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Beyond technological relatedness: An evolutionary pro-growth coalition and industrial transformation in Kunshan, China

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Abstract

The article develops an analytical framework for an adaptable and evolutionary pro-growth coalition led by local government to understand regional industrial transformation in developing China. Taking Kunshan as an example, we argue that evolutionary and adaptable coalitions were key to Kunshan's successful transformation from an agriculture county to an export-oriented industrial center, and to a more diversified city. The coalition of the local state with land-holding farmers, domestic and international firms, and the central government during the 1980s-1990s laid a foundation for industrial transformation; the strong coalition of local state and Taiwanese investors in the 1990s-2000s shaped its new industry of IT manufacturing; and the coalition of local state with multiple actors at various geographical scales contributed a more diversified and innovative industrial structure of Kunshan. This study highlights that industrial evolution is not only driven by technological relatedness but also by the evolutionary state-led coalition of multiple actors from different levels and at different stages, and appeals for a political economy perspective to understand industrial transformation of resource- scarce regions.

1 | INTRODUCTION

In recent decades, the issues of how regions develop new paths and diversify local industrial structure over time have attracted wide attention from both scholars and policy makers (Neffke et al., 2011; Zhu et al., 2019). New industries are more likely to emerge in places where pre-existing industries are technologically related to the new ones due to path dependence (Tanner, 2014). The root of new industry in related activities within a region is coined by Boschma and Frenken (2011) as "regional branching". Several empirical studies based upon western countries have further verified and confirmed the importance of regional branching or technological relatedness in regional industrial evolution (Essletzbichler, 2015).

While this body of literature sheds important light on the structural change of a region, it is not free of criticism because its technology-focused, firm-centric and endogenistic accounts overlook other resources and actors as well as extra-regional forces in path creation (Binz et al., 2016; Dawley, 2014; Hassink et al., 2014; Liu & Dunford, 2012; Zhu et al., 2017). These critiques appear even more valuable when it comes to industrial evolution of peripheral regions in a developing context where the production and transfer of related knowledge is absent and the endogenous forces of firms alone are not strong enough to embark the region on a new path. Taking this as a starting point, our study further challenges the explanatory power of the technological relatedness literature, which fails to explain how certain industries have come into being at the first place when there were no pre-existing related industries within the region.

We seek to offer a nuanced perspective on the underpinnings of China's regional evolution taking as a case the municipality of Kunshan, which used to be a poor agricultural county in early 1980s but managed to be a successful industrial city with its GDP ranking first among county-level cities in China for 15 years. We pay special attention to the initiatives and activism of the local state in forming a flexible pro-growth coalition with multiple actors at different levels and in different periods to attract and anchor necessary resources for industrial development.

This article advances our understating of regional industrial evolution in the following ways. Unlike other literature which emphasizes the role of the central state, our study gives more credit to local activism or place leadership in consideration of China's regional heterogeneity and variegated capitalism (Hu & Hassink, 2017; Hu & Yang, 2019). To overcome the flaws of self-reinforcing endogenous mechanisms in regional branching, this study analyzes the exogenously driven industrial evolution under a rapidly changing technological environment. Moreover, it does not treat local state and global/extra-regional agency as parallel or discrete forces in regional evolution, but instead discusses the interweaving and ever-changing local-global power relationship in shaping local industrial structure.

The remainder of this article is structured as follows. Based on a critical review of the regional branching literature, we develop an analytical framework that centers on an evolutionary pro-growth coalition to understand path creation in less-advanced peripheral regions. We then discuss the data and methods adopted by this study, followed by an historical and systematic analysis of the industrial evolution in Kunshan is conducted to illustrate our framework. The last section summarizes the main findings and discusses their implications.

2 | LITERATURE REVIEW

2.1 | Industrial evolution as regional branching and technological relatedness

The evolutionary turn in economic geography has invoked an intensive discussion over path dependence, path creation, or new paths of development (MacKinnon et al., 2019; Martin &

Sunley, 2006). One of the core questions in evolutionary economic geography (EEG) is how regions diversify themselves over time to avoid lock-in and create new paths to economic revitalization (Neffke et al., 2011). Recent EEG studies have strongly centered on technological relatedness in regional industrial evolution (Boschma & Frenken, 2011). It is argued that the emergence of new industry requires certain local capabilities and therefore regions are most likely to branch into novel activities that are technologically related to existing industries (Boschma, 2017). The mechanisms of regional branching involve firm diversification, and knowledge transfer through spin-off activity, labor mobility, and social networking, all of which tend to be locally biased (Boschma & Frenken, 2011). Following this line of theoretical inquiry, a number of empirical analyses with longitudinal data have further confirmed the technologically related process of regional industrial evolution (Essletzbichler, 2015; He et al., 2018; Neffke et al., 2011).

