (Zhongguo Shehui Zuzhi Wang, 中国社会组织网) and Tianyancha platform <a href="http://www.tianyancha.com">www.tianyancha.com</a> (Tianyancha, 天眼查)	2-1-0 2833-1935-690	0.97 6657	1.34 29380.11	8.75 209077	0 40

## 4.2 Selection of cases

In order to select our cases, we used a list of counties that had Taobao villages based on the 2014 Taobao Villages Report, which included a total of 79 counties. However, due to incomplete data of some counties, we ultimately selected only 50 counties as our case sites (Figure 2). Although these cases are located in both developed eastern provinces and less developed western provinces, studying Taobao villages at the county level allows to “maximize the diversity on factors of interest and to minimize variation on contextual condition” at the same time (Rihoux & Ragin, 2009, p. 125).

Figure 2. Location of cases



## 5 DIFFERENT CONFIGURATIONS FOR PECDD

By using fsQCA3.0 software, this study conducts a Necessary Conditions Analysis for each of the condition variables. Based on the experience of previous studies, the consistency of all condition variables is below the consistency threshold of 0.90 (Ragin, 2008; Schneider & Wagemann, 2012), indicating that none of individual conditions can be considered necessary conditions (for more details, see Appendix A in the online supplemental data). Subsequently, the Truth Table Algorithm was applied, and the truth table in Appendix B shows the six

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conditions and the outcome membership for each case. Table 3 displays the patterns under which the platform empowered cluster development in places. These results are presented in the manner recommended by Ragin (2008) and Fiss (2011).

In accordance with established practices (Chen et al., 2018; Cui et al., 2020; Su & Fan, 2022), we adopted a frequency cut-off at 1, and a consistency threshold of 0.879 for the PECD pattern. We also adopted a more stringent PRI cut-off score of 0.797 to rule out simultaneous subset relations of attribute combinations in both the outcome and its absence (Cui et al., 2020). Our analysis shows four first-order configuration patterns and the variations of intermediate configurations (e.g., A1 and A2 coexist for pattern A), which validates the equifinality of different configuration patterns (Cui et al., 2020; Fiss, 2011). The raw coverage is highest in Patterns C1 and C2, with the configuration covering 20% of the cases, and second at 19% for Pattern D. The overall solution coverage is 0.91 on the PECD pattern, which indicates these patterns as a whole can explain 91% of the cases outcome (Ragin, 2008). In the present study, all of our individual patterns and the overall consistency were measured well above the required level of consistency, which means the configurations are valid (David, 2021). The unique coverage is low for every pattern, which means that these patterns are complementary rather than mutually exclusive.

Through Table 3, we can also observe that micro-locational conditions are not core conditions in any of the patterns, while macro-locational conditions are core conditions in most patterns (Patterns B and C). The macro conditions tend to coincide with the first mover advantage, which is consistent with the fact that consistently most Taobao villages are located in the southeastern provinces of China. Furthermore, in some patterns, PECD can be achieved even without an industrial base or locational advantage, relying solely on process forces, in which case top-down power becomes a core condition (Patterns A and D).

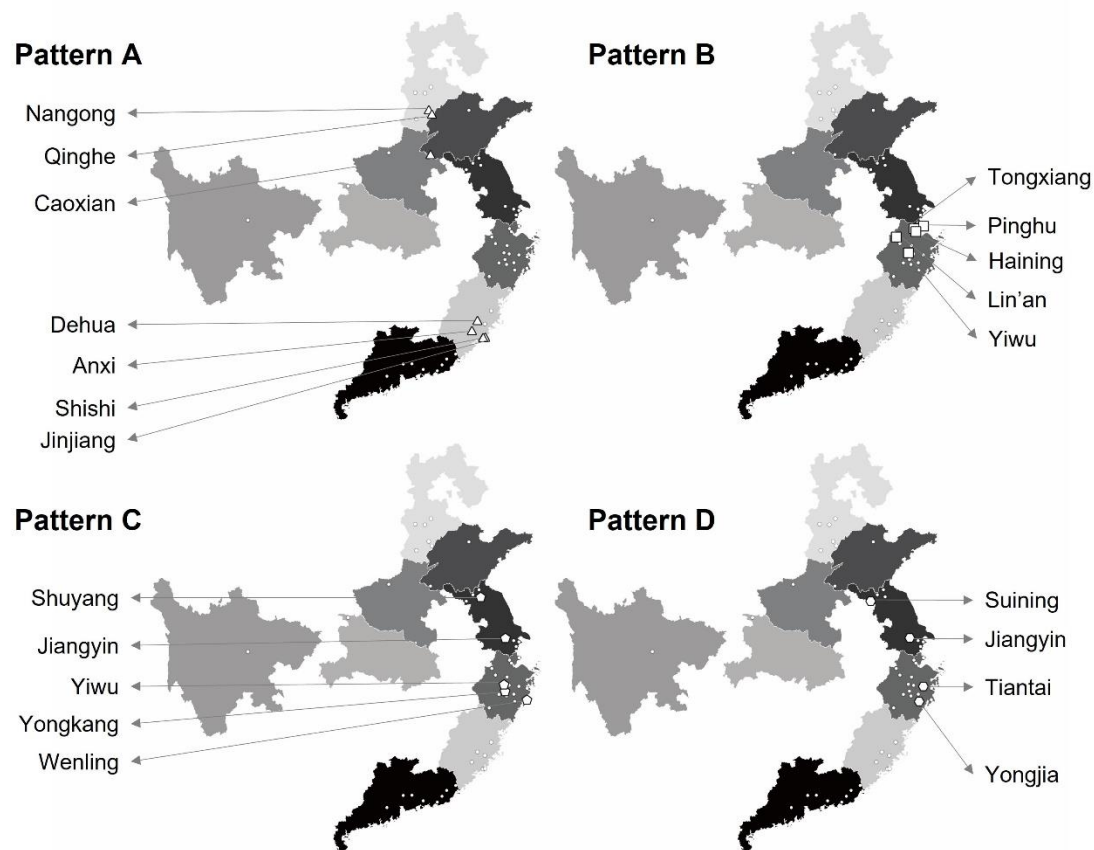
Table 3. Configurations of successful PECD

	Pattern A		Pattern B		Pattern C		Pattern D
	A1	A2	B1	B2	C1	C2	D
Micro-location	⊗	⊗	•	•	⊗		⊗
Macro-location	⊗	⊗	●	●	●	●	•
Industrial base	•	⊗	●	●	•	•	
First-mover advantage		•	●	●	●	●	•
Top-down	●	●		•		•	●
Bottom-up	•	⊗	⊗		●	●	●
Consistency	0.97	0.88	0.92	0.92	0.91	0.88	0.91
Raw coverage	0.14	0.16	0.19	0.15	0.20	0.20	0.19
Unique coverage	0.07	0.11	0.06	0	0.06	0.14	0.05
Overall solution consistency				0.61			
Overall solution coverage				0.91			

Note: Black circles (●) indicate the presence of a condition and crossed circles (⊗) indicate its absence. Large circles indicate core conditions, while small circles indicate peripheral conditions. Blank spaces indicate ambiguous situations in which the corresponding causal condition may be either present or absent, and therefore plays no significant role in the configurational pattern.

Based on different pre-existing contexts and the main process forces, we have named the four patterns as follows: A: Local government driven without pre-existing context; B: Pre-existing advantages driven without process forces; C: First mover advantage, grassroots driven with locational advantage; D: Dual driven without pre-existing context. Figure 3 represents the typical cases of the four patterns, and it can be seen that the four patterns are not mutually exclusive, e.g., Yiwu represents both pattern B and C and Jiangyin both pattern C and D. We will present one typical case explanation for each of these patterns.

Figure 3. Typical cases for the four patterns



#### Pattern A: Local government driven without pre-existing context

Pattern A represents the local government taking its agency to promote PECD in places that lack locational advantages. This pattern was observed in seven cases, all of them were uniquely explained by pattern A. We use the Taobao village expansion in County Caoxian as an example to describe the PECD under this causal logic.

Cao County is located in Heze City, Shandong Province. The Taobao village in Cao County initially originated from two Taobao villages, Dinglou Village and Zhang Zhuang Village in Daji Township. The county lacked an industrial base and has no favorable geographical location, and the origin of the two Taobao villages was mainly based on the online ventures of villagers who went around to sell performance costumes. However, from 2014 to 2020, the county saw an increase of 161 Taobao villages, making it the largest performance costumes cluster in China. This is largely due to the local government's very timely awareness of the importance of e-commerce to the county and its timely intervention. As early as the Spring Festival in 2014, young migrant workers who worked outside and returned to Cao County for the New Year

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received a leaflet from the township government at the bus station and on the street, which was a letter to the returning youth. The letter reads, "Rather than running around outside, it is better to Taobao at home" (Yuqi Dongben Xipao, Buru Zaijia Taobao, 与其东奔西跑, 不如在家淘宝). In the "prosperous development of modern service industry" chapter of the 13<sup>th</sup> Five-Year Plan for Economic and Social Development of Cao County, the "vigorous development of e-commerce industry" and "innovative development of trade and logistics industry" are the two most important aims, and both are closely related to the development of Taobao villages. Cao County provides an example of a local government-driven PECD, in which an initial impetus from small-scale entrepreneurship can make huge strides and leaps forward with timely local government discovery and support.

#### Pattern B: Pre-existing advantages driven without process forces

Pattern B represents the pre-existing advantages driven to promote PECD in places. This pattern was observed in five cases, four of which were uniquely explained by pattern B. Compared to pattern A, as can be seen in Figure 3, all five counties of pattern B are located in Zhejiang Province, which has an excellent macro location without top-down and bottom-up forces. We use the Taobao village expansion in County Tongxiang as an example to describe the PECD under this causal logic.

Located in Jiaxing City, Zhejiang Province, Tongxiang County has a good geographical location and industrial base. Although it does not produce wool, it has the largest distribution center for wool sweaters in China. In addition, Tongxiang also has a nationally renowned fur market, Chongfu Fur Market. Furthermore, chemical fiber, glass fiber and textile industries are also Tongxiang's traditional advantageous industries. However, the process forces influencing its PECD are limited, both from the bottom up and the top down. Thanks to its long-standing industrial base, its existing clusters have also gained significant expansion due to e-commerce platforms. This case shows that in the premise of the strong foundation of the original industry to carry out the platform online empowerment pattern is relatively simple and naturally and hence does not need other driving forces to a large extent.

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#### Pattern C: First mover advantage, grassroots driven with locational advantage

Pattern C represents Grassroots agencies to promote PECD in places with first mover advantage and locational advantage. This pattern was observed in five cases, four of which were uniquely explained by pattern C. Compared to Pattern B, Pattern C, although also located in a promising macro location, does not necessarily have a good industrial base; instead, these places are characterized by stronger bottom-up forces. We use the Taobao village expansion in County Shuyang as an example to describe the PECD under this causal logic.

Shuyang is located in Suqian City, Jiangsu Province, and although it is favorably located, it lacks a manufacturing industrial base and its leading industry is agriculture. Shuyang has a long history of planting and wholesaling flowers and trees offline, but mainly grows large green plants and project seedlings, which is not the suitable product for e-commerce business. The high performance of PECD in Shuyang is mainly because of its first mover advantage and grassroots driven. In 2014, Shuyang County already had three Taobao villages, which exceeded 32 of our 50 research cases (more than half of the counties had only one Taobao village at that time). Between 2014 and 2020, it established a total of five social organizations on e-commerce, which clearly above the average (1.33) compared to the other counties (21 counties did not establish any social organizations on e-commerce between 2014 and 2020, and 23 counties only established one or two). During the same period, it established 14,772 companies related to e-commerce, second in number only to Yiwu, Jinhua, Zhejiang (209,077). With these bottom-up forces from the joint efforts of the social associations and the newly created companies, the local nursery product system began to improve in terms of variety, leading to an increase in the number of products suitable for online retail such as home greenery, succulents, miniature flowers, seedlings and planting relevant materials, and eventually gradually leading to the formation of a new product supply network.

#### Pattern D: Dual driven without pre-existing context

Pattern D represents the dual drive without locational advantage. This pattern was observed in four cases, three of which were uniquely explained by the D pattern. In contrast to Pattern B, Pattern D has a poor pre-existing base, but its bottom-up and top-down forces of change are strong. We use the Taobao village expansion in County Suining as an example to describe the



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PECD under this causal logic.

Suining County is located in Xuzhou City, Jiangsu Province. Once synonymous with backwardness and poverty, its GDP was at the lowest in Jiangsu Province. However, in the list of "Top 100 Counties in China in terms of investment potential" jointly released by China Digital Economy 100 and Urtrust Think Tank in 2021, Suining is on the list. Suining's success is not only based on the forces of grassroots, but also comes from the timely support of the local government. As early as 2006, three young farmers in Shaji Town of Suining County started to register online stores on Taobao and gradually established a furniture production chain in Shaji Town, Suining County. In 2011, the first local e-commerce association in Shaji Town of Suining County was established, and at the end of 2011, the local government launched the Shaji E-commerce Business Park covering an area of 1,800 acres. In 2012 and 2013, a total of 20 e-commerce training sessions were held with the support of the local government, training more than 2,000 e-commerce talents in total. The case of Suining illustrates that even without obvious locational advantages and any pre-existing industrial base, but with process forces from the bottom-up and top-down, high performance PECD can be achieved from scratch.

## **6 DISCUSSION AND CONCLUSION**

In addressing the research questions posed in the introduction, this paper elucidates the mechanisms of platform empowerment and cluster development. Despite some controversies, the effectiveness of ICT as an enabler for regional development has been demonstrated, contributing to the poverty alleviation and the reduction of regional disparities in development, and therefore to socio-economic sustainability (Haefner & Sternberg, 2020; Moriset & Malecki, 2009; Niebel, 2018), which lead to a rethinking of regional and related cluster development. Building upon a specific digital platform empowerment phenomenon in China, namely the expansion of Taobao villages at county level, this paper reifies the process of platform empowered place development.

At its core, the Taobao e-commerce platform not only empowers places to nurture new e-commerce industrial clusters but also to expand and upgrade existing local industrial clusters. This dual process, encapsulated under the concept of Platform Empowered Cluster

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Development (PECD), is conceptualized drawing upon cluster theories. Through the application of QCA to secondary data across 50 counties, we endeavor to demystify the causal patterns underpinning the high-performance of PECD.

The initial phase of our analysis entails the construction of a mechanism framework, identifying antecedent conditions, i.e., locational conditions, industrial base, first-mover advantage, and top-down and bottom-up power that influence the efficacy of platform empowerment in a configurational manner. Subsequently, our results show that neither locational conditions nor first mover advantages, industrial base or other influencing forces alone constitute the necessary conditions for platform empowered development. Instead, a holistic and comprehensive configurational perspective is imperative.

Our research further delineates four distinct PECD patterns: Pattern A, Local government driven without pre-existing context; Pattern B, Pre-existing advantages driven without process forces; Pattern C, First mover advantage, grassroots driven with locational advantage; Pattern D, Dual driven without pre-existing context. We presented a typical case explanation for each of these patterns.

In juxtaposing these patterns, we can see that PECD can also be achieved in places without locational advantages, in which case top-down power is the core condition. This insight is particularly salient in understanding how even regions devoid of locational advantages can attain high performance in platform empowerment, showing the need to rethink regional and related cluster development opportunities. Consequently, our study offers a nuanced comprehension of the interplay between digital platforms, industrial clusters, place assets, actors, and their collective impact on the performance of platform empowerment, while also shedding light on the multifaceted pathways through which different locales can achieve high-performance platform empowerment.

Theoretically speaking, this paper explores the theoretical framework and development patterns of platform empowered place development by combining the literature on Taobao villages and clusters. This exploration not only sheds light on the high-performance mechanisms of platform empowerment, which are long-lasting and effective, but also represents a rethinking of clusters and their development and growth in the era of the digital platform economy. In the context of

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the digital platform economy, many new industries, such as the digital content industry, mobile games, live streaming industry, etc., have emerged, and through platforms, these industries and economic activities are clustered in virtual space. However, in many instances, these clusters are also manifested in real physical spaces. Our paper provides further reflections on the concept of clusters against the background of the emerging digital platform economy and sees, for the same reason, a strong need for rethinking regional development and related traditional concepts in economic geography, such as regional resilience, regional innovation systems, and entrepreneurial ecosystems.

From an empirical perspective, although our study focuses on the empowerment of e-commerce platforms and cluster development, other digital platforms have the potential to empower specific places in different ways. For instance, social platforms can contribute to the development of local tourism industries through place marketing online. Moreover, while our cases are based in China, it is worth noting that the e-commerce industry has also witnessed significant growth in the European Union during the backdrop of the COVID-19 pandemic (Eurostat, 2022). From a policy perspective, we see interesting links between our research and smart specialization, a policy strategy influential in Europe that supports specializations and competitiveness in regional economies by combining existing regional industrial clusters with so-called General Purpose Technologies (GPT) (Foray, 2014). E-commerce platforms as a GPT also facilitated increasing competitiveness of existing clusters in Taobao villages, and therefore echoes the smart specialization strategy. Finally, although our paper deals with the effects of platform empowered regional and cluster development upon socio-economic sustainability, we see clear potential for future research in this context on environmental sustainability, as well.

Methodologically, this paper confirms that QCA serves as an intermediary analysis between quantitative and qualitative research, enabling a more comprehensive understanding of causal relationships. However, this approach also possesses certain limitations. For example, achieving a balance between the number of conditions and the number of cases poses challenges, especially within the field of economic geography, which requires a high degree of context sensitivity (Gong & Hassink, 2020). On the one hand, it is crucial to maintain adequate contextual sensitivity to ensure a reasonable identification of relevant conditions. On the other

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hand, we are not allowed to use a small number of cases for analysis in order to avoid too much logical redundancy. However, as the number of cases increases, the measurement and calibration of each condition become more challenging due to the potential difficulty in collecting relevant variables or information for calibration. Nonetheless, we still consider QCA to be a promising approach for bridging the gap between qualitative and quantitative research in the field of economic geography.

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## References

- Ali Research. (2016). *The Research Report on Taobao Villages of China in 2016*.
- Ali Research. (2019). *The Research Report on Taobao Villages of China in 2019*.
- Anderson, A. R. (2000). Paradox in the periphery: An entrepreneurial reconstruction? *Entrepreneurship & Regional Development*, 12(2), 91–109. <https://doi.org/10.1080/089856200283027>
- Aragón, C., Aranguren, M. J., Iturrioz, C., & Wilson, J. R. (2014). A social capital approach for network policy learning: The case of an established cluster initiative. *European Urban and Regional Studies*, 21(2), 128–145. <https://doi.org/10.1177/0969776411434847>
- Avgerou, C., & Li, B. (2013). Relational and institutional embeddedness of Web-enabled entrepreneurial networks: Case studies of netrepreneurs in China. *Information Systems Journal*, 23(4), 329–350. <https://doi.org/10.1111/isj.12012>
- Bellandi, M., & Lombardi, S. (2012). Specialized markets and Chinese industrial clusters: The experience of Zhejiang Province. *China Economic Review*, 23(3), 626–638. <https://doi.org/10.1016/j.chieco.2012.03.001>
- Boschma, R. A. (1999). The rise of clusters of innovative industries in Belgium during the industrial epoch. *Research Policy*, 28(8), 853–871. [https://doi.org/10.1016/S0048-7333\(99\)00026-8](https://doi.org/10.1016/S0048-7333(99)00026-8)
- Boschma, R., & Fornahl, D. (2011). Cluster evolution and a roadmap for future research. *Regional Studies*, 45(10), 1295–1298. <https://doi.org/10.1080/00343404.2011.633253>
- Bresnahan, T., Gambardella, A., & Saxenian, A. (2001). ‘Old economy’ inputs for ‘new economy’ outcomes: Cluster formation in the new Silicon Valleys. *Industrial and Corporate Change*, 10(4), 835–860.
- Chen, L., Li, Y., & Fan, D. (2018). How do emerging multinationals configure political connections across institutional contexts? *Global Strategy Journal*, 8(3), 447–470. <https://doi.org/10.1002/gsj.1187>

- 
- Chu, H., & Hassink, R. (2022). *Regional Clusters*. Oxford University Press.
- Chu, H., Hassink, R., Xie, D., & Hu, X. (2023). Placing the platform economy: The emerging, developing and upgrading of Taobao villages as a platform-based place making phenomenon in China. *Cambridge Journal of Regions, Economy and Society*, rsad004. <https://doi.org/10.1093/cjres/rsad004>
- Crouch, C., & Farrell, H. (2001). Great Britain: Falling through the holes in the network concept. In *Local production systems in Europe: Rise or demise?* (pp. 154–211). Oxford University Press.
- Cui, L., Fan, D., Li, Y., & Choi, Y. (2020). Regional competitiveness for attracting and retaining foreign direct investment: A configurational analysis of Chinese provinces. *Regional Studies*, 54(5), 692–703. <https://doi.org/10.1080/00343404.2019.1636023>
- Cui, M., Pan, S. L., & Cui, L. (2019). Developing community capability for e-commerce development in rural China: A resource orchestration perspective. *Information Systems Journal*, 29(4), 953–988. <https://doi.org/10.1111/isj.12241>
- David, L. (2021). *The Different Paths from which Place leadership Can Manifest: A Meta-analysis Using Qualitative Comparative Analysis (QCA)*. Lund University, Centre for Innovation Research (CIRCLE).
- Davies, A., Donald, B., & Gray, M. (2023). The power of platforms—Precarity and place. *Cambridge Journal of Regions, Economy and Society*, rsad011. <https://doi.org/10.1093/cjres/rsad011>
- Davies, B., & Mare, D. C. (2021). Relatedness, complexity and local growth. *Regional Studies*, 55(3), 479–494. <https://doi.org/10.1080/00343404.2020.1802418>
- De Meur, G., Yamasaki, S., & Rihoux, B. (2009). *Addressing the critiques of QCA*.
- Dubois, A. (2016). Transnationalising entrepreneurship in a peripheral region – The translocal embeddedness paradigm. *Journal of Rural Studies*, 46, 1–11. <https://doi.org/10.1016/j.jrurstud.2016.05.003>
- Duxbury, N. (2021). Cultural and creative work in rural and remote areas: An emerging international conversation. *International Journal of Cultural Policy*, 27(6), 753–767. <https://doi.org/10.1080/10286632.2020.1837788>
- Eder, J. (2019). Peripheralization and knowledge bases in Austria: Towards a new regional typology. *European Planning Studies*, 27(1), 42–67. <https://doi.org/10.1080/09654313.2018.1541966>
- Engel, J. S. (2023). *Clusters of Innovation in the Age of Disruption*. Edward Elgar Publishing Ltd.
- Eurostat. (2022). *Online sales efforts on the rise due to the pandemic*. <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220411-1>
- Feser, E. J. (1998). Old and new theories of industry clusters. *Clusters and Regional Specialisation*, 18, 40.
- Fiss, P. C. (2011). Building Better Causal Theories: A Fuzzy Set Approach to Typologies in Organization Research. *Academy of Management Journal*, 54(2), 393–420. <https://doi.org/10.5465/amj.2011.60263120>
- Foray, D. (2014). *Smart specialisation: Opportunities and challenges for regional innovation policy*. Routledge.
- García-Villaverde, P. M., Elche, D., & Martínez-Pérez, Á. (2020). Understanding pioneering orientation in tourism clusters: Market dynamism and social capital. *Tourism Management*,

- 76, 103966. <https://doi.org/10.1016/j.tourman.2019.103966>
- Glückler, J., Shearmur, R., & Martinus, K. (2023). Liability or opportunity? Reconceptualizing the periphery and its role in innovation. *Journal of Economic Geography*, 23(1), 231–249. <https://doi.org/10.1093/jeg/lbac028>
- Gong, H., & Hassink, R. (2020). Context sensitivity and economic-geographic (re)theorising. *Cambridge Journal of Regions, Economy and Society*, 13(3), 475–490. <https://doi.org/10.1093/cjres/rsaa021>
- Grabher, G. (2018). Marginality as strategy: Leveraging peripheralality for creativity. *Environment and Planning A: Economy and Space*, 50(8), 1785–1794. <https://doi.org/10.1177/0308518X18784021>
- Grillitsch, M., Sotarauta, M., Asheim, B., Fitjar, R. D., Haus-Reve, S., Kolehmainen, J., Kurikka, H., Lundquist, K.-J., Martynovich, M., & Monteilhet, S. (2022). Agency and economic change in regions: Identifying routes to new path development using qualitative comparative analysis. *Regional Studies*, 1–16. <https://doi.org/10.1080/00343404.2022.2053095>
- Guo, C. (2022). Study on the Expansion of Flower and Seedling Industrial Cluster in Taobao Village Driven by Multi-Factors—Cases of the Shuyang County in China. *Preprints.Org*. <https://doi.org/10.20944/preprints202206.0231.v1>
- Guo, G., Liang, Q., & Luo, G. (2014). Effects of clusters on China's e-commerce: Evidence from the Junpu Taobao Village. *International Journal of Business and Management*, 9(6), 180. <https://doi.org/10.5539/ijbm.v9n6p180>
- Guo, N., & Chen, H. (2022). Comprehensive Evaluation and Obstacle Factor Analysis of High-Quality Development of Rural E-Commerce in China. *Sustainability*, 14(22), 14987. <https://doi.org/10.3390/su142214987>
- Haefner, L., & Sternberg, R. (2020). Spatial implications of digitization: State of the field and research agenda. *Geography Compass*, 14(12). <https://doi.org/10.1111/gec3.12544>
- Hu, W., Zegang, Z., Keyan, L., & Qingying, Z. (2022). *Influencing Factors and Internal Mechanism of Rural E-commerce Industrial Clusters under Rural Revitalization*.
- Huang, X., & Fan, D. (2021). Global connectedness, local embeddedness and creative economies in European cities. *Regional Studies*, 55(7), 1265–1281. <https://doi.org/10.1080/00343404.2021.1880002>
- Isaksen, A. (2011). 22 Cluster evolution. In *Handbook of regional innovation and growth* (p. 293). Edward Elgar Publishing.
- Isaksen, A. (2016). Cluster emergence: Combining pre-existing conditions and triggering factors. *Entrepreneurship & Regional Development*, 28(9–10), 704–723. <https://doi.org/10.1080/08985626.2016.1239762>
- Isaksen, A., Jakobsen, S.-E., Njøs, R., & Normann, R. (2019). Regional industrial restructuring resulting from individual and system agency. *Innovation: The European Journal of Social Science Research*, 32(1), 48–65.
- Jha, S. K., Pinsonneault, A., & Dubé, L. (2016). The evolution of an ict platform-enabled ecosystem for poverty alleviation. *MIS Quarterly*, 40(2), 431–446.
- Ji, H., Miao, Z., Wan, J., & Lin, L. (2022). Digital transformation and financial performance: The moderating role of entrepreneurs' social capital. *Technology Analysis & Strategic Management*, 0(0), 1–18. <https://doi.org/10.1080/09537325.2022.2118110>

- 
- Jin, H. H., & Qian, Y. Y. (1998). Public versus private ownership of firms: Evidence from rural China. *Quarterly Journal of Economics*, 113(3), 773–808. <https://doi.org/10.1162/003355398555748>
- Kane, H., Hinnant, L., Day, K., Council, M., Tzeng, J., Soler, R., Chambard, M., Roussel, A., & Heirendt, W. (2017). Pathways to Program Success: A Qualitative Comparative Analysis (QCA) of Communities Putting Prevention to Work Case Study Programs. *Journal of Public Health Management and Practice : JPHMP*, 23(2), 104–111. <https://doi.org/10.1097/PHH.0000000000000449>
- Kenney, M., & Zysman, J. (2016). The rise of the platform economy. *Issues in Science and Technology*, 32(3), 61.
- Ketchen Jr, D. J., Snow, C. C., & Hoover, V. L. (2004). Research on competitive dynamics: Recent accomplishments and future challenges. *Journal of Management*, 30(6), 779–804. <https://doi.org/10.1016/j.jm.2004.06.002>
- Kuras, E. R., Warren, P. S., Zinda, J. A., Aronson, M. F., Cilliers, S., Goddard, M. A., Nilon, C. H., & Winkler, R. (2020). Urban socioeconomic inequality and biodiversity often converge, but not always: A global meta-analysis. *Landscape and Urban Planning*, 198, 103799. <https://doi.org/10.1016/j.landurbplan.2020.103799>
- Lagendijk, A., Velde, M. van der, & Kuijpers, M. (2020). Looking for causes of effects in cases: Evaluating intermunicipal collaboration in The Netherlands applying QCA. *Zeitschrift Für Wirtschaftsgeographie*, 64(3), 149–164. <https://doi.org/10.1515/zfw-2019-0020>
- Lazzeretti, L., Capone, F., Caloffi, A., & Sedita, S. R. (2019). Rethinking clusters. Towards a new research agenda for cluster research. *European Planning Studies*, 27(10), 1879–1903. <https://doi.org/10.1080/09654313.2019.1650899>
- Leong, C., Pan, S. L., Newell, S., & Cui, L. (2016). The Emergence of Self-Organizing E-Commerce Ecosystems in Remote Villages of China: A Tale of Digital Empowerment for Rural Development. *MIS Quarterly*, 40(2), 475–484. <https://doi.org/10.25300/MISQ/2016/40.2.11>
- Li, X., & Chen, Y. (2017). The analysis of the symbiotic relationship of e-commerce industry clusters from the perspective of chaos theory. *2017 3rd International Conference on Information Management (ICIM)*, 83–87. <https://doi.org/10.1109/INFOMAN.2017.7950351>
- Li, X., Wen, L., & Youxia, S. (2010). Research on the Innovation of E-Commerce Industrial Clusters in China Based on the Perspective of Network Structure. *2010 3rd International Conference on Information Management, Innovation Management and Industrial Engineering*, 3, 304–307. <https://doi.org/10.1109/ICIII.2010.393>
- Lieberman, M. B., & Montgomery, D. B. (1988). First-mover advantages. *Strategic Management Journal*, 9(S1), 41–58. <https://doi.org/10.1002/smj.4250090706>
- Liu, D. (2022). Study on Coordinated Development Path of Agricultural Industrial Clusters and Rural E-commerce. *Modern Economics & Management Forum*, 3(3), 180. <https://doi.org/10.32629/memf.v3i3.853>
- Liu, M., Zhang, Q., Gao, S., & Huang, J. (2020). The spatial aggregation of rural e-commerce in China: An empirical investigation into Taobao Villages. *Journal of Rural Studies*, 80, 403–417. <https://doi.org/10.1016/j.jrurstud.2020.10.016>
- Ma, X. (2016). Collaborative Development of Electronic Commerce and Industrial Cluster.



- 
- Proceedings of the 2016 3rd International Conference on Management, Education Technology and Sports Science (METSS 2016)*. 2016 3rd International Conference on Management, Education Technology and Sports Science (METSS 2016), Guilin, China. <https://doi.org/10.2991/metss-16.2016.74>
- Mahon, M., McGrath, B., Laoire, L. O., & Collins, P. (2018). Artists as workers in the rural; precarious livelihoods, sustaining rural futures. *Journal of Rural Studies*, 63, 271–279. <https://doi.org/10.1016/j.jrurstud.2018.04.001>
- Martin, R., & Sunley, P. (2003). Deconstructing clusters: Chaotic concept or policy panacea? *Journal of Economic Geography*, 3(1), 5–35. <https://doi.org/10.1093/jeg/3.1.5>
- Martin, R., & Sunley, P. (2011). Conceptualizing cluster evolution: Beyond the life cycle model? *Regional Studies*, 45(10), 1299–1318. <https://doi.org/10.1080/00343404.2011.622263>
- Meyer, A. D., Tsui, A. S., & Hinings, C. R. (1993). Configurational approaches to organizational analysis. *Academy of Management Journal*, 36(6), 1175–1195. <https://doi.org/10.2307/256809>
- Miller, D. (1987). The genesis of configuration. *Academy of Management Review*, 12(4), 686–701. <https://doi.org/10.2307/258073>
- Morales, D., & Sariego-Kluge, L. (2021). Regional state innovation in peripheral regions: Enabling Lapland’s green policies. *Regional Studies Regional Science*, 8(1), 54–64. <https://doi.org/10.1080/21681376.2021.1882882>
- Moriset, B., & Malecki, E. J. (2009). Organization versus space: The paradoxical geographies of the digital economy. *Geography Compass*, 3(1), 256–274. <https://doi.org/10.1111/j.1749-8198.2008.00203.x>
- Niebel, T. (2018). ICT and economic growth – Comparing developing, emerging and developed countries. *World Development*, 104, 197–211. <https://doi.org/10.1016/j.worlddev.2017.11.024>
- Paija, L. (2001). *Finnish ICT cluster in the Digital Economy*. The Research Institute of the Finnish Economy.
- Porter, M. E. (1998). *On competition*. Harvard Business School Publishing.
- Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond*. University of Chicago Press.
- Rappaport, J. (1987). Terms of empowerment/exemplars of prevention: Toward a theory for community psychology. *American Journal of Community Psychology*, 15(2), 121–148. <https://doi.org/10.1007/BF00919275>
- Rihoux, B., & Ragin, C. (2009). *Configurational Comparative Methods: Qualitative Comparative Analysis (QCA) and Related Techniques*. SAGE Publications, Inc. <https://doi.org/10.4135/9781452226569>
- Rogers, E. M., & Singhal, A. (2003). Empowerment and Communication: Lessons Learned From Organizing for Social Change. *Annals of the International Communication Association*, 27(1), 67–85. <https://doi.org/10.1080/23808985.2003.11679022>
- Ruhlandt, R. W. S., Levitt, R., Jain, R., & Hall, D. (2020). One approach does not fit all (smart) cities: Causal recipes for cities’ use of “data and analytics.” *Cities*, 104, 102800. <https://doi.org/10.1016/j.cities.2020.102800>
- Rutten, R. (2019). Openness values and regional innovation: A set-analysis. *Journal of Economic Geography*, 19(6), 1211–1232. <https://doi.org/10.1093/jeg/lby061>

- 
- Rutten, R. (2020). Comparing causal logics: A configurational analysis of proximities using simulated data. *Zeitschrift Für Wirtschaftsgeographie*, 64(3), 134–148. <https://doi.org/10.1515/zfw-2019-0023>
- Rutten, R. (2022). Applying and Assessing Large-N QCA: Causality and Robustness From a Critical Realist Perspective. *Sociological Methods & Research*, 51(3), 1211–1243. <https://doi.org/10.1177/0049124120914955>
- Schneider, C. Q., & Wagemann, C. (2012). *Set-Theoretic Methods for the Social Sciences: A Guide to Qualitative Comparative Analysis*. Cambridge University Press. <https://doi.org/10.1017/CBO9781139004244>
- Sedita, S. R., & Ozeki, T. (2022). Path renewal dynamics in the Kyoto kimono cluster: How to revitalize cultural heritage through digitalization. *European Planning Studies*, 30(9), 1736–1754. <https://doi.org/10.1080/09654313.2021.1972938>
- Shiu, A., & Lam, P.-L. (2004). Electricity consumption and economic growth in China. *Energy Policy*, 32(1), 47–54. [https://doi.org/10.1016/S0301-4215\(02\)00250-1](https://doi.org/10.1016/S0301-4215(02)00250-1)
- Steinfeld, C., & Scupola, A. (2006). Explaining ICT Infrastructure and E-Commerce Uses and Benefits in Industrial Clusters: Evidence from a Biotech Cluster. *Proceedings of the 39th Annual Hawaii International Conference on System Sciences (HICSS'06)*, 8, 209b–209b. <https://doi.org/10.1109/HICSS.2006.174>
- Su, Y., & Fan, D. (2022). Smart cities and sustainable development. *Regional Studies*, 1–17. <https://doi.org/10.1080/00343404.2022.2106360>
- Swann, P., & Prevezer, M. (1996). A comparison of the dynamics of industrial clustering in computing and biotechnology. *Research Policy*, 25(7), 1139–1157.
- Tim, Y., Cui, L., & Sheng, Z. (2021). Digital resilience: How rural communities leapfrogged into sustainable development. *Information Systems Journal*, 31(2), 323–345. <https://doi.org/10.1111/isj.12312>
- Walker, R., & Storper, M. (1989). *The capitalist imperative: Territory, technology and industrial growth* (Vol. 2). Oxford: Basil Blackwell.
- Wang, C., Liu, T., Wang, J., Li, D., Wen, D., Ziolkovskaya, P., & Zhao, Y. (2022). Cross-Border E-Commerce Trade and Industrial Clusters: Evidence from China. *Sustainability*, 14(6), Article 6. <https://doi.org/10.3390/su14063576>
- Wei, Y. D., Lin, J., & Zhang, L. (2020). E-commerce, taobao villages and regional development in China. *Geographical Review*, 110(3), 380–405. <https://doi.org/10.1111/gere.12367>
- World Bank. (2016). *The Taobao Villages as an Instrument for Poverty Reduction and Shared Prosperity*. <https://doi.org/10.29/taobao-villages-as-an-instrument-for-poverty-reduction-and-shared-prosperity>
- Wu, W., Zhang, Y., & Fan, Y. (2020). ICT Empowers the Formation and Development of Rural E-Commerce in China. *IEEE Access*, 8, 135264–135283. <https://doi.org/10.1109/ACCESS.2020.3011593>
- Xia, Z. (2020). Research on the Development of Wenzhou Rural E-commerce Industry Cluster under the background of Big Data. *Scientific Journal of Technology Volume*, 2(09).
- Xiao, C., & Gang, Z. (2017). How Do Innovation Capabilities of Industrial Cluster Evolve in the Context of E-Commerce?: A Case Study from China. *2017 Portland International Conference on Management of Engineering and Technology (PICMET)*, 1–8. <https://doi.org/10.23919/PICMET.2017.8125375>

- Yang, R. (2022). Space reconstruction process and internal driving mechanisms of Taobao villages in metropolitan fringe areas: A case study of Lirendong village in Guangzhou, China. *Journal of Geographical Sciences*, 32(12), 2599–2623. <https://doi.org/10.1007/s11442-022-2063-9>
- Ye, L., & Yang, H. (2020). From digital divide to social inclusion: A tale of mobile platform empowerment in rural areas. *Sustainability*, 12(6), 2424. <https://doi.org/10.3390/su12062424>
- Yong, F. (2022). Agglomeration and Spatial Distribution of E-Commerce Sector in China: A Case Study of Jiangsu Province. *Wireless Communications and Mobile Computing*, 2022, 1–9. <https://doi.org/10.1155/2022/7284213>
- Yu, H., & Cui, L. (2019). China's E-Commerce: Empowering Rural Women? *The China Quarterly*, 238, 418–437. <https://doi.org/10.1017/S0305741018001819>
- Zeng, Y., & Guo, H. (2016). The mechanism and operating logic of how e-commerce associations promote the development of Taobao Villages: Taking the practice of Junpu Village in Jieyang City of Guangdong Province as an example. *Chinese Rural Economy*, 6, 51–60.
- Zeng, Y., Guo, H., Yao, Y., & Huang, L. (2019). The formation of agricultural e-commerce clusters: A case from China. *Growth and Change*, 50(4), 1356–1374. <https://doi.org/10.1111/grow.12327>
- Zeng, Y., Qiu, D., Shen, Y., & Guo, H. (2015). Study on the formation of Taobao village: Taking Dongfeng village and Junpu village as examples. *Economic geography*, 35(12), 90–97.
- Zhang, L. (2023). *The Labor of Reinvention: Entrepreneurship in the New Chinese Digital Economy*. Columbia University Press.
- Zou, L., & Liang, Q. (2015). Mass entrepreneurship, government support and entrepreneurial cluster: Case study of Junpu Taobao Village in China. *Scholars Journal of Economics, Business and Management*, 2(12), 1185–1193.

## Appendix A

### Analysis of necessary conditions

	Consistency	Coverage
Micro-location	0.50	0.49
~Micro-location	0.61	0.55
Macro-location	0.59	0.52
~Macro-location	0.48	0.49
Industrial base	0.70	0.66
~Industrial base	0.43	0.41
First-mover advantage	0.77	0.80
~First-mover advantage	0.33	0.29
Top-down	0.69	0.64
~Top-down	0.41	0.40
Bottom-up	0.63	0.63
~Bottom-up	0.54	0.48

Note: ~ means the condition does not exist.

## Appendix B

Truth table

Micro- location	Macro- location	Industrial base	First- mover advantage	Top- down	Bottom- up	Number	Taobao	Cases	RAW consist.	PRI consist.	SYM consist
1	1	1	1	1	0	1	1	Lin'an(0.77,0.87)	0.972603	0.951368	0.951368
0	1	0	1	1	1	3	1	Suining(0.75,1.00) Tiantai(0.63,0.99) Yongjia(0.53,0.58)	0.967391	0.948864	0.948864
0	0	1	1	1	1	2	1	Caoxian(0.73,1.00) Jinjiang(0.52,0.99)	0.969125	0.948718	0.948718
0	1	1	1	0	1	3	1	Shuyang(0.57,1.00) Yongkang(0.78,1.00) Wenling(0.69,1.00)	0.964179	0.947136	0.947137
0	0	1	0	1	1	1	1	Shishi(0.52,0.70)	0.946746	0.844828	0.844827
1	1	1	1	1	1	1	1	Yiwu(0.62,1.00)	0.90625	0.83871	0.83871
0	0	0	1	1	0	4	1	Nangong(0.74,0.92) Qinghe(0.73,0.95) Anxi(0.83,0.91) Dehua(0.50,0.13)	0.882834	0.822717	0.822718
1	1	1	1	0	0	3	1	Pinghu(0.61,0.36) Tongxiang(0.56,0.96) Haining(0.95,1.00)	0.888399	0.816867	0.816868

0	1	1	1	1	1	1	1	Jiangyin(0.61,0.27)	0.879214	0.79717	0.79717
1	0	1	1	1	1	2	0	Zengcheng(0.67,0.51)	0.8	0.619946	0.678466
								Puning(0.51,0.99)			
1	0	0	1	1	1	2	0	Boxing(0.77,0.68)	0.799692	0.591195	0.628763
								Xianyou(0.59,0.62)			
0	1	0	1	1	0	1	0	Longquan(0.61,0.01)	0.722814	0.516729	0.516729
1	0	1	0	1	1	1	0	Jiedong(0.52,0.77)	0.77572	0.483412	0.483412
1	1	1	0	0	1	1	0	Zhuji(0.69,0.66)	0.740964	0.402778	0.411347
0	1	1	0	0	0	3	0	Donghai(0.70,0.19)	0.618863	0.345092	0.345092
								Taicang(0.50,0.07)			
								Changshu(0.58,0.99)			
0	1	1	0	0	1	3	0	Xinyi(0.75,0.05)	0.515193	0.272009	0.286242
								Kunshan(0.94,0.07)			
								Wuyi(0.69,0.47)			
1	1	1	0	1	1	2	0	Dongyang(0.52,0.19)	0.622735	0.213058	0.213058
								Tonglu(0.52,0.01)			
1	0	1	1	0	1	1	0	Boluo(0.61,0.09)	0.559809	0.171171	0.171171
1	0	0	0	1	0	3	0	Raoping(0.67,0.05)	0.567268	0.130919	0.130919
								Lixian(0.54,0.05)			
								Minhou(0.54,0.56)			
0	1	0	0	1	0	1	0	Jinyun(0.56,0.05)	0.40583	0.116667	0.116667
1	0	0	1	0	0	1	0	Pixian(0.54,0.03)	0.57265	0.090909	0.090909
1	0	0	0	0	0	5	0	Lufeng(0.67,0.01)	0.356804	0.076136	0.08231
								Heshan(0.61,0.02)			
								Zhengding(0.95,0.62)			

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								Shenze(0.75,0.09)				
								Mengzhou(0.59,0.01)				
0	1	0	0	0	0	1	0	Xianju(0.69,0.06)	0.368243	0.067332	0.067332	
1	1	0	0	0	0	1	0	Sanmen(0.51,0.01)	0.382637	0.065693	0.065693	
1	0	0	0	0	1	1	0	Huidong(0.67,0.04)	0.425837	0.052632	0.052632	
0	0	0	0	0	0	2	0	Yongnian(0.51,0.01)	0.309883	0.035129	0.035129	
								Yunxi(0.69,0.01)				

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## **Group B2 Cluster Development in the Platform Era**

Paper 1 All Roads Lead to... Resilience?! Unravelling Cluster Resilience in the Polycrisis Era

The manuscript is submitted to *Journal of Economic Geography*, in April 2024

This is the author's original manuscript of the submitted article

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## All Roads Lead to... Resilience?! Unravelling Cluster Resilience in the Polycrisis Era

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### Abstract

This study explores cluster resilience of two Chinese furniture clusters during multiple crises in the last two decades, elucidating the conditions that determine whether structural or agential factors matter more in sustaining their resilience. We propose that clusters characterized by simple intra- and extra-cluster industrial networks and an underdeveloped regional economy, rely mostly on direct government intervention for resilience. Conversely, clusters with complex industrial networks, embedded in an advanced regional economy, derive their resilience predominantly from market dynamics and cross-industry synergies. This analysis emphasizes the need to consider a cluster's dual embeddedness—territorial and industrial—when assessing its resilience.

**Keywords:** Polycrisis, cluster resilience; furniture industry, territorial and network embeddedness; China

## 1 Introduction

Research on regional economic resilience (RER) and cluster resilience has gained increased attention since the Great Recession of 2008. However, with the emergence of the COVID-19 pandemic in 2019, there has been a renewed and heightened interest in the study of resilience. Although RER has been argued to evolve from a “fuzzy concept” to a “well-developed concept” (Sutton *et al.* 2023, p.1), its complexity deserves further exploration.

One type of such complexity relates to the multiplicity of crises. A critical aspect of today's economy is the potential for multiple crises to arise either simultaneously or consecutively, exerting both independent and combined impacts on regional economies and clusters. Although existing research has provided valuable insights into the influence and determinants of RER (and to a lesser extent, cluster resilience) during single, isolated shocks, there has been limited exploration of how regions respond to multiple crises. This oversight is problematic, given that in reality, different types of crises often coexist, with their impacts being both cumulative or counteractive. These crises can take various forms, including economic downturns, financial instability, supply chain disruptions, geopolitical tensions, natural disasters, and public health emergencies. Their impacts can be wide-ranging, affecting different aspects of the economy.

Another complexity relates to the causal mechanisms that underpin different regions' or clusters' performances during and after crises. As Yeung (2019) has noted, a causal mechanism serves as a necessary relation to connect an initial causal condition with its particular socio-spatial outcomes in context. In other



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words, specifying concrete mechanism(s) is an indispensable analytical procedure to work out how processes unfold and relate to geographic outcomes in particular contexts. Applying this thinking to the research on RER and cluster resilience, it means that to tease out the causal mechanism(s) underpin RER and cluster resilience would require the effort to identify both the particular and the necessary relations in context. While the current work has identified multiple structural and agential factors that are important for RER (Martin 2012; Martin and Sunley 2020), it is less clear under which context or conditions, structural or agential factors matter more in determining RER.

The third complexity stems from the lack of clarity about the unit of analysis in RER research. Discussions on RER address various regional spaces and scales, including clusters, cities, and regions, without clearly delineating their differences (Martin and Sunley 2015). Although clusters form part of the regional economy, the factors that influence their resilience may differ from those affecting the entire regional economy. To steer clear of the trap of encompassing everything and thus diluting the focus, this paper will concentrate on investigating the mechanisms of "cluster resilience" within a polycrisis context, a relatively underdeveloped concept in current resilience research.

To respond to the recent advocacy of incorporation of regional context in empirical studies of RER and cluster resilience as well as the identification of underlying causal mechanisms (Sutton *et al.* 2023), this paper aims to develop an analytical framework for cluster resilience based on the consideration of the cluster's embeddedness in territorial and network structures. It emphasizes the characteristics of regional structural conditions (i.e., industrial and institutional), as well as the focal cluster's embeddedness in the industrial networks, reflecting on the multifaceted nature of cluster resilience sources. To disentangle the complexities mentioned above and to provide more analytical clarity to cluster resilience, this paper poses the following three questions: First, how do different crises impact cluster development in different ways? Second, does the same set of crises produce the same shock effects for different clusters in the same sector? And third, what are the sources of resilience for industry clusters with diverse backgrounds?

This paper explores the resilience strategies adopted by two furniture industry clusters, Nankang and Shunde, amidst a spectrum of crises, including the impact of online platforms on offline distribution networks, environmental regulations, repercussions of the US-China trade war, the COVID-19 pandemic, shocks from the real estate market, and broader economic downturns. These challenges have had varying impacts on the resilient performances of the two clusters. After proposing the dual-embeddedness framework (territorial and network embeddedness) for studying cluster resilience (section 4), this paper demonstrates through the research of two furniture industry clusters that: 1) different crises can affect clusters' dual-embeddedness differently, thereby affecting the evolution of the clusters; 2) crises are different by nature, requiring specific recognition of both their shocks aspects (e.g., positions in the dual-embedded structures) and magnitudes; and 3) cluster resilience stems from diverse sources in different industrial and institutional backgrounds, resulting in diverse cluster resilience mechanisms.

## **2 Regional economic resilience and cluster resilience: A brief overview**

In economic geography, research on economic resilience at the subnational level is predominantly categorized under the term 'regional economic resilience' (RER). We contend that RER and cluster resilience exhibit both similarities and differences, and insights from RER research can be instrumental in identifying

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key factors essential for cluster resilience. Consequently, this section will offer a concise review of the existing literature on both RER and cluster resilience, setting the stage for an analytical framework to explore cluster resilience in greater depth.

In the last decade, different aspects of RER have been thoroughly debated. First of all, discussions on RER are marked by a diversity in the subjects of analysis, reflecting a wide range of perspectives on what constitutes the economic system and the appropriate level of analysis—be it local, regional, national, or supranational. Additionally, there is debate over whether the focus should be on individual actors or sectors such as firms, policy bodies, or other stakeholders (Bristow and Healy 2020; Evenhuis 2020; Martin and Sunley 2020).

Another pivotal topic is the nature and types of crisis and shocks that regions face. As noted by Sutton *et al.* (2023), shocks are not uniformly experienced across regional economies. Variations in impact are often a result of the specific characteristics of the shock, alongside each region's unique resources and capabilities. The nature of shocks encompasses their type, intensity, and duration (Gong *et al.* 2020). While the conventional view associates shocks with negative outcomes for regional economies, there is a growing acknowledgment that, under certain conditions, shocks can serve as catalysts for positive transformation (Bănică *et al.* 2020). This perspective is particularly relevant for regions that were on a sub-optimal growth trajectory or stuck in obsolete production models prior to the shock.

Scholars are also debating about issues such as measurement of RER as well as the methodological approaches necessary for its study. Common methodologies include case studies, indices, and statistical models (Modica and Reggiani 2015). Sutton *et al.* (2023) highlight that the choice of methodology may vary depending on the type of resilience being examined. Qualitative research, in particular, is deemed crucial for exploring the intricate mechanisms that contribute to a region's robustness, mechanisms that are not easily discerned through statistical analysis alone (Evenhuis 2020).

Another key topic that has been debated intensively by scholars is what makes certain regional economy more resilient than others in face of crises. Central to current discussion is the debate over the relative importance of structural versus agential forces and the diversified vs specialized industrial structure in influencing RER (Tan *et al.* 2020; Hu *et al.* 2022; Li *et al.* 2022). Proponents of the structural perspective argue that regions endowed with certain structural characteristics—such as diverse industrial bases (related variety)—are inherently more resilient (Balland *et al.* 2015; Boschma 2015; Martin and Sunley 2020). Conversely, scholars emphasizing the pivotal role of state agency within the broader geographical political economy, argue that adaptability is significantly shaped by governmental actions, especially in structurally weak regions (Pike *et al.* 2010; Bristow and Healy 2014; Tan *et al.* 2020). Further research delineates that while structural factors such as industrial composition, openness, and institutional frameworks are critical in the vulnerability and resistance stages, it is the agency-based factors like business confidence, policies, and leadership that influence the recovery and reorientation stages (Martin and Sunley 2020; Tan *et al.* 2020; Hu *et al.* 2022).

While the RER has been the main term used by scholars studying resilience at the regional level, the term 'cluster resilience' has resulted in little research. Clusters have been around in the economic geography literature since the early 1990s (Martin and Sunley 2003; Menzel and Fornahl 2010; Chu and Hassink 2022) yet the connection to resilience was not made until the work by Martin and Sunley (2011) and Suire and Vicente (2014). According to Martin and Sunley (2011, p.1303), clusters can be regarded as complex adaptive systems, consisting of different functions, firms and their products, technologies, routines etc., which all

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change over time. Martin and Sunley (2011, p.1306) focus “... on the notion of system ‘resilience’ to external change and shocks, and how resilience itself changes as the system [cluster] evolves.” Resilience is thus defined in terms of the adaptability of the system. They emphasize “there may be a trade-off or conflict between connectedness and resilience: the more internally connected is a system the more structurally and functionally rigid and less adaptive it is” (Martin and Sunley 2011, p.1306). Suire and Vicente (2014) emphasize properties of knowledge networks, as well as more general technology and industry dynamics and cluster dynamics as critical parameters of cluster resilience (see also Crespo et al., 2014). Similar to Martin and Sunley (2011), they also emphasize what they call the ‘paradox of embeddedness’ (Suire and Vicente 2014, p.145): clusters “... as a locus of production of composite technologies require a high level of ... connectedness in knowledge networks, while resilience and ‘negative lock-in’ avoidance require a high level of openness and modularity in the structural organization of networks”. They are wary of state policies supporting networks of clusters, as “... it can be under-efficient when the funding and the incentives for collaborations strengthen the existing cohesive structure and its level of assortativity, leading to a negative lock-in” (Suire and Vicente 2014, p.160).

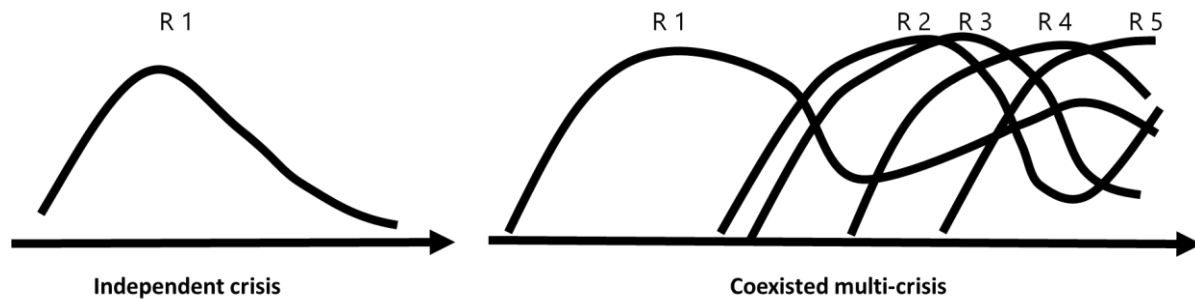
Another line of research examines the relationship between diversified industrial background and the resilience to crises (Amdam *et al.* 2020; Delgado and Porter 2021). However, these discussions mainly emphasize the impact of industry structure on regional or business resilience, rather than on cluster resilience. Martin and Sunley (2015, p.3) in their seminal paper on RER acknowledge the difference between different types of economic space, including “a city, a local business cluster or a larger regional economy” even though still stick to the term RER. In fact, if a region's industry structure is highly specialized and monolithic, the specific cluster within it is likely to receive substantial local support during crises, with most regional efforts and agencies focusing on protecting this dominant cluster. Conversely, if a region's industry structure is diverse, like in a metropolitan area, a cluster from a specific industry might just be one among several in the region's industrial fabric, and thus receives less governmental attention. However, this diverse regional industrial structure can also provide the specific cluster with alternative sources of resilience that are distinctly different from those in regions with a monolithic industrial structure. Therefore, we contend that it is important to analytically distinguish between cluster and regional economic resilience. However, before we delve into an analytical framework on cluster resilience, we will first show two key gaps in the RER and cluster resilience research that are relevant to our framework in the next section.

### **3 Two gaps in RER and the cluster resilience**

Despite significant advancements in the field of RER research over the past two decades, scholars have identified several shortcomings that merit further exploration (for a broader critique, see Lemke *et al.* 2023). Here we engage with another two key gaps that we believe is crucial to get a clear head around both RER and cluster resilience research.

First, amidst the evolving landscape of global challenges, a significant oversight in existing research lies in its predominant focus on the impacts of isolated events or singular crises (for exceptions, see Amdam et al., 2020; Li et al., 2022; Tan et al., 2017) (left side of Figure 1). This approach neglects the complexity of the contemporary "age of polycrisis" (Tooze 2022), where crises with diverse origins can converge within the same spatial and temporal frame, significantly influencing the structure and function of regional economies (Lawrence *et al.* 2022). The reality that Polycrisis can occur at the same time or in a sequential order (e.g., Ukraine war, Gaza War, Covid-19 pandemic), makes it difficult to single out the impact of individual independent crisis. Moreover, natures of such multiple shocks are also often different and their impacts are

place and path-dependent. As a result, in order to understand and capture the influence and determinants of regional economies to Polycrisis, it is important that a systemic approach (Sutton and Arku 2022) is taken, ensuring that shocks and crises are seen interconnectedly (right side of Figure 1), and their overall influences are measured systematically instead of isolatedly.



**Figure 1. Independent crisis vs coexisted multi-crisis**

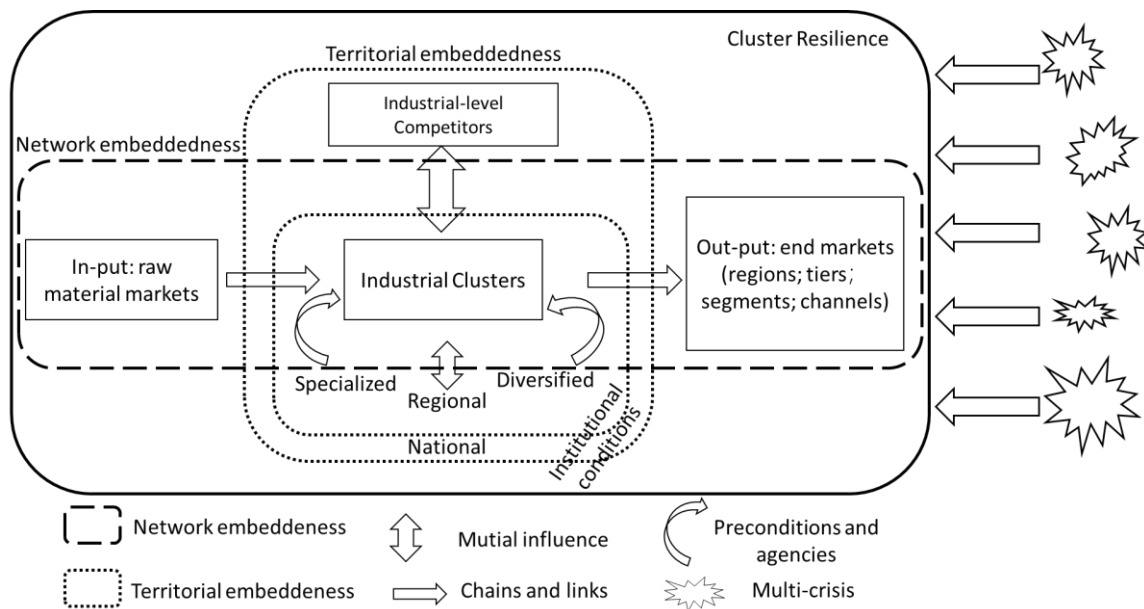
Secondly, while existing research recognizes that regions with both robust economies and structural vulnerabilities can demonstrate significant resilience in the aftermath of economic shocks, and extensively acknowledges the pivotal role of both structural and agential factors in shaping RER (Bristow and Healy 2014; Tan *et al.* 2020; Hu *et al.* 2022; Li *et al.* 2022), it falls short in clarifying the interplay between these factors and the conditions under which one set of factors may take precedence over the other. This lack of clarity complicates the formulation of policy recommendations, leading to a generalized approach that considers both structural and agency-driven factors as equally critical without providing specific strategies for effective crisis management in different regional settings. For instance, an economically prosperous cluster characterized by dense intra- and interregional networks and strong endogenous capabilities might require distinct strategies to bolster economic resilience compared to a cluster with limited connectivity, simple industrial structures and weak endogenous capabilities. Here, the abovementioned concept of the 'paradox of embeddedness' (Uzzi 1997; Suire and Vicente 2014) is highly pertinent in understanding the nuanced impact of regional economic structures during both stable periods and times of crisis. On the positive side, deep-seated social capital and resources constitute vital components of resilience sources. Also, attributes such as specialized skill sets and a vibrant entrepreneurial climate, bolstered by dense formal and informal networks and robust knowledge exchange, can foster the development of new industries during crises (Boschma 2015). Conversely, excessive embeddedness may also exert adverse effects on the resilience performance of businesses and localities (Parr *et al.* 2002; Kitsos *et al.* 2023). Tightly interwoven sectoral and spatial connections can also act as conduits for the rapid spread of economic downturns across sectors and regions (Kitsos *et al.* 2023). Additionally, the interdependency inherent in closely knit local industrial ecosystems means that disruptions at critical junctures can significantly delay the recovery process, as reestablishing the seamless flow of knowledge and materials throughout the network demands considerable time and effort. This highlights the necessity for a more nuanced understanding of how regional characteristics influence the significance of various resilience mechanisms, underscoring the need for tailored approaches that consider the unique attributes of each region or cluster.

## 4 Cluster resilience: an analytical framework

To address the aforementioned research gaps relate to cluster resilience, in this section, we propose an analytical framework. Cluster, as we know it, is not only a spatial concept, but also part of wider production

and consumption chains and networks. Here we draw upon the literature on “embeddedness” in sociology and geography, attempting to refine analytical clarity for cluster resilience.

The embeddedness approach in sociology posits that economic behavior cannot be solely explained by individual motivations and cognition, as it is influenced by the network of relationships among individuals and organizations (Granovetter 1985; Uzzi 1997). It is suggested that embeddedness represents a framework for exchange that fosters efficiencies in time, integrative agreements, and Pareto improvements in allocative efficiency, leading to complex adaptation. In geography, Henderson et al. (2002) and Hess (2004) delineated the embeddedness inherent in the global economic activities into two distinct components: territorial and network embeddedness. The former encompasses the specific economic activities, social dynamics, and local governmental policies associated with the geographic location where firms or networks are situated. Conversely, the latter pertains to the structural characteristics of the industrial network itself, including the degree of connectivity within the production and consumption networks, the stability of relationships among its agents, and the significance of the network for its participants. Of course, both forms are essentially the result of social and spatial 'embedding' processes (Kitsos *et al.* 2023). Building upon these foundational concepts, Kitsos et al (2023) applied them to analyze RER; in this paper, we adapt these concepts within the theoretical framework of cluster resilience (see Figure 2). We explain this framework in detail below.



**Figure 2. Theoretical framework on cluster resilience**

### *Dual cluster embeddedness and it's paradox*

In recent studies, the importance of considering regional economic activities as dually embedded in a territorial and an industrial context has been increasingly acknowledged (Gong *et al.* 2022, 2024; Chlebna *et al.* 2023). We argue that this applies especially to the discussion of industry clusters. Clusters, as intricate production agglomerates, demand a heightened emphasis on "territorial embeddedness," deeply rooted in local anchoring. On the other hand, as constituents of production and consumption network structures, industry clusters also maintain intricate connections with input markets and output markets, necessitating a certain degree of "network embeddedness." From a positive perspective, the local embeddedness of economic entities such as multinational corporations can enhance cluster resilience in the face of crises (Wei 2015). However, “strong embeddedness can also lead to lock-in effects ..... with terms such as cognitive myopia

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being coined in the literature” (Kitsos *et al.* 2023, p.3). At present, some quantitative analyses have demonstrated the inverted U-shaped relationship between embeddedness and resilience (Kitsos *et al.* 2019).

#### *Network embeddedness: In-put and out-put markets*

Cluster resilience is frequently influenced by the in-put and out-put markets of their industry chains, known as "forward (sales) and backward (supplies) embeddedness" (Kitsos *et al.* 2023, p.4). Within this context, this paper introduces the concepts of "raw material markets" and "end markets" that are being connected through industry clusters. The former primarily refers to varying sources of raw materials needed for production, which normally originate from different regions. The latter is further delineated into different consumer market regions, tiers, segments, and channels. It is worth noting that due to the distinct geographical locations and developmental histories of each cluster, even within the same sector, the raw material markets and the targeted end markets for production of different clusters can differ. Thus, the same crises may have varying impacts, even among clusters within the same sector. Another element relates to network embeddedness of a cluster is the industry-level competitors both at home and abroad. While we acknowledge the significance of competitors' roles in a cluster's network embeddedness, in our empirical analysis, we decide to limit our focus on the competitors within the same country (Figure 2). This decision stems from the vast differences observed between competitors within industry clusters across different countries, making direct comparisons challenging from both territorial and network perspectives. Moreover, the empirical study conducted in this paper focuses on two clusters in China, emphasizing the importance of their territorial influence within this context.

#### *Territorial embeddedness: industrial and institutional conditions*

Cluster resilience is also associated with the territorial environment to which they belong. This paper emphasizes a cluster's embeddedness in a multiscale context, highlighting especially the regional and the national scales. Here the impact of regional industrial and institutional structures on cluster resilience requires special attention. History and geographical location of different places also influence cluster resilience when hit by crises. The presence of domestic competitors also falls within such territorial embeddedness. From the cluster perspective, this paper aims to provide more nuanced results based on two case studies. Differences in industrial and institutional structures within and beyond the cluster's environment result in varying shocks in different regions during crises. We expect clusters to adopt different response measures based on their distinct network and territorial embeddedness, leading to disparate short-term and long-term outcomes.

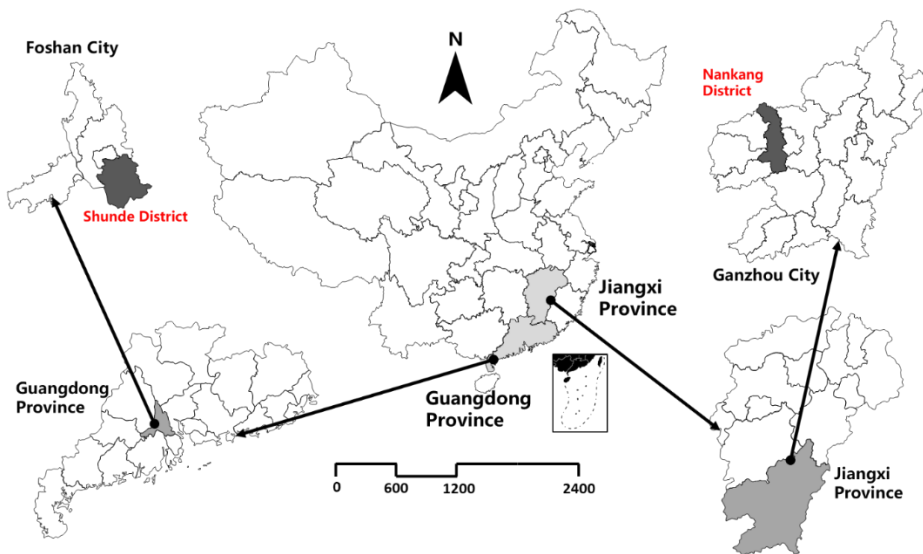
## **5 Responses to Polycrisis in Different Contexts: Evidence from the Two Case Studies**

We have chosen the furniture industry in China as our research sector, which has gained significant attention not only from scholars of Global and Regional Production Networks (GPN & RPN) but also from cluster researchers (Gregson *et al.* 2012; Yang and Fu 2017; Yang *et al.* 2017; Dyba *et al.* 2020). Additionally, this industry has undergone diverse reforms and changes in recent years, experiencing Polycrisis, making it suitable for addressing the research questions of this study.

### **5.1 Background and research design**

This paper selects two major Chinese furniture clusters: the largest one in Shunde, and the rapidly developing one in Nankang. Shunde is known for its "big home" sectors, covering various home-related industries,

representing a diversified industrial structure. In contrast, Nankang focuses primarily on furniture manufacturing, illustrating a specialized economic structure (see Figure 3).



**Figure 3. Geographical location of Shunde and Nankang**

Shunde, situated in the southeast of Foshan City, Guangdong Province, lies in close proximity to Guangzhou and falls within the prosperous Pearl River Delta region. As one of the early adopters of China's reform and opening-up policy, this area has reaped significant benefits from the support and investment of Hong Kong and Macao capital. This influx of resources has fostered a strong industrial base, characterized by a diverse mix of well-developed manufacturing industries, a thriving service sector, and robust commercial trade. Undergoing half a century of development, Shunde has established two furniture concentrations: the Longjiang Furniture Manufacturing Base and the Lecong Furniture Professional Market. As the core of the Shunde cluster furniture industry, Longjiang base produces high-quality furniture in a wide variety, primarily targeting the mid-tier and high-tier markets. It offers not only solid wood and panel furniture but also a variety of upholstered and metal furniture developed over the years, catering to various market segments including household, office, hotel, and school usage scenarios. The Lecong base has meanwhile developed into the largest furniture distribution center in China, and currently possesses 180 modern furniture malls. Despite having a strength in manufacturing, governments at the provincial, municipal, and district levels have rarely prioritized or supported the furniture industry during crisis time.

Nankang, our second case, is situated in the southern part of Ganzhou City, Jiangxi Province in Central China, conventionally categorized as an economically underdeveloped area. Jiangxi has historically been one of the significant birthplaces of the Communist Party of China (CCP). Given its significant role in the early history of the CCP, Jiangxi Province receives more direct policy support from the central government. The local economy is predominantly agricultural, with relatively primitive industrial development, primarily focusing on light industry and agricultural byproduct processing. Since the 1990s, the development of the furniture industry in Nankang began against the backdrop of the diffusion and spatial shifts of the coastal (e.g., Shunde) furniture industry (Yan, 2017). The Nankang furniture cluster, with its specific industrial structure and institutional background, received substantial support from various levels of governance (national, provincial, municipal, and district levels). Furniture manufacturing, as the pillar industry in Nankang, has undergone nearly 30 years of development to establish a complete industrial chain and reach a substantial scale of economy. Nankang's furniture product portfolio encompasses primarily middle- and low-tier wooden and

panel furniture. However, in recent years, there has been a significant emphasis on the development of more advanced soft furniture to meet domestic and international market demands.

Table 1 provides a basic statistical comparison between Nankang and Shunde districts. Due to the different statistical methods employed by the two districts, a direct one-to-one comparison of the two clusters is not feasible. Yet, some clear characteristics can still be identified. On the one hand, differences in the development background of the two cases are clearly visible; on the other hand, we can distinctly see that the industrial structure in Shunde is featured by high diversification whereas this is more specialized in Nankang.

**Table 1. Basic comparison on Shunde and Nankang**

	<b>Shunde District (end of 2022)</b>	<b>Nankang District (end of 2022)</b>
<b>Administrative Level</b>	District under the jurisdiction of a city	District under the jurisdiction of a city
<b>Population (in million)</b>	Total resident population: 3.21	Total resident population: 0.83
	Registered population: 1.62	Registered population: 0.78
<b>GDP (in million yuan)</b>	416639	44390
<b>per capita GDP (in yuan)</b>	128517	53547
<b>Ratio of the tertiary industry (in million yuan)</b>	Primary Industry: 7,126.88 (1.71%)	Primary Industry: 2,816.62 (6.35%)
	Secondary Industry: 247,862.57 (59.49%)	Secondary Industry: 19,317.09 (43.52%)
	Tertiary Industry: 161,649.42 (38.80%)	Tertiary Industry: 22,256.47 (50.14%)
<b>Leading industries and their output value (in million yuan)</b>	Electrical machinery and equipment manufacturing industry: 565,342	Mineral products industry: 27,300
	Metal products industry: 69,528	<b>Furniture manufacturing industry: 25,409</b>
	Rubber and plastic products industry: 46,731	Electronics industry: 4,505
	General equipment manufacturing industry: 42,884	.....
	.....	.....
	<b>Furniture manufacturing industry: 27,309</b>	.....
<b>Enterprises above designated size (number of enterprises)</b>	In total: 3082	In total: 600
	<b>In furniture manufacturing industry: 299(9.70%)</b>	<b>In furniture manufacturing industry: 527 (87.83%)</b>
<b>The beginning of furniture development:</b>	<b>1970s</b>	<b>1990s</b>
<b>Furniture target market</b>	<b>Region:</b> Europe and America markets <b>Tier:</b> middle and higher-tier market <b>Segments:</b> diversified <b>Channel:</b> offline and online	<b>Region:</b> Southeast Asian markets <b>Tier:</b> middle and lower-tier market <b>Segments:</b> primarily wooden furniture <b>Channel:</b> offline and online

## 5.2 Data and methods

To obtain comprehensive information on the Polycrisis and their impacts on the clusters, the first author conducted extensive in-depth interviews from August to December 2022 and January to February 2024 (Table 2). The Shunde case involved a total of 29 formal interviews, while the Nankang case involved a total of 36 formal interviews, each lasting nearly two hours or more. These interviews encompassed various stakeholders, including government officials (denoted as G1, G2, etc.), company CEOs or COOs (C1, C2, etc.), employees (E1, E2, etc.), associations (A1, A2, etc.), platforms (P1, P2, etc.), and the university (U1, U2, etc.). In addition to interviews, data collection also included furniture industry development reports, development yearbooks for the two regions over the years, as well as extensive information on regional development backgrounds and furniture industry development gathered from websites and other sources.

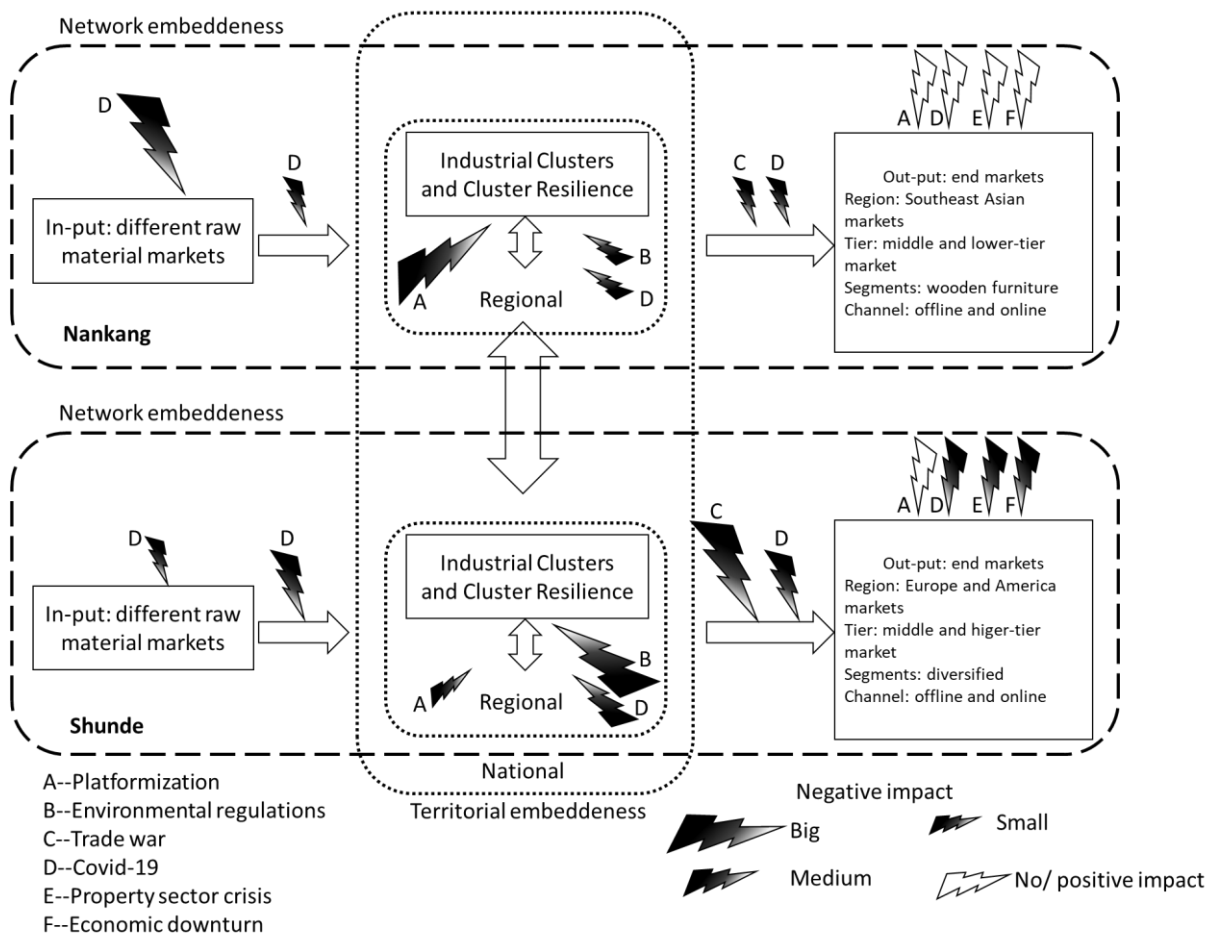


**Table 2. Interviews, data collection in Shunde and Nankang**

Two Cases		Shunde (29)	Nankang (36)
Formal interviews (65)	Government (G11)	3	8
	Companies (CEOs or COOs) (C33)	15	18
		(2 media, 11 furniture)	(1 logistics, 1 raw material, 10 furniture)
	Employees (E10)	6	4
		(4 live-streaming hosts, 1 HR, 1 designer)	(2 live-streaming hosts, 1 HR, 1 manager)
	Associations (A5)	2	3
	Platforms (P3)	2	1
	University (U3)	1	2

### 5.3 Research results

Based on the theoretical framework of cluster resilience and our research findings, we have depicted Figure 4 as the results of our study. From the figure, it is clear that different crises have divergent impacts on the two clusters' embed structures—both territorial and network. In section 5.1, we will elaborate on the multiple crises facing the Chinese furniture industry after 2010 and the impact caused by such crises in terms of the territorial and network structures that two clusters are embedded in. Moving to section 5.2, we will delineate the disparities in the magnitude of shocks experienced by the two clusters based on their respective backgrounds, along with the distinct approaches and agencies mobilized in response.



**Figure 4. Polycrisis and their effects on two clusters' embedded structures**

### 5.3.1 Polycrisis, different impacts in the embedded structures

Through multiple inquiries and confirmations from various interview partners, we learned that since 2008, the furniture industry in China has faced six main crises as introduced below, each affecting different aspects of the industry with intertwined effects. Utilizing the concepts of territorial and network embeddedness introduced in section 4, we now analyze the positions in which shocks were caused by these crises (see Figure 4).

**Crisis A--Platformization:** The rapid advancement of technology, automation, and digitization has reshaped production processes, distribution channels, and consumer preferences. From 2010 to 2014, China's e-commerce platforms experienced rapid growth, leading to the closure of some offline stores and malls unable to adapt to digital marketing. Consequently, manufacturers supplying these offline stores were also affected. Additionally, platformization includes the impact of cross-border e-commerce platforms in recent years (after 2019), which has mainly empowered rather than disrupted the out-put markets (especially markets abroad). Overall, for the furniture industry, crisis A primarily impacted the internal production and sales organizations within the two clusters, as well as their output markets.

**Crisis B--Environmental regulations:** Stringent environmental regulations have pressured traditional high-pollution production processes and technologies, impacting production methods, material procurement, and industrial waste management. Since 2010, various levels of government have issued environmental regulations, resulting in the direct closure of many furniture manufacturers within clusters. Crisis B thus

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primarily affected the internal production organizations within clusters.

Crisis C—US-China Trade war: Trade wars have erected trade barriers, exacerbated geopolitical tensions, and disrupted the supply of raw materials, components, and intermediate products. Since 2018, the US has imposed tariffs on Chinese imports, escalating trade disputes. For furniture industry clusters, the trade war primarily impacted their output market connections through increased tariffs.

Crisis D--Covid-19: The COVID-19 pandemic disrupted production, supply chains, and consumer behavior globally, affecting all parts of the furniture production and consumption networks, influencing both the territorial and network embeddedness of the two clusters.

Crisis E--Real estate industry crisis: Although exemplified by Evergrande Group's default in 2021, the real estate market decline had started much earlier. Since around 2016, in order to curb the rapid rise in housing prices and speculative activities, the Chinese government has implemented a series of stringent regulatory policies, such as purchase restrictions, credit limits, and sales restrictions. As an upstream industry related to furniture, the real estate crisis directly impacts the demand for furniture (i.e. in the output market), especially in the domestic market.

Crisis F—Economic downturn: In the years following 2010, China's GDP growth has been consistently below 10%. Worse still, China's slowing GDP growth and economic recession due to the cumulated effects of several of the aforementioned crises such as structural shifts in the economy (e.g., the decline of the real estate sector), trade tensions and tariffs, Covid-19 and demographic change, have been particularly noticeable in recent years, leading to a stronger decline in consumer demand, lower investment, and a shrinking export market. In China's furniture industry, crisis F significantly impacted the domestic output market.

### 5.3.2 Same shocks, different magnitudes and different responses

While the abovementioned crises have been commonly identified as the key critical events influencing the Chinese furniture industry by our interviewees, when it comes to the two specific clusters, the magnitude of their impacts tended to differ substantially, due to the different territorial and input-output network contexts they are embedded in. We categorize the impact of these crises as big, medium, small, and no impact in the two case study contexts (see Figure 4). The following sub-sections will specify the concrete impacts of each crisis and mitigation measures taken by the two clusters by looking through the dual embeddedness perspective introduced earlier.

#### **Territorial embeddedness**

On the territorial context level, Shunde is situated in the Pearl River Delta, one of China's most dynamic and promising economic regions, boasting stronger market power and a more diversified industrial structure. It has a rich array of regional assets that can be mobilized, enhancing its innovation and entrepreneurial capabilities and, consequently, strengthening its ability to adapt to transformation. Therefore, when facing the crisis A (platformization), Shunde could swiftly attract talent with e-commerce operation and management experience from neighboring cities like Guangzhou, thus mitigating its effects. *"At that time, we spent a lot of money to poach a brand director from Guangzhou and then established the brand department. We gradually built and strengthened our team from graphic design to e-commerce operation and now established three new media groups for Douyin, Xiaohongshu, and WeChat video "* (C6).

Furthermore, due to the diversification of its industries, Shunde's economy does not solely rely on the furniture industry. Compared to other greener and higher value-added industries, the furniture industry has received little center and local government policy support. On the contrary, due to the increasingly stringent

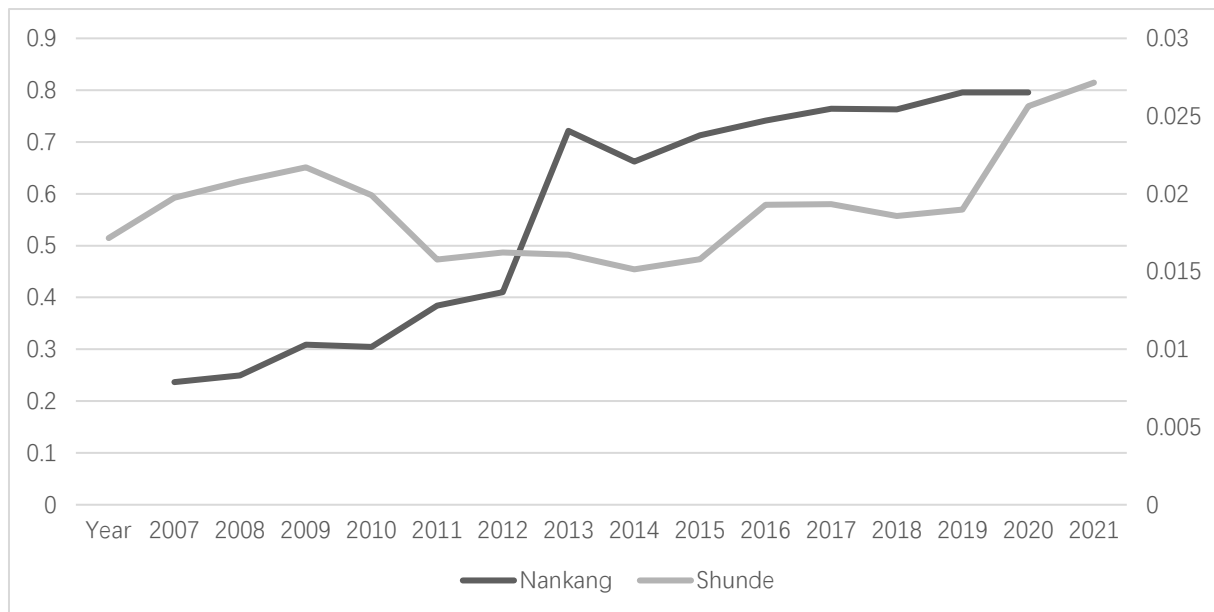
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environmental regulations issued by the Guangdong Province in recent years, the furniture industry's production and manufacturing processes have been more discouraged than supported by the local governments. The following quote illustrates the significant impact of crisis B (environmental regulations) on Shunde's furniture cluster. *"In recent years, the government's strict requirements on safety, environmental protection, and fire protection for traditional manufacturing enterprises have posed severe challenges and unprecedented impacts on the survival and development of local furniture enterprises in Lecong"* (2019 Lecong Furniture Economic Development Report). While this crisis presented a threat to the Shunde furniture cluster, it also forced firms in the cluster to upgrade their production techniques, adopt stringent environmental standards, and relocate production facilities elsewhere, leading to an overall environmental upgrading in Shunde.

The last crisis impacting the Shunde's furniture cluster from a territorial perspective is crisis D (Covid-19). Although the overall economic impact of the pandemic has been enormous, internally within our two case study locations, the impact has been perceived as relatively minor, as neither of these places has experienced comprehensive lockdowns. However, relatively speaking, the impact of Covid-19 on Shunde was greater because there are international furniture malls within the cluster. *"As you saw this morning, the malls are almost empty. If you had come before the pandemic, it would have been bustling"* (A1). Local enterprises also tried to mitigate the impact of this crisis through online procurement methods, such as establishing WeChat groups and utilizing enterprise WeChat live streaming functions to introduce products. *"Before the pandemic, agents came over to place orders themselves. But now they can't come, so you have to find ways to retain them or contact them"* (C8).