Whereas regional branching or regional diversification has its rationality and explanatory power, it suffers from several lines of criticism. First, the emergence of new industry is dependent upon resources that extend beyond knowledge and technology. Binz et al. (2016) identify multiple resources for path creation: knowledge, niche markets, technology legitimacy, and financial investment, all of which contribute to the formation of Beijing's on-site water recycling industry. While technology, capital, and labor are included as significant resources for industry formation, the supply of land for industrial purpose is largely overlooked in new industry formation. This may not be a major problem when the cases concerned are in the advanced regions where land is abundant or can be freely traded, but it is problematic if we situate this issue in a developing context where land is not only in short supply but also under strict control (Lin, 2014).

Second, the firm-centric perspective of regional branching neglects the role played by non-firm actors and agents in regional diversification (Steen & Hansen, 2018). EEG's strong emphasis on organizational routines stresses the role of institutions and under-conceptualizes social agency and power (Hassink et al., 2014). However, firms alone are not powerful enough to drive regional diversification. Rather this process should be understood as a collective endeavor incorporating both firm and non-firm actors (Steen & Hansen, 2018). Tanner (2014), taking the fuel cell industry as a case, reveals that regional branching relies upon knowledge generated by universities and research institutes. Financial investment is also a scarce resource for new industry, especially in the very early phase when non-firm actors, such as angel investors, venture capital, banks, and even government organizations help with financial problems (Binz et al., 2016). For path creation in peripheral regions, multiple roles of the state as well as policy actions or activism contribute more than firm-led mechanisms of regional branching (Dawley, 2014).

Third, the endogenous mechanism underlying regional branching has also been subject to serious criticism (Hassink et al., 2014; Liu & Dunford, 2012). Regional branching interprets industrial evolution "at the meso- and macro- levels from the micro-behavior of firms, thus relegating the influence of other spatial scales" (Hassink et al., 2014, p. 1,299). Resources for path creation need not be mobilized from inside the region, but they can be captured and anchored from outside (Binz et al., 2016). Importation of new industry from elsewhere is one of the extra-regional resource-anchoring ways and an important source of new path development (Martin & Sunley, 2006). Trans-scalar linkages and resource-anchoring are even more pivotal for less developed peripheral regions that are short of necessary resources to create a new industry. Zhu et al. (2017) conduct a quantitative analysis with China's export data to show that extra-regional linkages significantly reduce a region's reliance on relatedness and enable regions to attain unrelated diversification.

Building upon the theoretical debate identified above, this paper develops a conceptual framework that deals with the following issues. Who is responsible for regions to achieve necessary resources for new development paths? What are the roles played by agents and actors in developing

a new industry and how do they interact to create new paths over time? How do multi-scalar agents and institutional arrangements co-shape industrial structure and its evolution?

2.2 | Towards a political economy approach: An evolutionary pro-growth coalition and path creation in resource-scarce regions

By taking path creation as a process of mobilizing and anchoring resources, we argue that how local key actors jointly and evolutionarily work together at different scales for new industry formation is a crux to understand regional industrial evolution. The question about who actually is driving regional diversification is significant, "as local actors make regions diversify, not regions" (Boschma, 2017, p. 360). More importantly, recent studies have already appealed for a geographical political economy approach to scrutinize the interplay of diverse social and economic actors in different scales as well as the kinds of resource they can mobilize and anchor for new paths of development (MacKinnon et al., 2019). Following this line of inquiry and triggered by urban regime theory, we put forward the concept of "an evolutionary pro-growth coalition" to understand and explain industrial evolution in resource-scare regions of transitional China.

Growth coalition is a core concept of two influential paradigms in recent urban studies: the "growth machine" model pioneered by Molotch (1976) and Logan and Molotch (1987), and urban regime theory raised by Stone (1993). Both emphasize the importance of coalitions or joint actions by multiple actors based upon certain goals and interests in the process of urban growth. The political economy approach to urban and regional development has constantly inspired both empirical analyses and theoretical revisits (Lauermann & Vogelpohl, 2017; Mboumoua, 2017). Although it was derived from practices in urban growth within the United States, the concept of growth coalition was borrowed with modifications to explain urban growth in transitional socialist China as well (Sun & Huang, 2016).

Industrial growth and evolution is a significant part of urban economic growth. It can be understood as the processes orchestrated by a complex array of interests that operate at a diversity of scales. For example, Phelps and Wood (2006) introduced the concept of "inward investment regimes" to illustrate the importance of multi-scalar political coalitions that center on attracting inward capital for regional development. Building on this, we define a pro-growth coalition as a formal or informal mechanism and process formed by multi-scalar actors who are participating in and benefiting from local growth (path creation) by mobilizing internal resources and anchoring external (global) resources together. In particular, we situate our analytical framework in China where many regions have gone through a dramatic industrial transformation that cannot be interpreted by EEG alone (Hu, 2017). Here, our concept of a pro-growth coalition has salient features that may differ from the way it originated.