In stark contrast to Shunde, the economic development in Nankang is relatively lagging, with much lower per capita income (Table 1 shows less than half of Shunde's). Additionally, its industrial structure is relatively simple, with the furniture industry being the absolutely dominant industry in Nankang's economy. Lastly, Nankang is mountainous, with little to no locational advantage, making it difficult to develop other industries. However, due to governments' support for lagging behind regions, as well as its past as a revolutionary base for the Communist Party of China, both the central and local governments have attached great importance to the development of the furniture industry in Nankang.

In 2005, the Nankang municipal government established a specialized department dedicated to the furniture industry, marking the first of its kind in China. In 2012, the State Council issued *Several Opinions on Supporting the Revitalization and Development of Original Central Soviet Areas such as Southern Jiangxi*, which mentioned *"accelerating the construction of Ganzhou Port"*. Subsequently, this port became the only inland port in China for imported timber, providing a boost to the furniture industry in Nankang (as seen in Figure 5, the proportion of Nankang's furniture total output value to the total social industrial output value has rapidly increased since 2012).



**Figure 5. The proportion of furniture GDP to industrial total GDP**

Nankang's locational disadvantage makes it difficult to find e-commerce and online marketing talent urgently needed for online market development when facing crisis A (platformization), thus it suffered a greater impact compared to Shunde. To address this, the Nankang government has implemented a series of measures and policies, providing water, electricity, rent, training, and other support to train a large number of e-commerce practitioners and support the development of e-commerce enterprises. In 2015, the Nankang government was even awarded the title of *"National E-Commerce Demonstration Base"*, receiving significant funding and policy support from the national level.

In comparison to Shunde, crises B (environmental regulation) and D (covid-19) had a smaller impact on the territorial embeddedness of the Nankang furniture industry cluster. On the one hand, due to the local government's strong desire to develop the furniture industry, the implementation of environmental regulations in Nankang has been relatively lenient. *"The implementation of environmental regulations is relatively lax, some large factories may undergo some process upgrades to reduce environmental pollution, while smaller factories tend to turn a blind eye"* (C22). On the other hand, as it is primarily a furniture production base, the sales area of its malls is much smaller than that of Foshan, thus the impact of COVID-19 was also smaller.

Finally, at the national level, territorial embeddedness also reflects the connections and interactions between the two clusters as "industrial-level competitors" as specified in our analytical framework (Figure 2). On the one hand, they compete for the same domestic market and national policy support. On the other hand, when facing certain shocks, the impact on one cluster may actually empower the development of another as illustrated in the following quote from Nankang *"The pandemic basically had no effect on us; rather, it was more of an opportunity. Because at that time, the lockdowns in Shunde were stricter, many suppliers turned to Nankang to find their supplies under that circumstance"* (A5).

### Network embeddedness

After analyzing how the polycrisis influenced the two clusters from a territorial embeddedness perspective, this subsection introduced the influence of crises on the two clusters' embeddedness in the furniture industrial networks of production and consumption.

Due to the diverse product portfolio presented in Sunde, both input and output markets for the Shunde

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furniture industry are relatively diverse. This means that when facing the impact of crises C (Trade war) and D (Covid-19), both forward and backward linkages were more negatively affected (the thicker the linkage, the greater the impact of disruption Kitsos et al., 2023). Particularly notable was the impact of the trade war on forward linkages relating to the sales market of Shunde furniture. Although local enterprises have tried to mitigate this impact through various means, the cost remained high. *"The demand in the US market still exists, but because the tariffs are too high, we may not directly ship goods from Chinese customs to the US, but instead send them to neighboring countries such as Thailand, and Vietnam first, and then to the US"* (C12). Regarding input markets, Shunde's raw material demand includes diverse but non-scarce materials such as wood, fabrics, leather, aluminum, and rattan. Therefore, when one input market was affected by the pandemic, there were still other supply sources providing raw materials to sustain furniture production, mitigating the impact of the pandemic on Shunde's furniture cluster.

For the impact on the output market, while crisis A (platformization) has been argued to cause several furniture clusters in China to suffer losses in offline channel, it is noteworthy that it has had no strong negative impact on Shunde's output market. Although the offline sales market in Shunde seemed to be slightly affected by the platformization revolution in the early 2010s, actors in Shunde adapted swiftly to the new demand arose from the online sales channels. This adaptation due to platformization has even allowed the cluster to offset the impacts brought by other crises such as crisis D (Covid-19) and crisis F (economic downturn) from long-term perspective. Platformization, in a way, has enriched consumer purchasing channels (by allowing online shopping during the pandemic), broadened the end market reach of the cluster both in the domestic and international markets, offering buffer zones and back-up markets when crises hit. This has been verified by Yang et al. (2017), who argue that after the 2008 global crisis, as domestic e-commerce rapidly grew in China from 2012 to 2015, some of China's furniture export manufacturers shifted their focus from abroad to the domestic online market, alleviating the shocks brought on by the decline in overseas markets. More recently, since the onset of the pandemic in 2019 and the sluggish development of domestic market, some manufacturers in Shunde have targeted overseas markets again through cross-border e-commerce platforms. This partially explains the rapid rise in the proportion of Shunde's furniture GDP shown in Figure 5 since 2019.

When it comes to the other crises affecting end market in Shunde, the impact can generally be considered medium, as crises D (Covid-19), E (Real estate industry crisis), and F (Economic recession) have all led to a decrease in consumer purchasing power in the output markets. This is unfavourable for the sale of furniture products from Shunde, as its targeted market segment is medium to high-end market. However, embedded in a rich and diversified industrial base in Foshan, cross-industry collaborations within the region have alleviated some of the crises affecting the Shunde cluster's output market. Foshan has nurtured a range of home industries, including furniture, electronics, ceramics, sanitary ware, building materials, hardware, and textiles, forming one of the most comprehensive home furnishing supply chains in China. *"In recent years, Shunde has collaborated with other local industries such as kitchen and bathroom products and home appliances to jointly create the regional brand of 'If there is a home, there is Foshan-made.' Associations from various home furnishing sectors have jointly formed the 'Foshan Furniture Industry Federation' to strengthen cross-industry cooperation and brand promotion"*(A2). *"The benefits of cross-industry collaboration lie in avoiding competitive pressure among peers and preventing monopolization. Instead, it fosters mutually beneficial market networks, enhancing brand value collectively"* (C14). In addition to marketing efforts, Shunde has devoted considerable efforts to product design and innovation to meet the increasingly advanced demands of the output market. *"Nowadays, some companies are innovating their production lines through the use of 3D printing technology and automated production techniques. Some*

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*companies are also beginning to embed smart devices and functionalities into furniture products. Since market downturn is inevitable, we [need to] embrace change and actively evolve” (G2).* Due to the innovation and proactive adapting strategies by enterprises and industry associations, and the support of abundant co-located, related industrial assets, the negative impacts exerted by the aforementioned crises on the output market have been greatly alleviated.

For Nankang, due to its relatively simple industrial network, the impact of crises on both forward and backward linkages is smaller. However, because its product portfolio is simple, and focusing mainly on wooden furniture, any impact on the wood supply market due to the pandemic (crisis D) would have a disproportionately significant impact on Nankang's furniture cluster. Additionally, unlike Shunde, Nankang views the consumer downgrading resulting from crises A (Platformization), D (Covid-19), E (Real estate industry crisis), and F (Economic recession) as an opportunity for its cluster development because its product positioning is in the mid-to-low end, aligning well with the demand in the online market for cheap, low-quality products, featuring the overall consumption downgrading trend. *“...the online market emphasizes cost-effectiveness, and Nankang's products offer excellent value for money. Similarly, other crises have led to consumption downgrading, and Nankang's products align well with the current consumer demand” (G4).* Despite this, some enterprises in Nankang also strive to develop new products and explore sales markets under the guidance of the local government. For example, *“We invite delegations from the Malaysian Furniture Association to visit our local area to develop the Southeast Asian market. Last year, we also went to Milan to introduce design talents to enhance our furniture R&D capabilities” (G7).* However, due to the relatively backward industrial environment in Nankang, apart from a few leading enterprises understanding the importance of innovation, the vast majority of companies simply resort to copying other designs and engaging in price wars through “race-to-the-bottom” competition to adapt to the downward trend in consumption. While this approach may seem to enhance the cluster's post-crisis performance in the short term, in the long run, it may lead to negative lock-ins. This also applies to the aforementioned lenient stance of the Nankang government towards environmental regulations, which, in the long run, is also detrimental to the cluster's sustained development.

## **6 Discussion and conclusion: structure and agency for resilience**

This paper examines the resilience exhibited by two furniture industry clusters, namely Nankang and Shunde, in the face of multiple crises with different impacts. Through comparing the case studies of the furniture industry clusters in Foshan and Nankang, we constructed a cluster resilience framework based on the consideration of a cluster's territorial and network embeddedness. Through this framework, we discovered that different crises can influence different parts of the territorial and network structures in which a cluster is embedded, thereby affecting the development of the cluster. Moreover, we also found out that the mechanisms which made clusters resilient are diverse, and our research demonstrates that different strategies are needed to enhance resilience, tailored to the backgrounds of various industrial clusters. In the following, we discuss how our paper contributes to addressing the gaps identified in section 3.

First of all, when it comes to the multiplicity of crisis, our empirical case study has demonstrated the value of a systemic approach when exploring the influences of multiple crises in cluster resilience. As we have shown earlier, while platformization had some negative influence on the offline sales market of the Chinese furniture industry, it has also allowed clusters such as Shunde to offset some of the negative effects caused by the disruptions caused by the more recent crises such as the Covid-19 and domestic economic downturn, as it allows firms in a cluster to maneuver shifts between the online and the offline and the domestic and the

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foreign markets. The six identified crises, working independently and/or combined, have impacted the two focus clusters differently, leading to varying magnitudes of shocks at different positions within their territorial and network embeddedness. The fact that the same set of crises exerting divergent influence on two clusters belonging to the same industry underscores the importance of considering the nature of the shocks or crises alongside the dual embeddedness of a cluster within its territorial and industry networks. In addition, through our examination of the influences of the different crises, we argue that in this polycrisis era, it is important that crises are studied in a comprehensive way and their impacts being investigated systematically.

Secondly, our research also helps teasing out the conditions under which the structural or the agential factors have stronger influence on resilience, contributing one step further to the identification of causal mechanisms of cluster resilience. In Nankang, a cluster with a specialized sector structure, multi-level government support has played a pivotal role in assisting the cluster in navigating the multiple crises. Conversely, in Shunde, the furniture cluster is embedded in a more diverse regional industrial structure, where furniture is just one sector of a broader home-related industry landscape, governmental attention towards the furniture sector tends to be limited. However, despite the variance in governmental support, both clusters exhibit resilient capabilities even though the underlying mechanisms are quite different. In Nankang, where intra- and extra-cluster industrial networks are simple and the embedded regional economy is relatively backward, cluster resilience primarily stems from direct government interventions, including financial assistance, policy incentives, directionality guidance and infrastructural development tailored to the furniture industry. In contrast, in Shunde, where industrial networks within and beyond the cluster are diverse and thick, and the embedded regional economy is advanced, the cluster resilience largely emanates from non-governmental forces such as market dynamics and industry cross fertilization. The diversified nature of the industry cluster enables it to leverage synergies across multiple sectors, thereby cushioning the impact of crises on the furniture segment.

Finally, our paper underscores the importance of examining cluster resilience as a distinct phenomenon, rather than subsuming it under the broader discourse of regional economic resilience. Crucial to this analysis is the dual territorial and network embeddedness, where clusters are situated both territorially and within industrial networks—be it consumption- or production-oriented. This dual perspective reveals the nuanced complexities of territorial and industrial networks at the cluster level, which might be obscured by a broader regional focus that encompasses a variety of industries and sectors. Our empirical findings illustrated how shocks and crises differentially impact the various positions within these territorial and industrial networks, where clusters are intricately embedded. By considering the intersection of territorial and industrial networks, our approach offers policymakers more precise recommendations when it comes to intervention points when a crisis hit. The focus on ‘industry-level competitors’ is also unique to the discussion on cluster resilience and the understanding of how inter-cluster relationships influence cluster resilience. This clarity enhances understanding of how factors both within and beyond the cluster influence cluster resilience outcomes.

It is worth noting that although this paper proposes a relatively comprehensive framework for analyzing cluster resilience, due to limited information and statistical data available at the cluster level, a comprehensive statistical evaluation of the resilience of our two clusters was not possible. Yet, by triangulating different data sources, it is safe to say that although the identified crises hit the two clusters differently, they both presented strong resilience capabilities as we have shown in earlier sections. Our paper highlights the importance of considering and analyzing multiple crises in a systematic way and we believe the exploration of the interdependency and mutual influence of different crises could potentially be an exciting topic for future research. Furthermore, the explanation of "industry-level competitors" in our framework can also be further explored. Future research could conduct more empirical validation regarding the impacts of competitor



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clusters both within the same country and abroad, especially in understanding the embeddedness of cluster development in global industrial dynamics. Finally, our framework was based on insights from traditional manufacturing clusters. However, with the development of digitalization, some clusters' development may not be hindered by disruptions in the physical network, suggesting that rethinking clusters in the digital era might also necessitate further contemplation of cluster resilience.

## References

- Amdam, R.P., Bjarnar, O., Berge, D.M. (2020). 'Resilience and related variety: The role of family firms in an ocean-related Norwegian region', *Business History*, 1–21.
- Balland, P.-A., Rigby, D., Boschma, R. (2015). 'The technological resilience of US cities', *Cambridge Journal of Regions, Economy and Society*, 8(2), 167–184.
- Bănică, A., Kourtit, K., Nijkamp, P. (2020). 'Natural disasters as a development opportunity: a spatial economic resilience interpretation', *Review of Regional Research*, 40(2), 223–249.
- Boschma, R. (2015). 'Towards an Evolutionary Perspective on Regional Resilience', *Regional Studies*, 49(5), 733–751.
- Bristow, G., Healy, A. (2014). 'Regional Resilience: An Agency Perspective', *Regional Studies*, 48(5), 923–935.
- Bristow, G., Healy, A. (2020). 'Introduction to the handbook on regional economic resilience', in *Handbook on Regional Economic Resilience*, Edward Elgar Publishing, 1–8, Viewed 11 April 2024, <https://www.elgaronline.com/abstract/edcoll/9781785360855/9781785360855.00005.xml>.
- Chlebna, C., Martin, H., Mattes, J. (2023). 'Grasping transformative regional development – Exploring intersections between industrial paths and sustainability transitions', *Environment and Planning A: Economy and Space*, 55(1), 222–234.
- Chu, H., Hassink, R. (2022). 'Regional Clusters', in *Oxford Bibliographies in Urban Studies*, New York:Oxford University Press, Viewed 2 November 2023, <https://www.oxfordbibliographies.com/display/document/obo-9780190922481/obo-9780190922481-0058.xml>.
- Crespo, J., Suire, R., Vicente, J. (2014). 'Lock-in or lock-out? How structural properties of knowledge networks affect regional resilience', *Journal of Economic Geography*, 14(1), 199–219.
- Delgado, M., Porter, M.E. (2021). 'Clusters and the Great Recession', *SSRN Electronic Journal*, Viewed 30 March 2024, <https://www.ssrn.com/abstract=3819293>.
- Dyba, W., Strykiewicz, T., De Marchi, V. (2020). 'Knowledge sourcing and cluster life cycle - a comparative study of furniture clusters in Italy and Poland', *European Planning Studies*, 28(10), 1979–1998.
- Evenhuis, E. (2020). 'New directions in researching regional economic resilience and adaptation', in *Handbook on Regional Economic Resilience*, Edward Elgar Publishing, 69–86, Viewed 11 April 2024, <https://www.elgaronline.com/edcollchap/edcoll/9781785360855/9781785360855.00010.xml>.

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- Gong, H., Binz, C., Hassink, R., Trippl, M. (2022). 'Emerging industries: institutions, legitimacy and system-level agency', *Regional Studies*, 56(4), 523–535.
- Gong, H., Hassink, R., Tan, J., Huang, D. (2020). 'Regional Resilience in Times of a Pandemic Crisis: The Case of COVID-19 in China', *Tijdschrift Voor Economische En Sociale Geografie*, 111(3), 497–512.
- Gong, H., Yu, Z., Binz, C., Truffer, B. (2024). 'Beating the Casino: Conceptualizing an Anchoring-based Third Route to Regional Development', *Economic Geography*, 100(2), 107–137.
- Granovetter, M. (1985). 'Economic Action and Social Structure: The Problem of Embeddedness', *American Journal of Sociology*, 481–510.
- Gregson, N., Crang, M., Ahamed, F.U., Akter, N., Ferdous, R., Foissal, S., Hudson, R. (2012). 'Territorial Agglomeration and Industrial Symbiosis: Sitakunda-Bhatiary, Bangladesh, as a Secondary Processing Complex', *Economic Geography*, 88(1), 37–58.
- Henderson, J., Dicken, P., Hess, M., Coe, N., Yeung, H.W.-C. (2002). 'Global production networks and the analysis of economic development', *Review of international political economy*, 9(3), 436–464.
- Hess, M. (2004). "'Spatial" relationships? Towards a reconceptualization of embedded ness', *Progress in Human Geography*, 28(2), 165–186.
- Hu, X., Li, L., Dong, K. (2022). 'What matters for regional economic resilience amid COVID-19? Evidence from cities in Northeast China', *Cities*, 120, 103440.
- Kitsos, A., Carrascal-Incera, A., Ortega-Argilés, R. (2019). 'The role of embeddedness on regional economic resilience: Evidence from the UK', *Sustainability*, 11(14), 3800.
- Kitsos, T., Grabner, S.M., Carrascal-Incera, A. (2023). 'Industrial Embeddedness and Regional Economic Resistance in Europe', *Economic Geography*, 99(3), 227–252.
- Lawrence, M., Janzwood, S., Homer-Dixon, T. (2022). 'What is a global polycrisis', *Cascade Institute Technical Paper*, 4(2022), Viewed 11 April 2024, <https://cascadeinstitute.org/wp-content/uploads/2022/04/What-is-a-global-polycrisis-v2.pdf>.
- Lemke, L.K.-G., Sakdapolrak, P., Trippl, M. (2023). 'Unresolved issues in regional economic resilience: Conceptual ways forward', *Progress in Human Geography*, 47(5), 699–717.
- Li, L., Liu, S., Li, C., Zhang, P., Lo, K. (2022). 'What matters for regional economic resilience amid multi shock situations: structural or agency? Evidence from resource-based cities in China', *Sustainability*, 14(9), 5701.
- Martin, R. (2012). 'Regional economic resilience, hysteresis and recessionary shocks', *Journal of Economic Geography*, 12(1), 1–32.
- Martin, R., Sunley, P. (2003). 'Deconstructing clusters: chaotic concept or policy panacea?', *Journal of Economic Geography*, 3(1), 5–35.
- Martin, R., Sunley, P. (2011). 'Conceptualizing cluster evolution: beyond the life cycle model?', *Regional studies*, 45(10), 1299–1318.
- Martin, R., Sunley, P. (2015). 'On the notion of regional economic resilience: conceptualization and explanation', *Journal of Economic Geography*, 15(1), 1–42.
- Martin, R., Sunley, P. (2020). 'Regional economic resilience: Evolution and evaluation', in *Handbook on*

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*Regional Economic Resilience*, Edward Elgar Publishing, 10–35, Viewed 11 April 2024, <https://www.elgaronline.com/edcollchap/edcoll/9781785360855/9781785360855.00007.xml>.

Menzel, M.-P., Fornahl, D. (2010). 'Cluster life cycles—dimensions and rationales of cluster evolution', *Industrial and corporate change*, 19(1), 205–238.

Modica, M., Reggiani, A. (2015). 'Spatial economic resilience: overview and perspectives', *Networks and Spatial Economics*, 15, 211–233.

Parr, J.B., Hewings, G.J.D., Sohn, J., Nazara, S. (2002). 'Agglomeration and Trade: Some Additional Perspectives', *Regional Studies*, 36(6), 675–684.

Pike, A., Dawley, S., Tomaney, J. (2010). 'Resilience, adaptation and adaptability', *Cambridge journal of regions, economy and society*, 3(1), 59–70.

Suire, R., Vicente, J. (2014). 'Clusters for life or life cycles of clusters: in search of the critical factors of clusters' resilience', *Entrepreneurship & Regional Development*, 26(1–2), 142–164.

Sutton, J., Arcidiacono, A., Torrisi, G., Arku, R.N. (2023). 'Regional economic resilience: A scoping review', *Progress in Human Geography*, 47(4), 500–532.

Sutton, J., Arku, G. (2022). 'Regional economic resilience: towards a system approach', *Regional Studies, Regional Science*, 9(1), 497–512.

Tan, J., Hu, X., Hassink, R., Ni, J. (2020). 'Industrial structure or agency: What affects regional economic resilience? Evidence from resource-based cities in China', *Cities*, 106, 102906.

Tan, J., Lo, K., Qiu, F., Liu, W., Li, J., Zhang, P. (2017). 'Regional economic resilience: Resistance and recoverability of resource-based cities during economic crises in Northeast China', *Sustainability*, 9(12), 2136.

Tooze, A. (2022). 'Welcome to the world of the polycrisis', *Financial Times*, 28(10), 2023.

Uzzi, B. (1997). 'Towards a network perspective on organizational decline', *International journal of sociology and social policy*, 17(7/8), 111–155.

Wei, Y.H.D. (2015). 'Network Linkages and Local Embeddedness of Foreign Ventures in China: The Case of Suzhou Municipality', *Regional Studies*, 49(2), 287–299.

Xiao, J., Boschma, R., Andersson, M. (2018). 'Industrial Diversification in Europe: The Differentiated Role of Relatedness', *Economic Geography*, 94(5), 514–549.

Yang, C., Fu, T. (2017). 'From exports to sell in China: transformation of the export-oriented furniture firms in the Pearl River Delta', *Geografiska Annaler: Series B, Human Geography*, 99(4), 380–398.

Yang, C., Fu, T., Li, L. (2017). 'Emerging Adaptation of Local Clusters in China in a Shifting Global Economy: Evidence from the Furniture Cluster in Houjie Town, Dongguan', *Growth and Change*, 48(2), 214–232.

Yeung, H.W. (2019). 'Rethinking mechanism and process in the geographical analysis of uneven development', *Dialogues in Human Geography*, 9(3), 226–255.

## Paper 2 From Smile Curve to Wicked Smile? On the Role of Digital Platforms to Empower Industries and Clusters in Emerging Economies

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# From Smile Curve to Wicked Smile? On the Role of Digital Platforms to Empower Industries and Clusters in Emerging Economies

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## Abstract

China's manufacturing sector is under a significant and multifaceted transformation due to the rise of digital platforms and the related burgeoning e-commerce. The paper aims to explore and dissect how digital platforms have impacted value chains and related clusters, by empirically studying three distinct and representative furniture clusters within this context. It draws upon the concept of the Smile Curve to provide insights into how platforms create and reconstruct value. It concludes that the phenomena observed distinctly manifest in the form of a "wicked smile", reflecting the challenge for emerging clusters to catch up in this rapidly evolving digital era.

**Keywords:** digital platforms, China, furniture industry, clusters, smile curve, wicked smile

## 1 Introduction

China has long been renowned as the "world's factory," serves as a prominent example within the emerging economies, primarily functioning as a manufacturing hub. The country has witnessed flourishing labor-intensive economic activities, such as garment, furniture, and electronics assembly sectors, under the framework of foreign direct investment and an export-oriented economy (Kroeber, 2016; Naughton, 2018; Zhang, 2006). Playing a crucial role in the global value chain (GVC) and related international division of labor, China is not only the world's largest exporter of manufactured goods but also a significant producer of raw materials and intermediate goods. With the integration of the global economy, China's manufacturing sector has become increasingly interconnected with the industrial chains of other countries around the world. In recent years, beyond its reputation as a manufacturing powerhouse, the rapid development of China's platform economy, particularly in the realm of e-commerce, has garnered significant attention. China hosts the largest e-commerce market globally, featuring the most diverse array of e-commerce platforms (Hardaker & Zhang, 2023; MarketingFuture.com, 2020; The Economist, 2021). The ecosystem of Chinese e-commerce and service platforms is rich and varied, covering multiple domains from automobiles and real estate to fresh produce, fashion, and maternal and infant products, with differentiation catering to various market segments. For instance, platforms like Renren Car specialize in automobile sales, Lianjia in

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real estate, VIP.com in fashion products, Mia.com in maternal and infant products, Meiri Youxian in fresh produce, and NetEase Kaola in imported goods. Besides these product-specific platforms, generalist platforms such as JD.com, Tmall, Taobao, and Pinduoduo cater to a spectrum from high-end to low-end markets. These platforms have not only impacted the domestic market in China but also, notably, players like Shein, Temu, and TikTok have exerted a significant influence beyond China, even on a global scale. Through these platforms, Chinese manufacturing clusters have directly accessed the global market to generate profits, with Shein alone accounting for nearly one-fifth of the global fast-fashion market in 2022, surpassing giants such as Zara and H&M (Masters, 2023). The platforms not only alter the shopping experience but also fundamentally reconstruct the entire value chains of products. They not only create new value chains and networks, but also transform the structure and organization of existing ones (Howson et al., 2022; Yang, 2022). This shift signifies a profound change in how value is created, distributed, and captured in the digital age, reflecting the increasing dominance of platform-based business models in reshaping economies, industries and clusters in many parts of the world.

However, the geographies of these profound processes are complex and differentiated and are still under-researched among economic geographers. Relatedly, the intersection of economic geography and digital platform economy research can create very diverse and emerging research fields (Grabher & van Tuijl, 2020; Kenney & Zysman, 2020). While some scholars critique the platform economy for "causing significant local disruption" (Davies et al., 2023, p. 250), others view digital platforms as enablers for the development of clusters or for fostering growth in otherwise lagging regions (Chu et al., 2023, 2024). In this paper, we are particularly interested in two aspects. First, it is imperative to analyze the transformation process of the platform on value creation and value extraction from the perspectives of value chain (Gereffi, 2017, 2019; Gereffi et al., 2005; Howson et al., 2022), which allows a deeper understanding on analyzing cross-regional power imbalances and the relationship between digital platforms and local development. Secondly, against the dual backdrop of late-coming manufacturing bases and platform empowerment, can platforms upgrade manufacturing clusters, contribute to local economic development, and facilitate their catch-up? Therefore, this paper aims to explore how digital platforms have impacted value chains and related clusters, with a particular emphasis on how e-commerce platforms have influenced the value chains and clusters within China's manufacturing sector, drawing upon the concept of the Stan's value curve, or Smile Curve, to frame this analysis (Shih, 1996).

The value smile curve was first introduced by Stan Shih, the founder of Acer, a Taiwanese computer company, around 1992 (Shih, 1996). This curve is often used to illustrate the added value of different segments within the production process of products or services (OECD, 2013). According to this concept, there is a significant variation in the potential for value addition across the entire value chain, with the manufacturing stage being the least likely to create value. Emerging economies that specialize in "factory" work may generate relatively lower added value, whereas industrialized economies with advanced talents and high-end technologies tend to produce greater added value. This suggests that industries and clusters in emerging economies should focus more on research and development, innovation, or place greater emphasis on marketing and customer proximity to achieve value chain upgrading, rather than solely

concentrating on production efficiency. Our research will examine China's furniture industry and three of its clusters, providing a comprehensive answer to how platforms create value and reconstruct different parts of the Smile Curve, ultimately leading to a differently shaped smile, which we coin "wicked smile". By exploring how platforms influence and restructure the Smile Curve, this paper aims to further discuss whether the development of digital platforms could empower emerging clusters within China and facilitate their catch-up.

The forthcoming section will delve into the concept of Smile Curve, and its application in stylized forms. Subsequently, we will shortly introduce the background of empirical research and the research design. Followed by the section 4 and 5, in which we explored the emergence of the "Wicked Smile" and the role of digital platforms in facilitating the upgrade and catching-up of the clusters, respectively, through aggregated and comparative studies of three furniture clusters in China. In conclusion, we will briefly summarize the research findings and discussions.

## 2 The Smile Curve and its application in stylized forms

The Value Smile Curve has gained substantial recognition and application within both the academic and industrial sectors (Meng et al., 2020; Shen et al., 2021). The crux of this concept is Shih's observation regarding the personal computer industry, the initial and final stages of the value chain—specifically, the design and marketing phases—contribute much more to the product's value than the manufacturing stage positioned in the middle. When graphically represented, with the Y-axis denoting added value and the X-axis indicating the production stages, the resultant curve mimics a "smile" (Figure 1).

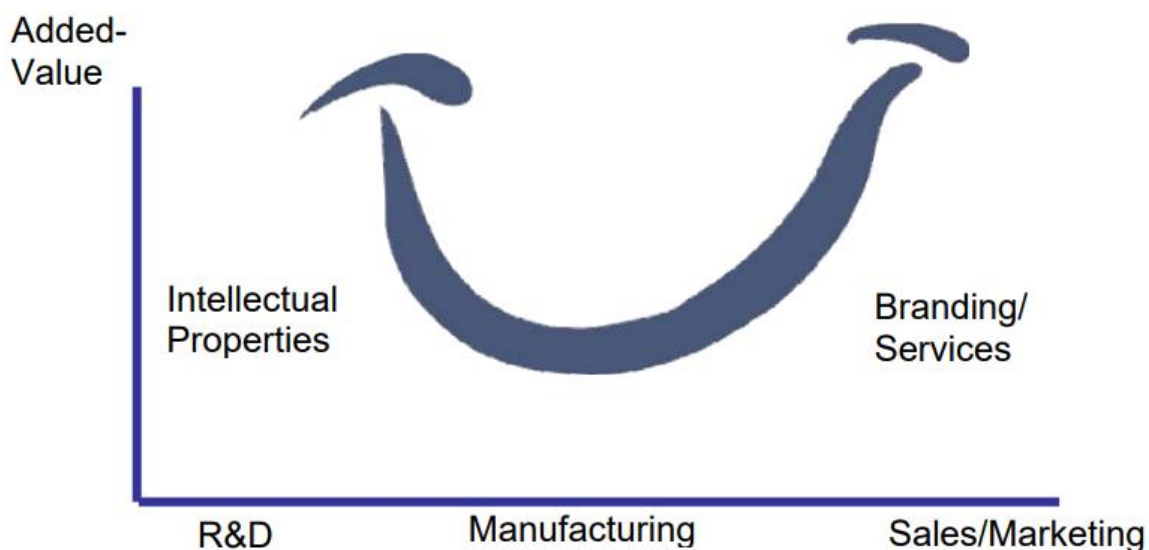


Figure 1: Stan Shih's Smiling Curve

Source: Shih, 2004, p. 92

Numerous empirical studies have validated this concept, affirming that the value chain curve indeed exhibits a U-shaped characteristic (Crescenzi & Harman, 2022; OECD, 2013; Stöllinger, 2021). While Shih's Smile Curve conceptual framework primarily addresses the concept of value added, it also underscores his interest in the sustainable incomes (value capture) that strategic companies can secure at all stages of the GVC, emphasizing profitability (Elms et al., 2013). This perspective highlights the strategic importance of positioning within the value chain and the potential for companies to optimize their role and contribution to

enhance value capture and ensure long-term profitability.

### The Application of the Value Smile Curve and Its Stylized Versions

Initially, the GVC framework was employed to elucidate the firm activities on global-scale. However, subsequent analyses have extended its application to explain how and why certain industrial districts and clusters benefit from globalization while others do not (De Propriis & Storai, 2019; Marchi et al., 2017). Similarly, while initially used to analyze firm's activities positioning within the value smile curve, the unit of analysis has expanded to include sectors, clusters, regions, or even countries (Elms et al., 2013; Fulop, 2023; Humphrey & Schmitz, 2002; Krugman, 1995; Mudambi, 2008; UNCTAD, 2019). Figure 2 illustrates the distribution of different locations along the Smile Curve and the potential for spillover or catch-up among different places. This adaptation of the GVC and Smile Curve frameworks to broader units of analysis reflects the complexities and intricacies of global economic integration. It underscores the necessity to consider a wide range of actors, from individual firms to national economies, in understanding the multifaceted evolution of the GVC. This conceptual expansion facilitates a deeper comprehension of the differential impacts of digital platforms and the strategic maneuvers entities can employ to face the challenges and seize the opportunities they present.

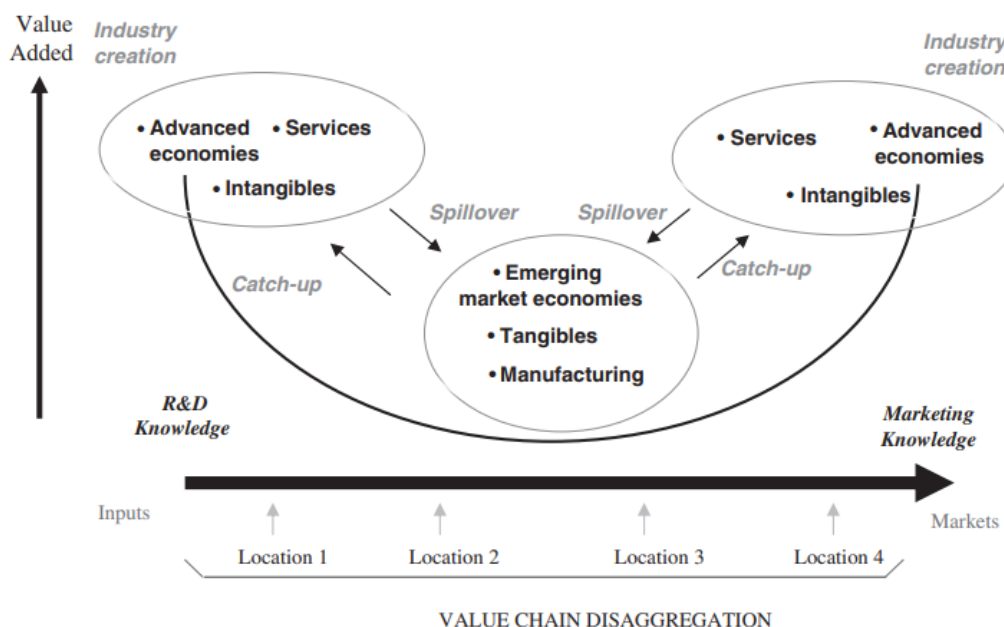


Figure 2: The smile—dynamic analysis

Source: Mudambi, 2008, p. 709

Beyond its application across various units and entities, many studies have discovered that the classical U-shaped "Smile Curve" represents an idealized state and can undergo several alterations under different circumstances. For instance, variations such as the "Inverted Smile Curve," "Grieving Curve," "Crying Curve," "Inverted U Shape," or "Smirking Smile" have been identified (Baldwin & Ito, 2021; Buckley & Verbeke, 2016; Giunta et al., 2012; Rehnberg & Ponte, 2018, 2018; Shen et al., 2021). A common observation is that, compared to the 1970s, the Smile Curve has become "deeper" in the 21<sup>st</sup> Century (Figure 3). Due to the intensification of production competition and related lower barriers to entry, bargaining power and profit margins have diminished for manufacturers. Relatedly, the value added at the initial (R&D, design) and final (marketing, after-sales services) stages of the production process has significantly increased, rendering these stages more profitable compared to the actual manufacturing phase. This evolution underscores the escalating significance of innovation, brand, and customer service in the global economy, highlighting a strategic shift



towards areas that confer a competitive edge in an increasingly interconnected and competitive marketplace.

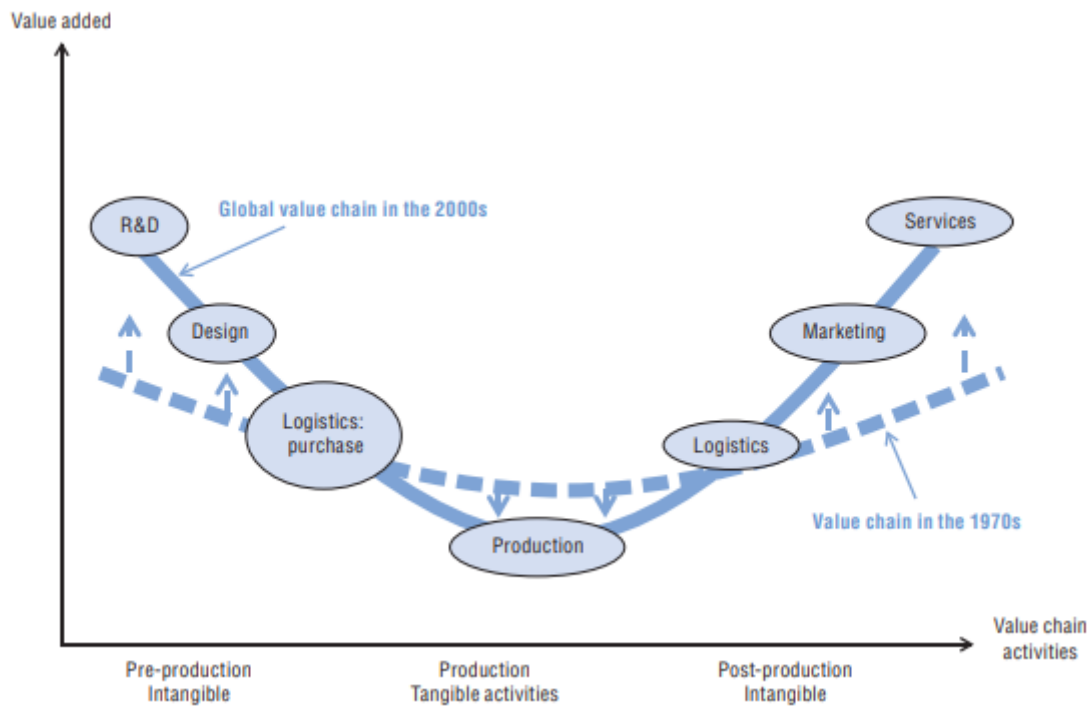


Figure 3: The smiling curve: Value added along the GVC

Source: OECD, 2013, p. 214

Newer versions of the smile curve have transcended the firm-centric limitations, moving towards a sensitivity to geographical variables and a focus on unveiling regional impacts. This broader perspective allows for a more nuanced understanding of how value is created, distributed, and captured across the globe, highlighting the importance of location, regional strengths, and policies in shaping the dynamics of global trade and value chains (Di Maria et al., 2019).

Moreover and importantly, through intermediation and the application of data, digital platforms are increasingly influencing the organization of economic activities (Kenney & Zysman, 2016, 2020). They "platformize" many offline elements such as brands, place-making, and transaction venues, replicating existing power structures and relationships, while also creating new relationships and institutions (Barns, 2019; Graham, 2020; Wichmann et al., 2022). Most of the current research on such platforms has concentrated on transportation, digital labor, and accommodation, with a focus on the new digital value chains introduced by platforms (Ferreri & Sanyal, 2018; Grabher & van Tuijl, 2020; Howson et al., 2022; Stabrowski, 2017). The impact and transformation of e-commerce platforms on traditional manufacturing value chains have been significantly overlooked, with few exceptions noted (Foster & Graham, 2017; Yang, 2022). Therefore, in the following sections, we will take China's furniture industry as an example to analyze the impact of e-commerce platforms on three furniture industry clusters in China. This will allow for an investigation into the effects of digital platforms on value distribution among the smile curve and value chain and explore their capability to empower the upgrading and catching up of clusters and regions.

### 3 Empirical Background and Research Design

The establishment of Alibaba in 1999 marked the nascent stage of the e-commerce sector in China, which was relatively late. The SARS epidemic in 2003 catalyzed rapid development in e-commerce as individuals began to prefer online shopping to minimize going out. From 2011 to the present, the widespread adoption

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of smartphones and advancements in mobile internet technologies have made mobile payment methods such as WeChat Pay and Alipay mainstream in China, further accelerating the growth of e-commerce. The emergence of social commerce and live streaming platforms (half-e-commerce platforms) (Chu et al., 2023), such as Pinduoduo, Douyin (TikTok), and Kuaishou, has diversified e-commerce models in recent years. Concurrently, cross-border e-commerce has also seen rapid development, offering Chinese enterprises new avenues to enter international markets.

As mentioned in the introduction, in the past, many of China's manufacturing industries operated under the "three to come, one to complement" model, with both ends of the value chain—research and development (R&D) and sales/branding—largely located outside China. However, as Chinese manufacturers transitioned from Original Equipment Manufacturer (OEM) roles to Original Design Manufacturer (ODM) and Own Brand Manufacturer (OBM) roles, they have gradually ascended the value curve (Chen et al., 2016; Rein & Roberts, 2016). In recent years, the rise of several national brands has squeezed some foreign brands out of the market, while many low-end manufacturing industries have begun to spill over into Southeast Asian countries (Rein, 2014). Through the lens of China's furniture industry and three of its clusters, the remaining part of this section will analyze the potential for digital platforms to redefine value creation and distribution as well as to reshape the smile curve. We will first provide a concise overview of the contextual background of the empirical case studies, alongside our research method and data. Subsequently, we will undertake an analysis of how e-commerce platforms reshape the manufacturing Smile Curve, by aggregating information from three cases. Finally, through a comparative analysis of these three cases, we will explore the capability of e-commerce platforms to empower emerging and mature clusters within China.

### **Three cases and the fieldwork**

We chose the furniture manufacturing industry for the following two reasons: On the one hand, since around 2000, China's furniture industry and furniture export industry have grown rapidly (Drayse, 2008; Epede & Wang, 2022). China currently holds the position as the world's largest producer and exporter of furniture, in addition to having the largest furniture consumer market (Lin et al., 2019; Yang et al., 2017). However, from the perspective of the global industrial chain, it lacks renowned global furniture brands, consistently occupying the lower tiers of the GVCs (Lin et al., 2019). Secondly, since it is a highly globalized industry, it has been well researched from a buyer-driven GVC perspective (Dyba et al., 2020; Epede & Wang, 2022; Navas-Aleman, 2011). Our study is based on three furniture industry clusters in China Shunde, Nankang and Suining<sup>1</sup>, in the era of platform economy and the background of China's developed e-commerce, all three clusters are trying to develop and explore their own offline and online furniture industries (Furniture industry and Furniture e-commerce industry). We selected these three cases due to the significant differences from each other and each has distinctive characteristics. The furniture industry cluster in Shunde District began in the 1980s and has become the most important source of Chinese furniture for both domestic and international markets. In contrast, the furniture industry cluster in Suining County emerged much later, namely in 2006, and is the most renowned furniture cluster empowered by the Taobao e-commerce platform (Chu et al., 2024; Zeng et al., 2015). The Nankang cluster is the second largest furniture cluster besides Shunde in China, partly as a result of the spillover and transfer of the Shunde furniture cluster, but it is already far ahead of Shunde in terms of wooden furniture. To fully understand the GVCs of furniture, the backward and forward linkages among the value chain and the various actors and activities in the furniture industry network, one of the authors completed a four-month field-work from August to December 2022. The following Table 1 shows

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<sup>1</sup> They are located in Shunde District, Foshan City, Guangdong Province; Nankang District, Ganzhou City, Jiangxi Province; and Suining County, Xuzhou City, Jiangsu Province, respectively.

the main interviewees during the four-month field-work.

Table 1: Data collection: fieldwork and in-depth interviews

Three Cases		Shunde	Nankang	Suining
<b>Formal interviews (69)</b>	<b>Government</b>	1	4	6
	<b>Companies (CEO or COO)</b>	13 (2 media, 11 furniture)	12 (1 logistics, 1 raw material, 10 furniture)	8 (1 logistics, 1 raw material, 6 furniture)
	<b>Employees</b>	5 (4 live-streaming hosts, 1 HR)	4 (2 live-streaming hosts, 1 HR, 1 manager)	3 (1 live-streaming host, 2 worker)
	<b>Associations</b>	2	3	1
	<b>Platforms</b>	2	1	1
	<b>University</b>	1	1	1
<b>Informal interviews (14)</b>		6	6	2
<b>In total (83)</b>		30	31	22

Source: authors' compilation

## 4 From Smile Curve to Wicked Smile: Aggregating the three cases

In this section, we will illustrate the restructuring of the Smile Curve in the furniture industry through aggregating information from the three case studies. As previously introduced, the initial research and development (R&D) and the final sales and service stages tend to capture the highest added value, whereas the added value of the production segment is comparatively lower. However, the emergence of digital platforms has decreased the value of economic activities in the pre-production and production stages while increasing the value of economic activities in the post-production phase. As the post-production phase is the most directly affected by e-commerce platforms, the following will explore how digital technologies have facilitated novel avenues for value creation and capture from the right (Marketing and services), middle (Production) and the left (Design and R&D) part, thereby transforming traditional value chains and reshaping the smile curve into a wicked smile (Figure 5).

### 4.1 Marketing and services: match makers and market makers

In traditional industries, value is generated through the resource logic of 'making things' (with assets) (Grabher & van Tuijl, 2020, p. 1009). This is the same in traditional furniture production and value-added process, in which raw materials such as wood, rattan, and other natural resources are processed or transformed into semi-finished materials to be created into finished furniture products with higher value-added benefits. Conversely, the value creation in platform economy is based on the network effects and 'making matches' (within a crowd) (Grabher & van Tuijl, 2020, p. 1009), which is more exemplified by e-commerce furniture industry. Our research underscores that the furniture e-commerce not only enhances the efficiency of matches as a sales booster but also changes in creating, connecting, and pre-ordering market demand across both temporal and spatial dimensions.

**Sales booster (Direct and broader reach; reduced costs; convenience; scalability)**

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The e-commerce could be regarded as a more efficient model of selling furniture compared to traditional offline approaches, which is attributed to several key advantages: First, digital platforms offer a direct and broader reach. Their powerful "disintermediation" capability allow suppliers direct engagement with a wider group of consumers (Wigand, 2020). Unlike traditional brick-and-mortar stores, online platforms are less constrained by geographical limitations. Secondly, there is a reduction in sales costs. E-commerce platforms can significantly lower the time and financial costs associated with setting up physical distribution channels and brick-and-mortar stores, including expenses such as rent, utilities, decoration fee of furniture store and in some instances, staffing costs. Thirdly, the characteristics of convenience, personalization, and seamless transactions provide the convenience of shopping from anywhere at any time, utilize customer data to offer personalized recommendations, and thereby devise more effective sales strategies. This increases shopping frequency and conversion rates. Fourthly, scalability allows suppliers a significant increase in transactions without a corresponding rise in costs, facilitating rapid business expansion.

Leveraging these advantages, e-commerce platforms have significantly enhanced transaction efficiency even in industries involving large items and durable goods (furniture sector). Durable goods, compared to fast-moving consumer goods, necessitate a higher demand for offline experiences due to their longevity. The larger size implies they are less suitable for e-commerce logistics and are more prone to damage during shipping:

*"E-commerce platforms are like productivity boosters ..... It's like the difference between old-school carpenters using hand tools and now using power drills when making the furniture. The tools have gotten an upgrade. Beating the competition isn't always about being more skilled or better quality; sometimes, it's just having better tools. At their core, they make the selling process more efficient.....they allow manufacturers to reach thousands or even more customers at once, rather than just one-on-one sales. Back in the day, if a brand wanted to go big, they'd have to spend a ton of money and time setting up dealerships in every city and province. Sometimes, even after a year or two, they might not succeed. But now, with online platforms, an online brand can blow up overnight, selling what they used to in a whole year" (Nankang, Entrepreneur 1).*

### **Creating/connecting markets (spatially) and pre-ordering markets (timely)**

On the one hand, platforms serve as marketplaces, in which they act as sales boosters for furniture producers through match-making. This efficient and convenient model is gradually encroaching upon offline markets, leading to the closure of many furniture hall, center and exhibitions. On the other hand, beyond capturing market share from traditional furniture market demand, platforms can also be market makers, creating, connecting, and pre-ordering market demands beyond the original offline market. Although Drahoukoupil and Vandaele (2021, p. 1) assert that "Platform companies are market makers," the full potential of platforms to create, connect, and pre-ordered demand has not been thoroughly explored and demonstrated (Frenken et al., 2020). Our empirical information partially fills this gap.

First, offline brick-and-mortar stores often fail to reach some remote and underdeveloped areas where residents have lower incomes, weaker purchasing power and lack the third industry. These "sinking markets (Xiacheng Shichang, 下沉市场)"<sup>2</sup> have become accessible through e-commerce platforms when the platform ecosystem, mainly internet access and the establishment of e-commerce logistics services, has improved.

The popularity of Pinduoduo in China serves as a prime example. *"Why did Pinduoduo become so popular?"*

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<sup>2</sup> The concept of "sinking markets" refers to underserved or overlooked segments, typically in less developed or rural areas with lower-income populations (such as the third, fourth and fifth tier cities in China) (Jiang, 2023). These markets are characterized by their limited access to traditional retail and services.

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*Through the internet, it reached sinking markets, people there even think knock-offs are great. Factory-made furniture is way better than trying to nail together a few pieces of wood to make a bench or table on your own,"* remarked a leader of an e-commerce association in Suining. Platforms like Pinduoduo and its international version, Temu, targeting lower-end consumer groups, are based on this logic to create or connect market demands that did not exist in offline modes before. This approach has opened up new avenues for economic activity in areas that were previously considered unviable for traditional retail, demonstrating the transformative potential of digital platforms in bridging market gaps and fostering inclusivity in economic participation. It is important to note that the spatial expansion facilitated by platforms is not limitless. Factors such as digital territory, language barriers, and regulatory environments often impose constraints (Morris, 2023).

Secondly, e-commerce platforms employ strategies such as pre-sales, pre-orders, subscription services, and loyalty programs to facilitate "pre-ordering future markets." These tactics encourage consumers to commit to purchases well before the actual need arises. In recent years, some half- e-commerce platforms have enhanced this approach through algorithms and personalized recommendations, engaging users for impulse buying:

*"Let me give you a real-life example from my family. My wife bought five boxes of laundry detergent from TikTok live streams, and my mom got three boxes. Same brand, different prices, can you imagine how long it's going to take to use up all that detergent?"* (Suining, Government officer 1)

*"Algorithms actually know what you need better than you do. If you've been watching videos about prenatal care lately, soon you'll get ads for diapers and baby cribs. Fast forward a year or two, and you'll be seeing push walkers. A few more years and they'll suggest what your kid might need for preschool. These platforms basically predict and pre-book your future shopping list"* (Shunde, Platform manager 1).

Despite the fact that, as a durable consumer product and a large item, there are fewer impulse purchases in furniture sales, the e-commerce platforms not only secure immediate furniture sales and expanded the market spatially but also significantly influence and predict future consumer behavior, thereby creating a more predictable market and effectively pre-ordering it.

#### **4.2 Production: race to the bottom**

Similar to the impact of globalization on the value smile curve, e-commerce platforms open markets to a wider array of competitors, intensifying competition and leading to a decline in furniture manufacturers' profit margins.

*"All products are displayed on the platform, eliminating all intermediaries. Consumers can compare furniture from different sellers without leaving their homes, which definitely reduces the advantages that manufacturers used to have. With completely transparent pricing, local offline retailers who charge more than online prices will undoubtedly struggle to make sales. Some first-movers made a lot of money before the online market was well developed, but it has become difficult to earn after the onset of price wars"* (Nankang, E-commerce association leader).

This observation reveals that platforms not only intensify competition in the labor market but also among producers, fostering a "race to the bottom" (Edelman, 2015). Such competition heightens price sensitivity, which is detrimental to the development of product quality (Butollo & Schneidmesser, 2021; Zeng et al., 2019). This aspect will be discussed in greater detail in the following section.

#### **4.3 Design and R&D: innovation OR violation**

E-commerce platforms often emphasize price as the primary competitive factor, where lower-priced furniture

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tend to receive more sales and reviews, thus ranking higher in platform listings. This model does not encourage innovation in furniture design and development. Secondly, even if some furniture producers focus on R&D and design, their designs are easily copied due to the limited protection of intellectual property rights on e-commerce platforms in China. In the furniture industry, an industry with low barriers to entry, patents can be broadly categorized into design patents and technical or material invention patents. The former is more intuitive and common, while the latter is rarer and less frequent. This leads to a prevalence of copying within the furniture industry:

*"Say you've got a new furniture design and you patent it. If I wanted to design something, I might make it a bit lighter, use a different material, maybe change up the legs a bit or turn sharp edges into angled ones. Or if you angle something at 60°, I might just tweak that angle a bit, and I'd be good to go." (Nankang, Designer 1)*

The majority of consumers purchasing furniture on platforms tend to prioritize cost-effectiveness over unique appearances. Furthermore, even if some manufacturers genuinely design novel furniture, it can be copied by countless other manufacturers in a very short time. Often, what is termed "innovation" is actually a form of "violation."

In this context, it is not surprising that some furniture producers in China have transitioned from being Original Design Manufacturers (ODM) to Original Equipment Manufacturers (OEM), effectively representing a downgrade in the value chain (Yang & Fu, 2017). This change reflects the competitive pressures and challenges of sustaining innovation and brand differentiation within e-commerce platforms, where the emphasis on price and the ease of imitation discourage investment in design and innovation.

#### **4.4 Platforms Rentier Capitalism**

As stated by Watson and Leyshon (2022, p. 330), "in many markets, platforms seek entry to take advantage of their ability to become key intermediaries in multi-sided markets, to become rentiers of the network". By altering the methods of data production, sharing, and utilization, digital platforms are instigating a new wave of rentier capitalism. As the creator and regulator of new markets, the capacity of the platform does not reside in the ownership of specific tangible assets but rather in the capability and responsibility to circumvent ownership (Grabher & van Tuijl, 2020). They define digital platforms as "programmable digital infrastructures controlled by platform operators who, as non-neutral intermediaries, curate the interactions of interdependent complementors and users" (2020: 1008). Although our evidence comes from the furniture industry, the reality is that in this transformation, platforms have not only become leading players in the digital value network, but have also made significant profits across the various value chains:

*"Platforms just fuel these 'price wars' between furniture sellers. They don't care who wins; they just make money by selling traffic and data. We're all just working for the platform" (Shunde, Entrepreneur 1).*

*"There are a million ways platforms play the traffic and algorithms game. It's not just about getting more views by putting in money. You also need to buy their data analysis tools and services, tracking metrics like how many times people watch, click, conversion rates, and get an overview of customer profile" (Shunde, Entrepreneur 2).*

Leveraging their roles as market makers and match makers, platforms can create information asymmetries with platform users (including manufacturers and sellers), establishing themselves as central gatekeepers. They monopolize data, extracting transaction fees, service fees, etc., from the interactions of all participants. According to the aggregated information gathered from three cases, we can map the different activities within the furniture industry value chain and the main actors involved (see Figure 4). It becomes evident that while platforms generate significant value, they also capture the majority of this value.

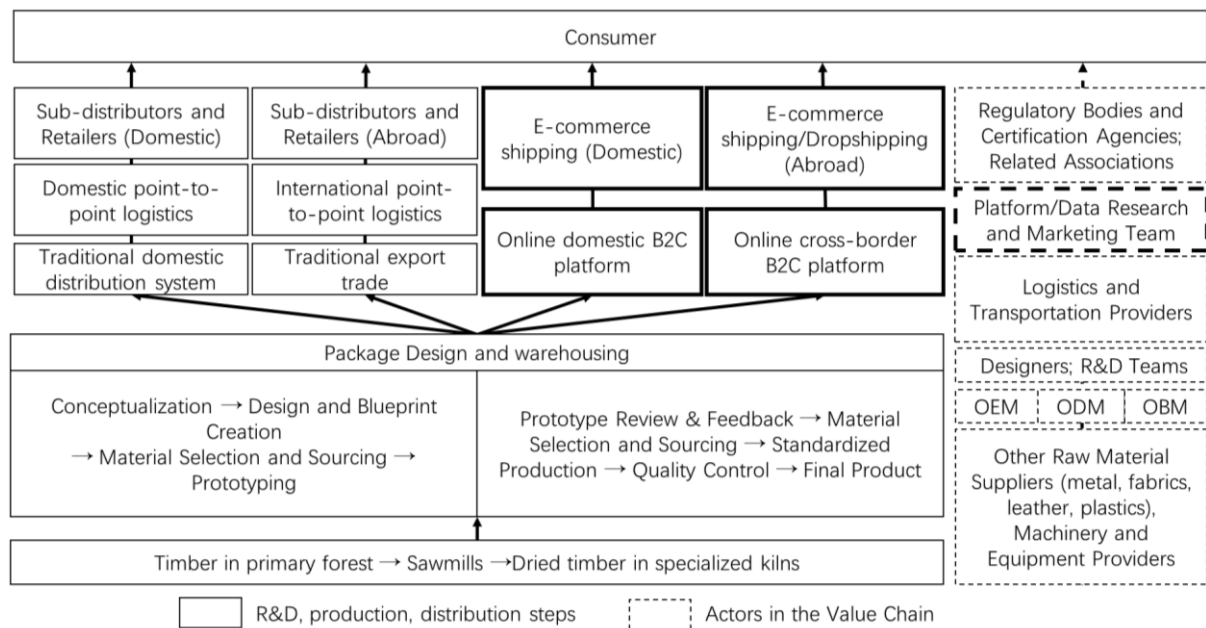


Figure 4: Activities and actors in the furniture industry value chain

Source: authors' compilation

Through the above analysis, we find that the traditional smile curve has changed. Although our analysis is specific to the furniture industry, this conclusion could be extended to most industries in the buyer-driven value chain. The transition from the traditional smile curve to the wicked smile encapsulates the profound transformation in value creation and capture mechanisms within the global economy. This evolution signifies a shift away from relying predominantly on physical asset utilization towards harnessing the power of connectivity and data analytics. In the digital age, value is increasingly generated and captured through the strategic use of digital platforms, which facilitate interactions, transactions, and the flow of information across global networks. The wicked smile curve highlights the growing significance of activities such as marketing and after-sales services, which leverage network effects and digital capabilities to create and capture value in new and dynamic ways. Moreover, the "wicked smile" further indicates that although e-commerce platforms create substantial value, they also capture the vast majority of this value (Parker et al., 2016). Additionally, their encouragement of a race to the bottom and the exclusion of R&D activities reduce the profitability of production, design, and R&D, making survival more challenging for these actors. These dynamics underscore the platforms' role not just as facilitators of commerce but also as dominant participants in the value chain, often at the expense of traditional manufacturers and innovators.

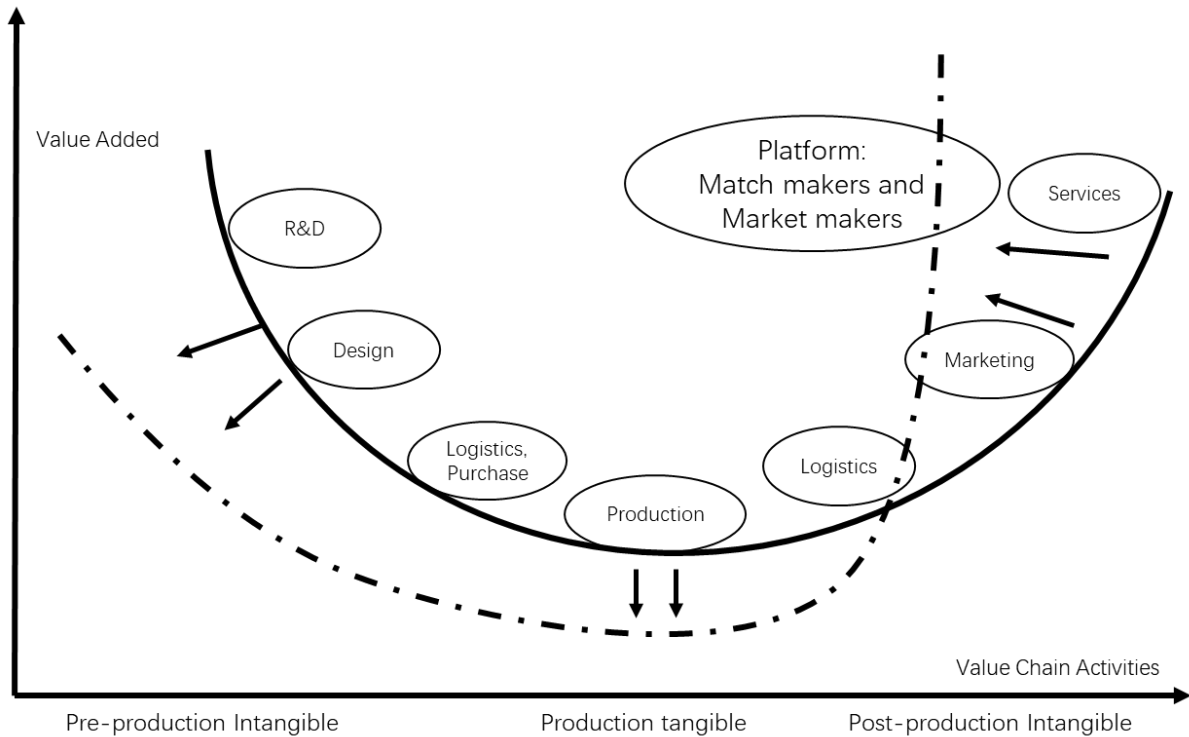


Figure 5: From Smile Curve to Wicked Smile in the Chinese Furniture Industry

Source: authors' compilation

## 5 Uneven impact on upgrading and catching-up: Comparing the three clusters

After exploring value chain transformation through aggregated information from the three clusters, we aim to understand the potential of e-commerce platforms to differently empower emerging and mature clusters by comparing the three cases. As indicated in Table 2, before the rise of e-commerce platforms, there was no furniture industry in Suining, whereas Shunde was already a very mature furniture industry cluster. Shunde was not only a hub for production and manufacturing but also the largest furniture trade cluster in China. Nankang, on the other hand, was mainly responsible for manufacturing and lacked high-value-added activities such as design and marketing. After the emergence of e-commerce platforms, the three clusters all seemed to upgrade by "symbiotic recoupling" the service sector (e-commerce) and manufacturing, reflecting the "servitizing/servitization" (De Propris & Storai, 2019). However, the reality is that platforms unevenly empower different clusters.

Shunde maintained its complete upstream and downstream industry chain, getting more and more stronger in the whole chain, while both Nankang and Suining began to engage in online post-production activities. However, due to its incomplete supply chain system and lack of talent, Suining has not yet covered activities in furniture design and R&D. Despite significant government support, the Nankang cluster has initiated some pre-production activities, yet its innovation capacity and motivation remain relatively limited. This is primarily because the furniture manufacturers lack substantial impetus for innovation, as reflected by the aforementioned "wicked curve." The emergence of digital platforms has discouraged the investment in design and innovation and diminished the value of pre-production activities.



Table 2: Comparison of the three clusters

Main activities of the cluster	Pre-production: R&D and design		Production		Post-production: Marketing and services	
	Past	E-commerce era	Past	E-commerce era	Past	E-commerce era
Shunde	√	√	√	√	√	√
Nankang	×	√	√	√	×	√
Suining	×	×	×	√	×	√

Source: authors' compilation

The impact of platforms on three clusters can be divided into two stages (initial and mature), and in both stages the three clusters react differently. In the initial stage, companies in the two mature clusters, Shunde and Nankang, have been skeptical of the new market and business model, leading to insufficient competition, which opened the windows of opportunity for emerging cluster, namely Suining, as it is free of legacy (Lee & Malerba, 2017). At this time, Shunde and Nankang often found it difficult to enter platforms due to the lock-in effect of their historical assets. This is manifested in two main aspects: Limitations of the traditional furniture dealer system and the existing brand reputation. For the former, the disintermediation effect of digital platforms and the race to the bottom prevent manufacturers from participating in the online market at low prices, as this could disrupt their existing partnerships and collaborations (e.g., with furniture retailers, wholesalers, distributors, and agents), infringing on the interests of their original B2B customers. For the latter, in the initial stages, platforms lack a definite, reasonable rating and regulatory system, leading to poor product quality on the platform. This causes mature clusters with brands to be reluctant to sell their products on platforms, fearing it would tarnish their brand.

*“When Taobao was just starting, furniture merchants in Shunde didn't really want to get into online sales. They thought stuff sold online was low-quality and that selling there would make their furniture look cheap and hurt the benefits of distributors/dealers. That's why the furniture cluster in Suining got a head start. But, once the Shunde sellers realized how big the online market was becoming, they could put in even more resources on marketing groups to dominate and occupy the online market, 'cause we had a stronger cluster foundation” (Shunde, E-commerce association leader).*

In the initial stage, the lock-in effect on mature clusters presents entry opportunities for emerging clusters like Suining. However, as platforms mature and governance improves, more manufacturers join the platform, and factories within mature clusters begin to recognize the vast potential of the online market and start to participate. At this point, the intensity of online competition increases, and consumer demands for cost-effectiveness rise, requiring online merchants and their clusters to have comprehensive supply chain and marketing capabilities. At this mature stage, the role of the historical legacy within mature clusters shifts from locking in to enabling, allowing these mature clusters to leverage their assets and regain their competitive edge.

This dynamic illustrates the paradoxical, varied, and uneven impacts that e-commerce platforms have on regional industry clusters. On the one hand, platforms have the potential to democratize access to markets and enable regions with no industry history to enter new sectors in the initial stage, which facilitates upgrading for clusters. On the other hand, based on the “wicked smile”, the completeness of the local supply chain and the availability of skilled talent are critical factors determining competitiveness when getting into the mature stage, which making it difficult for newly emerged clusters to catch up. Shunde's existing maturity in both production and trade has allowed it to retain its competitive edge, whereas Nankang and Suining have faced challenges in moving beyond manufacturing to incorporate design and innovation, as digital platforms

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only help them to connect to the market but cannot improve their capabilities and competitiveness directly. These results reflect the geographical imbalance in the platform's ability to empower cluster upgrading. Even though it is possible for all three platforms to "upgrade" (i.e., incorporate more post-production activities), as mentioned in the previous section, the majority of the profits from this process are captured by the platforms. Therefore, in reality, platforms may not effectively facilitate the catch-up for emerging clusters.

## 6 Conclusions and Discussions

This paper proposes that digital platforms not only displace traditional market interactions but also innovate by generating new forms of demand and market structures, potentially reshaping economic landscapes in ways yet to be fully understood. To further understand the mechanisms in this process, we have explored with a typical buyer-driven furniture industry to investigate the reconfiguration of furniture value chains brought about by digital platforms, especially e-commerce platforms, and further investigate its differentiated impact on clusters. We discovered that the value chain manifests in the form of a "wicked smile," indicating that platforms capture the majority of the value in the digital platform era, often at the expense of the devaluation of traditional manufacturers and the R&D sector. Comparative studies across clusters highlight the challenges that emerging clusters face in catching up during this rapidly evolving digital era, although it can be empowered for upgrading.

This research also contributes to a nuanced understanding of the evolving dynamics of GVCs and the role of digital platforms in facilitating the transition of manufacturing sectors from mere production units to entities with significant control over branding, marketing, and distribution. Global platforms originating from China are pivotal in addressing domestic challenges of oversupply and inadequate demand in China. Nonetheless, the potential of the platform economy to facilitate China's sustainable competition and catch-up, up at the national and global levels, remains uncertain. Our case studies focus exclusively on the furniture industry clusters within China, future research could transcend the cluster scale to examine the impacts of digital platforms at national and global levels. Moreover, whether the "wicked smile" transformation phenomenon is observable in other sectors across various other emerging economies warrants broader, more in-depth inquiry.

## References

- Baldwin, R., & Ito, T. (2021). The smile curve: Evolving sources of value added in manufacturing. *Canadian Journal of Economics/Revue Canadienne d'économique*, 54(4), 1842–1880. <https://doi.org/10.1111/caje.12555>
- Barns, S. (2019). Negotiating the platform pivot: From participatory digital ecosystems to infrastructures of everyday life. *Geography Compass*, 13(9), e12464. <https://doi.org/10.1111/gec3.12464>
- Buckley, P. J., & Verbeke, A. (2016). Smiling and crying curves in international business. *International Business Review*, 25(3), 749–752. <https://doi.org/10.1016/j.ibusrev.2016.01.014>
- Butollo, F., & Schneidmesser, L. (2021). Beyond “Industry 4.0”: B2B factory networks as an alternative path towards the digital transformation of manufacturing and work. *International Labour Review*, 160(4), 537–552. <https://doi.org/10.1111/ilr.12211>

- 
- Chen, D., Wei, W., Hu, D., & Muralidharan, E. (2016). Survival strategy of OEM companies: A case study of the Chinese toy industry. *International Journal of Operations & Production Management*, 36(9), 1065–1088. <https://doi.org/10.1108/IJOPM-04-2015-0212>
- Chu, H., Hassink, R., & Liu, W. (2024). Exploring the mechanisms of platform empowered cluster development: Evidence from the case of Taobao villages in rural China. *Regional Studies*, 0(0), 1–15. <https://doi.org/10.1080/00343404.2024.2306330>
- Chu, H., Hassink, R., Xie, D., & Hu, X. (2023). Placing the platform economy: The emerging, developing and upgrading of Taobao villages as a platform-based place making phenomenon in China. *Cambridge Journal of Regions, Economy and Society*, 16(2), 319–334. <https://doi.org/10.1093/cjres/rsad004>
- Crescenzi, R., & Harman, O. (2022). *Climbing up global value chains: Leveraging FDI for economic development*. Hinrich Foundation Report.
- Davies, A., Donald, B., & Gray, M. (2023). The power of platforms—Precarity and place. *Cambridge Journal of Regions, Economy and Society*, 16(2), 245–256. <https://doi.org/10.1093/cjres/rsad011>
- De Propriis, L., & Storai, D. (2019). Servitizing industrial regions. *Regional Studies*, 53(3), 388–397. <https://doi.org/10.1080/00343404.2018.1538553>
- Drahokoupil, J., & Vandaele, K. (Eds.). (2021). *A Modern Guide To Labour and the Platform Economy*. Edward Elgar Publishing. <https://doi.org/10.4337/9781788975100>
- Drayse, M. H. (2008). Globalization and regional change in the US furniture industry. *Growth and Change*, 39(2), 252–282. <https://doi.org/10.1111/j.1468-2257.2008.00419.x>
- Dyba, W., Strykiewicz, T., & De Marchi, V. (2020). Knowledge sourcing and cluster life cycle—A comparative study of furniture clusters in Italy and Poland. *European Planning Studies*, 28(10), 1979–1998. <https://doi.org/10.1080/09654313.2019.1701996>
- Edelman, B. (2015). Whither Uber?: Competitive Dynamics in Transportation Networks. *Competition Policy International*, 11(1), 30–37.
- Elms, D. K., Low, P., World Trade Organization, & Temasek Foundation (Eds.). (2013). *Global value chains in a changing world*. World Trade Organization.
- Epede, M. B., & Wang, D. (2022). Competitiveness and upgrading in global value chains: A multiple-country analysis of the wooden furniture industry. *Forest Policy and Economics*, 140, 102737. <https://doi.org/10.1016/j.forpol.2022.102737>
- Ferreri, M., & Sanyal, R. (2018). Platform economies and urban planning: Airbnb and regulated deregulation in London. *Urban Studies*, 55(15), 3353–3368. <https://doi.org/10.1177/0042098017751982>
- Foster, C., & Graham, M. (2017). Reconsidering the role of the digital in global production networks. *Global Networks*, 17(1), 68–88. <https://doi.org/10.1111/glob.12142>
- Frenken, K., Vaskelainen, T., Fünfschilling, L., & Piscicelli, L. (2020). An institutional logics perspective on the gig economy. In *Theorizing the sharing economy: Variety and trajectories of new forms of organizing* (pp. 83–105). Emerald Publishing Limited. <https://www.emerald.com/insight/content/doi/10.1108/S0733-558X2020000066005/full/html>
- Fulop, Z. (2023). Evolvement of Global Value Chain Positions in Central and Eastern European Countries: A New Dimension in Catching Up? *Central European Business Review*, 12(3), 47–80. <https://doi.org/10.18267/j.cebr.326>
- Gereffi, G. (2017). Global value chains in a post-Washington Consensus world. In *Global Value Chains and Global Production Networks* (pp. 9–37). Routledge. <https://www.taylorfrancis.com/chapters/edit/10.4324/9781315725321-2/global-value-chains-post->

- 
- washington-consensus-world-gary-gereffi
- Gereffi, G. (2019). Economic upgrading in global value chains. In *Handbook on Global Value Chains* (pp. 240–254). Edward Elgar Publishing. <https://www.elgaronline.com/display/edcoll/9781788113762/9781788113762.00022.xml>
- Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, 12(1), 78–104. <https://doi.org/10.1080/09692290500049805>
- Giunta, A., Nifo, A., & Scalera, D. (2012). Subcontracting in Italian Industry: Labour Division, Firm Growth and the North-South Divide. *Regional Studies*, 46(8), 1067–1083. <https://doi.org/10.1080/00343404.2011.552492>
- Grabher, G., & van Tuijl, E. (2020). Uber-production: From global networks to digital platforms. *Environment and Planning A: Economy and Space*, 52(5), 1005–1016. <https://doi.org/10.1177/0308518X20916507>
- Graham, M. (2020). Regulate, replicate, and resist—the conjunctural geographies of platform urbanism. *Urban Geography*, 41(3), 453–457. <https://doi.org/10.1080/02723638.2020.1717028>
- Hardaker, S., & Zhang, L. (2023). Chinas Wandel zur Konsumgesellschaft. In *In China: Geographien einer Weltmacht* (1. Aufl. 2023 edition, pp. 177–186). Springer.
- Howson, K., Ferrari, F., Ustek-Spilda, F., Salem, N., Johnston, H., Katta, S., Heeks, R., & Graham, M. (2022). Driving the digital value network: Economic geographies of global platform capitalism. *Global Networks*, 22(4), 631–648. <https://doi.org/10.1111/glob.12358>
- Humphrey, J., & Schmitz, H. (2002). How does insertion in global value chains affect upgrading in industrial clusters? *Regional Studies*, 36(9), 1017–1027. <https://doi.org/10.1080/0034340022000022198>
- Jiang, Y. (2023). The marketing strategy of enterprises for China’s sinking market under the trend of live e-commerce. *International Journal of Global Economics and Management*, 1(1), Article 1. <https://doi.org/10.62051/ijgem.v1n1.06>
- Kenney, M., & Zysman, J. (2016). The rise of the platform economy. *Issues in Science and Technology*, 32(3), 61.
- Kenney, M., & Zysman, J. (2020). The platform economy: Restructuring the space of capitalist accumulation. *Cambridge Journal of Regions, Economy and Society*, 13(1), 55–76. <https://doi.org/10.1093/cjres/rsaa001>
- Kroeber, A. R. (2016). *China’s Economy: What Everyone Needs to Know* (First Edition). Oxford University Press.
- Krugman, P. (1995). Growing World Trade: Causes and Consequences. *Brookings Papers on Economic Activity*, 26(1, 25th Anniversary Issue), 327–377.
- Lee, K., & Malerba, F. (2017). Catch-up cycles and changes in industrial leadership: Windows of opportunity and responses of firms and countries in the evolution of sectoral systems. *Research Policy*, 46(2), 338–351. <https://doi.org/10.1016/j.respol.2016.09.006>
- Lin, M., Zhang, Z., & Cao, Y. (2019). Forecasting Supply and Demand of the Wooden Furniture Industry in China. *Forest Products Journal*, 69(3), 228–238. <https://doi.org/10.13073/FPJ-D-19-00011>
- Marchi, V. D., Maria, E. D., & Gereffi, G. (2017). *Local Clusters in Global Value Chains: Linking Actors and Territories Through Manufacturing and Innovation* (1st ed.). Taylor & Francis Ltd.
- MarketingFuture.com. (2020). *Growth Opportunities for China e-Commerce in 2020*. MarketingFuture.Com. <https://www.marketingfuture.com/china-internet-news/growth-opportunities-for-china-e-commerce-in-2020/>
- Masters, K. (2023, December 13). How Shein outgrew Zara and H&M and pioneered fast-fashion 2.0.

- 
- Reuters. <https://www.reuters.com/business/retail-consumer/how-shein-outgrew-zara-hm-pioneered-fast-fashion-20-2023-12-13/>
- Meng, B., Ye, M., & Wei, S. (2020). Measuring Smile Curves in Global Value Chains. *Oxford Bulletin of Economics and Statistics*, 82(5), 988–1016. <https://doi.org/10.1111/obes.12364>
- Morris, C. (2023). ‘It would be smart to discuss this on telegram’: China’s digital territorialization project and its spatial effects on contentious politics. *Territory, Politics, Governance*, 11(6), 1081–1099. <https://doi.org/10.1080/21622671.2023.2183894>
- Mudambi, R. (2008). Location, control and innovation in knowledge-intensive industries. *Journal of Economic Geography*, 8(5), 699–725. <https://doi.org/10.1093/jeg/lbn024>
- Naughton, B. J. (2018). *The Chinese Economy (MIT Press): Adaptation and Growth* (2nd edition). MIT Press.
- Navas-Aleman, L. (2011). The Impact of Operating in Multiple Value Chains for Upgrading: The Case of the Brazilian Furniture and Footwear Industries. *World Development*, 39(8), 1386–1397. <https://doi.org/10.1016/j.worlddev.2010.12.016>
- OECD. (2013). *Interconnected Economies: Benefiting from Global Value Chains*. OECD. <https://doi.org/10.1787/9789264189560-en>
- Parker, G. G., Alstyne, M. W. V., & Choudary, S. P. (2016). *Platform Revolution: How Networked Markets Are Transforming the Economy - and How to Make Them Work for You* (Illustrated edition). WW Norton & Co.
- Rehnberg, M., & Ponte, S. (2018). From smiling to smirking? 3D printing, upgrading and the restructuring of global value chains. *Global Networks-A Journal of Transnational Affairs*, 18(1), 57–80. <https://doi.org/10.1111/glob.12166>
- Rein, S. (2014). *The End of Copycat China: The Rise of Creativity, Innovation, and Individualism in Asia* (1st edition). Wiley.
- Rein, S., & Roberts, B. (2016). *The End of Cheap China: Economic and Cultural Trends That Will Disrupt the World* (Unabridged edition). AUDIBLE STUDIOS ON BRILLIANCE.
- Shen, J. H., Deng, K., & Tang, S. (2021). Re-Evaluating the ‘Smile Curve’ in Relation to Outsourcing Industrialization. *Emerging Markets Finance and Trade*, 57(5), 1247–1270. <https://doi.org/10.1080/1540496X.2019.1694505>
- Shih, S. (1996). *Me - Too is Not My Style: Challenge Difficulties, Break Through Bottlenecks, Create Values*.
- Shih, S. (2004). *Millennium Transformation: Change Management for New Acer*. ASIAN Institute OF MANAGE.
- Stabrowski, F. (2017). “People as businesses”: Airbnb and urban micro-entrepreneurialism in New York City. *Cambridge Journal of Regions Economy and Society*, 10(2), 327–347. <https://doi.org/10.1093/cjres/rsx004>
- Stöllinger, R. (2021). Testing the Smile Curve: Functional Specialisation and Value Creation in GVCs. *Structural Change and Economic Dynamics*, 56, 93–116. <https://doi.org/10.1016/j.strueco.2020.10.002>
- The Economist. (2021, January 2). *The next big thing in retail comes with Chinese characteristics*. The Economist. <https://www.economist.com/business/2021/01/02/the-next-big-thing-in-retail-comes-with-chinese-characteristics>
- UNCTAD. (2019, January 16). *Economic development in a digital world: Prospects, pitfalls and policy options* [Text]. United Nations. <https://doi.org/10.18356/8309d66a-en>
- Watson, A., & Leyshon, A. (2022). Negotiating platformisation: MusicTech, intellectual property rights and third wave platform reintermediation in the music industry. *Journal of Cultural Economy*, 15(3),

- 
- 326–343. <https://doi.org/10.1080/17530350.2022.2028653>
- Wichmann, J. R. K., Wiegand, N., & Reinartz, W. J. (2022). The Platformization of Brands. *Journal of Marketing*, 86(1), 109–131. <https://doi.org/10.1177/00222429211054073>
- Wigand, R. T. (2020). Whatever happened to disintermediation? *Electronic Markets*, 30(1), 39–47. <https://doi.org/10.1007/s12525-019-00389-0>
- Yang, C. (2022). Cross-border expansion of digital platforms and transformation of the trade and distribution networks of imported fresh fruits from Southeast Asia to China. *Global Networks*, 22(4), 716–734. <https://doi.org/10.1111/glob.12352>
- Yang, C., & Fu, T. (2017). From exports to sell in China: Transformation of the export-oriented furniture firms in the Pearl River Delta. *Geografiska Annaler: Series B, Human Geography*, 99(4), 380–398. <https://doi.org/10.1080/04353684.2017.1365255>
- Yang, C., Fu, T., & Li, L. (2017). Emerging Adaptation of Local Clusters in China in a Shifting Global Economy: Evidence from the Furniture Cluster in Houjie Town, Dongguan. *Growth and Change*, 48(2), 214–232. <https://doi.org/10.1111/grow.12191>
- Zeng, Y., Guo, H., Yao, Y., & Huang, L. (2019). The formation of agricultural e-commerce clusters: A case from China. *Growth and Change*, 50(4), 1356–1374. <https://doi.org/10.1111/grow.12327>
- Zeng, Y., Qiu, D., Shen, Y., & Guo, H. (2015). Study on the formation of Taobao village: Taking Dongfeng village and Junpu village as examples. *Economic geography (JingjiDili)*, 35(12), 90-97. (In Chinese).
- Zhang, K. H. (2006). *China as the World Factory* (1st edition). Routledge.

## Paper 3 Market Coupling and Multi-Scalar Reorganizations in the Digital Platform Era: Evidences from Three Furniture Clusters in China

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# Market Coupling and Multi-Scalar Reorganizations in the Digital Platform Era: Evidences from Three Furniture Clusters in China

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## Abstract:

The ever-evolving digital platforms have revolutionized production, consumption, and lifestyles, restructuring the organization of global and national economic activities and triggering a new round of coupling strategies in regional clusters. To comprehensively understand the impact of platformization on traditional manufacturing, this paper employs an umbrella-like so-called Chain and Network Approach (CNA) to encompass various Chains and Networks (C&N) involved in industrial and cluster development, such as Global Commodity Chains, Global Value Chains, and Global Production Networks. As past economic geographers have largely overlooked the impact of digital platforms on C&N and the cluster, this article's primary aim is to investigate the influence of e-commerce platforms on manufacturing clusters and its various C&N. To address this question, this paper introduces the concept of "market coupling", as a crucial extension of strategic coupling, and explores its underlying mechanisms. The paper first classifies markets based on different forms of e-commerce platforms. Secondly, utilizing the diamond model, different CNAs, and multi-scalar perspectives, a theoretical framework for empirical analysis is derived. Thirdly, three furniture industry clusters in Shunde, Nankang and Suining in China are thoroughly examined and compared based on extensive qualitative research. The paper further outlines different forms of C&N under different market targeting, and investigates barriers to market coupling. Lastly, it contrasts offline C&N structures before the rise of e-commerce platforms with the new online C&N, exploring two forms of multi-scalar reorganization for market coupling: "Creating new elements" and "Adaptive transformation".

**Keywords:** Global production networks; Chains and networks; Strategic coupling; Market coupling; E-commerce

## 1 Introduction

Despite digital platforms reorganizing the geographical environment of capitalist accumulation at the macro, meso, and micro levels, their importance is still insufficiently recognized and addressed by economic geographers (Kenney et al. 2023). With the power of the Internet, digital platforms are both a new space for certain new industries activities (e.g. digital content industry, mobile games, live streaming industry, online retail, online hailing etc.), as well as an important infrastructure and actor bridging a variety of economic activities in virtual and physical space. New concepts have emerged to explain and describe the impact of digital platforms on existing regional economies and economic activities, such as "platform urbanism" (Graham 2020), "platform economy" (Kenney and Zysman 2016, 2020), "platform capitalism" (Liang, Aroles, and Brandl 2022), "platform ecology" (Ibert et al. 2022) and "digipreneurs" (Repenning and Oechslen 2023), "platform-based place making" (Chu et al. 2023), "platform-empowered cluster development" (Chu, Hassink,



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and Liu 2024), etc. “If the industrial revolution was organized around the factory, today’s changes are organized around these digital platforms, loosely defined.....in which the platform owners are seemingly developing power that may be even more formidable than was that of the factory owners in the early industrial revolution” (Kenney and Zysman 2016:62). Kenney and Zysman (2016) categorizes platforms into most salient five types: Platforms for platforms, Platforms that make digital tools available online and support the creation of other platforms and market places, Platforms mediating work, Retail platforms and Service-providing platforms. As a major category among many platforms, digital e-commerce platforms exist as intermediaries, two-sided markets, and data aggregators, having a significant impact on regional economic development (Kenney et al. 2023). However, how digital platforms enter the local economy and how they affect existing regional industries and clusters and related chains and networks (C&N) and collaborations still lack sufficient in-depth studies and explanations. The primary aim of this article thus is to investigate the influence of e-commerce platforms on manufacturing clusters and its various C&N.

Despite criticism regarding the emphasis on the importance of lead firm strategies, Global Production Networks (GPNs) involve multiple actors and offer a comprehensive global perspective on regional development through concepts like power, value, and embeddedness (Coe, Dicken, and Hess 2008b; Gong, Hassink, and Wang 2022). As a result, they have become a crucial theory explaining the spatial organization of production networks. Although the term and most of the empirical articles related to this theory show a "productionist" bias, Coe and Yeung (2015:24) emphasize that “production is clearly not simply manufacturing but instead encompasses a wide range of value activity, such as commodity inputs, research and development, producer services, distribution, and so on”. In this context, the application of GPN has expanded from the manufacturing sector (such as aircraft, wood products, etc.) (Bowen 2007; Gibson and Warren 2016) to the service sector (such as freight forwarding, video games, fintech, etc.) (Bowen and Leinbach 2006; Hendrikse, van Meeteren, and Bassens 2020; Johns 2006), as well as to agriculture, forestry, animal husbandry, and fishery (such as fisheries and liquefied natural gas) (Bridge and Bradshaw 2017; Havice and Campling 2017; Irarrázaval and Bustos-Gallardo 2019). Its focus spanned the entire process from natural resources transformation into commodities, from preproduction to retail, rather than just co-production or trade networks (Irarrázaval and Bustos-Gallardo 2019). In the context of this broad understanding, GPNs actors encompass not only firms (e.g., lead firms, strategic partners, specialized and generic suppliers, customers, etc.) and non-firms or extra-firms (e.g., the state, international organizations, labor groups, civil society, etc.) but also intermediaries (financial intermediaries, logistics providers, intermediaries in standards, etc.) (Coe and Yeung 2015, 41–52). In networks, intermediaries often play the roles of connectors, facilitators, and regulators (Coe 2021:47). However, GPNs do not pay enough attention to the role of iterative power in market creation and development (Yeung and Coe 2015): “The market is not an externally imposed structure in which producers and customers react and behave passively. Rather, through their actor-specific practices, these economic agents create and shape market structures” (Yeung and Coe 2015:37). Although the restructuring of retailing and transportation networks and the spatial and geographical consequences that e-commerce may bring had been studied as early as the turn of the millennium (Anderson, Chatterjee, and Lakshmanan 2003; Gereffi 2001; Moodley 2002), the transition from the era of personal computers to the era of mobile terminals introducing various new e-commerce platforms have been so far significantly overlooked by scholars in regional studies and economic geography. Their impact extends beyond mere functions of connecting, facilitating, and regulating as intermediaries. They now even trigger market differentiation and construct a whole new ecosystem for commodity flows and marketing field.

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To address these gaps, this paper proposes the concept of "market coupling", as a crucial extension of strategic coupling, based on the market differentiation brought about by e-commerce platforms and the reorganization faced by China's manufacturing industry (furniture industry) in response to new trends, and unravels the mechanisms behind this concept. The contributions of the paper are primarily fourfold. First, this paper classifies markets into abroad online, abroad offline, domestic online, and domestic offline based on the digital territory, primary users, and transaction logics of different e-commerce platforms. Secondly, it introduces the concept of "market coupling" based on the previously overlooked market and demanding perspective (for some recent exceptions see: Martin and Martin 2023; Martin, Martin, and Zukauskaitė 2019) and a multi-scalar analytical framework, which elucidates the reorganization of firm-cluster-C&N for market coupling. Thirdly, by comparing the C&N of the three clusters based on different markets, this paper identifies the barriers between clusters entering different markets. Finally, this paper applies the aforementioned concepts and framework to analyze three furniture industry clusters in China, further revealing two forms of market coupling: "Creating new elements" and "Adaptive transformation".

The subsequent sections of this article adhere to the following structure: The next section provides an exposition on China's e-commerce landscape, delving into the phenomenon of market differentiation in the e-commerce era. Following this, various concepts in Economic Geography, including Global Commodity Chains (GCC), Global Value Chains (GVC), and GPN, are introduced under the umbrella term "Chain & Network Approaches (CNA)", and points out the shortcomings and deficiencies of the important concept of Strategic Coupling, which links CNA with regional development. In subsequent sections, an analytical framework is proposed based on the key concept of "market coupling", incorporating the concepts of C&N and elements in the diamond cluster model. For the empirical analysis, the paper focuses on three furniture industry clusters in China. Firstly, the article compares three furniture cluster cases, outlines different types of C&N under different market targeting, and investigates barriers to market coupling among them. Secondly, it contrasts offline C&N structures before the rise of e-commerce platforms with the new online C&N, exploring different forms of multi-scalar reorganization for market coupling by comparing aggregation results. Finally, conclusions and study limitations are discussed.

## **2 Background: Market Differentiation in the Era of E-commerce**

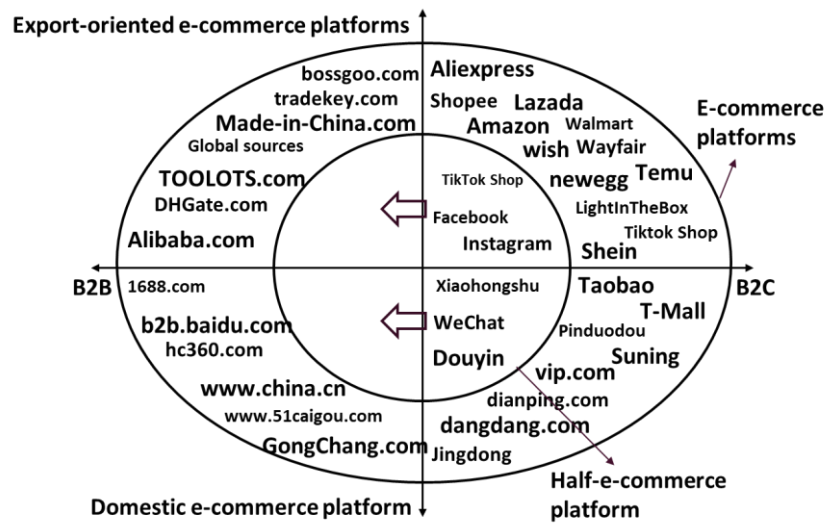
From the perspective of e-commerce, the international trade landscape is undergoing profound changes. It has altered consumer shopping habits, lowered the entry barriers for businesses into international markets, driven innovation in C&N management, differentiated the market<sup>1</sup> and simultaneously brought about new trade policy and regulatory challenges (Ladd 2022). Since China is both the 'World's Factory' and an active country concerning the platform economy, this paper will introduce China's e-commerce world and differentiate the market based on the online/offline and domestic/abroad market.

Based on Chu et al. (2023), this paper further classifies the e-commerce platforms as Figure 1 depends on

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<sup>1</sup> Of course, market differentiation brought about by digital platforms extends beyond territorial perspectives below described to include market segmentation. For instance, JD.com and Tmall often represent the high-end market segment, whereas Taobao and Pinduoduo represent the low-end market segment. In order to simplify, the paper only deals with the division between overseas and domestic.

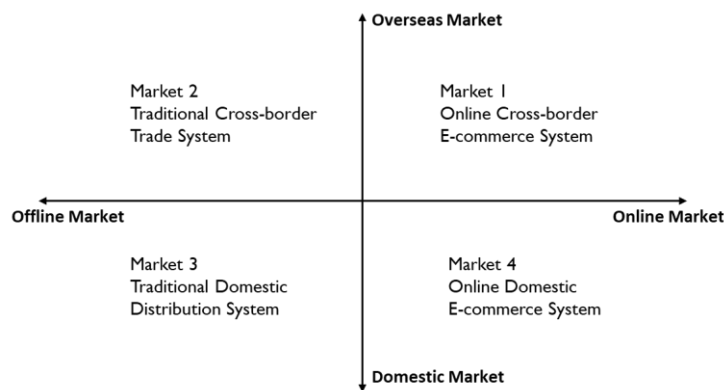
domestic/cross-border<sup>2</sup> and business to business (B2B)/business to customer (B2C). The classification of domestic or foreign platforms is related to the "digital territory" of the digital platform (Morris 2023) and the Great Firewall of China (Gu 2024).



**Figure 1. E-commerce platforms in China's e-commerce world**

Source: Own design.

Based on different online/offline and cross-border/domestic markets, this paper has categorized four differentiated markets as shown in Figure 2, each corresponding to different C&N configurations. Market 1 targets the abroad online market, no matter through B2B or B2C platforms; Market 2 is for an abroad offline market, i.e. traditional export trading; Market 3 is for a domestic offline market, which follows the traditional distributor system; Market 4 is for a domestic online market, which is developed very well within China.



**Figure 2. The differentiated market**

Source: Own design.

In mainstream economic approaches, the standard spatial equilibrium model implicitly assumes a unified and balanced market definition, often overlooking the performativity and complexity inherent in market dynamics (Berndt and Boeckler 2009; Berndt and Wirth 2019; Ouma 2010), while Ouma (2010:203) emphasizes the importance of focusing on "governing through the market" and paying attention to the actual practice and implementation of markets. Mather (1999) and Martin and Martin (Martin and Martin 2023)

<sup>2</sup> It is worth noting that, due to the specificity of the case in this paper, the term "cross-border e-commerce platform" here exclusively refers to "export-oriented e-commerce platforms (include EB2B and EB2C)" and does not encompass "import-oriented e-commerce platforms" such as kaola.com, yunjiglobal, ymatou.com, and so on.

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demonstrate that producers and suppliers consider country- and region-specific differences when entering or strengthening certain markets. To fully explore the impact of market differentiation brought about by platforms on clusters and various actors within industries, the next section will introduce the concept of C&N, along with strategic coupling, in relation to cluster and regional development.

### **3 When C&N Meet Cluster and Regional Development: Strategic Coupling**

C&N consist of a variety of different concepts. Coe et al., (2008a, 2008b) and MacKinnon (2012) compare the concepts of GCC, GVC and GPNs. GCCs, encompassing all activities in product design, production, and marketing process, can be categorized as producer-driven or buyer-driven (Gereffi 1999). "It consists of identifying the full set of actors (i.e. firms) that are involved in the production and distribution of a particular good or service and mapping the kinds of relationships that exist among them" (Bair 2005:157). GVC explore the inter-firm and intra-firm linkages and relationships by focusing on two elements, value and governance (Foster et al. 2018). A GVC consists of a series of stages involved in the production and sale of products and services to consumers, each stage adding value (Antràs 2020; Bair and Gereffi 2003). GPNs starts from economic geography and focus on the relationship between production and space, with a greater emphasis on the economic actors and the structural dynamics in which they are embedded (Coe 2021). It is defined as "the globally organised nexus of interconnected functions and operations by firms and non-firm institutions through which goods and services are produced and distributed" (Coe et al. 2004, 471). This paper adheres to the stance of "free use of the chain construct with no disciplinary imperialism attached" (Fold 2011:102), employing the generalized term "Chain & Network Approaches (CNA)" to summarize the broadest sense of the relationship among firm actors, extra-firm actors and intermediaries, as well as their organizational and geographical structures. This term omits "Global" because, on the one hand, alignment is found with the viewpoints of Birch (2008) and Bridge and Bradshaw (2017:7), recognizing that these concepts are often not global but transnational and cross-scalar, with their spatial implications often being 'spatially fragmented' and 'discontinuously territorial'; on the other hand, this paper desires to represent the multiple couplings of regions in overlapping networks at different scales, such as regional and national value chains (RVC & NVC) (Boys and Andreoni 2023; Gong, Hassink, and Wang 2022; Lemoine and Dagnæs 2003; Pasquali, Godfrey, and Nadvi 2021). Due to CNA being "preoccupied with economic relationships that slice through national and regional boundaries" (Bowen and Leinbach 2006:149), it can counter the current bias of economic geography towards mesoscale and the bias towards endogenous factors in regional development, as well as the "overterritorialized" shortcomings (Bowen and Leinbach 2006; Hassink, Isaksen, and Trippel 2019; Hess 2004; Rodríguez-Pose 2021; Wall and van der Knaap 2011).

The most crucial concept bridging CNA and clusters and regional development is known as "strategic coupling" (Coe et al. 2004). Despite initial critiques regarding its dynamism, assumptions of intentionality, and the lack of awareness of historical and social backgrounds such as class struggles (Coe and Hess 2010; Selwyn 2016), strategic coupling has still received widespread application and development as an evolutionary process involving temporal and spatial contingency, evolving into a highly dynamic and open concept (Fu and Lim 2021; MacKinnon 2012; Yang 2009). "In the context of regional development, strategic coupling refers to the dynamic processes through which actors in regions coordinate, mediate, and arbitrage strategic interests between local actors and their counterparts in the global economy. These trans-regional processes involve both material flows in transactional terms and non-material flows (for example,

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information, intelligence, and practices)" (Yeung 2009:335). As the concept becomes fuzzy, the subjects of coupling can include lead firms, cities or regions, clusters, or specific areas (Hassink 2021; Fu and Lim 2021; MacKinnon 2013). Serving as a key driver of regional economic globalization, strategic coupling involves multiscale forces (local, regional, and global scales), institutional factors (such as international trade agreements, industrial policies, national business systems, or industry associations), and specific spatial contexts and local assets (such as natural resources, production resources, locational advantages) applied in the analysis of various manufacturing industries (Liu and Yang 2013; Liu and Dicken 2006; Yeung 2016; Liu et al. 2023; Wang, Gereffi, and Liu 2021). However, most GPN studies conceptualize the "global market" as a homogeneous environment. On one hand, this leads to a neglect of the diverse strategies pursued by lead firms in multiple markets within the framework of Strategic Coupling. On the other hand, it overlooks considerations of the agency of local and regional actors in facilitating coupling across multiple markets. Initially, Yeung (2009) proposed three types of strategic coupling stemming from distinct key dynamics within regional development trajectories, namely: international partnership, indigenous innovation, and production platforms. Subsequently, Coe and Yeung (2015:184) adapted the aforementioned typology into three modes of strategic coupling, characterized as structural coupling, functional coupling, and indigenous coupling. However, neither classification mentions the role of market and market differentiation in this process. To address this, Liu (2020) suggests that if indigenous coupling is considered centered on "technology" and functional coupling on "production," then in addition to structural coupling, a "market coupling" centered on "market" should be added to more comprehensively represent the fundamental types of external collaboration established by a firm. Unfortunately, Liu (2020) merely mentions this concept without further elaborations. Digital platforms not only bring about various forms of market differentiation (see section 2), but the "platform ecology" also bridges the distance between consumers and producers, allowing consumers to have an increasing impact on production innovation and research and development (Ibert et al. 2022). All of these processes demonstrate the significant role of markets in the cluster coupling C&N process. Based on the above information, and in response to Liu's (2020) call, this paper has chosen to focus the research on "market coupling", as a crucial extension of strategic coupling. Firstly, the introduction of market coupling addresses the oversight of market differentiation in the literature on strategic coupling. Secondly, this paper's exploration of "market coupling" aims to consider interactions across all scales, from firms and clusters to C&N, thereby unpacking the process of multiple couplings across various markets. Lastly, although this paper's exploration of market coupling mechanisms is based on market differentiation under the context of the platform economy, its contribution is generalizable in strategic coupling literature. In the following section, this paper will build a multi-scale analytical framework centered around market coupling, based on Porter's diamond model, C&N and differentiated markets.

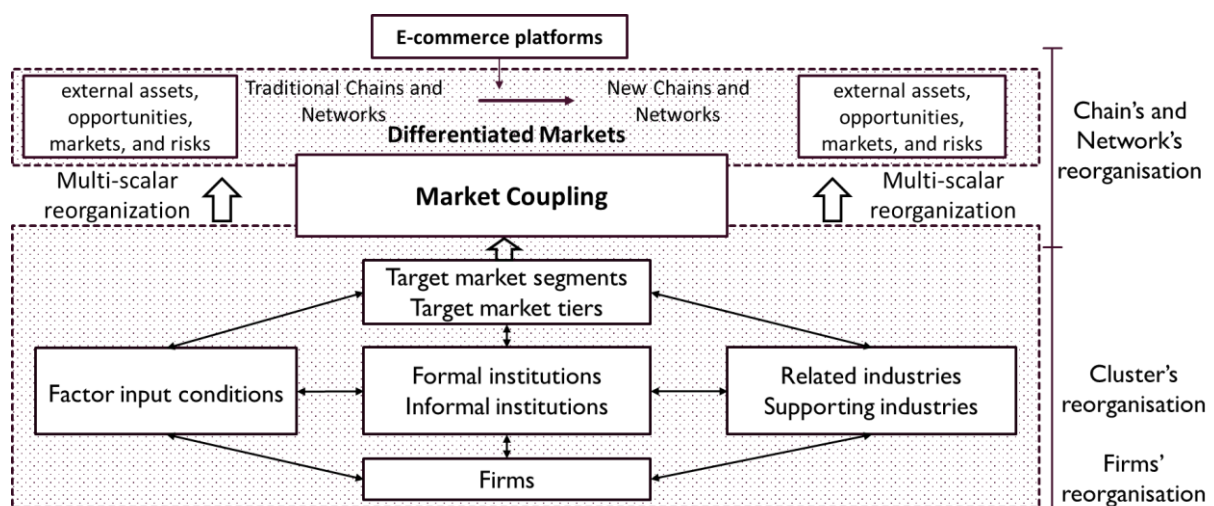
## **4 Analytical Framework: Market Coupling and Multi-Scalar Reorganizations**

With the advent of the mobile e-commerce(m-commerce) era (Einav et al. 2014) and the development of "platform ecology" (Ibert et al. 2022), the impact of digital platforms on regional development is further extended and expanded, and sometimes it is even used as important strategy for firm, cluster and place transformation (Chu et al. 2023; Chu, Hassink, and Liu 2024; Yang and Fu 2017). Based on the aforementioned concept of market coupling, this paper tries to establish a new connection between CNA and cluster development, under the new digital platform era. The cluster concept has been criticized for its vague

geographical boundaries or scale and the number or definition of industries (Martin and Sunley 2003). Some scholars emphasize the similarities within clusters and individual industries, while others stress complementarity and relatedness as well as multiple industries (Crouch and Farrell 2001; Feser 1998; Roelandt and Den Hertog 1999; Swann 1998). Yet, sometimes, they allude to the concepts of commodity chains and supply chains (Chu and Hassink, 2022; Porter, 1998; Simmie and Sennett, 1999). This framework draws inspiration from Porter's (1990, 77) diamond model, Martin & Sunley's (2011:1311) “Two-way interactions between a cluster and its external environment” and Coe's (2004:470) “regional development and global production networks”. It views C&N and the surrounding external assets, opportunities, markets, and risks as the external environment of clusters. Furthermore, the four elements of the diamond—factor input conditions, formal and informal institutions, related and supporting industries, and target market segments and tiers—are regarded as intrinsic aspects of the cluster. By the concept of market coupling, this framework emphasizes “both the spatial extent (stretching) and territorial embeddedness (deepening) of corporate activity” (Drayse 2008:254). As mentioned above, under the impact of e-commerce platform ecology, the market is segmented and differentiated. Clusters do not necessarily encompass all markets from the outset or at all times. They undergo market shifts based on different circumstances, in which it is involved in different C&N, and it is crucial to consider the costs or barriers involved in participating different C&N. To couple new C&N, traditional firms, clusters, and C&N are all engaged in market coupling-based reorganization (Figure 3).

Based on the analytical framework depicted in the figure, this paper aims to address the following questions in the subsequent empirical studies of China:

1. How does C&N differ in different markets? Based on these differences, what are the main barriers when crossing to different market targets?
2. How do digital e-commerce platforms affect traditional C&N?
3. How do actors at different levels undertake reorganizations to achieve market coupling based on the analytical framework?



**Figure 3. A Framework: Market coupling and Multi-scalar Reorganizations**

**Source: Own design.**

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## 5 Applying the Framework: A case study of three Chinese furniture clusters

The furniture manufacturing industry was chosen for the following two reasons: First, since around 2000, China's furniture industry and furniture export industry have grown rapidly (Drayse 2008). China has now become the world's largest furniture producer, exporter, and has the largest furniture consumer market. Secondly, as a highly globalized industry, the furniture sector is a very typical sector in C&N research and already has a certain research foundation (Yang, and Li 2020; Gregson et al. 2012; Yang and Fu 2017). This study is based on three furniture industry clusters in China (Shunde District, Foshan City, Guangdong Province; Nankang District, Ganzhou City, Jiangxi Province; and Suining County, Xuzhou City, Jiangsu Province). The furniture industry clusters in Shunde District and Nankang District started in the 1980s and early 1990s respectively, the former has become the most important supply of Chinese furniture domestically in a competitive market, while the latter has seen tremendous growth in recent years under the strong power of an entrepreneurial district government. The furniture industry cluster in Suining County, on the other hand, sprouted in 2006 and was a cluster created from scratch by relying on the Taobao e-commerce platform. These three cases were selected because they represent different stages of cluster evolution and are driven by distinct key factors. These characteristics can provide richer and more diverse research results, thereby more comprehensively uncovering multi-scalar reorganizations related to market coupling.

A range of data was collected, (1) This research is grounded in a comprehensive collection of grey literature, including industry and business analyses, company websites, and annual government and industrial reports. (2) It leverages the author's substantial engagement in fieldwork, industry events, and interviews conducted across three cases in China. The main methods used in this article are in-depth interviews and participatory observation, doing a total of 113 interviews: Firstly, to gain a comprehensive understanding of the evolution of clusters and the diverse actors within the furniture industry network, the author conducted fieldwork from August to December 2022 and from January to February 2024. This fieldwork also involved accompanying entrepreneurs from Nankang to Shunde for investigation (see Table 1). These informants comprise 17 government officials, 41 individuals from companies (CEOs or COOs), 13 employees, six leaders from various associations, four managers from various platform companies, and four individuals from the university. Appendix 1 shows the 85 formal interviewees during the six-month field-work. Secondly, in March 2023, the author conducted an in-person interview with the CEO of an American MCN (Multi-Channel Network) company in Los Angeles, USA, to obtain a more comprehensive view of the role of global actors such as Tiktok, Youtube, Instagram, etc., internet celebrities in major importing countries, and the relevant service-provider actors and institutions. Thirdly, in April 2023, the author joined government officials, furniture association representatives, and furniture entrepreneurs from Nankang in a business trip in Germany (mainly focusing on freight ports) and interviewed them about their investigation in Italy (mainly about furniture design). (3) The author maintained long-term contact with the interviewees through WeChat and followed the development dynamics of the cases.

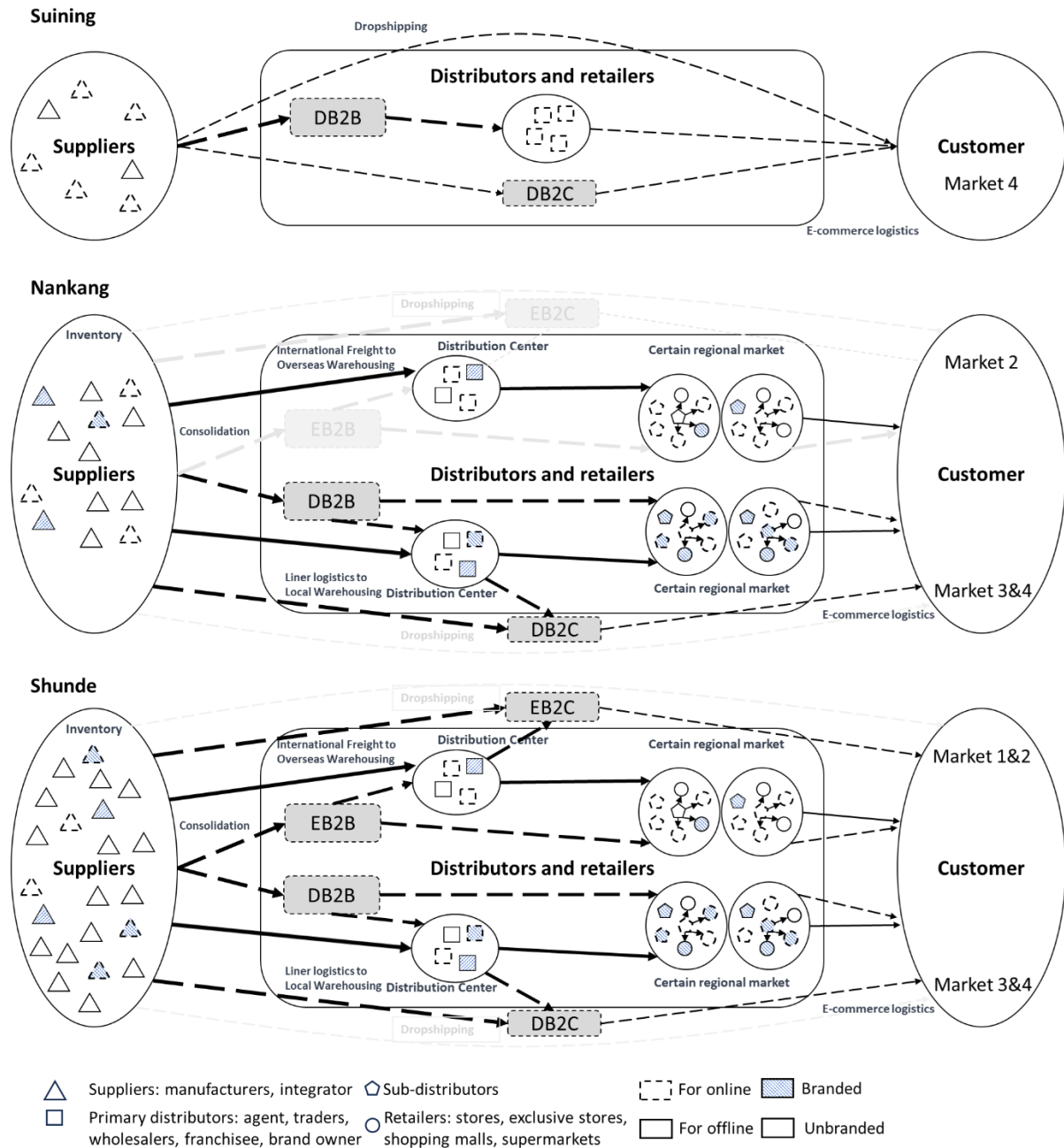
The analysis in this paper consists of two main steps. First, it analyzes three furniture clusters to delineate the C&N involvement targeted at different markets, thereby comparing the barriers between different markets in the platform economy era. Secondly, based on the results of the first step, a comprehensive comparison is made of the summarized changes in the three cases before and after the platform economy, followed by a discussion on the mechanisms of market coupling among firm-cluster-C&N according to the theoretical framework.

Table 1				
<i>Interviewee Distribution on Cases and Groups</i>				
Three Cases		Shunde	Nankang	Suining
<b>Formal interviews (85)</b>	<b>Government (G17)</b>	3	8	6
	<b>Companies (CEOs or COOs) (C41)</b>	15	18	8
		(2 media, 11 furniture)	(1 logistics, 1 raw material, 10 furniture)	(1 logistics, 1 raw material, 6 furniture)
	<b>Employees (E13)</b>	6	4	3
		(4 live-streaming hosts, 1 HR, 1 designer)	(2 live-streaming hosts, 1 HR, 1 manager)	(1 live-streaming host, 2 workers)
	<b>Associations (A6)</b>	2	3	1
	<b>Platforms (P4)</b>	2	1	1
	<b>University (U4)</b>	1	2	1
<b>Informal interviews (28)</b>				
<b>In total (113)</b>				

## 5.1 Different multiple market couplings and their barriers

In this section, the engagement of C&N targeting various markets across the three furniture clusters is outlined (Figure 4). Suining, evolving from a cluster based on Taobao villages, predominantly targets Market 4 (Figure 2). Furthermore, the cluster currently lacks authentic furniture brands and mainly focuses on accessing the low-cost market through un-branded products, thus exhibiting the simplest form of C&N. Nankang's furniture C&N is considerably diverse, with products primarily made of wooden materials, catering predominantly to domestic consumers. However, due to its competitive pricing and productivity, some foreign supermarkets (non-brand furniture) seek Original Equipment Manufacturer (OEM) in Nankang. For instance, Huisen Household International Group Limited, as Walmart's sole supplier of panel furniture in China, has become Nankang's only listed company (listed on the Hong Kong stock exchange). Nevertheless, despite national government efforts to promote cross-border e-commerce (both EB2B & EB2C), Nankang's progress in this area remains limited due to its lack of direct understanding of overseas markets and the absence of a foundation for cross-border e-commerce. Shunde, the most historic furniture cluster, also has the richest C&N (Market 1/2/3/4). Despite previous attempts by internal companies to shift their target market from overseas to domestic (Yang and Fu 2017), Shunde is currently focusing on cross-border e-commerce as domestic demand in China is insufficient. Leveraging its traditional expertise in foreign trade (not just OEM, some OEMs have evolved into Original Brand Manufacturer (OBM)), it possesses a more direct understanding of overseas markets. Consequently, it has even gained a market presence on certain EB2C platforms, opening up market opportunities.

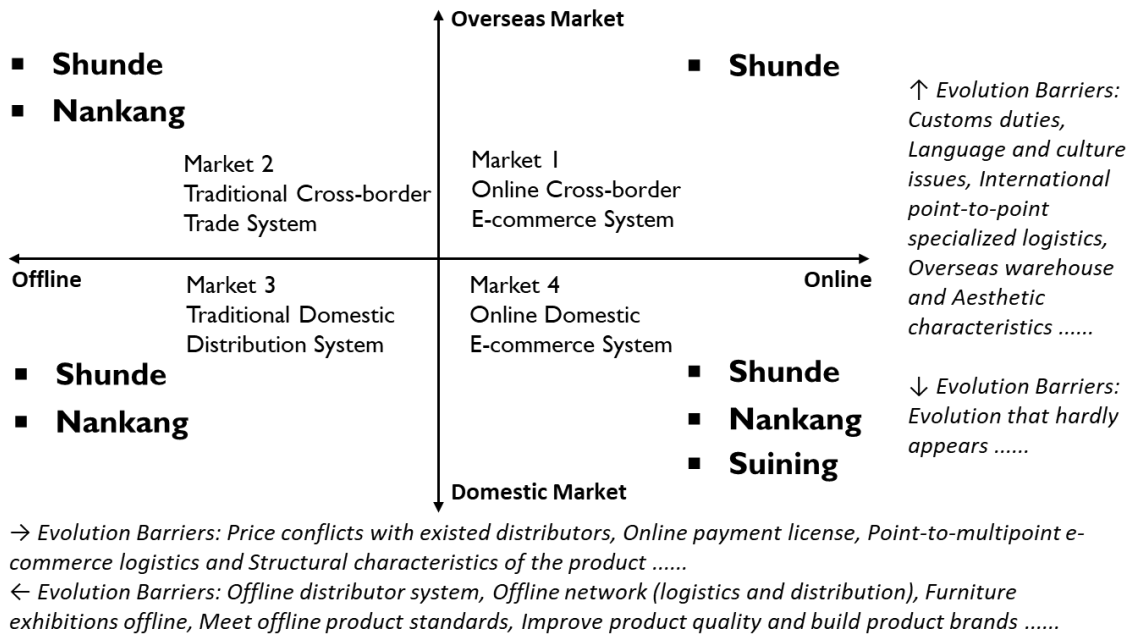




**Figure 4. Current target markets and C&N for the three clusters**

**Source:** Own design.

Before further analyzing the mechanisms of market coupling, the following analysis will primarily focus on examining the barriers to evolution between different networks based on market differentiation. Drawing from Figure 5, the three clusters are allocated into different quadrants according to their target market distribution. Delving into the characteristics of these furniture clusters, the analysis will outline, from an evolutionary perspective, the key unique barriers encountered by different furniture clusters as they transition between these systems and configurations of C&N.



**Figure 5. Barriers among different market**

**Source:** Own design.

It is observed that both the Shunde and Nankang cases, being traditional furniture industry clusters, have already established offline systems for both domestic furniture sales and cross-border furniture trade (no matter whether in the form of OEM or Original Design Manufacturer (ODM)). Transitioning from offline domestic sales to cross-border trade, these two clusters need to overcome many barriers, acquiring knowledge about customs duties, languages, target country cultures, international point-to-point specialized logistics, overseas warehouses, and aesthetic requirements of overseas customers, as well as cultivating the ability to create the relevant resources. The process of compliance during the formation of new C&N is crucial. This includes customs compliance (with specific regulatory codes tailored to different cross-border e-commerce models), compliance with import country product safety standards (for instance, the need for PEFC and FSC third-party forest certification when exporting wooden furniture to Europe), protection of intellectual property rights such as trademarks, patents, and copyrights, tax compliance, as well as compliance with data security and privacy protection measures.

Shunde has developed to a certain extent furniture cross-border online C&N. This implies that on top of the aforementioned basics, it also needs to resolve price conflicts with distributors, have online payment licenses, collaborate with local e-commerce logistics in overseas locations (such as DHL, UPS, FEDEX, TNT...), and consider a product structure suitable for point-to-multipoint logistics (friendly-assemble and flat-packing). Meanwhile, Suining, as a furniture industry cluster that evolved from a 'Taobao village' relying on online markets (Chu et al. 2023), has only established mature C&N in Quadrant 1. While it aspires to explore other types of markets and strengthen the cluster, on one hand, it lacks the foundation of a traditional distributor system<sup>3</sup>, and on the other, it lacks the knowledge and ability for cross-border trade and cross-border online operations. Although its furniture products are very friendly-assembling and flat-packing, and it possesses a more favorable domestic e-commerce logistics price that the other two clusters lack, the cluster still struggles to find continued growth momentum. This graph profoundly reflects the limited impact of e-commerce platforms on industrial clusters. Although new industrial clusters have emerged in China from scratch based

<sup>3</sup> Compared to online sales channels, whether B2B or B2C, the establishment of a traditional distributor system often requires a longer time to accumulate offline "relationships", and the transaction costs of building connections is also higher.

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on e-commerce platforms, they find it challenging to compete with clusters that have a long-standing history.

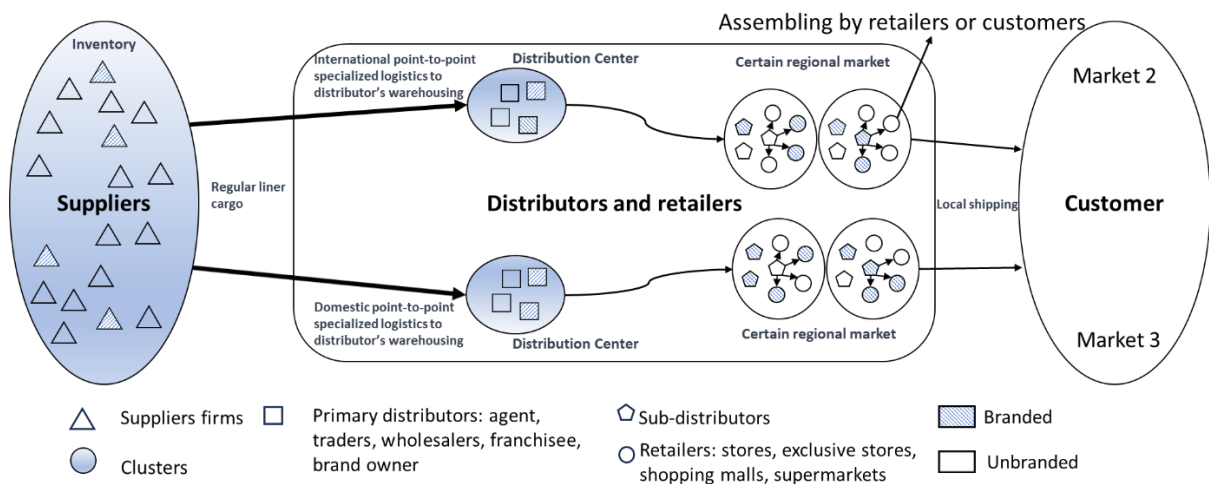
## 5.2 Different C&N for different markets

In this section, drawing upon the collective experiences of the three furniture clusters, the analysis will delineate both traditional C&N and emerging online C&N structures. This lays the foundation for further analysis and refinement of the market coupling mechanism in the 5.3.

### Traditional C&N

Drawing from the collective experiences of the three cases, before the advent of e-commerce platforms, the offline furniture C&N appeared as illustrated in Figure 6, which is based on the furniture distributor system. This system is primarily composed of suppliers, distributors, retailers, and consumers. This process normally involves two types of clusters, one being furniture production manufacturing clusters, and the other being specialized commercial trading clusters or specialized markets on furniture as distribution center (Zeng et al. 2019). In the case of Shunde, the primary function of Longjiang Town is furniture manufacturing, while Lecong Town primarily handles furniture sales. With the development of e-commerce, the functions of production and sales are increasingly mixed (source to be added). Suppliers include OEM, ODM, and OBM. Primary distributors might include agents, traders, wholesalers, franchisees, brand owners, etc. Retailers might encompass stores, exclusive stores, shopping malls, supermarkets, etc. The process can be quite lengthy, as sub-distributors may encompass a third level, fourth level, or even more levels. The higher the level, the more likely it is that the price of the furniture when sold will be higher. In this system, manufacturers often rely on local retailers to provide the final order fulfilment and product assembly services. The establishment of traditional distributor networks is often based on offline personal contacts or public face-to-face trade shows and furniture festivals, in which personal relationships play a significant role in this process.

Regarding the intermediary logistics, if it is cross-border sales (i.e., foreign trade/export), the furniture goods are typically sent via “International point-to-point specialized logistics” to the “Distributor’s warehousing” which belongs to the “Distribution Center”. They are then transported to the next level of sub-distributors or retailers until they reach overseas street stores or customers by local shipping. If it is domestic sales, the logic is the same. However, there is no need for “International point-to-point specialized logistics”; instead, it is replaced by “Domestic point-to-point specialized logistics”. Depending on the size of the local market, it will then be decided whether more sub-distributors are needed or if the furniture can be sent directly to retailers. Finally, from the retailer's warehouse/ showroom, it will be delivered directly to consumers via local shipping. In traditional C&N, the fulfilment and assembly of furniture are often undertaken by local retailers in face-to-face interactions with customers.

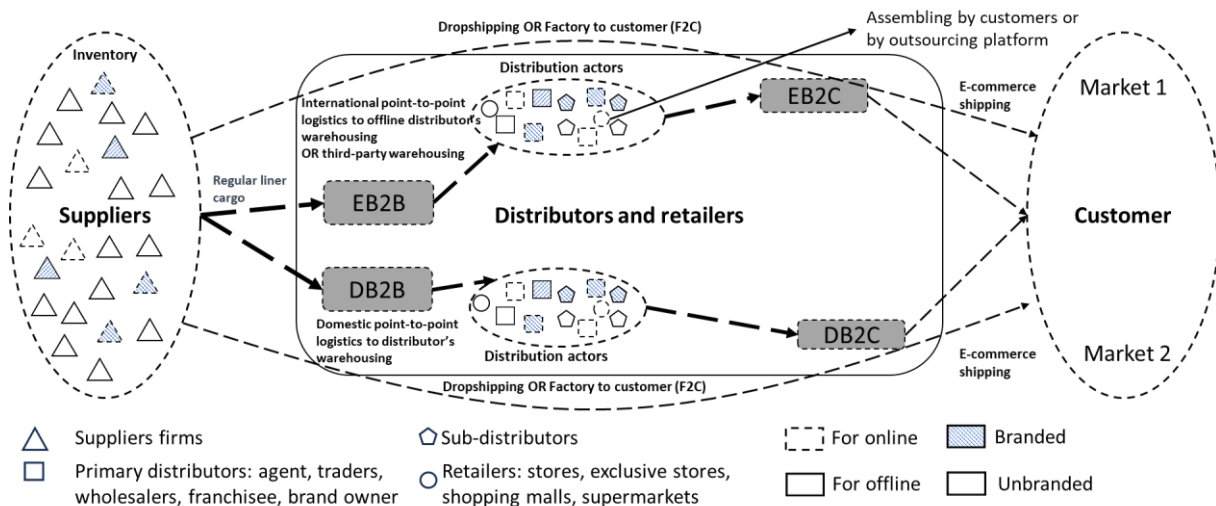


**Figure 6. Traditional furniture C&N in China**

Source: Own design.

## New online C&N

Figure 7 illustrates the circulation of the online furniture C&N. Observations reveal that, overall, the three primary phases of supply (procurement), distribution (transportation), and demand (purchase) remain similar to those in the previous distributor system. However, within the supplier group, there have emerged suppliers that specifically produce only for online sales, and these furniture possess unique characteristics compared to offline products, such as being more assemble friendly and flat-packing. Since the online market targets a broader customer group, the quality of online furniture products tends to be more various, and the price range is also wider.



**Figure 7. New furniture online C&N in China**

Source: Own design.

Through the above figure 7, three features of the new furniture online C&N can be identified. First, digital platforms have had a significant impact on the distribution phase with its powerful "disintermediation" effect (Wigand 2020). Given that the scope of the digital territory often spans across regional markets, B2B offers equal accessibility for both distribution centers and specific regional markets, which greatly reduced and shortened the intermediary steps. Similarly, B2C platforms also cut out intermediaries, allowing businesses to order directly from manufacturers instead of distributors, or retailers, which makes the entire deal more

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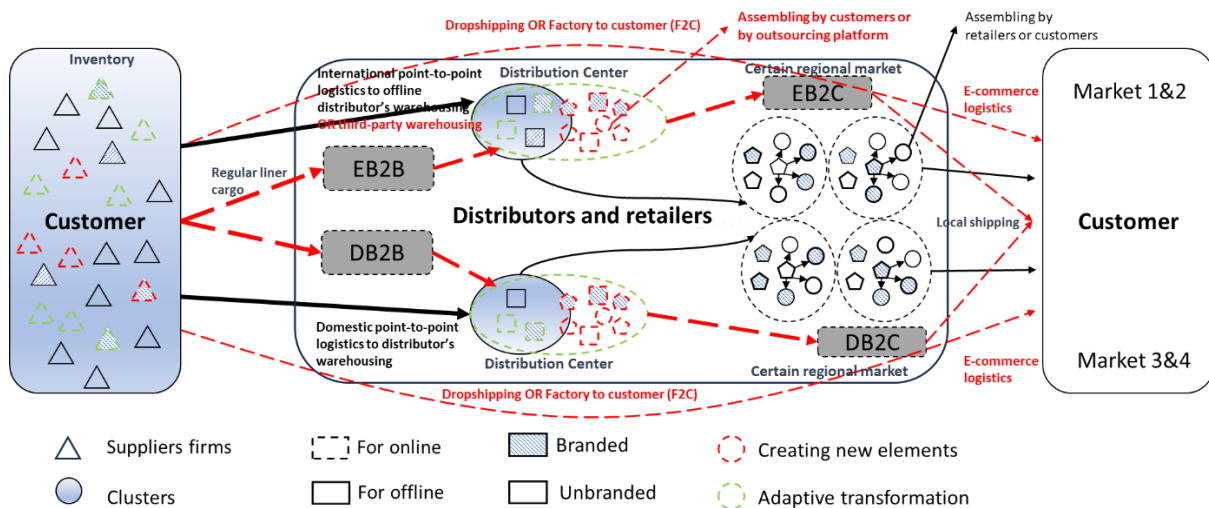
accessible, efficient and transparent. Disintermediation has resulted in most online products being priced lower than offline products in furniture industry.

Secondly, it is evident that traditional distribution actors can procure furniture wholesale via B2B platforms and subsequently sell them to consumers via B2C platforms. Some distributors solely engage in online purchasing without selling online, while others buy online and sell offline or both offline and online. Naturally, there are many traditional offline distributors who continue to maintain their original procurement channels but expand their sales avenues through B2C platforms. For these traditional offline distributors, they often have established mature point-to-point logistic networks and storage warehouses for furniture. However, for the emerging online distribution actors, they often need to utilize warehouses provided by third parties, such as local governments, the national government, or regional institutions.

Thirdly, apart from this B2B2C model (Ding et al. 2017; Lu et al. 2022; Parola and Sciomachen 2009), some furniture commodity/supply networks adopt a "dropshipping/factory to customer" model. In this scenario, except for the inventory of the suppliers that require warehousing, no other warehouses are needed. This model integrates production and sales and enables manufacturers or integrators to act as both suppliers and retailers. For producers, being co-located with mature consumers is beneficial as they provide advanced market knowledge (Martin and Martin 2023). They often add an e-commerce department to their management structure and then try to expand their business on B2C platforms. Alternatively, they may venture into multiple B2B and B2C platforms simultaneously, which is referred to as "Omnichannel strategy" (Cai and Lo 2020). The delivery and assembly of furniture in online C&N are mostly carried out on and through digital platforms. Goods can be delivered directly to overseas enterprises or first shipped to overseas warehouses and then dispatched after the actual transaction, significantly reducing logistics costs and consequently lowering end prices.

### **5.3 Different forms of market coupling: multi-scalar analysis**

Similar to the textile and clothing industries, a furniture chain involves not just manufacturers, but also many complex services pre- and post-producing, such as purchasing, design, distribution, marketing and market analysis (Dunford 2009), which are part of the furniture cluster, and sometimes even part of one furniture company. After a comparative analysis of the traditional and new C&N on the aggregated results of three cases on the theoretical framework, insights from firm-cluster-C&N multi-scalar perspectives have been provided below. In Figure 8, solid lines represent traditional C&N connections, while dashed lines indicate the new online C&N connections. Through this comparison, two forms of market coupling mechanisms on firm, cluster and C&N level are identified: Creating new elements and Adaptive transformation.



**Figure 8. Compare traditional C&N with the new online C&N**

Source: Own design.

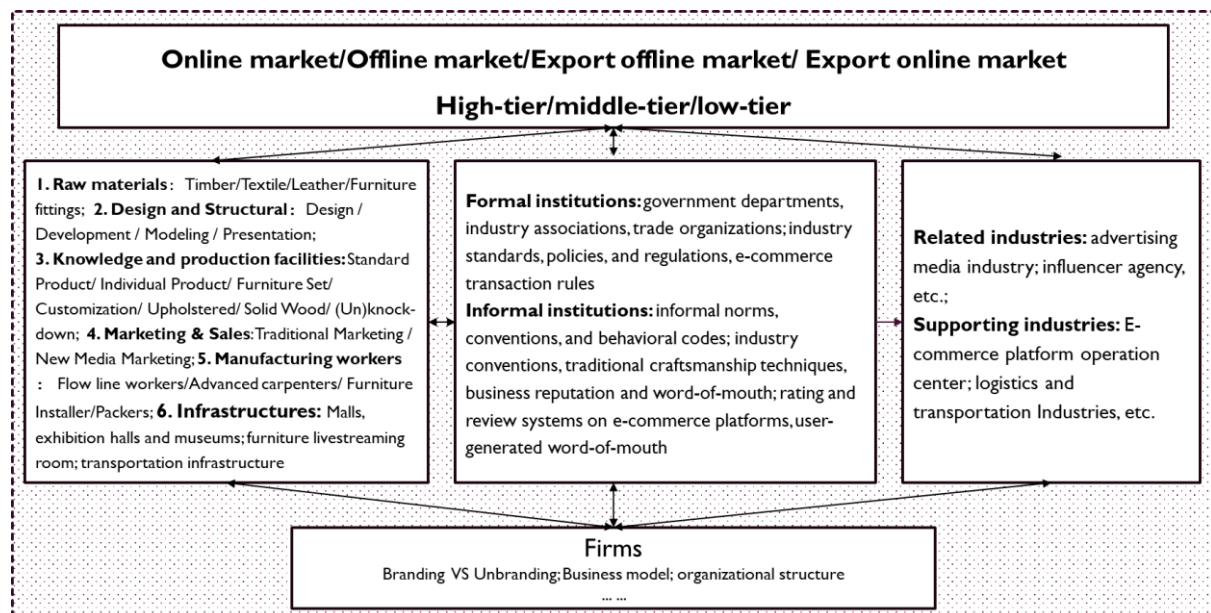
### Firm level:

Through comparing and combining the traditional C&N with the new online C&N, a price conflict between the two has been identified. As mentioned earlier, some suppliers adopt the F2C business model, selling directly on B2C platforms. Consequently, the price of the same furniture on online platforms is often lower than that at offline retailers. This creates conflicts between retailers and suppliers, resulting in widespread closures of retail stores. Ultimately, some suppliers, having lost a significant volume of B2B customers (as the closure of the furniture stores), may also face bankruptcy. Therefore, companies need to undergo adaptive transformation to prevent the collapse of the existing distribution system. To achieve this, some branding furniture companies adopt practices such as un-branding, where OBMs remove any branding traces from products supplied to various e-commerce merchants. By "downgrading" branded products to unbranded ones, OBMs can increase sales by expanding their online channels and mitigate reputation damage to offline branded products caused by low online prices. Another approach is the Online to Offline (O2O) business model, where OBMs engage in online marketing to attract potential customers from online channels and redirect them to offline retailers for order fulfillment. In this scenario, retailers' roles adaptively shift to service providers, and furniture showrooms owned by suppliers transform into live-streaming studios. In the process of achieving market coupling, new elements need to be created. For instance, companies may need to establish new e-commerce operations departments, even with separate departments for each platform. Moreover, supplier companies can achieve market coupling by providing e-commerce exclusive furniture products through dropshipping. This primarily results in firms' demand for design knowledge specific to easy-to-assemble and flat-packed products. Although the quality of "e-commerce exclusive" products may be inferior to offline products, they are more affordably priced.

### Cluster level:

Through comparing and integrating the traditional furniture C&N with the emerging online furniture C&N, it becomes evident that the new C&N force clusters to create new elements (Figure 9). First, there is a need for new input factors. According to Porter (1990), factor conditions can include human resources, physical resources, knowledge resources, capital resources, infrastructure, etc. Foster et al. (2018) contend that new products introduce new processes to GVCs. Similarly, this empirical research suggests that the emergence of

new online C&Ns necessitates the development of new products. Triggered by e-commerce platforms, especially B2C platforms, clusters require new kinds of raw materials, and new knowledge about design, production and marketing, thereby better coupling with the online market. Secondly, the introduction of new formal and informal institutions in the cluster. Formal institutions, for instance, include e-commerce laws, online payment licenses, government departments dedicated to e-commerce, e-commerce associations and furniture festivals, etc. Informal institutions might include, consumer's perceptions of e-commerce, the customary practice of word-of-mouth and so on. Lastly, the cluster also requires new supporting and related industries, such as e-commerce logistic agencies and new media marketing industries. Due to the significant differences with traditional ones, they should be recognized as different resources for a market coupling strategy. For example, the comparison between the traditional point-to-point logistics industry and the new point-to-multipoint e-commerce logistics industry can be found in Table 2. In addition, the modes and display methods of cluster external communication have also adaptively changed, such as furniture shopping malls within the cluster being transformed into e-commerce live streaming parks and synchronous online promotion being required when "groups" participate in furniture festivals.



**Figure 9. Firm and cluster-level Reorganization**

Source: Own design.

Table 2		
<i>The Differences Between Traditional Point-to-Point Specialized Logistics and Point-to-Multipoint E-commerce Logistics</i>		
	<b>Point-to-Point Specialized Logistics</b>	<b>Point-to-Multipoint E-commerce Logistics</b>
<b>Definition</b>	Transport of large-scale or bulk shipments from a fixed start to a fixed end point	Transport of small-scale shipments from one dispatch point (supplier's or retailer's warehouse) to numerous consumers
<b>Purpose</b>	Ensure large quantities of goods arrive on time and safely	Fulfill number of small-scale, individualized orders and deliver swift, reliable service to consumers
<b>Furniture storage place</b>	Distributors' warehouse and store or supermarket	Directly to customers
<b>Commonly Used Vehicles</b>	Uses larger transportation modes (e.g., trucks, trains, ships); routes are fixed and pre-planned	Employs various transportation modes (e.g., express delivery, drones); requires intricate logistics network

<b>Challenges</b>	Transportation costs, time management, safety, reliability	Handling vast number of orders, real-time tracking, last-mile delivery, managing returns, customer communication
<b>Technology Application</b>	Lesser emphasis on technology	Higher tech demands like order management, real-time tracking, predictive tools, automated solutions

## C&N level:

Compared with traditional trade, e-commerce and cross-border e-commerce enable new forms of C&N. First, through the logistics method of dropshipping, a new chain of F2C emerges. Secondly, in cross-border e-commerce, if it is not the F2C model, third-party warehouses are required. Lastly, regardless of how they make purchases online, customers lose the furniture assembly and after-sales services conveniently provided by previous offline stores. In such cases, the installation process is often carried out by consumers themselves or outsourced to other workers through labor platforms. Other actors within the network have also undergone corresponding adaptive transformations, such as customs departments, regulatory agencies, tax authorities, and, of course, the e-commerce platforms themselves. Due to space constraints, a detailed examination is omitted here. However, the analysis results of the two forms of market coupling based on multi-scalar are summarized in Table 3.

<b>Table 3</b>		
<i>Different Forms of Market Couplings Based on Multi-scalar Analysis</i>		
	<b>Creating new Conditions</b>	<b>Adaptive transformation</b>
<b>Firm</b>	Establish new e-commerce operations departments New design knowledge specific to easy-to-assemble and flat-packed products	Branding to Un-branding Business model changes (Online & Offline)
<b>Cluster</b>	New input factors New formal and informal institutions New related and supporting industry	Modes and display methods of cluster Furniture shopping malls to e-commerce live streaming parks Synchronous online promotion required
<b>C&amp;N</b>	New warehouses New third-parties for assembly (labor platforms) New chains	Consumers adapting to obtaining information online Many other actors within the C&N have also undergone adaptive changes.

## 6 Conclusions and outlook

E-commerce platforms, acting as intermediaries, two-side markets, and data aggregators, have had a significant impact on the organization of global economic activities and regional development. This study is based on China, known as the world's factory, and pioneer in the digital platform economy. Through extensive research in the furniture industry domain, the answers to the three research questions are displayed. First, different markets possess distinct C&N, with clusters targeting diverse markets having richer C&N involvement, when clusters try to access other market coupling, they encounter various barriers that need to be overcome. Secondly, the new C&N and market coupling brought about by e-commerce platforms will impact and sometimes break traditional C&N. Thirdly, the mechanisms of market coupling were unpacked with "Creating new elements" and "Adaptive transformation" through different multi-level actors located in different positions. Four key contributions are offered in this paper: First, the paper analyzes the market differentiation brought about by different forms of e-commerce platforms, using this as the background for the entire analysis. This goes beyond the traditional simplistic PC-based e-commerce C&N, providing a more



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nuanced explanation for the impact of diverse digital e-commerce platforms. Secondly, it significantly advances and extends the literature of strategic coupling by introducing the key concept of "market coupling" and integrates cluster, C&N, and multi-scalar perspectives to develop a comprehensive analytical framework. Thirdly, by comparing three cases, the paper summarizes different forms of C&N for four markets, offline domestic, offline cross-border, online domestic and online cross-border markets and the barriers among them. Lastly, by comparing traditional C&N with emerging ones, the paper identifies two mechanisms of market coupling: "Creating new elements" and "Adaptive transformation".

Despite the presence of numerous factors leaning towards deglobalization, with the advancement of digitalization technology, production networks are increasingly embedded in a complex global transactional network intertwined with both online and offline interactions (Lemoine and Dagnæs 2003). Since the onset of COVID-19, the global supply chains have been severely impacted by disruptions in logistics, and shortages in raw materials or components. At the same time, it has accelerated the process of online retailing across many countries and regions. Such impacts are not just temporary or one-off. These may also lead to a restructuring of C&N, deepening of digital and green transitions, and potentially having long-lasting implications (Alabi and Ngwenyama 2023; Halmai 2022). The research findings suggest that while traditional C&N may not vanish completely, digital platforms not only strengthen existing production networks and relationships but also alter the original C&N.

It is important to note that, while this research delves into the broader implications of C&N in economic geography through CNA, its focus remains on a single sector—the furniture industry. This sector inherently differs from others such as apparel, electronics, or automotive industries. Industries dealing with expensive and bulky durable goods, like furniture, often progress towards platformization at a slower pace compared to industries involving cheaper, lightweight, and consumable goods, such as clothing and cosmetics. Therefore, the multi-scalar reorganizations derived from this research may not necessarily be applicable to other products and industries. Furthermore, this study is conducted within the specific context of China, with its unique manufacturing and digital network landscape. However, the overall analytical framework on market coupling and the fundamental elements of C&N presented in this study can be generalized to other contexts. Given the complexity of C&N, it might be challenging to cover all the impacts that digital platforms bring to them in a single article. Nonetheless, the research aims to continue exploring other aspects in the near future.

## References

- Alabi, M.O. and Ngwenyama, O. 2023. Food security and disruptions of the global food supply chains during COVID-19: building smarter food supply chains for post COVID-19 era. *British Food Journal* 125(1):167–185. doi:10.1108/BFJ-03-2021-0333.
- Anderson, W.P., Chatterjee, L., and Lakshmanan, T. r. 2003. E-commerce, Transportation, and Economic Geography. *Growth and Change* 34(4):415–432. doi:10.1046/j.0017-4815.2003.00228.x.
- Antràs, P. 2020. Conceptual aspects of global value chains. *The World Bank Economic Review* 34(3):551–574.
- Bair, J. 2005. Global Capitalism and Commodity Chains: Looking Back, Going Forward. *Competition & Change* 9(2):153–180. doi:10.1179/102452905X45382.
- Bair, J. and Gereffi, G. 2003. Upgrading, uneven development, and jobs in the North American apparel industry. *Global Networks* 3(2):143–169. doi:10.1111/1471-0374.00054.

- 
- Berndt, C. and Boeckler, M. 2009. Geographies of circulation and exchange: constructions of markets. *Progress in Human Geography* 33(4):535–551. doi:10.1177/0309132509104805.
- Berndt, C. and Wirth, M. 2019. Struggling for the Moral Market: Economic Knowledge, Diverse Markets, and Market Borders. *Economic Geography* 95(3):288–309. doi:10.1080/00130095.2018.1521699.
- Birch, K. 2008. Alliance-Driven Governance: Applying a Global Commodity Chains Approach to the U.K. Biotechnology Industry. *Economic Geography* 84(1):83–103. doi:10.1111/j.1944-8287.2008.tb00392.x.
- Bowen, J.T. 2007. Global production networks, the developmental state and the articulation of Asia Pacific economies in the commercial aircraft industry. *Asia Pacific Viewpoint* 48(3):312–329. doi:10.1111/j.1467-8373.2007.00350.x.
- Bowen, J.T. and Leinbach, T.R. 2006. Competitive advantage in global production networks: Air freight services and the electronics industry in Southeast Asia. *Economic Geography* 82(2):147–166. doi:10.1111/j.1944-8287.2006.tb00294.x.
- Boys, J. and Andreoni, A. 2023. Upgrading through global, regional or national value chains? Firm-level evidence from the East African textiles & apparel sector. *Geoforum* 144:103809. doi:10.1016/j.geoforum.2023.103809.
- Bridge, G. and Bradshaw, M. 2017. Making a Global Gas Market: Territoriality and Production Networks in Liquefied Natural Gas. *Economic Geography* 93(3):215–240. doi:10.1080/00130095.2017.1283212.
- Cai, Y.-J. and Lo, C.K.Y. 2020. Omni-channel management in the new retailing era: A systematic review and future research agenda. *International Journal of Production Economics* 229:107729. doi:10.1016/j.ijpe.2020.107729.
- Chu, H. and Hassink, R. 2022. “Regional clusters”, in Dilworth, R. (Ed.), *Oxford Bibliographies in Urban Studies*, Oxford University Press, New York, NY, doi: 10.1093/obo/9780190922481-0058
- Chu, H., Hassink, R., and Liu, W. 2024. Exploring the mechanisms of platform empowered cluster development: evidence from the case of Taobao villages in rural China. *Regional Studies* 0(0):1–15. doi:10.1080/00343404.2024.2306330.
- Chu, H., Hassink, R., Xie, D., and Hu, X. 2023. Placing the platform economy: the emerging, developing and upgrading of Taobao villages as a platform-based place making phenomenon in China. *Cambridge Journal of Regions, Economy and Society* 16(2):319–334. doi:10.1093/cjres/rsad004.
- Coe, N.M. 2021. *Advanced Introduction to Global Production Networks*. Cheltenham: Edward Elgar. <https://www.e-elgar.com/shop/gbp/advanced-introduction-to-global-production-networks-9781788979610.html>.
- Coe, N.M., Dicken, P., and Hess, M. 2008a. Global production networks: realizing the potential. *Journal of Economic Geography* 8(3):271–295. doi:10.1093/jeg/lbn002.
- . 2008b. Introduction: global production networks--debates and challenges. *Journal of Economic Geography* 8(3):267–269. doi:10.1093/jeg/lbn006.
- Coe, N.M. and Hess, M. 2010. Local and regional development: A global production network approach. In: *Handbook of Local and Regional Development*. Routledge: 128–138. <https://api.taylorfrancis.com/content/chapters/edit/download?identifierName=doi&identifierValue=10.4324/9780203842393-14&type=chapterpdf>.
- Coe, N.M., Hess, M., Yeung, H.W.-C., Dicken, P., and Henderson, J. 2004. ‘Globalizing’ regional development: a global production networks perspective. *Transactions of the Institute of British Geographers* 29(4):468–484. doi:10.1111/j.0020-2754.2004.00142.x.
- Coe, N.M. and Yeung, H.W.-C. 2015. *Global Production Networks: Theorizing Economic Development in*

- 
- an Interconnected World*. Oxford: Oxford University Press.
- Crouch, C. and Farrell, H. 2001. Great Britain: falling through the holes in the network concept. In: *Local Production Systems in Europe: Rise or Demise?* Oxford University Press: 154–211.
- Ding, Y., Wei, X.-J., Yang, Y., and Gu, T.-Y. 2017. Decision support based automatic container sequencing system using heuristic rules. *Cluster Computing* 20(1):239–252. doi:10.1007/s10586-016-0678-2.
- Drayse, M.H. 2008. Globalization and regional change in the US furniture industry. *Growth and Change* 39(2):252–282. doi:10.1111/j.1468-2257.2008.00419.x.
- Einav, L., Levin, J., Popov, I., and Sundaresan, N. 2014. Growth, Adoption, and Use of Mobile E-Commerce. *American Economic Review* 104(5):489–494. doi:10.1257/aer.104.5.489.
- Feser, E.J. 1998. Old and new theories of industry clusters. In M. Steiner (ed.) *Clusters and Regional Specialisation. On Geography, Technology and Networks*. London: Pion: 18–40.
- Fold, N. 2011. Frontiers of Commodity Chain Research. *Economic Geography* 87(1):101–103. doi:10.1111/j.1944-8287.2010.01098.x.
- Foster, C., Graham, M., Mann, L., Waema, T., and Friederici, N. 2018. Digital Control in Value Chains: Challenges of Connectivity for East African Firms. *Economic Geography* 94(1):68–86. doi:10.1080/00130095.2017.1350104.
- Fu, T., Yang, C., and Li, L. 2020. Market imperative and cluster evolution in China: evidence from Shunde. *Regional Studies* 54(2):244–255. doi:10.1080/00343404.2019.1673329.
- Fu, W. and Lim, K.F. 2021. The Constitutive Role of State Structures in Strategic Coupling: On the Formation and Evolution of Sino-German Production Networks in Jieyang, China. *Economic Geography*:1–24. doi:10.1080/00130095.2021.1985995.
- Gereffi 2001. Beyond the producer-driven/buyer-driven dichotomy the evolution of global value chains in the internet era. *IDS bulletin* 32(3):30–40.
- Gereffi, G. 1999. International trade and industrial upgrading in the apparel commodity chain. *Journal of International Economics* 48(1):37–70. doi:10.1016/S0022-1996(98)00075-0.
- Gibson, C. and Warren, A. 2016. Resource-Sensitive Global Production Networks: Reconfigured Geographies of Timber and Acoustic Guitar Manufacturing. *Economic Geography* 92(4):430–454. doi:10.1080/00130095.2016.1178569.
- Gong, H., Hassink, R., and Wang, C.C. 2022. Strategic coupling and institutional innovation in times of upheavals: the industrial chain chief model in Zhejiang, China. *Cambridge Journal of Regions, Economy and Society* 15(2): 279–303.
- Graham, M. 2020. Regulate, replicate, and resist—the conjunctural geographies of platform urbanism. *Urban geography* 41(3):453–457. doi:10.1080/02723638.2020.1717028.
- Gregson, N., Crang, M., Ahamed, F.U., Akter, N., Ferdous, R., Foissal, S., and Hudson, R. 2012. Territorial Agglomeration and Industrial Symbiosis: Sitakunda-Bhatiary, Bangladesh, as a Secondary Processing Complex. *Economic Geography* 88(1):37–58. doi:10.1111/j.1944-8287.2011.01138.x.
- Gu, G.Y. 2024. Technology and Disintermediation in Online Marketplaces. *Management Science* (forthcoming) doi:10.2139/ssrn.4150094.
- Halmai, P. 2022. COVID-19 Crisis and Supply Side Bottlenecks in the EU. Shorter and Longer Term Prospects. *Montenegrin Journal of Economics* 18(4):19–30. doi:10.14254/1800-5845/2022.18-4.2.
- Hassink, R. 2021. Strategic cluster coupling. In: *The Globalization of Regional Clusters*. Edward Elgar Publishing.
- Hassink, R., Isaksen, A., and Trippel, M. 2019. Towards a comprehensive understanding of new regional industrial path development. *Regional Studies* 53(11):1636–1645.

- doi:10.1080/00343404.2019.1566704.
- Havice, E. and Campling, L. 2017. Where Chain Governance and Environmental Governance Meet: Interfirm Strategies in the Canned Tuna Global Value Chain. *Economic Geography* 93(3):292–313. doi:10.1080/00130095.2017.1292848.
- Hendrikse, R., van Meeteren, M., and Bassens, D. 2020. Strategic coupling between finance, technology and the state: Cultivating a Fintech ecosystem for incumbent finance. *Environment and Planning A-Economy and Space* 52(8):1516–1538. doi:10.1177/0308518X19887967.
- Hess, M. 2004. ‘Spatial’ relationships? Towards a reconceptualization of embedded ness. *Progress in Human Geography* 28(2):165–186. doi:10.1191/0309132504ph479oa.
- Ibert, O., Oechslen, A., Repenning, A., and Schmidt, S. 2022. Platform ecology: A user-centric and relational conceptualization of online platforms. *Global Networks* 22(3):564–579. doi:10.1111/glob.12355.
- Irrázaval, F. and Bustos-Gallardo, B. 2019. Global Salmon Networks: Unpacking Ecological Contradictions at the Production Stage. *Economic Geography* 95(2):159–178. doi:10.1080/00130095.2018.1506700.
- Johns, J. 2006. Video games production networks: value capture, power relations and embeddedness. *Journal of Economic Geography* 6(2):151–180. doi:10.1093/jeg/lbi001.
- Kenney, M. and Zysman, J. 2016. The rise of the platform economy. *Issues in science and technology* 32(3):61.
- . 2020. The platform economy: restructuring the space of capitalist accumulation. *Cambridge Journal of Regions, Economy and Society* 13(1):55–76. doi:10.1093/cjres/rsaa001.
- Kenney, M., Zysman, J., Bearson, D., and Carlton, C. 2023. Spatial implications of the platform economy: cases and questions. In: Bianchi, P., Labory, S. and Tomlinson, P. (eds.). *Handbook of Industrial Development*. Edward Elgar Publishing: 215–231. doi:10.4337/9781800379091.00023.
- Ladd, T. 2022. The Achilles’ heel of the platform business model: Disintermediation. *Business Horizons* 65(3):277–289. doi:10.1016/j.bushor.2021.02.049.
- Lemoine, W. and Dagnæs, L. 2003. Globalisation strategies and business organisation of a network of logistics service providers. *International Journal of Physical Distribution & Logistics Management* 33(3):209–228. doi:10.1108/09600030310471961.
- Liang, Y., Aroles, J., and Brandl, B. 2022. Charting platform capitalism: Definitions, concepts and ideologies. *New Technology, Work and Employment* 37(2). doi:10.1111/ntwe.12234.
- Liu, W. and Dicken, P. 2006. Transnational corporations and ‘obligated embeddedness’: Foreign direct investment in China’s automobile industry. *Environment and Planning A* 38(7):1229–1247.
- Liu, Y. 2020. Progress of relational economic geography: Whether theorizing China’s experiences (in Chinese). *Geographical Research* 39(5):1005–1017.
- Liu, Y. and Yang, C. 2013. Strategic coupling of local firms in global production networks: the rise of the home appliance industry in Shunde, China. *Eurasian Geography and Economics* 54(4):444–463. doi:10.1080/15387216.2014.883286.
- Liu, Yi, Yeung, G., Zhang, Y., Huang, K., Zhang, X., and Liu, Yingtiao 2023. Strategic coupling, cross-scalar tension and local upgrading in the globalizing automotive industry in Guangzhou, China. *Global Networks*: e12459. doi:10.1111/glob.12459.
- Lu, X., Xie, Y., Zhang, B., and Li, K. 2022. Supply-Demand Docking Joint Decision of Cross-border E-commerce under the Influence of Internet Celebrity. *Journal of Global Information Technology Management* 25(1):54–82. doi:10.1080/1097198X.2021.2020515.
- MacKinnon, D. 2012. Beyond strategic coupling: reassessing the firm-region nexus in global production

- 
- networks. *Journal of Economic Geography* 12(1):227–245. doi:10.1093/jeg/lbr009.
- . 2013. Strategic coupling and regional development in resource economies: the case of the Pilbara. *Australian Geographer* 44(3):305–321. doi:10.1080/00049182.2013.817039.
- MacKinnon, D., Dawley, S., Pike, A., and Cumbers, A. 2019. Rethinking Path Creation: A Geographical Political Economy Approach. *Economic Geography* 95(2):113–135. doi:10.1080/00130095.2018.1498294.
- MacKinnon, D., Dawley, S., Steen, M., Menzel, M.-P., Karlsen, A., Sommer, P., Hansen, G.H., and Normann, H.E. 2019. Path creation, global production networks and regional development: A comparative international analysis of the offshore wind sector. *Progress in Planning* 130:1–32. doi:10.1016/j.progress.2018.01.001.
- Martin, H., Martin, R., and Zukauskaitė, E. 2019. The multiple roles of demand in new regional industrial path development: A conceptual analysis. *Environment and Planning A: Economy and Space* 51(8):1741–1757. doi:10.1177/0308518X19863438.
- Martin, R. and Martin, H. 2023. The role of demand in regional industrial path development – examples from the Swedish periphery. *European Planning Studies* 31(9):1975–1992. doi:10.1080/09654313.2023.2210617.
- Martin, R. and Sunley, P. 2003. Deconstructing clusters: chaotic concept or policy panacea? *Journal of Economic Geography* 3(1):5–35. doi:10.1093/jeg/3.1.5.
- Martin, R. and Sunley, P. 2011. Conceptualizing cluster evolution: beyond the life cycle model? *Regional studies* 45(10):1299–1318. doi:10.1080/00343404.2011.622263.
- Mather, C. 1999. Agro-commodity chains, market power and territory: re-regulating South African citrus exports in the 1990s. *Geoforum* 30(1):61–70. doi:10.1016/S0016-7185(98)00033-5.
- Moodley, S. 2002. Global market access in the Internet era: South Africa’s wood furniture industry. *Internet Research-Electronic Networking Applications and Policy* 12(1):31–42. doi:10.1108/10662240210415808.
- Morris, C. 2023. ‘It would be smart to discuss this on telegram’: China’s digital territorialization project and its spatial effects on contentious politics. *Territory, Politics, Governance* 11(6):1081–1099. doi:10.1080/21622671.2023.2183894.
- Ouma, S. 2010. Global Standards, Local Realities: Private Agrifood Governance and the Restructuring of the Kenyan Horticulture Industry. *Economic Geography* 86(2):197–222. doi:10.1111/j.1944-8287.2009.01065.x.
- Parola, F. and Sciomachen, A. 2009. Modal split evaluation of a maritime container terminal. *Maritime Economics & Logistics* 11(1):77–97. doi:10.1057/mel.2008.22.
- Pasquali, G., Godfrey, S., and Nadvi, K. 2021. Understanding regional value chains through the interaction of public and private governance: Insights from Southern Africa’s apparel sector. *Journal of International Business Policy* 4(3):368–389. doi:10.1057/s42214-020-00071-9.
- Porter, M.E. 1990. The competitive advantage of nations. *Harvard Business Review*, March-April, 73-93.
- . 1998. *On Competition*. Boston, MA: Harvard Business School Publishing. The Harvard business review book series.
- Repenning, A. and Oechslen, A. 2023. Creative digipreneurs: Artistic entrepreneurial practices in platform-mediated space. *Digital Geography and Society*, 4, 100058.
- Rodríguez-Pose, A. 2021. Costs, incentives, and institutions in bridging evolutionary economic geography and global production networks. *Regional Studies* 55(6):1011–1014. doi:10.1080/00343404.2021.1914833.

- 
- Roelandt, T.J. and Den Hertog, P. 1999. Cluster analysis and cluster-based policy making in OECD countries: an introduction to the theme. *Boosting innovation: The cluster approach* 31:9–23.
- Selwyn, B. 2016. Global value chains and human development: a class-relational framework. *Third World Quarterly* 37(10):1768–1786. doi:10.1080/01436597.2016.1156484.
- Simmie, J. and Sennett, J. 1999. Innovation in the London metropolitan region. *Innovative clusters and competitive cities in the UK and Europe. Working Paper* 182.
- Swann, G.P. 1998. Towards a model of clustering in high-technology industries. *The dynamics of industrial clustering*: 52–76.
- Wall, R.S. and van der Knaap, G.A. 2011. Sectoral Differentiation and Network Structure Within Contemporary Worldwide Corporate Networks. *Economic Geography* 87(3):267–308. doi:10.1111/j.1944-8287.2011.01122.x.
- Wang, C.C., Gereffi, G., and Liu, Z. 2021. Beyond technological relatedness: An evolutionary pro-growth coalition and industrial transformation in Kunshan, China. *Growth and Change* 52(4):2318–2341. doi:10.1111/grow.12566.
- Wigand, R.T. 2020. Whatever happened to disintermediation? *Electronic Markets* 30(1):39–47. doi:10.1007/s12525-019-00389-0.
- Yang, C. 2009. Strategic Coupling of Regional Development in Global Production Networks: Redistribution of Taiwanese Personal Computer Investment from the Pearl River Delta to the Yangtze River Delta, China. *Regional Studies* 43(3):385–407. doi:10.1080/00343400802508836.
- Yang, C. and Fu, T. 2017. From exports to sell in China: transformation of the export-oriented furniture firms in the Pearl River Delta. *Geografiska Annaler: Series B, Human Geography* 99(4):380–398. doi:10.1080/04353684.2017.1365255.
- Yeung, H.W.-C. 2009. Regional Development and the Competitive Dynamics of Global Production Networks: An East Asian Perspective. *Regional Studies* 43(3):325–351. doi:10.1080/00343400902777059.
- . 2016. *Strategic Coupling: East Asian Industrial Transformation in the New Global Economy*. Cornell University Press.
- Yeung, H.W.-C. and Coe, N.M. 2015. Toward a Dynamic Theory of Global Production Networks. *Economic Geography* 91(1):29–58. doi:10.1111/ecge.12063.
- Zeng, Y., Guo, H., Yao, Y., and Huang, L. 2019. The formation of agricultural e-commerce clusters: A case from China. *Growth and Change* 50(4):1356–1374. doi:10.1111/grow.12327.

## Appendix 1: Interview details

Case	Actor Group	Organization	Abbreviation	Interviewee	Date
Shunde--- August to December 2022	Companies and Employees	Kaimai Rock Slab Dining Table (online)	C1, E1, E2	CEO, Live-streaming host, HR	8/30/2022 9/23/2022 9/25/2022
	Associations	Lecong Furniture Association	A1, P1	Association leader, Self- operated platform	11/19/2022
	Companies and Employees	Sanyou Peer Culture	C2	Media company CEO	11/21/2022
	Companies and Employees	Ruguo furniture modular table	C3	COO	11/22/2022
	Government	Lechon Township Economic Development Office	G1	Director	11/23/2022
	Companies and Employees	Pinwei Yangguang Furniture	C4, E3	COO and Designer	11/23/2022
	Companies and Employees	Extraordinary in light and shadow	C5	Media company CEO	11/23/2022
	Companies and Employees	Plain Homeland	C6	COO	11/24/2022
	Platforms	Vipshop	P2	Head of Furniture Segment of the Platform	11/24/2022
	University	Neusoft Institute Guangdong	U1	Head of University- Enterprise Co-operation	11/25/2022
	Companies and Employees	Outdoor Courtyard	C7, E4	COO, Live-streaming host,	11/25/2022
	Companies and Employees	Muyue Furniture	C8, A2	COO, Furniture e-commerce association	11/25/2022
	Companies and Employees	Oulang Furniture	C9	CEO	12/07/2022
	Companies and Employees	Ledu E-commerce Furniture	C10, E5	CEO, Live-streaming host,	12/07/2022
	Companies and Employees	Meileju Furniture	C11	CEO	12/08/2022

	Companies and Employees	Ouerdun Furniture	C12	CEO	12/08/2022
	Companies and Employees	Wanmeixuan Furniture	C13	CEO	12/08/2022
Nankang--- August to December 2022	Government	Ganzhou Nankang District Furniture Industry Promotion Bureau	G2	Director	11/30/2022
	Platforms	Tmall	P3	Head of Furniture Segment of the Platform	11/30/2022
	Associations	Nankang Furniture Association	A3	Association Leader	11/30/2022
	Companies and Employees	Benwu Craft	C14	COO	11/30/2022
	Companies and Employees	Fulong Huangguan Furniture	C15	CEO	12/01/2022
	University	Jiangxi Environmental Engineering Vocational College	U2	Head of Design Partnerships	12/01/2022
	Associations	Nankang e-commerce Association	A4	Association Leader	12/01/2022
	Companies and Employees	Huige Furniture	C16, E6	CEO, Live-streaming host	12/01/2022
	Companies and Employees	Yuelu Logistics	C17	CEO, Live-streaming host	12/11/2022
	Companies and Employees	Haiyue Furniture	C18, E7	CEO	12/02/2022
	Government	Nankang Talent Group	G3	Director	12/02/2022
	Companies and Employees	Hexie Home	C19	CEO	12/06/2022
	Companies and Employees	Jiuxi Furniture	C20	CEO	12/09/2022
	Companies and Employees	JinZhong Wooden	C21, E8	CEO, Manager	12/10/2022
	Companies and Employees	Jiuxi Furniture	C22,	CEO	12/10/2022
	Companies and Employees	Shijijiayuan Furniture	C23	CEO	12/11/2022
	Companies and Employees	Manyan Furniture	C24, E9	COO, Live-streaming host	12/11/2022
	Government	Nankang industrial Park Management Committee	G4	Director	12/12/2022



	Companies and Employees	Xianmu Furniture	C25	COO	12/13/2022
	Associations	Nankang e-Logistic Association	A5	Association Leader	12/13/2022
Suining--- August to December 2022	University	Nanjing University	U3	Head of industrial planning for Suining	
	Government	Government	G5	deputy mayor (of a town)	12/14/2022
	Companies and Employees	Jinduoxi Furniture	C26, E10	CEO, Live-streaming host	12/14/2022
	Platforms	Tmall	P4	Head of Furniture Segment of the Platform	12/15/2022
	Government	Head of Transformation Demonstration Area	G6, G7	Director and assistant	12/15/2022
	Companies and Employees	SF Express	C27	worker	12/16/2022
	Government	Head of e-commerce centre	G8	Director	12/16/2022
	Companies and Employees	Yuefan Furniture	C28, E11	COO, worker	12/16/2022
	Government	Investment Promotion Bureau	G9, E12	Director and assistant	12/17/2022
	Government	Head and secretary of Dongfeng Village	G10, G11	Village cadres	12/19/2022
	Companies and Employees	Shengyuan Wooden	C29	Raw material	12/19/2022
	Companies and Employees	Juchuang Aluminium Furniture	C30	COO	12/19/2022
	Associations	Suining e-commerce Association	A6	Association Leader	12/13/2022
	Companies and Employees	Yingtianxia	C31	COO	12/20/2022
	Companies and Employees	Runli Furniture	C32	COO	12/20/2022
	Companies and Employees	Gaoming Bed	C33	COO	12/20/2022
Shunde--- January to February 2024	Government	Shunde District Economic Development Office	G12, G13	Director and assistant	01/10/2024
	Companies and Employees	Kusi Furniture	C34, E13	CEO and live-streaming host	01/11/2024
	Companies and Employees	Muyue Furniture	C35	CEO	01/11/2024
Nankang--- January to February	Companies and Employees	Yangguang Furniture	C36	CEO	01/16/2024
	Government	Ganzhou Nankang District Furniture Industry Promotion Bureau	G14, G15	Director and assistant	01/17/2024

2024	Government	Department of Commerce	G16	Director	01/17/2024
	Government	Ganzhou Port	G17	Director	01/17/2024
	Companies and Employees	XiangyiBainian Furniture	C37	COO	01/18/2024
	Companies and Employees	Huisen Household International Group Limited	C38	COO	01/18/2024
	Companies and Employees	Fencun Furniture	C39	CEO	01/18/2024
	Universities	Gannan Normal University	U4	Head of University- Enterprise Co-operation	01/19/2024
	Companies and Employees	YidianGediao Furniture	C40	COO	01/19/2024
	Companies and Employees	AiyangFurniture	C41	CEO	01/19/2024

## Chapter 5: Discussions and Conclusion

In this final chapter, I will begin by addressing the research questions posed in section 1.2 through a review of the results in empirical studies in Groups B1 and B2. Subsequently, in section 5.2, I will discuss the core contributions of this dissertation to the field of economic geography. Finally, in section 5.3, I will outline the limitations of this study and suggest potential directions for future research.

### 5.1 Main findings of the Studies

#### 5.1.1 Regional Development in the Platform Era

Based on findings in Group B1 research (Table 5), this section aims to answer sub-questions 1 and 2. Platforms not only change the economic landscape but also 'make' places and led to significant socio-culture changes within these regions in China. By progressively expanding the enrolment of intra-regional and extra-regional actors, platforms like Taobao have facilitated the development and upgrading of local industries. Digital platforms have significantly lowered the barrier to entry for new entrepreneurs, particularly in underdeveloped or remote areas. This democratization of economic opportunities has led to a surge in entrepreneurial activities, diversifying and enriching the local economic base. The study also explores how digital platforms contribute to the upgrading and transformation of regional economies. Different regions followed diversity trajectories in this process. Factors influencing these trajectories include the ability of local actors to engage with the platform, the existing local economic conditions, and the strategic use of the platform by local entrepreneurs. These findings illustrate the complex and multifaceted role of digital platforms in shaping regional economic landscapes, suggesting a nuanced view of how digitalization impacts regional development.

Further, Group B1-paper 2 explores from the county level when digital platforms can consistently empower regional development. I summarize the expansion and aggregation process of Taobao villages at the county level as PECD (Platform Empowered Cluster Development). The Taobao e-commerce platform not only enables the creation of new industrial paths in regions but also empowers the expansion of existing regional industries. Through a fuzzy-set qualitative comparative analysis (fsQCA) method, four long-term empowering patterns were identified. Platforms facilitate the diversification of regional economies by enabling new forms of business and innovation. This has implications for regional policy and planning, suggesting that platforms can be leveraged as tools for economic development and long-term growth. Both studies suggest that policymakers should consider the specific characteristics and needs of different regions when designing policies aimed at harnessing the power of digital platforms for economic development. Tailored approaches are recommended to maximize the benefits while minimizing potential negative impacts. Overall, they emphasize the transformative potential of platforms and the need for strategic engagement from both local stakeholders and policymakers to fully realize this potential.

Table 5 Research Findings in Group B1

	Research Findings
Group B1 Paper 1	First, platforms interact with locations and progressively 'create' places by expanding the involvement of various actors, which is the “Platform-Based Place Making”. Secondly, the divergent trajectories following the emergence of Taobao villages are attributed to the quantitative and qualitative shifts in each village’s ability to mobilize intra-regional network actors and connect with extra-regional network actors. Thirdly, upgrading depends on the simultaneous

	enhancement and promotion of both intra- and extra-regional activities by newly introduced platforms. This article broadens existing understanding by analyzing the entire process of Taobao villages from a platform perspective, encompassing not only their emergence and growth but also their decline and upgrading.
Group B1 Paper 2	The Taobao e-commerce platform not only empowers locations to nurture new e-commerce industrial clusters but also to expand and upgrade existing local industrial clusters. This dual process, encapsulated under the concept of “Platform Empowered Cluster Development (PECD)”, is conceptualized based on cluster theories. Our research further identifies four distinct PECD patterns: Pattern A, driven by local government without a pre-existing context; Pattern B, driven by pre-existing advantages without process forces; Pattern C, first-mover advantage, grassroots driven with a locational advantage; Pattern D, dual driven without a pre-existing context.

### 5.1.2 Cluster Development in the Platform Era

Based on Group B2's articles (Table 6), this section will answer sub-questions 3, 4, and 5. Initially, for existing industries (mature clusters), platforms had a negative impact on some manufacturers who primarily supplied offline markets, which contracted with the growth of the platform economy. For emerging clusters, platforms initially provided a window of opportunity, enabling new clusters to emerge in peripheral regions. Overall, platformization has enriched consumer purchasing channels (by facilitating online shopping during the pandemic), expanded the domestic and international market reach of clusters, and provided buffer zones and backup markets during crises.

However, the impact of platforms on clusters varies by location and over different time periods. Clusters do not always consistently empower emerging clusters because the emergence of online markets and new marketing strategies transformed the traditional value chains in the furniture industry, highlighting the challenges for emerging clusters in adapting to the digital economy. To address market differentiation brought about by digital platforms, clusters need to engage in "market coupling" to integrate their traditional manufacturing networks and organizations into the platform economy. The study identifies significant barriers that different clusters face when integrating with digital platforms, such as cultural differences, logistical challenges, and the need for new knowledge and competencies. These clusters show varying degrees of integration into the digital platform ecosystem, each adapting to the platform-driven market dynamics in distinct ways. These adaptations can be summarized in two aspects, including adapting existing operations and developing new business models to better align with digital market demands. Overall, the impact of digital platforms varies among different clusters; some have successfully leveraged platforms to enhance their economic activities and integrate more deeply into global value chains, while others struggle to adapt to the competitive pressures brought about by digital platforms.

Table 6 Research Findings in Group B2

	Research Findings
Group B2 Paper 1	China's e-commerce platforms have experienced rapid growth, which led to the closure of some offline stores and malls that could not adapt to digital marketing. Consequently, manufacturers that supplied these offline outlets were also impacted in the beginning. Additionally, platformization includes the effects of cross-border e-commerce platforms in recent years (post-2019), which have primarily empowered, rather than disrupted, the output markets (especially overseas). Platformization, in a way, has enriched consumer purchasing channels (by facilitating online shopping during the pandemic), broadened the end-market reach of the clusters both domestically and internationally, and provided buffer zones and backup markets when crises occurred. We also found out that the mechanisms which made clusters resilient are diverse, and our research demonstrates that different strategies are needed to enhance resilience, tailored to the backgrounds

	of various industrial clusters.
Group B2 Paper 2	We found that the value chain manifests as a "wicked smile," indicating that platforms in the digital era capture most of the value, often at the expense of traditional manufacturers and R&D departments. The impact of platforms on three clusters can be divided into two stages (initial and mature), and in both stages the three clusters react differently. In the initial stage, the lock-in effect on mature clusters presents entry opportunities for emerging clusters. However, in the mature stage, the role of the historical legacy within mature clusters shifts from locking in to enabling, allowing these mature clusters to leverage their assets and regain their competitive edge. This dynamic illustrates the paradoxical, varied, and uneven impacts that e-commerce platforms have on regional industry clusters. On the one hand, platforms have the potential to democratize access to markets and enable regions with no industry history to enter new sectors in the initial stage, which facilitates upgrading for clusters. On the other hand, based on the "wicked smile", the completeness of the local supply chain and the availability of skilled talent are critical factors determining competitiveness when getting into the mature stage, which making it difficult for newly emerged clusters to catch up.
Group B2 Paper 3	Four key contributions are offered in this paper: First, the paper analyzes the market differentiation brought about by different forms of e-commerce platforms, using this as the background for the entire analysis. This goes beyond the traditional simplistic PC-based e-commerce C&N, providing a more nuanced explanation for the impact of diverse digital e-commerce platforms. Secondly, it significantly advances and extends the literature of strategic coupling by introducing the key concept of "market coupling" and integrates cluster, C&N, and multi-scalar perspectives to develop a comprehensive analytical framework. Thirdly, by comparing three cases, the paper summarizes different forms of C&N for four markets, offline domestic, offline cross-border, online domestic and online cross-border markets and the barriers among them. Lastly, by comparing traditional C&N with emerging ones, the paper identifies two mechanisms of market coupling for clusters: "Creating new elements" and "Adaptive transformation".

The research demonstrates that the impact of digital platforms on regional and cluster development varies by location. The findings suggest that policymakers need to consider the specific characteristics of regions and clusters when designing strategies to harness digital platforms for economic development. Supportive measures are needed to help regions and clusters navigate the challenges of digital transformation and capitalize on new opportunities.

## 5.2 Key Contributions to Economic Geography

This dissertation provides key insights into the impact of digital platforms on regional development and industrial clusters from the perspective of economic geography. Through an engaged pluralism framework integrating evolutionary and relational thinking, this study examines the multifaceted impacts of the platform economy on regional economies in China, as well as on three specific furniture industry clusters. Here are the main contributions of this work:

### Advancing Engaged Pluralism

This research significantly advances the concept of engaged pluralism within economic geography, particularly by integrating evolutionary thinking with relational perspectives. The combination of Evolutionary Economic Geography (EEG) and Relational Economic Geography (REG) allows for a meticulous exploration of economic patterns, showing how historical dependencies and relational networks jointly influence the outcomes of regional and cluster development, adaptation, and transformation. This approach not only underscores the importance of multi-perspective engagement

in understanding complex economic phenomena but also demonstrates the practical application of theoretical paradigms in addressing real-world problems.

### **Multi-scalar, Multi-perspective, and Multi-methodological Approach**

By employing a multi-scalar, multi-perspective, and multi-methodological approach, this dissertation enhances the study and understanding of the digital economy and platform economy within economic geography. Utilizing different scalar perspectives and integrating various methods, including case studies, comparative analysis, and QCA, the thesis studies regional and cluster development, enriching our understanding of how digital platforms impact economic activities. This comprehensive methodological approach reveals the varied impacts of platforms, highlighting how mechanisms and outcomes vary depending on local conditions, the scale of engagement, and strategic uses of digital capabilities. The methodological approach adopted in this thesis can also be applied to future research in similar occasions.

### **Reflection and Advancement of Concepts**

One of the innovative contributions of this study is the reflection on and advancement of traditional concepts within the context of the platform economy, such as "platform-based place making," "platform-empowered cluster development," "wicked smile," and "market coupling." These concepts are developed from traditional notions like "place-making," "cluster," "smile curve," and "strategic coupling," but the newly proposed concepts more accurately reflect the specific challenges and opportunities that local developments face in adapting to digital economic practices. This reflection and advancement of old concepts based on new phenomena provide new theoretical insights for subsequent research related to the platform economy.

Overall, this dissertation highlights the transformative potential of digital platforms in reshaping economic geography. It advances engaged pluralism, multi-method approaches, and conceptual innovation in understanding the complexities of the economic geography of the platform economy. The findings foster academic discussion by providing new theoretical insights and establishing a strong foundational mindset for understanding the transformation and value creation of regions, clusters, chains, and networks in a digital context. This can aid policymakers, industry leaders, and scholars in better understanding and leveraging the opportunities brought by the platform economy. The study demonstrates that a detailed, context-based approach is crucial for realizing the benefits of digital transformation, ensuring that regions and clusters can effectively adapt to the challenges and opportunities of the digital age.

## **5.3 Limitations and Future Research Directions**

This dissertation provides significant insights into the impact of digital platforms on regional development and industrial clusters in China, challenging the dominance of Anglo-American perspectives in the literature and advancing research in economic geography and the platform economy. However, it also identifies some limitations that highlight directions for future research:

### **Need for Cross-National Comparisons**

Although this study addresses Western biases in economic geography by focusing on China, it restricts its scope to a single national context, limiting the ability to generalize findings across different global

regions. Digital platforms may interact differently with local economies and clusters outside of China. Future research should include cross-national case studies to explore how digital platforms shape economic interactions and landscapes in different political and economic settings. Comparative studies could reveal either universal patterns or distinct differences in platform impacts, enriching our understanding of the role of digital platforms in diverse developmental contexts.

### **Broader Sectoral Interactions**

The current research mainly explores the interactions between e-commerce platforms and manufacturing clusters. However, the continuous evolution of digital platforms, particularly their increasing interactions with social media, suggests a more complex platform ecosystem affecting various sectors, including tourism, entertainment, gaming, and advertising. These interactions could further transform traditional industries in ways not fully captured by this study. Future investigations could expand the scope to explore how digital platforms influence these sectors, potentially offering new insights into sector-specific dynamics and inter-sectoral dependencies within the platform economy.

### **Policy Recommendations and Practical Guidance**

While this dissertation provides a detailed exploration of the mechanisms through which digital platforms impact regional and cluster development, it offers limited guidance on policy implications. Future research could focus on developing policy recommendations based on the findings. This would involve translating academic insights into actionable strategies that policymakers and practitioners can implement. Research could particularly focus on creating supportive policies that harness the positive impacts of digital platforms while mitigating adverse effects, tailored to the specific needs and conditions of different regions.

Future research could build on the concepts and findings presented in this dissertation by expanding the geographic and sectoral scope of the research and integrating more policy-oriented analyses. This approach would not only deepen the theoretical understanding of platform economies but also enhance the practical relevance of research outcomes for global economic development in the digital age.

## List of References

- Acs, Z. J. (2023). The global digital platform economy and the region. *The Annals of Regional Science*, 70(1), 101–133.
- Adam, F. (2011). Regional innovation performance in light of social-capital research and application. *Social Science Information*, 50(3–4), 414–428.
- Alos-Ferrer, C., Kirchsteiger, G., & Walzl, M. (2010). On the Evolution of Market Institutions: The Platform Design Paradox. *Economic Journal*, 120(543), 215–243.
- Anderson, A. R. (2000). Paradox in the periphery: An entrepreneurial reconstruction? *Entrepreneurship & Regional Development*, 12(2), 91–109.
- Antonio Belso-Martinez, J., Mas-Tur, A., & Roig-Tierno, N. (2017). Synergistic effects and the co-existence of networks in clusters. *Entrepreneurship and Regional Development*, 29(1–2), 137–154.
- Antràs, P. (2020). Conceptual aspects of global value chains. *The World Bank Economic Review*, 34(3), 551–574.
- Arthur, W. B. (1989). Competing Technologies, Increasing Returns, and Lock-In by Historical Events. *The Economic Journal*, 99(394), 116.
- Arthur, W. B. (1994a). *Increasing returns and path dependence in the economy*. University of Michigan Press.
- Arthur, W. B. (1994b). Positive feedbacks in the economy. *The McKinsey Quarterly*, 1, 81–96.
- Bair, J., & Gereffi, G. (2003). Upgrading, uneven development, and jobs in the North American apparel industry. *Global Networks*, 3(2), 143–169.
- Barnes, T. J., & Christophers, B. (2018). *Economic geography: A critical introduction*. John Wiley & Sons.  
[https://books.google.com/books?hl=en&lr=&id=F41FDwAAQBAJ&oi=fnd&pg=PR6&dq=Barnes+TJ+and+Christophers+B+\(2018\)+Economic+Geography:+A+Critical+Introduction.+Chichester:&ots=\\_u0p9KyuVL&sig=3yUdTZoCZ0LeDT1BeRm3CXcUSJY](https://books.google.com/books?hl=en&lr=&id=F41FDwAAQBAJ&oi=fnd&pg=PR6&dq=Barnes+TJ+and+Christophers+B+(2018)+Economic+Geography:+A+Critical+Introduction.+Chichester:&ots=_u0p9KyuVL&sig=3yUdTZoCZ0LeDT1BeRm3CXcUSJY)
- Barnes, T. J., & Sheppard, E. (2010). 'Nothing includes everything': Towards engaged pluralism in Anglophone economic geography. *Progress in Human Geography*, 34(2), 193–214.
- Barnes, T. J., & Sheppard, E. (2024). Economic Geography. In D. Richardson, N. Castree, M. F. Goodchild, A. Kobayashi, W. Liu, & R. A. Marston (Eds.), *International Encyclopedia of Geography* (1st ed., pp. 1–27). Wiley.
- Barratt, T., Goods, C., & Veen, A. (2020). 'I'm my own boss...': Active intermediation and 'entrepreneurial' worker agency in the Australian gig-economy. *Environment and Planning A: Economy and Space*, 52(8), 1643–1661.
- Bathelt, H. (2006). Geographies of production: Growth regimes in spatial perspective 3-toward a relational view of economic action and policy. *Progress in Human Geography*, 30(2), 223–236.
- Bathelt, H., & Glückler, J. (2003). Toward a relational economic geography. *Journal of Economic Geography*, 3(2), 117–144.
- Benner, M. (2014). From smart specialisation to smart experimentation. *Zeitschrift Für Wirtschaftsgeographie*, 58(1), 33–49.



- Berg, J., Furrer, M., Harmon, E., Rani, U., & Silberman, M. S. (2018). Digital labour platforms and the future of work. *Towards Decent Work in the Online World. Rapport de l'OIT*.
- Bhaskar, R. (1975). *A realist theory of science*. Leeds Books.
- Binz, C., & Gong, H. (2022). Legitimation dynamics in industrial path development: New-to-the-world versus new-to-the-region industries. *Regional Studies*, 56(4), 605–618.
- Boggs, J. S., & Rantisi, N. M. (2003). The 'relational turn' in economic geography. *Journal of Economic Geography*, 3(2), 109–116.
- Boschma, R. A. (1999). The rise of clusters of innovative industries in Belgium during the industrial epoch. *Research Policy*, 28(8), 853–871.
- Boschma, R. A., & Frenken, K. (2006). Why is economic geography not an evolutionary science? Towards an evolutionary economic geography. *Journal of Economic Geography*, 6(3), 273–302.
- Boschma, R. A., & Martin, R. (Eds.). (2010). *The handbook of evolutionary economic geography*. Edward Elgar.
- Brail, S. (2018). From Renegade to Regulated: The Digital Platform Economy, Ride-hailing and the Case of Toronto. *Canadian Journal of Urban Research*, 27(2), 51–63.
- Bresnahan, T., Gambardella, A., & Saxenian, A. (2001). 'Old economy' inputs for 'new economy' outcomes: Cluster formation in the new Silicon Valleys. *Industrial and Corporate Change*, 10(4), 835–860.
- Briglaue, W., Dürr, N., & Gugler, K. (2021). A retrospective study on the regional benefits and spillover effects of high-speed broadband networks: Evidence from German counties. *International Journal of Industrial Organization*, 74, 102677.
- Bruesch, A., & Quinn, M. (2022). Concept maps and visualisation as a means of triangulation in management accounting and control research. *Qualitative Research in Accounting And Management*, 19(2), 217–230.
- Büchi, M., Just, N., & Latzer, M. (2016). Modeling the second-level digital divide: A five-country study of social differences in Internet use. *New Media & Society*, 18(11), 2703–2722.
- Cairncross, F. (1997). *The death of distance: How the communications revolution will change our lives*. Harvard Business School.
- Cao, L. (2024). From online to onsite: Wanghong economy as the new engine driving China's urban development. *Environment and Planning A: Economy and Space*, 0308518X231224142.
- Chao, P., Biao, M. A., & Zhang, C. (2021). Poverty alleviation through e-commerce: Village involvement and demonstration policies in rural China. *Journal of Integrative Agriculture*, 20(4), 998–1011.
- Christopher, M. (2016). *Logistics & Supply Chain Management* (5th edition). FT Publishing International.
- Chu. (2024). Ontology and Geography. In *The Encyclopedia of Human Geography*. Springer Nature (forthcoming).  
[https://meteor.springer.com/container/contribute.jsf?id=242539&auth\\_user=590260&auth\\_key=068d9b9222a4c03273863ada4845ba82](https://meteor.springer.com/container/contribute.jsf?id=242539&auth_user=590260&auth_key=068d9b9222a4c03273863ada4845ba82)
- Chu, H., & Hassink, R. (2022). *Regional Clusters*. Oxford University Press.

- Chu, H., & Hassink, R. (2023). Advancing spatial ontology in evolutionary economic geography. *Cambridge Journal of Regions, Economy and Society*, 16(3), 391–404.
- Chu, H., Hassink, R., & Liu, W. (2024). Exploring the mechanisms of platform empowered cluster development: Evidence from the case of Taobao villages in rural China. *Regional Studies*, 0(0), 1–15.
- Chu, H., Hassink, R., Xie, D., & Hu, X. (2023). Placing the platform economy: The emerging, developing and upgrading of Taobao villages as a platform-based place making phenomenon in China. *Cambridge Journal of Regions, Economy and Society*, 16(2), 319–334.
- Chu, H., Hassink, R., & Yilmaz, Ş. (2023). Fragmented or engaged pluralism in economic geography? *Progress in Human Geography*, 03091325231219697.
- Coe. (2021). *Advanced Introduction to Global Production Networks*. <https://www.e-elgar.com/shop/gbp/advanced-introduction-to-global-production-networks-9781788979610.html>
- Coe, N. M., Dicken, P., & Hess, M. (2008). Global production networks: Realizing the potential. *Journal of Economic Geography*, 8(3), 271–295.
- Coe, N. M., Hess, M., Yeung, H. W., Dicken, P., & Henderson, J. (2004). 'Globalizing' regional development: A global production networks perspective. *Transactions of the Institute of British Geographers*, 29(4), 468–484.
- Coe, N. M., & Yang, C. (2022). Mobile Gaming Production Networks, Platform Business Groups, and the Market Power of China's Tencent. *Annals of the American Association of Geographers*, 112(2), 307–330.
- Coe, N. M., & Yeung, H. W. (2015). *Global production networks: Theorizing economic development in an interconnected world* (First edition). Oxford University Press.
- Couture, S., & Toupin, S. (2019). What does the notion of “sovereignty” mean when referring to the digital? *New Media & Society*, 21(10), 2305–2322.
- Cox, K. R. (2014). *Making Human Geography* (1st edition). The Guilford Press.
- Cox, K. R., & Evenhuis, E. (2020). Theorising in urban and regional studies: Negotiating generalisation and particularity. *Cambridge Journal of Regions, Economy and Society*, 13(3), 425–442.
- Cresswell, T. (2014). *Place: An introduction*. John Wiley & Sons.
- Cresswell, T. (2024). *Geographic thought: A critical introduction*. John Wiley & Sons. <https://books.google.com/books?hl=en&lr=&id=I-ztEAAQBAJ&oi=fnd&pg=PR6&dq=Geographic+thought:+a+critical+introduction&ots=Q4TK89IInE&sig=bLHBCo5DnWj41gCaMh1Ancvmhfg>
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. SAGE Publications.
- Cutolo, D., & Kenney, M. (2021). Platform-Dependent Entrepreneurs: Power Asymmetries, Risks, and Strategies in the Platform Economy. *Academy of Management Perspectives*, 35(4), 584–605.
- Davies, A., Donald, B., & Gray, M. (2023). The power of platforms—Precarity and place. *Cambridge Journal of Regions, Economy and Society*, 16(2), 245–256.
- de Duren, N. R. L. (2018). Why there? Developers' rationale for building social housing in the urban periphery in Latin America. *Cities*, 72, 411–420.

- De Meur, G., Yamasaki, S., & Rihoux, B. (2009). *Addressing the critiques of QCA*.
- Denzin, N. K., & Lincoln, Y. S. (2011). *The SAGE Handbook of Qualitative Research*. SAGE.
- Dinh, T. T. Q., & Tienari, J. (2022). Brothers and broken dreams: Men, masculinity, and emotions in platform capitalism. *Gender Work and Organization*, 29(2), 609–625.
- Dirzka, C., & Acciaro, M. (2022). Global shipping network dynamics during the COVID-19 pandemic's initial phases. *Journal of Transport Geography*, 99, 103265.
- Dubois, A. (2016). Transnationalising entrepreneurship in a peripheral region – The translocal embeddedness paradigm. *Journal of Rural Studies*, 46, 1–11.
- Duxbury, N. (2021). Cultural and creative work in rural and remote areas: An emerging international conversation. *International Journal of Cultural Policy*, 27(6), 753–767.
- Eder, J. (2019). Peripheralization and knowledge bases in Austria: Towards a new regional typology. *European Planning Studies*, 27(1), 42–67.
- Eder, J., & Trippel, M. (2019). Innovation in the periphery: Compensation and exploitation strategies. *Growth and Change*, 50(4), 1511–1531.
- Essletzbichler, J., Scholz-Waeckerle, M., Gerdes, L., Wieland, H.-P., & Dorninger, C. (2023). Geographical evolutionary political economy: Linking local evolution with uneven and combined development. *Cambridge Journal of Regions Economy and Society*, 16(3), 543–560.
- Fiss, P. C. (2011). Building Better Causal Theories: A Fuzzy Set Approach to Typologies in Organization Research. *Academy of Management Journal*, 54(2), 393–420.
- Fletcher, A. J. (2017). Applying critical realism in qualitative research: Methodology meets method. *International Journal of Social Research Methodology*, 20(2), 181–194.
- Fløysand, A., & Jakobsen, S.-E. (2011). The complexity of innovation: A relational turn. *Progress in Human Geography*, 35(3), 328–344.
- Foray, D. (2014). *Smart specialisation: Opportunities and challenges for regional innovation policy*. Routledge.
- Ford, H., & Graham, M. (2016). Provenance, power and place: Linked data and opaque digital geographies. *Environment and Planning D: Society and Space*, 34(6), 957–970.
- Fornahl, D., Henn, S., & Menzel, M.-P. (2010). *Emerging clusters: Theoretical, empirical and political perspectives on the initial stage of cluster evolution*. Edward Elgar Publishing. <https://books.google.com/books?hl=en&lr=&id=lelfgRWYcF0C&oi=fnd&pg=PR1&dq=Fornahl+2010+book&ots=LAW2vhom1x&sig=lc9-vCweAvmx8NUFen4v64d3MDo>
- Frenken, K., Neffke, F., & van Dam, A. (2023). Capabilities, institutions and regional economic development: A proposed synthesis. *Cambridge Journal of Regions Economy and Society*, 16(3), 405–416.
- Fröhlich, K., & Hassink, R. (2018). Regional resilience: A stretched concept? *European Planning Studies*, 26(9), 1763–1778.
- Gaber, J., & Gaber, S. L. (1997). Utilizing mixed-method research designs in planning: The case of 14th Street, New York City. *Journal of Planning Education and Research*, 17(2), 95–103.
- Gereffi. (2001). Shifting governance structures in global commodity chains, with special reference to the Internet. *American Behavioral Scientist*, 44(10), 1616–1637.
- Gereffi, G. (1999). International trade and industrial upgrading in the apparel commodity chain. *Journal of International Economics*, 48(1), 37–70.

- Gereffi, G. (2005). The global economy: Organization, governance, and development. *The Handbook of Economic Sociology*, 2, 160–182.
- Gibson, C. B. (2017). Elaboration, Generalization, Triangulation, and Interpretation: On Enhancing the Value of Mixed Method Research. *Organizational Research Methods*, 20(2), 193–223.
- Gleeson, B. J. (1996). A geography for disabled people? *Transactions of the Institute of British Geographers*, 387–396.
- Glueckler, J., & Doreian, P. (2016). Social network analysis and economic geography-positional, evolutionary and multi-level approaches. *Journal of Economic Geography*, 16(6), 1123–1134.
- Gong, H. (2019). *Structure and agency in local path development: A comparative study of the online games industry in Shanghai and Hamburg* [PhD Thesis]. [https://macau.uni-kiel.de/receive/diss\\_mods\\_00026081?lang=en](https://macau.uni-kiel.de/receive/diss_mods_00026081?lang=en)
- Gong, H., & Hassink, R. (2020). Context sensitivity and economic-geographic (re)theorising. *Cambridge Journal of Regions, Economy and Society*, 13(3), 475–490.
- Gong, J., Boelens, L., & Hua, C. (2020). How Can China Achieve Economic Transition with the Featured Town Concept? A Case Study of Hangzhou from an Evolutionary Perspective. *Urban Policy and Research*, 38(3), 249–261.
- Grabher, G. (2018). Marginality as strategy: Leveraging peripherality for creativity. *Environment and Planning A: Economy and Space*, 50(8), 1785–1794.
- Graham, M. (2020). Regulate, replicate, and resist—the conjunctural geographies of platform urbanism. *Urban Geography*, 41(3), 453–457.
- Graham, M., Hjorth, I., & Lehdonvirta, V. (2017). Digital labour and development: Impacts of global digital labour platforms and the gig economy on worker livelihoods. *Transfer-European Review of Labour and Research*, 23(2), 135–162.
- Gray, J. E. (2021). The geopolitics of ‘platforms’: The TikTok challenge. *Internet Policy Review*, 10(2). <https://policyreview.info/articles/analysis/geopolitics-platforms-tiktok-challenge>
- Gregory, D. (1994). *Geographical Imaginations* (1st edition). Wiley-Blackwell.
- Grillitsch, M., Sotarauta, M., Asheim, B., Fitjar, R. D., Haus-Reve, S., Kolehmainen, J., Kurikka, H., Lundquist, K.-J., Martynovich, M., & Monteilhet, S. (2022). Agency and economic change in regions: Identifying routes to new path development using qualitative comparative analysis. *Regional Studies*, 1–16.
- Haefner, L., & Sternberg, R. (2020). Spatial implications of digitization: State of the field and research agenda. *Geography Compass*, 14(12).
- Hammersley, M. (1992). *Deconstructing the Qualitative-Quantitative Divide. I: J Brannen, red. Mixing Methods: Qualitative and Quantitative Research*. Ashgate Publishing Company.
- Harvey, D. (1982). *The limits to capital*. Verso books.  
<https://books.google.com/books?hl=en&lr=&id=ySRTDwAAQBAJ&oi=fnd&pg=PR9&dq=+Limits+to+Capital++1982&ots=hQlkmCpJQN&sig=X4yKLid2X34rwzGRIRUoiZA81Ks>
- Harvey, D. (1996). *Justice, nature and the geography of difference*.  
<http://bibliotecadigital.mineduc.cl/handle/20.500.12365/17640>
- Harvey, D. (2001). Globalization and the “spatial fix.” *Geographische Revue: Zeitschrift Für Literatur Und Diskussion*, 3(2), 23–30.

- Harvey, D. (2010). *Social justice and the city* (Vol. 1). University of Georgia press.  
[https://books.google.com/books?hl=en&lr=&id=VCwLi2nVmooC&oi=fnd&pg=PA5&dq=+Social+justice+and+the+city&ots=RhunDe6\\_0S&sig=DNruPo4TNglBqHTV\\_Q89JWcojHQ](https://books.google.com/books?hl=en&lr=&id=VCwLi2nVmooC&oi=fnd&pg=PA5&dq=+Social+justice+and+the+city&ots=RhunDe6_0S&sig=DNruPo4TNglBqHTV_Q89JWcojHQ)
- Hassink, R., & Gong, H. (2017). *Sketching the contours of an integrative paradigm of economic geography*. Lund University, CIRCLE-Centre for Innovation Research.  
[https://ideas.repec.org/p/hhs/lucirc/2017\\_012.html](https://ideas.repec.org/p/hhs/lucirc/2017_012.html)
- Hassink, R., Gong, H., & Marques, P. (2019). Moving beyond Anglo-American economic geography. *International Journal of Urban Sciences*, 23(2), 149–169.
- Hassink, R., Klaering, C., & Marques, P. (2014). Advancing Evolutionary Economic Geography by Engaged Pluralism. *REGIONAL STUDIES*, 48(7), 1295–1307.
- Heale, R., & Forbes, D. (2013). Understanding triangulation in research. *Evidence-Based Nursing*, 16(4), 98–98.
- Hervas-Oliver, J.-L., & Albors-Garrigos, J. (2014). Are technology gatekeepers renewing clusters? Understanding gatekeepers and their dynamics across cluster life cycles. *Entrepreneurship & Regional Development*, 26(5–6), 431–452.
- Hesse-Biber, S. N. (2010). *Mixed methods research: Merging theory with practice*. Guilford Press.  
[https://books.google.com/books?hl=en&lr=&id=NK6uDwAAQBAJ&oi=fnd&pg=PP1&q=Mixed+methods+research:+merging+theory+with+practice+Guilford+Press&ots=\\_rh7WrrNby&sig=X6cdgkALG6L5iArvN12\\_2F16qA8](https://books.google.com/books?hl=en&lr=&id=NK6uDwAAQBAJ&oi=fnd&pg=PP1&q=Mixed+methods+research:+merging+theory+with+practice+Guilford+Press&ots=_rh7WrrNby&sig=X6cdgkALG6L5iArvN12_2F16qA8)
- Hodgson, G. M., & Stoelhorst, J. W. (2014). Introduction to the special issue on the future of institutional and evolutionary economics. *Journal of Institutional Economics*, 10(4), 513–540.
- Howson, K., Ferrari, F., Ustek-Spilda, F., Salem, N., Johnston, H., Katta, S., Heeks, R., & Graham, M. (2022). Driving the digital value network: Economic geographies of global platform capitalism. *Global Networks*, 22(4), 631–648.
- Hubbard, P., & Kitchin, R. (Eds.). (2011). *Key thinkers on space and place* (2nd ed). Sage.
- Ibert, O., Oechslen, A., Repenning, A., & Schmidt, S. (2022). Platform ecology: A user-centric and relational conceptualization of online platforms. *Global Networks*, 22(3), 564–579.
- Isaksen, A. (2011). 22 Cluster evolution. *Handbook of Regional Innovation and Growth*, 293.
- Isaksen, A. (2016). Cluster emergence: Combining pre-existing conditions and triggering factors. *Entrepreneurship & Regional Development*, 28(9–10), 704–723.
- Jha, S. K., Pinsonneault, A., & Dubé, L. (2016). The evolution of an ict platform-enabled ecosystem for poverty alleviation. *MIS Quarterly*, 40(2), 431–446.
- Jick, T. D. (1979). Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly*, 24(4), 602–611.
- Johnston, H. (2020). Labour geographies of the platform economy: Understanding collective organizing strategies in the context of digitally mediated work. *International Labour Review*, 159(1), 25–45.
- Johnston, R. J. (1983). *Philosophy and human geography: An introduction to contemporary approaches*. <https://philpapers.org/rec/JOHPAH>
- Johnston, R. J. (2003). Order in space: Geography as a discipline in distance. In *A century of British geography* (pp. 303–346). Oxford University Press for the British Academy.

- <https://research-information.bris.ac.uk/en/publications/order-in-space-geography-as-a-discipline-in-distance>
- Juhasz, S., & Lengyel, B. (2018). Creation and persistence of ties in cluster knowledge networks. *Journal of Economic Geography*, 18(6), 1203–1226.
- Kenney, M., & Zysman, J. (2016). The rise of the platform economy. *Issues in Science and Technology*, 32(3), 61.
- Kenney, M., & Zysman, J. (2020). The platform economy: Restructuring the space of capitalist accumulation. *Cambridge Journal of Regions, Economy and Society*, 13(1), 55–76.
- Kenney, M., Zysman, J., & Bearson, D. (2020). Transformation or structural change? What Polanyi can teach us about the platform economy. *What Polanyi Can Teach Us about the Platform Economy* (August 2, 2020).  
[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3678967](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3678967)
- Kenney, M., Zysman, J., Bearson, D., & Carlton, C. (2023). Spatial implications of the platform economy: Cases and questions. In P. Bianchi, S. Labory, & P. Tomlinson (Eds.), *Handbook of Industrial Development* (pp. 215–231). Edward Elgar Publishing.
- Kukalis, S. (2010). Agglomeration Economies and Firm Performance: The Case of Industry Clusters. *Journal of Management*, 36(2), 453–481.
- La Londe, B. J., & Masters, J. M. (1994). Emerging logistics strategies: Blueprints for the next century. *International Journal of Physical Distribution & Logistics Management*, 24(7), 35–47.
- Lake, D. A. (2003). The New Sovereignty in International Relations1. *International Studies Review*, 5(3), 303–323.
- Lambert, D., Stock, J. R., & Ellram, L. M. (1998). *Fundamentals of logistics management*. McGraw-Hill/Irwin.
- Langley, P., & Leyshon, A. (2017). Platform capitalism: The intermediation and capitalization of digital economic circulation. *Finance and Society*, 3(1), 11–31.
- Lee, M. K., Yoon, H. Y., & Park, H. W. (2017). From online via offline to online: How online visibility of tourism information shapes and is shaped by offline visits. *Journal of Travel & Tourism Marketing*, 34(9), 1143–1154.
- Lefebvre, H. (1991). *The Production of Space*. Wiley-Blackwell.
- Leong, C., Pan, S. L., Newell, S., & Cui, L. (2016). The Emergence of Self-Organizing E-Commerce Ecosystems in Remote Villages of China: A Tale of Digital Empowerment for Rural Development. *MIS Quarterly*, 40(2), 475–484.
- Li, L., Du, K., Zhang, W., & Mao, J. (2019). Poverty alleviation through government-led e-commerce development in rural China: An activity theory perspective. *Information Systems Journal*, 29(4), 914–952.
- Liang, Y., Aroles, J., & Brandl, B. (2022). Charting platform capitalism: Definitions, concepts and ideologies. *New Technology, Work and Employment*, 37(2).
- Liu, K., Tang, M., Liu, R., & Qin, Y. (2017). Geography's "World view": The ontological issues of geography. *Journal of Geographical Sciences*, 27(12), 1541–1555.
- Liu, M., Zhang, Q., Gao, S., & Huang, J. (2020). The spatial aggregation of rural e-commerce in China: An empirical investigation into Taobao Villages. *Journal of Rural Studies*, 80, 403–417.

- Loasby, B. J. (2001). Market institutions and economic evolution. In D. C. Mueller & U. Cantner (Eds.), *Capitalism and Democracy in the 21st Century* (pp. 303–315). Physica-Verlag HD.
- MacKinnon, D. (2012). Beyond strategic coupling: Reassessing the firm-region nexus in global production networks. *Journal of Economic Geography*, 12(1), 227–245.
- Martin, R. (2021). Putting the case for a pluralistic economic geography. *Journal of Economic Geography*, 21(1), 1–28.
- Martin, R., & Sunley, P. (2003). Deconstructing clusters: Chaotic concept or policy panacea? *Journal of Economic Geography*, 3(1), 5–35.
- Martin, R., & Sunley, P. (2011). Conceptualizing Cluster Evolution: Beyond the Life Cycle Model? *Regional Studies*, 45(10), 1299–1318.
- Maskell, P. (2001). Knowledge Creation and Diffusion in Geographic Clusters. *International Journal of Innovation Management*, 05(02), 213–237.
- Massey, D. (1973). Towards a Critique of Industrial Location Theory. *Antipode*, 5(3), 33–39.
- Menger, C. (1883). *Untersuchungen über die methode der socialwissenschaften: Und der politischen oekonomie insbesondere*. Duncker & Humblot.
- Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., & Zacharia, Z. G. (2001). Defining supply chain management. *Journal of Business Logistics*, 22(2), 1–25.
- Menzel, M.-P., & Fornahl, D. (2010). Cluster life cycles—Dimensions and rationales of cluster evolution. *Industrial and Corporate Change*, 19(1), 205–238.
- Ministry of Commerce People's Republic of China. (2021). *E-commerce Information Digest* (August 26, 2021). <https://dzswgf.mofcom.gov.cn/news/44/2021/8/1630048322392.html>
- Möllers, N. (2021). Making Digital Territory: Cybersecurity, Techno-nationalism, and the Moral Boundaries of the State. *Science, Technology, & Human Values*, 46(1), 112–138.
- Morales, D., & Sario-Kluge, L. (2021). Regional state innovation in peripheral regions: Enabling Lapland's green policies. *Regional Studies Regional Science*, 8(1), 54–64.
- Morgan, K. (2004). The exaggerated death of geography: Learning, proximity and territorial innovation systems. *Journal of Economic Geography*, 4(1), 3–21.
- Moriset, B., & Malecki, E. J. (2009). Organization versus space: The paradoxical geographies of the digital economy. *Geography Compass*, 3(1), 256–274.
- Morris, C. (2023). 'It would be smart to discuss this on telegram': China's digital territorialization project and its spatial effects on contentious politics. *Territory, Politics, Governance*, 11(6), 1081–1099.
- Moulaert, F., & Sekia, F. (2003). Territorial innovation models: A critical survey. *Regional Studies*, 37(3), 289–302.
- Murphy, J. T. (2018). The relational turn in economic geography. In *The Routledge companion to the geography of international business* (pp. 161–173). Routledge.  
<https://www.taylorfrancis.com/chapters/edit/10.4324/9781315667379-10/relational-turn-economic-geography-james-murphy>
- Myhill, K., Richards, J., & Sang, K. (2021). Job quality, fair work and gig work: The lived experience of gig workers. *The International Journal of Human Resource Management*, 32(19), 4110–4135.
- Nelson, R. R. (2003). Bringing institutions into evolutionary growth theory. In J. S. Metcalfe & U. Cantner (Eds.), *Change, Transformation and Development* (pp. 19–30). Physica-Verlag HD.

- Newell, J. P., & Cousins, J. J. (2015). The boundaries of urban metabolism: Towards a political–industrial ecology. *Progress in Human Geography*, 39(6), 702–728.
- Ng, A. K., & Ducruet, C. (2014). The changing tides of port geography (1950–2012). *Progress in Human Geography*, 38(6), 785–823.
- Niebel, T. (2018). ICT and economic growth – Comparing developing, emerging and developed countries. *World Development*, 104, 197–211.
- Nowak, S. (2021). The social lives of network effects: Speculation and risk in Jakarta's platform economy. *Environment and Planning A: Economy and Space*, 0308518X211056953.
- Noyons, E., Moed, H., & Van Raan, A. (1999). Integrating research performance analysis and science mapping. *Scientometrics*, 46(3), 591–604.
- O'Brien, R. (1992). The end of geography: Global financial integration. *London, Pinter*.
- Philip, L., & Williams, F. (2019). Remote rural home based businesses and digital inequalities: Understanding needs and expectations in a digitally underserved community. *Journal of Rural Studies*, 68, 306–318.
- Pohle, J., & Thiel, T. (2020). Digital sovereignty. *Internet Policy Review*, 9(4).  
<https://policyreview.info/concepts/digital-sovereignty>
- Pon, B. (2016). *Winners and Losers in the Global App Economy, Caribou Digital*.
- Porter, M. E. (1990). *Competitive Advantage of Nations* (First Edition). Free Press.
- Porter, M. E. (1998). *On competition*. Harvard Business School Publishing.
- Pouder, R., & John, C. H. St. (1996). Hot Spots and Blind Spots: Geographical Clusters of Firms and Innovation. *The Academy of Management Review*, 21(4), 1192.
- Pred, A. (1984). Place as Historically Contingent Process: Structuration and the Time-Geography of Becoming Places. *Annals of the Association of American Geographers*, 74(2), 279–297.
- Pritchard, A. (1969). Statistical bibliography or bibliometrics. *Journal of Documentation*, 25(4), 348–349.
- Pugh, R., & Dubois, A. (2021). Peripheries within economic geography: Four “problems” and the road ahead of us. *Journal of Rural Studies*, 87, 267–275.
- Qiao, S., Huang, G., & Yeh, A. G.-O. (2023). Who are the gig workers? Evidence from mapping the residential locations of ride-hailing drivers by a big data approach. *Cities*, 132, 104112.
- Quah, D. (1999). *The weightless economy in economic development*.
- Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond*. University of Chicago Press.
- Renz, S. M., Carrington, J. M., & Badger, T. A. (2018). Two Strategies for Qualitative Content Analysis: An Intramethod Approach to Triangulation. *Qualitative Health Research*, 28(5), 824–831.
- Repenning, A. (2022). Workspaces of Mediation: How Digital Platforms Shape Practices, Spaces and Places of Creative Work. *Tijdschrift Voor Economische En Sociale Geografie*, 113(2), 211–224.
- Repenning, A., & Oechslen, A. (2021). Creative digipreneurs and socio-technical niches: Work practices of entrepreneuring in a platform mediated environment. *37th EGOS Colloquium, July 8–10 2021, Amsterdam*.



- Repenning, A., & Oechslen, A. (2023). Creative digipreneurs: Artistic entrepreneurial practices in platform-mediated space. *Digital Geography and Society*, 4, 100058.
- Reviglio, U., & Agosti, C. (2020). Thinking Outside the Black-Box: The Case for “Algorithmic Sovereignty” in Social Media. *Social Media + Society*, 6(2), 2056305120915613.
- Rolf, S., & Schindler, S. (2023). The US–China rivalry and the emergence of *state platform capitalism*. *Environment and Planning A: Economy and Space*, 0308518X2211465.
- Rosenman, E., Loomis, J., & Kay, K. (2020). Diversity, representation, and the limits of engaged pluralism in (economic) geography. *Progress in Human Geography*, 44(3), 510–533.
- Rutten, R. (2019). Openness values and regional innovation: A set-analysis. *Journal of Economic Geography*, 19(6), 1211–1232.
- Rutten, R. (2020). Comparing causal logics: A configurational analysis of proximities using simulated data. *Zeitschrift Für Wirtschaftsgeographie*, 64(3), 134–148.
- Rutten, R. (2022). Applying and Assessing Large-N QCA: Causality and Robustness From a Critical Realist Perspective. *Sociological Methods & Research*, 51(3), 1211–1243.
- Sanz-Ibáñez, C., & Anton Clavé, S. (2014). The evolution of destinations: Towards an evolutionary and relational economic geography approach. *Tourism Geographies*, 16(4), 563–579.
- Sayer, A. (1989). The ‘New’ Regional Geography and Problems of Narrative. *Environment and Planning D: Society and Space*, 7(3), 253–276.
- Sayer, A. (2006). Realism as a basis for knowing the world. *Approaches to Human Geography: Philosophies, Theories, People and Practices*, 106–116.
- Scapens, R. W. (2004). Chapter 15—Doing Case Study Research. In C. Humphrey & B. Lee (Eds.), *The Real Life Guide to Accounting Research* (pp. 257–279). Elsevier.
- Schamp, E. W. (2005). Decline of the District, Renewal of Firms: An Evolutionary Approach to Footwear Production in the Pirmasens Area, Germany. *Environment and Planning A: Economy and Space*, 37(4), 617–634.
- Sedita, S. R., Caloffi, A., & Lazzeretti, L. (2020). The invisible college of cluster research: A bibliometric core–periphery analysis of the literature. *Industry and Innovation*, 27(5), 562–584.
- Smirnova, V., Lawrence, J. L., & Bohland, J. (2021). The critical turn of resilience: Mapping thematic communities and modes of critical scholarship. *The Geographical Journal*, 187(1), 16–27.
- Smith, B., & Mark, D. M. (1998). *Ontology and geographic kinds*.  
<https://philpapers.org/rec/MAROAG-2>
- Soja, E., & Hooper, B. (2004). The spaces that difference makes: Some notes on the geographical margins of the new cultural politics. In *Place and the Politics of Identity* (pp. 180–202). Routledge.  
<https://api.taylorfrancis.com/content/chapters/edit/download?identifierName=doi&identifierValue=10.4324/9780203016695-10&type=chapterpdf>
- Soja, E. W. (1998). Thirdspace: Journeys to Los Angeles and other Real-and-Imagined Places. *Capital & Class*, 22(1), 137–139.
- Sotoudehnia, M. (2021). “Making blockchain real”: Regulatory discourses of blockchains as a smart, civic service. *Regional Studies*, 55(12), 1857–1867.

- Srnicek, N. (2017). The challenges of platform capitalism: Understanding the logic of a new business model. *Juncture*, 23(4), 254–257.
- Steinberg, M. (2020). LINE as Super App: Platformization in East Asia. *Social Media + Society*, 6(2), 205630512093328.
- Steinberg, M., Zhang, L., & Mukherjee, R. (2024). Platform capitalisms and platform cultures. *International Journal of Cultural Studies*, 13678779231223544.
- Strambach, S. (2017). Combining Knowledge Bases in Transnational Sustainability Innovation: Microdynamics and Institutional Change. *Economic Geography*, 93(5), 500–526.
- Su, Y., & Fan, D. (2022). Smart cities and sustainable development. *Regional Studies*, 1–17.
- Sunley, P. (2008). Relational economic geography: A partial understanding or a new paradigm? *Economic Geography*, 84(1), 1–26.
- Taylor, P. J. (2023). The geographical ontology challenge in attending to anthropogenic climate change: Regional geography revisited. *Tijdschrift Voor Economische En Sociale Geografie*, 114(2), 63–70.
- The Economist. (2021, January 2). *The next big thing in retail comes with Chinese characteristics*. The Economist. <https://www.economist.com/business/2021/01/02/the-next-big-thing-in-retail-comes-with-chinese-characteristics>
- Thurmond, V. A. (2001). The Point of Triangulation. *Journal of Nursing Scholarship*, 33(3), 253–258.
- Tranos, E., & Nijkamp, P. (2013). The death of distance revisited: Cyber-place, physical and relational proximities. *Journal of Regional Science*, 53(5), 855–873.
- Tschang, F. T. (2021). Platform-Dependent Entrepreneurs: Participants in an Expanding Universe of Platforms? *Academy of Management Perspectives*, 35(4), 696–701.
- Tuan, Y.-F. (1977). *Space and place: The perspective of experience*. U of Minnesota Press.
- Turner, S. F., Cardinal, L. B., & Burton, R. M. (2017). Research Design for Mixed Methods: A Triangulation-based Framework and Roadmap. *Organizational Research Methods*, 20(2), 243–267.
- United Nations. (2015). *Information Economy Report 2015—Unlocking the Potential of E-commerce for Developing Countries*. United Nations. [https://unctad.org/system/files/official-document/ier2015\\_en.pdf](https://unctad.org/system/files/official-document/ier2015_en.pdf)
- Vallas, S., & Schor, J. B. (2020). What Do Platforms Do? Understanding the Gig Economy. *Annual Review of Sociology*, 46(1), 273–294.
- Veblen, T. (1898). Why is economics not an evolutionary science? *The Quarterly Journal of Economics*, 12(4), 373–397.
- Vicente, J. (2018). *Economics of clusters: A brief history of cluster theories and policy*. Springer.
- Walker, R., & Storper, M. (1989). *The capitalist imperative: Territory, technology and industrial growth* (Vol. 2). Oxford: Basil Blackwell.
- World Bank. (2019). *Stimulating jobs, growth, entrepreneurship, income in rural China through e-commerce*. World Bank. <https://www.worldbank.org/en/results/2019/11/22/stimulating-jobs-growth-entrepreneurship-income-in-rural-china-through-e-commerce>
- Wu, W., Zhang, Y., & Fan, Y. (2020). ICT Empowers the Formation and Development of Rural E-Commerce in China. *IEEE Access*, 8, 135264–135283.

- Ye, L., & Yang, H. (2020). From digital divide to social inclusion: A tale of mobile platform empowerment in rural areas. *Sustainability*, 12(6), 2424.
- Yeung, H. W. (1997). Critical realism and realist research in human geography: A method or a philosophy in search of a method? *Progress in Human Geography*, 21(1), 51–74.
- Yeung, H. W. (2005). Rethinking relational economic geography. *Transactions of the Institute of British Geographers*, 30(1), 37–51.
- Yeung, H. W. (2021). Regional worlds: From related variety in regional diversification to strategic coupling in global production networks. *Regional Studies*, 55(6), 989–1010.
- Yeung, H. W. (2024). Method in relational-explanatory geography. *Progress in Human Geography*, 03091325241248847.
- Yeung, H. W.-C. (2023). *Theory and Explanation in Geography* (1st edition). Wiley.
- Zebracki, M., & Xiao, M. (2021). The Landscape of Public Art Research: A Knowledge Map Analysis. *The Professional Geographer*, 73(3), 481–495.
- Zhang, C., & Morris, C. (2023). Borders, bordering and sovereignty in digital space. *Territory, Politics, Governance*, 11(6), 1051–1058.
- Zhang, L., & Chen, J. Y. (2022). A regional and historical approach to platform capitalism: The cases of Alibaba and Tencent. *Media, Culture & Society*, 44(8), 1454–1472.
- Zhu, S., Jin, W., & He, C. (2019). On evolutionary economic geography: A literature review using bibliometric analysis. *European Planning Studies*, 27(4), 639–660.

# Appendix

## Appendix 1 Taobao village Interview

### Village Cadres:

1. What is your usual main job?
2. What does your village, as a Taobao village, mainly sell online? What was the village's main economic activity before it started selling online? How has the village's development history been affected by the digital economy and platform economy? Does the village have any secondary or tertiary industry bases, or any local characteristic resources? When did anyone start to do Taobao/short video/live broadcasting, and start to drive people in the neighborhood to do it together? What is the proportion of e-commerce households now?
3. What forms do most e-commerce businesses take? Do they operate their own factories, or do they buy and stock up goods before selling? Do some eventually establish their own factories?
4. What is the process for villagers to build factories? What is the process for villagers to build factories? Is the construction site approved? What is the approximate scale of these factories? Are e-commerce merchants taxed?
5. What is the role of the government in the development process? Is there support available in terms of land, finance, and knowledge training? Does the higher-level government give guidelines and support to villages and towns in this regard? Are there e-commerce service centers or similar organizations in the village or town?
6. Is there an e-commerce industrial park? Are villagers willing to move in? What are the requirements for moving in, and what benefits do the villagers receive?
7. What is the current development of the village? Are there any organizations, such as e-commerce, live-streaming, or industrial associations, that have helped develop sectors like agriculture, industry, or tourism through the platform? Or has it realized the integrated development of primary, secondary and tertiary industries?
8. Has the village suffered any shocks in the development of its e-commerce industry? What are the biggest challenges and difficulties? What are the factors that you find most constraining in the current development process?
9. As the village has grown, has it influenced neighboring villages or towns to engage in similar activities, selling the same products? What kind of competition and cooperation is there?
10. Are there any key figures, such as e-commerce entrepreneurs or influencers, actively involved in the development of the village's e-commerce industry? Can you give us their contact information?

### Grassroot Entrepreneur

1. What are the main products produced and sold, and what brands have been formed? Do you primarily operate offline or online now? What is the percentage of sales? Is there any cross-border e-commerce? Which platforms are you currently selling on? How many online

stores are there on each platform? How many physical stores are there offline, and will you supply to online merchants or offline stores in other places?

2. Did the manufacturer originally have a production line and offline sales, and then added an additional online channel only? Or is it the first to sell goods and then build the factory? When did you start selling on Taobao? Are you also using other platforms like Pinduoduo or 1688?"
3. Are you solely responsible for operations and sales, not production? Have you added a larger scale of production based on these e-commerce platforms? Generally, the production side will choose domestic and foreign at the same time or there are some specialized only do outside the country?
4. Why did you choose to do Taobao/Douyin? Which platforms are usually active? What kind of content do you usually do? What products do you sell, and what type of content do you create?
5. Are you considering starting Douyin soon, and if so, do you plan to manage it internally or outsource the operation? If you have already done it, when did you start doing it and did you encounter any difficulties? What do you think about the platform economy, which is highly unstable (in terms of production and sales and job security) and monopolistic?
6. What was the main thing you did in your previous job, and how has your life and work situation changed after transitioning to Taobao/short videos/live streaming?
7. How is the team developing so far? Who are the people responsible for what? Production/contacting suppliers? Packaging/Logistics? Shooting and editing videos, maintaining fans and operating accounts? What is the division of labor between the company's team members? How many people are responsible for production, operation, warehouse management, shipping, etc.?
8. What was the approximate process of going from an individual to a team, from an unorganized form to an organized operation? How did you get bigger step by step, and what do you think helped you the most? What kind of events did you go through? How did the attitude of your family and friends change?
9. What do you feel are the differences between conducting e-commerce on Douyin and Taobao?
10. What is the difference between the operation in Douyin and Taobao? What difficulties did you encounter in organizing your own Douyin operation? What was the process of outsourcing some of the Douyin sales like? Did you contact influencers directly, or did you work with influencer agencies?
11. How do you differentiate your offerings in a market with high competition and homogenized products? Price? Branding? Quality? How to find new space for development?
12. Is it true that there is currently no tax on the part of sales on the online platform? Just the production part at the factory?
13. About when did it first come to the attention of the government and others, and how did more people and things gradually become involved to create a force for change in the local economy? Is there any financial, land, knowledge training or other policy support from

village and town governments? What incentives are there on the platform side to support or skew traffic?

14. Have others in the village also attempted to become online celebrities or open Taobao stores? How is it developing? Do you usually have exchanges with each other and learn from each other? Is there any agricultural products association, e-commerce association, live broadcasting association or other organizations?
15. What has changed as a result of the epidemic?

### **Association:**

1. What is the nature of the association? Is it governmental, non-profit, or another type? What are the main divisions? What are their respective responsibilities? What are the main duties of the association on a daily basis, and what activities have been organized? Competitions? Can you provide some information?
2. What is the form of association membership? How many members are there? Who is the president? What did the president do previously?
3. What is the main profile of e-commerce development in that local area at the moment? What products do most of them make? What industries and products are they in?
4. Are there many small e-commerce merchants? Or are there basically no home-based workshops, and mainly a few factories that operate online?
5. Which platforms do local e-commerce merchants primarily use—Taobao, Pinduoduo, or Alibaba? What are the usage percentages for these platforms? Are there any reports or documents that provide these details?
6. How does the trend of Douyin e-commerce affect the development of the local e-commerce industry? Currently, how many local influencer incubators and live short video operating companies are there? Are these companies similar to incubators? Is there a trend of shifting from traditional platforms like Taobao to newer platforms like Douyin and Kuaishou?
7. Is there any relevant communication Wechat group that I can join?

## **Appendix 2 Furniture cluster Interview**

### **Governments**

1. What is the basic situation and development history of the local traditional furniture industry? Why has it developed so well? What are the reasons for the formation of industrial division of labor?

2. What is the role of the local government in the different stages of the development of the entire furniture and furniture e-commerce industry? What is the current situation of the entire local furniture and furniture e-commerce industry? What is the momentum of the industry? What are the main problems?

3. What is the history and current state of local furniture e-commerce? Is it predominantly wholesale or retail? What forms does it take? (Internet companies cross the border to do furniture, dealers or manufacturers set up a separate e-commerce department to develop the online market, manufacturers commissioned third-party MCN companies, etc. ....)

4. What are some of the leading furniture companies, leading brands? What are some leading furniture e-commerce companies, leading brands? Are there any key e-commerce entrepreneurs, entrepreneurs or netizens in the development of furniture e-commerce?

5. Taobao (traditional e-commerce) on local Town furniture industry brought about by the changes (furniture traditional e-commerce development ratio, production organization, employment, etc.)? What are the new opportunities and challenges?

6. How has the rise of Douyin as an emerging e-commerce platform influenced the local furniture industry, particularly in terms of live e-commerce development, production organization, and employment? What new opportunities and challenges have been brought?

7. With the platforms, which ones are in? How do you avoid the negative effects of the immense power of platforms? How can algorithms be utilized?

8. In the context of furniture foreign trade, which furniture e-commerce companies excel in cross-border transactions? Views on traditional e-commerce and emerging e-commerce, views on emerging competitors, views on rural e-commerce? The integration of e-commerce and furniture, is it more of a furniture company's embrace of e-commerce Internet or an Internet company's coverage of the furniture industry?

9. The impact of the epidemic on the furniture industry? (online, offline, foreign trade, traditional e-commerce, live e-commerce, cross-border e-commerce)

10. Has the government taken any measures to regulate the behavior of furniture enterprises? What means and measures have been taken by the government to support the development of the furniture and furniture e-commerce industry?

11. What is the government's attitude towards the development of furniture e-commerce, including platforms like Douyin? Is support available in terms of land, finance, and knowledge training? Is there any guidance and support to the town and village in this regard? Towns and villages on e-commerce households have similar e-commerce service center organization?

12. Is there any time when there is a conflict of interest in the policies of local government furniture and furniture e-commerce industry? In addition to tax breaks, personnel training and other aspects of policy support, the government part of the introduction of some policies to facilitate the furniture business? For example, land, finance and other aspects, or simplify

the administrative approval procedures and processes and other services?

13. Are there any official events organized by government departments to promote exchanges among furniture enterprises? If so, what are these events and how many participants do they attract? Do you think these activities play any role in promoting mutual learning among furniture enterprises? What role do these activities play in promoting the healthy development of the local furniture industry?

14. What are all the uses of digital technology and digital platforms in the furniture industry? (VR panoramic display of Louvre, AI intelligent model room? Green screen live broadcast?)

15. What large-scale offline exhibitions and furniture festivals have been organized? How is the external cooperation of local furniture industry? What are the external competitors both inside and outside the country (in terms of online and offline respectively)? What is the impact on the local furniture industry?

16. What training and regulations are in place for furniture companies in areas such as trademarks, patents, industry codes and standards? Is there any guidance and training on furniture design and innovation, etc.? What are the links between enterprises and universities (triple helix cooperation)?

17. Are there ongoing or planned industry development studies related to furniture e-commerce? What are the benefits of clustering furniture enterprises in specific parks, and how does this impact their development? Do you think clustering is necessarily beneficial to the development of furniture enterprises? What are the benefits of clustering these enterprises together? Where do you see the difference between the furniture industry and the furniture e-commerce industry, in terms of product type? Target groups? Communication groups? Industry knowledge? Age of entrepreneurs?

18. What are some of the biggest challenges to the furniture industry so far? Are there any difficulties and constraints at the moment? What is the status of furniture and e-commerce talent supply in the local city? Has the government introduced any policies to strengthen the training of relevant talents?

19. The future development plan of the local furniture industry and the vision for further development of furniture e-commerce? How do you see the problem of product homogenization and mutual product copying? Is this common locally? Is there any training or support from the government on furniture design and innovation, patent application, etc.? What is the process of patent application?

20. How are the computer, materials, art, design, advertising, media and other industries related to the furniture and furniture e-commerce industry growing locally? Are there any other closely related industries? How does the development of related industries contribute to the development of the furniture industry?

21. What is the financing environment for the furniture industry in the District? Is it easy for furniture companies to raise start-up capital here? What is the government's attitude towards the real estate market and challenges like the epidemic? Has it taken any measures to support investment in the furniture industry? What measures will the government take to support these SMEs at a time when financing is relatively difficult? What has changed as a result of the epidemic?

## **List of documents**



1. Thematic planning for industrial development in the district
2. Information on the Furniture Industry Industrial Park in district
4. The distribution of leading furniture enterprises, furniture cities and furniture experience halls (if any)/list
5. The Furniture Association, E-commerce Association List
6. Offline exhibitions, furniture festivals, furniture design festivals, summits and other related information and materials
- .....

## **Firms**

### **Part1: Firm as a whole (founders/partners/old backbone)**

1. What is the founding year and development history of the company? Can you detail its growth in terms of employee size and significant business changes? Basic information and development history, founded in what year? History of the company, size of employees? Business changes? Type of business (Private? Sole proprietorship, partnership, limited liability, shareholding, farmers' cooperative)
2. Who are the founders of the company? What is the founder's education and specialty? Was he or she a member of the industry before starting the business? Primary work experience? How has their past experience and experience gained influenced the overall direction or type preference of the company?
3. Where does the company position itself within the furniture industry's industrial network? Specifically, where does it fit in the value chain—from development to after-sales service? Where is the main business in the industrial value chain (development of trial products, production of components, production of modular components, assembly, sales, after-sales service)? Manufacturers, suppliers? Distributors? Agents? Distributors? Channels? Design? Production? Materials? Logistics? Sales?
4. What are the main products manufactured by your company? Are these products standard, semi-finished, or customized? How do you categorize these products in terms of market positioning (e.g., luxury, mid-range, budget)? Is it a channel player to furniture e-commerce or a manufacturer to furniture e-commerce? Are they non-branded products or branded products? What are their differences? What type of furniture is it? Wooden furniture? Tables? Sofas?
5. What are the types of production? Build-to-order, design-to-order, build-to-order, inventory production, other? Bulk mass production, single piece small lot production, other?
6. When did the company start its online business? From which platform? Do you have your own independent website? How is the operation different for different platforms? Do you only do retail? Or do you do wholesale?
7. Main departments of the company, organizational structure, development model? Does it have its own production chain? Does it have its own factory? Acquisition of rights to use the plant as lease? Owned? Free of charge or otherwise? Do you have your own warehouse? Showroom? Design team? Have your own logistics team? How many national warehouses? Service providers? If it's customized, what's the pre-design service process like? Is it your own team?
8. How to connect and interface with raw material suppliers? How to interface with online

channels and offline channels?

9. What are the main sources of products? OEM production (OEM, OEM), own-brand production, contract processing, others? What is the proportion of own industry chain and outsourcing? What is the proportion of online and offline?

10. What is the online operation like? What are all the difficulties and challenges encountered and what are the solutions? (Channel players → Distributors)? How is the progress so far?

11. What is the main furniture that the company produces? How are samples of the design and production shown and tested when they come out? (Exhibitions? Showroom? Ground promotion? Invitation to visit? Online display?)

12. How long do exhibitors and market tests typically last? How is it conducted? What if the product is for online? What are the differences between online and offline?

13. How to run e-commerce business for furniture after testing is done? Pros and cons of self-operated and joint operation (factories and stores, design suppliers and material suppliers), most companies' choice?

14. Is there a dedicated e-commerce operations department? Does it have its own brand or does it also supply other e-commerce furniture companies?

15. How do I work with third-party e-commerce platforms and third-party training organizations (customer service training, visual design training, etc.)?

16. How do you organize the product matrix online and offline?

17. How does the product delivery process work? Outsourced? Contracting for labor? Which parts of the company are primarily under labor contracts? What are the main factors in considering whether to enter into a labor contract or an employment contract?

18. With platforms: how to avoid the negative effects of their immense power? How can algorithms be utilized?

19. In what ways is the platform regulated?

20. Has there been a change in open innovation, innovation approaches, and technology trajectories? More user feedbacks?

## **Part2: Impact of the social environment on the stages of furniture development (founders/partners/veteran backbones)**

1. At what stage was the furniture e-commerce industry when your company was established? How has the development of the city's furniture industry influenced your company? Is the competition fierce?

2. Government regulations and policies (version numbers, audits, other policies), economic environment (financing conditions, improvement of living standards, popularization of cell phones and computers, etc.), cultural environment (consumer preferences, social awareness of furniture.), legal system (protection of intellectual property rights, legal protection of cooperation between developers and operators)

3. What types of support—financial, land, or training—does the government provide for the furniture and furniture e-commerce industries?

4. How has the outbreak affected all aspects of the company's growth?

5. Financing: Changes in Difficulty

6. Mainstream furniture types, changing consumer demand?

7. How well are property rights protected?
8. Cultural environment: What are the influences of traditional culture, Chinese culture, and Western aesthetics on furniture design and production?
9. Is it difficult to export? Technical reasons or cultural differences? Product or organizational and operational problems?
10. How do foreign trade contacts tend to work and how are channels established? Cross-border retail and cross-border wholesale?

**Part3: Cluster economies (founders/partners/old backbone)**

1. Does your company collaborate on projects with other local businesses? If so, which companies, and what is the nature of these collaborations?
2. Does the company interact informally with other businesses in the park? For example, some informal social events designed to facilitate the exchange of people in the park. If so, what is the effect of the accumulation of these exchanges?
3. Are there colleges and universities around the campus? Do these colleges have an intellectual output for furniture company design?
4. What are the benefits of a competitive partnership with other furniture companies, centralized in one town?
5. The reasons for choosing the location of a factory include, proximity to raw materials? Proximity to product markets? Convenient transportation? Low labor cost? Low cost of factory building? Tax or other favorable policies? Others?

**Part 4: Routines and Communication (Founder/Partner/Veteran Backbone, or HR)**

1. Can you describe the organizational structure of your company's online operations? How does this structure support your business model? How are new talents introduced? How many of them have jumped over from other furniture companies (or related Internet or e-commerce companies)? Are the main anchors, center controllers, operations and other important positions filled by job-hopping or by promoting old employees from within? What is the technical demand for these positions? Does the experience and knowledge gained by this part of the organization in earlier companies contribute to their development process in this company? What is the percentage of people who are recruited directly from universities, i.e., school recruits? Does the knowledge that this group of people learns in the university contribute to their work?
2. Is the main company recruiting network more of a relative or friend referral? Or social recruiting school recruitment? More recruitment of traditional business born (limited to the furniture industry or not?) Or anchor operations born? Traditional industry personnel for e-commerce training or Internet company work experience for product training? Have done anchor or furniture industry has done sales, other industries have done sales but eloquent good learning power?
3. What problems may arise from the coordination and integration process with the existing team after recruitment? How is it often handled?
4. Do employees job-hop frequently? Do employees who job-hop bring some of the experience and practices they learned and were exposed to in their previous company to their new company?
5. Has the company had any experience with other furniture companies in developing designs, manufacturing and operating sales? If so, when? In terms of spatial scope, which of

the ranges of the same park, the same city, a first-tier city, or the whole country is the main source of cooperative companies?

6. Are the companies cooperating in these different directions in the same city? Can our company learn some experience and knowledge from the other company in this kind of cooperation? Is there any exchange of knowledge and experience between the two cooperating companies in developing and designing/selling furniture in addition to accomplishing common projects?

7. How do you think the hiring, team building process and knowledge dissemination process differs between online and offline operations?

8. Who are the core personnel and what are the requirements for different personnel skills, knowledge and experience? Designers, structural engineers, laborers, marketers, assemblers? Anchors, operations, center controllers, customer service? Web design? Content production and presentation?

9. In your opinion, which of the above items, i.e., the original work experience of the boss, the work experience gained by the job-hopping employee from the original owner, cooperation with other furniture companies, real-world industry networking activities, and professional networking platforms, have a greater impact on the company's furniture product development process?

#### **Part5: Furniture Product Development and Operations Process (Founder/Partner/Veteran Backbone, or Design/Marketing Operations)**

1. What are the main sources of product innovation? Were the types of furniture developed by the company the same across time? Do the types vary much?

2. Modern, minimalist, light luxury, Chinese, European, Scandinavian, American, Japanese, Korean, Thai, popular models? Is there any difference in the way these different styles of furniture are developed and operated?

3. What are the main factors that determine the type of furniture developed? (Market winds? Or established technology and organizational deposits? Can it be marketed? Scale up?)

4. What is the main job of an artisan like? Do they usually come from campus recruiting or social recruiting? Is there a regular school-enterprise cooperation?

5. What knowledge do structural engineers need to have?

6. Who and where do innovative sources of product innovation tend to come from? The boss? The designer? The market? The consumer? Materials? Craftsmanship? Style?

7. For the design team, what is the accumulated knowledge that can be directly applied to the new furniture? What needs to be innovated? For innovation, how is it usually realized? Is it a collective innovation or does the technical backbone (individual) innovate and then spread it within the team?

Whether it's collective innovation or technical backbone innovation, what are the means by which these people learn new skills? Through the Internet (e.g., technology forums, blogs, QQ groups, etc.) or through the real world (furniture developer conferences, etc.)?

8. How does the accumulated experience of the previous furniture development affect the subsequent one? And what are the aspects that need to be innovated? Can you give an example?

9. If it is your own production chain, how do designers, modelers, and material engineers

coordinate to improve the product during the development process? Communication style and process?

10. Do employees normally attend any real-world in-circle (industry) networking events? If so, which ones? Which scope is more important: park, city, national, global? For example, what is the role of professional knowledge exchange seminars organized in the park, experience exchange among furniture developers in the City, national furniture design conferences, exhibitions, furniture design competitions, etc. in exchanging experience among designers? What kind of intra-circle exchange activities are there?

11. Professional network exchange platform, have you joined some professional furniture industry exchange platform? If yes, which ones? What is the role of these platforms for inter-company exchanges? For example, furniture design QQ group, furniture exhibition planning group, regional furniture exhibition WeChat group, industry exchange website, etc. What is the role of these industry exchange platforms for the exchange of experience between designers?

12. For knowledge transfer within the team, is it generally through virtual means (e.g., intra-company chat software, etc.) or through real means (group meetings, direct consulting for problems encountered in the project)?

## **Industrial Park Management Committee**

1. Can you describe the distribution and developmental history of the industrial parks, specifically focusing on the furniture industry's growth within them?

2. What measures have been taken by the Park Management Committee and Office to attract furniture industry to settle here? What are the main responsibilities of the Park Management Committee?

3. How is the current business development in the park? Approximately how many new furniture companies move in each year?

4. What specific initiatives has the park undertaken to support and cultivate furniture enterprises, and what have been the observable effects of these initiatives?

5. How does the park foster cooperation between resident enterprises, and are there any specific formal or informal activities to promote this?

6. Do you think clustering is necessarily beneficial to furniture companies? What are the benefits of clustering these firms together? What kind of exchange activities do furniture enterprises have with each other, and in what way do they disseminate and exchange knowledge? Is the reason for more enterprises to cluster here more to enjoy the policy support for entrepreneurial enterprises in the park, or to share information?

7. What do you think are the advantages and disadvantages of government-led clusters compared to spontaneously formed clusters?

## **Association**

1. Could you please list the various e-commerce and furniture associations, chambers of commerce, and training institutes present in the area?

2. What is the nature of the Association? What are the main divisions? What are their responsibilities? What are the main day-to-day duties of the association and what groups of people does it reach?

3. What events have been organized? Competitions? Can you provide some information? What are the ways to reach new people, what are the ways to connect to the network, what are the ways to maintain the network?

4. Membership requirements? What is the form of association membership? How many members are there? Who is the president? What did the president do previously?

5. What platforms are e-commerce merchants mainly on? Taobao? Pinduoduo? Alibaba? What is the approximate percentage? Are there any relevant documents?

6. How has the emergence of Douyin as an emerging e-commerce platform influenced the local e-commerce industry? Currently, how many local Netflix incubators, live short video operating companies? Is there a trend of switching from Taobao e-commerce to Douyin e-commerce fast hand e-commerce?

7. What types of stakeholders do you engage with, including e-commerce companies, suppliers, and educational institutions, and how do you facilitate these interactions? What is the difference between dealing with different groups of people to get in touch and maintain contact?

8. Is there any relevant communication Wechat group that I can join?

### **Individual employees**

1. How long have you been working in this industry, and do you have experience in other industries? What are your main responsibilities? What qualities are required?

2. Can you describe a typical day at work and how you balance it with your personal life?

## **Appendix 3 Furniture cluster Interview (Additional)**

### **Crisis and Resilience**

1. Can you provide an overview of the furniture industry's development since 2008? What have been the key challenges, difficulties, and opportunities encountered during this period?

2. Since the rise of e-commerce in 2008, how has the furniture e-commerce sector evolved? What specific challenges and opportunities have shaped its development?

3. What is the current state of the local furniture and e-commerce industry? How would you describe its momentum and what are the primary challenges it faces today?

4. How have various factors such as e-commerce platforms, environmental policies, the US-China trade war, Covid-19, crisis in the real estate market, and the broader economic downturn impacted the local furniture industry? Can you detail the responses and strategies implemented by the government, industry associations, and businesses to address these impacts?

## Appendix 4 Curriculum Vitae

### PERSONAL DETAILS

<b>Affiliation:</b> Dept. of Geography, Working Group Economic Geography, Kiel University	
<b>Date of Birth:</b> 22-03-1994	<b>Address:</b>
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### RESEARCH INTERESTS

Regional development; Platform economy; Industrial clusters and paths; Regional industrial dynamics; Digital entrepreneurial ecosystems; Global production networks; Branding and marketing; Supply chain and system

### EDUCATION

Ph.D. in Economic Geography, Working Group Economic Geography.  
Kiel University, Kiel, Germany. December 2020 to July 2024  
**PhD dissertation: Exploring the Impact of Digital Platforms on Regional and Cluster Development**  
Supervisor: Robert Hassink

M.S. in Urban Planning, School of Architecture and Urban Planning.  
Guangdong University of Technology, Guangdong, China. September 2017 to June 2020.  
**Master thesis: Research on Environmental Gentrification in Guangzhou City**  
Supervisor: Dixiang Xie

B.Sc. in Urban Planning, College of Civil Engineering & Architecture, Hunan Institute of Science and Technology, Hunan, China. September 2012 to June 2017.

### FUNDINGS

10/2023 –12/2024: Research Associate. Exploring the impact of COVID-19 on regional resilience and disparities in Germany and China. German Research Foundation (DFG) (Co-investigator). (600,000 euro).

08/2021 –08/2024: Ph.D. Exploring Industry Cluster and Path in the context of the Digital platform economy in China. Funded by China Scholarship Council (Sole investigator). (48,600 euro).

## PUBLICATIONS

### Journal Articles (\*corresponding author)

1. **Chu, H.**, Hassink, R., & Liu, W. (2024). Exploring the mechanisms of platform empowered cluster development: evidence from the case of Taobao villages in rural China. *Regional Studies*, 2024(1-15). <https://doi.org/10.1080/00343404.2024.2306330>
2. **Chu, H.**, Hassink, R., & Yilmaz, Ş. (2023). Fragmented or Engaged Pluralism in Economic Geography? *Progress in Human Geography*, 0(0). <https://doi.org/10.1177/03091325231219697>
3. **Chu, H.** & Hassink, R. (2023). Advancing Spatial Ontology in Evolutionary Economic Geography. *Cambridge Journal of Regions, Economy and Society*, 6(3): 391–404. <https://doi.org/10.1093/cjres/rsad020>
4. **Chu, H.**, Hassink, R., Xie, D. & Hu, X. (2023). Placing the Platform Economy: The Emerging, Developing and Upgrading of Taobao Villages as a Platform-Based Place Making Phenomenon in China. *Cambridge Journal of Regions, Economy and Society*, 16(2): 319-334. <https://doi.org/10.1093/cjres/rsad004>
5. **Chu, H.** (2023). Book review: The labor of reinvention: Entrepreneurship in the new Chinese digital economy: by Lin Zhang, New York, USA, Columbia University Press, 2023. *Eurasian Geography and Economics*. <https://doi.org/10.1080/15387216.2023.2222749>
6. Xie, D., Yu, K., Zhuang, Y., Jian, H., Xu, X. & **Chu, H\***. (2023). The Formation, Development, and Transformation of E-Commerce Villages from the Perspective of Actor-Networks Theory: A Case Study of Dayuan Village in Guangzhou. *Tropical Geography (RedaiDili)*, 43(4): 758-768. (in Chinese)
7. **Chu, H.**, Xie, D X. & Chang, J. (2019). The relationship between place development and resident's sense of place: A case study of Lizhiwan Historic district, Guangzhou. *Human Geography (RenwenDili)*, 34(4): 54-62, 72. (in Chinese)
8. Xie, D., Tan, J. & **Chu, H.** (2019). Research on the structural reform of the administrative division of the Guangdong-Hong Kong-Macau great bay area. *Planners (Guihuashi)*, 35(08):44-50. (in Chinese)
9. Xie, D., **Chu, H.** & Tan J. (2019). On the Teaching Reform of Human Geography Serial Courses of Urban and Rural Planning Major. *University Education (DaxueJiaoyu)*, 2020(05):80-83. (in Chinese)
10. **Chu, H.**, Xie, D X. & Chang, J. (2021). Environmental gentrification research in foreign countries: Progress and implications. *World Regional Studies (ShijieDiliYanjiu)*, 34(4): 54-62, 72. (in Chinese)
11. Xie, D., Jian, H. & **Chu, H\***. (2023). Study on the influence mechanism of the establishment of ecological protection zones on the sense of place of surrounding villagers: A case study of Xiaozhou village in Guangzhou. *Progress in Geography (DiliKexueJinzhuan)*, 42(12): 2401-2413. (in Chinese)

### Book Chapters

1. **Chu, H.** (2024). Ontology and Geography. In: Warf B. (ed.), *The Encyclopedia of Human Geography: Theory and methods*. Springer. (forthcoming)



2. Jicha, F., Hassink, R., **Chu, H.** (2024). Advancing regional economic resilience theorizing by integrating global value chain resilience. (forthcoming)
3. Hassink, R., **Chu, H.** (2023). Resilience. In: Warf B. (ed.), *The Encyclopedia of Human Geography: Social/Cultural*. Springer. (forthcoming).
4. Hassink, R., **Chu, H.** (2023). Serendipity and Geography. In: Warf B. (ed.), *The Encyclopedia of Human Geography: Theory and methods*. Springer. (forthcoming).
5. **Chu, H.**, & Hassink, R. (2022). Regional Clusters. In: Dilworth, R. (ed.), *Oxford Bibliographies in Urban Studies*. New York: Oxford University Press. doi: 10.1093/obo/9780190922481-0058

#### **Conference Published Proceedings**

1. **Chu, H.**, Xie, D. & Tan, J. (2019). Research on the foundations and evolution of foreign urban planning theory — An analysis based on the knowledge map of 'Planning Theory'. *Vibrant Urban and Rural Areas and Better Habitat - Proceedings of the 2019 China Urban Planning Annual Conference (04 History and Theory of Urban Planning)*. (in Chinese)
2. Wang, Z. Xie, D. & **Chu, H.** (2019). Social Justice in the City: Exploring the theory of the just city. *Vibrant Urban and Rural Areas and Better Habitat - Proceedings of the 2019 China Urban Planning Annual Conference (04 History and Theory of Urban Planning)*. (in Chinese)
3. **Chu, H.** & Xie, D. (2018). The progress of social exclusion research and its implications for urban and rural planning. *Proceedings of the 2018 China Urban Planning Annual Conference (04 History and Theory of Urban Planning)* (in Chinese)
4. Xie, D., **Chu, H.** & Wang, M. (2018). Research on urban renewal issues and countermeasures from a feminist perspective. *Sharing and Quality - Proceedings of the 2018 China Urban Planning Annual Conference (02 Urban Renewal)* (in Chinese)

### **PROFESSIONAL SERVICES**

#### **Invited Talks (Temporary Teaching)**

1. 02/2024: E-commerce and regional development in China, Winter semester, Regional Studies and Innovation at the Business School, University of Stavanger, Norway.
2. 11/2023: Digital China and E-Commerce, Lecture Regional Geography – China, Winter semester, Department of Geography, Kiel University, Germany.
3. 10/2023: Fragmented or Engaged Pluralism in Economic Geography? Winter semester, School of Geography, South China Normal University, Guangzhou, China.
4. 10/2023: Exploring Industry Cluster and Path in the context of the Digital platform economy in China, Winter semester, School of Architecture and Urban Planning, Guangdong University of Technology, Guangzhou, China.
5. 11/2021: How to start a qualified literature review? literature collection, literature management, and literature reading, Winter semester, School of Architecture and Urban Planning, Guangdong University of Technology (online)

#### **Guest Speakers for Roundtables, Colloquiums and Seminars**

1. 05/2024: Paradigm Engaged Pluralism and Case Studies in Economic Geography, Key Laboratory of Regional Sustainable Development Modeling, Chinese Academy of

Sciences, China

2. 02/2024: E-commerce Platforms and the Value Curve – Interpreting the Impact and Mechanisms of Digital Transformation on Economic Activities, Centre for Innovation Research Seminar, University of Stavanger, Norway.
3. 09/2023: Can digital technologies bring hope to vulnerable territories? 3<sup>rd</sup> Digital Geographies Conference Round Table, Lisbon, Portugal.
4. 06/2023: Platforms and cluster reorganization: Evidences from three furniture clusters in China, Geotalk, Department of Geography, Kiel University, Germany.
5. 01/2022: Exploring Industry Cluster and Path in the context of the Digital platform economy in China, Human geography doctoral colloquium, Department of Geography, Kiel University, Germany.

#### **Thesis co-supervision**

1. Henri Schreiber (Bachelor): The gambling industry in Macau - An analysis of the regional economic resilience of the monostructure, Kiel University, Summer Semester 2024
2. Amelie Lanz (Bachelor): Auswirkungen des Ausbaus von Glasfasernetzen auf die wirtschaftliche Entwicklung im ländlichen vs. städtischen Raum in Deutschland, Kiel University, Summer Semester 2024

## **PROFESSIONAL EXPERIENCES**

#### **Co-Editor for Journal Special Issues**

1. Guest editor: Hassink, R., **Chu, H.** & Kenney, M. Digital Platforms and Regional Development, *Regional Studies*, Manuscript deadline 01/02/2024.
2. Guest editor: **Chu, H.**, Hassink, R., Martin, R., Sunley, P. & Unruh, G. Rethinking Path Dependence and Lock-Ins in Regions, Economy and Society, *Cambridge Journal of Regions, Economy and Society*, Manuscript deadline 01/12/2024.

#### **Co-Organiser for Conference Special Sessions**

1. 06/2024: Hassink, R., Chlebna, C., **Chu, C.**, & Grillitsch, M. Rethinking Path Dependence and Lock-Ins in Regions, Economy and Society. The 10th Nordic Geographers Meeting, Copenhagen, Denmark.
2. 06/2024: **Chu, H.**, Hassink, R. & Yang, C. Opening the geographical black box of the influencer economy. 2024 RSA Regional Studies Association Annual Conference, Florence, Italy.
3. 04/2024: **Chu, H.**, Hassink, R. & Zook, M. Opening the geographical black box of the influencer economy. AAG Annual Meeting (Virtual Special Session).
4. 12/2023: **Chu, H.** & Hassink, R. Digital Platforms and regional development. Regional Studies Association China Division Annual Conference, Zhuhai, China.
5. 09/2023: Hassink, R. & **Chu, H.** Digital Platforms and regional development. 3<sup>rd</sup> Digital Geographies Conference, Lisbon, Portugal.
6. 06/2023: Hassink, R., **Chu, H.** & Kenney, M. Digital platforms and economic geography. 2023 RSA Annual Conference, Ljubljana, Slovenia.

7. 06/2022: Hassink, R., **Chu, H.**, Schmidt, S. & Repenning A. Platform agencies: How they shape entrepreneurial practice, on/offline space, and local economies. Global Conference on Economic Geography, Dublin, Ireland.
8. 06/2022: Hassink, R. & **Chu, H.** Smart specialization and the entrepreneurial discovery process. Global Conference on Economic Geography, Dublin, Ireland.

#### **Reviewer for Journals, Conferences and Books**

- Regional Studies
- Cities
- The Professional Geographer
- Society Media + Society
- Druid Conference
- PLOS ONE
- chapter for the Handbook of Platform Urbanism

### **CONFERENCE PRESENTATIONS**

1. 06/2024: Advancing our Understanding of Lock-ins in Economic Geography. The 10th Nordic Geographers Meeting, Copenhagen, Denmark.
2. 06/2024: Spatial distribution and driving factors of China's influencer industry: An analysis using multi-platform data. 2024 RSA Regional Studies Association Annual Conference, Florence, Italy.
3. 05/2024: All Roads Lead to... Resilience?! Unravelling Cluster Resilience in the Polycrisis Era. DFG Workshop Exploring the impact of COVID-19 on regional resilience and disparities in Germany and China, Beijing, China.
4. 05/2024: Fieldwork plans on resilience of food industry clusters Guangzhou-Guangxi. DFG Workshop Exploring the impact of COVID-19 on regional resilience and disparities in Germany and China, Beijing, China.
5. 04/2024: Spatial distribution and driving factors of China's influencer industry: An analysis using multi-platform data. 2024 AAG Annual Meeting (Virtual Special Session), Honolulu, USA.
6. 12/2023: Platform-triggered strategic cluster coupling: Evidences from three furniture clusters in China, Regional Studies Association China Division Annual Conference, Zhuhai, China.
7. 10/2023: Fragmented or engaged pluralism in economic geography? Economic Geography Specialized Committee of the Geographical Society of China 2023 Academic Annual Conference, Wuhan, China.
8. 09/2023: Digital entrepreneurial ecosystems and the platform economy. Deutscher Kongress für Geographie, Frankfurt, Germany.
9. 09/2023: From smile curve to wicked smile? The reconstructing of the value chain in the platform economy era in China. Deutscher Kongress für Geographie, Frankfurt, Germany.
10. 09/2023: On the spatialities of digital entrepreneurial ecosystems. 3rd Digital Geographies Conference, Lisbon, Portugal.

11. 06/2023: Place marketing and branding in the platform economy era: Case-studies from three furniture clusters in China. Regional Studies Association Annual Conference, Ljubljana, Slovenia.
12. 03/2023: Pathways of urban entrepreneurialism in the platform economic era from a multi-scalar perspective: A case study from China. 2023 AAG Annual Meeting, Denver, USA.
13. 03/2023: Unpacking the black box of platform empowered cluster development: The case of Taobao villages. Northern German Economic Geography Colloquium, Kiel, Germany.
14. 02/2023: Exploring industry cluster and path in the context of the digital platform economy. Economic Geographies of the Platform Economy: Current Research Perspectives and Avenues for Future Research, Berlin, Germany.
15. 07/2022: Placing the platform economy: The emerging, developing and upgrading of Taobao villages as a platform-based place making phenomenon in China. The 6th Geography of Innovation Conference 2022, Milano, Italy.
16. 07/2022: On smart specialization: a literature review using bibliometric analysis. YSI Workshop on the Geography of Innovation, Milano, Italy.
17. 06/2022: Placing the platform economy: The emerging, developing and upgrading of Taobao villages as a platform-based place making phenomenon in China. Global Conference on Economic Geography, Dublin, Ireland.
18. 09/2021: Mapping and exploring the path literature in economic geography and related social science: A bibliometric analysis. Rethinking Clusters, Florence, Italy (Virtual Special Session).

### **ADVANCED TRAINING**

1. 07/2024: Summer Institute in Economic Geography, Singapore.
2. 02/2023: Winter School in Advanced Qualitative Methodology and Theorizing in Economic Geography, Bern, Switzerland.
3. 02/2022-04/2022: Swedish National PhD Course: Research Frontiers in Contemporary Economic Geography, Gothenburg, Uppsala, Lund, Sweden.
4. 07/2018: Chinese Geographical Society's Social and Cultural Geography Seminar, Xi'an, China.

### **HONOURS AND AWARDS**

1. 2024 RSA Paul Benneworth PhD Student Award, Regional Studies Association (500 GBP)
2. Publication Prize, Mathematisch-Naturwissenschaftlichen Fakultät, Kiel University (500 EUR)
3. 2023 Connex Programme of the Dr Hans Riegel Foundation, Berlin workshop on digital platform economy (Travel, Accommodation and Conference Fees)

4. 2023 "Young Outstanding Thesis Award", Economic Geography Specialized Committee of the Geographical Society of China 2023 Academic Annual Conference
5. 2023 AAG 2023 Annual Meeting Student Travel Award (500 USD, Membership Registration Fees and Conference Fees)
6. 2022 Young Scholar Initiative Funding for GEOINNO (Accommodation and Conference Fees)
7. 2020 "Outstanding student" in Guangdong Province (graduate level)
8. 2019 National Scholarship for Postgraduates (20000 CNY)
9. 2018-2019 Every year Postgraduate First-Class Scholarship (12000 CNY)
10. 2018 "Young Outstanding Thesis Award", Cultural Geography Specialized Committee of the Geographical Society of China the 4th Academic Annual Conference
11. 2017 "Outstanding Graduate Student" in Yueyang City, Hunan Province
12. 2016 "Excellent Student Leader" as a Vice President of Student Union
13. 2012-2015 Every year "Excellent Student", Hunan Institute of Science and Technology

## **WORKING EXPERIENCE**

- 10/2023 – Current: Research Associate in Economic Geography, Kiel University, Germany
- 07/2018-07/2019: Ancient Architecture Conservation Volunteers in Guangdong Architectural Heritage Institute
- 01/2016-04/2016: Assistant planner in Guangdong Urban & Rural Planning and Design Institute
- 06/2015-12/2015: Assistant planner in Yueyang Yuansen Urban Design Consulting Company
- 12/2014-05/2015: Assistant planner in Danqing Garden Landscape Company

## **SKILLS**

Histcite, Bibexcel and Citespace for Bibliometrics; Pajek and Vosviewer for social network analysis; MAXQDA and T-lab for qualitative and text analysis research; fsQCA for Qualitative Comparative Analysis; ArcGIS for space analysis; AutoCAD, SketchUp, Photoshop, Adobe Illustrator, InDesign and Lumion for Urban planning and designing.

# Eidesstattliche Erklärung

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains

- no material previously published or written by another person, except where due acknowledgement has been made in the text.
- no material which has been accepted for the award of any other degree or diploma from the university or other institute of higher learning, except where due acknowledgement has been made in the text.

This thesis has been prepared subject to the Rules of Good Scientific Practice of the German Research Foundation.

This doctoral work was conducted from December 2020 to May 2024 under the supervision of Professor. Dr. Robert Hassink at Department of Geography, Kiel University.

No previous academic degree was withdrawn.

*Han Chu*

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(Signature)

Place: *Kiel*

Date: *06.08.2024*