First, the pro-growth coalition in China is initiated and mainly led by local government. The institutional changes since 1978 in transitional China and the promotion system of officials have inspired local bureaucrats to develop the local economy (Huang et al., 2019). Whereas marketization has opened up lucrative developmental opportunities for the local entrepreneurial state, decentralization and especially the tax-sharing system has actually given the local state greater autonomy and incentive to generate "extra-budgetary revenue". Local officials strive for economic development hoping to draw the attention of upper-level governments and hence obtain promotion (Chien, 2007). These motivations urge local officials to step into local economic development as both governor and participant by making the best of decentralized resources (Huang et al., 2019). The dominant role played by local government as "state entrepreneurialism" in

urban and regional development in China has been demonstrated by numerous studies (He, 2007; Wu, 2018).

Nevertheless, with respect to new paths of development, at least four primary resources have to be taken into account: land, capital, labor, and technology. Land in China is state-owned and collectively owned in rural areas. Capital and technology are probably the scarcest resources sought by the Chinese local state, particularly in the early stage of industrial development. Various studies have elaborated how the local state acting as de facto land owner generates long-term fiscal revenues by supplying land for industrial development, in addition to short-term income from land sales and land lease, given that local land seems to be the only resource that can be used as a fixed and reliable source of income generation compared to mobile labor and volatile foreign capital (Lin et al., 2015). Even though land resources have been leveraged by the local state, land requisition for industrial purposes still involves other social actors, for instance, rural landholding farmers and urban relocated residents (Xu & Lin, 2019). Thus, the local state has to form a pro-growth coalition with other actors for industrial growth.

This relates to our second point: the state-led pro-growth coalition involves multiple actors from different scales. In terms of industrial growth, the most important agents are industrial firms who not only bring capital and technology to the region but also train local workers. These firms can be domestic and international actors. For a developing economy like China, however, many regions embarked on an industrialization path by attracting foreign investment due to the relatively weak industrial capability of domestic firms. The issues of how lead firms in global production networks strategically coupled with localities to stimulate economic growth or how local industries achieve economic upgrading by participating in and climbing up global value chains (GVCs) have been extensively discussed by GVC and global production network studies, which point to the crucial role played by global actors (Bair & Gereffi, 2001; Gereffi, 2019; Yeung & Coe, 2015).

The complex relationship between central and local governments is another concern. Although local government has increased its autonomy in decentralized economic development, the central government still maintains its power by policy making and guidance, endorsing exemptions, appointing and promoting local officials, etc. (Wei, 2007; Wu, 2018). The emergence and rise of Chongqing's laptop industrial cluster is attributable to local government's close relationship with central authorities, which gave the former exceptional powers and preferential policies to negotiate with global players (Gao et al., 2017).[1] The central government can also sabotage coalitions between the local state and property developers to reduce social instability and maintain inclusive local growth (Zhang et al., 2016).

Our study is also attentive to university and research institutes (URIs) as a strategic partner to the local state. URIs have at least three different roles: generating basic and applied knowledge; train the labor force; and entrepreneurial spin-offs (Yalcintan & Thornley, 2007). Universities can become temporary venues for 'local buzz', build networks attractive to outside investors, and promote regional innovation to renew local industries (Benneworth & Hospers, 2007). Industrial upgrading of less developed regions depends not only on advanced technology provided by foreign investment but also upon knowledge spillover effects from URIs. The state-led co-evolution of university, industry, and government contributes to the building-up of a national system of innovation (Inzelt, 2004). In recognition of the importance of URIs, local states mobilize URI resources from national and international levels for industrial transformation and upgrading.

Lastly, the pro-growth coalition is evolutionary and adaptable to internal development needs and the external political and economic environment. Since the foundation of pro-growth coalitions is the complementarity of resources possessed by a set of actors, coalitions per se are subject

to the changes of internal resource-based relationships and external policy orientations at the national level as well as global technological change and industrial relocation (Sun & Huang, 2016). First, resources needed for industrial development are varied across different stages, which appeals to an evolutionary coalition between different actors. For instance, land and capital may be the key to local industrial development during the early stage of industrialization, whereas technology and innovative ecology are desperately needed in the post industrialization. The former can be achieved by the coalition between local state and landholding farmers and investors, but the latter requires the involvement of other actors, such as URIs, high-tech firms, and talents.

Second, the interests and goals of different actors may diverge over time. This leads to the evolutionary relationship between actors in the coalition. Dawley et al. (2019) note the "temporality" of a territorial coalition in creating strategic coupling in global production networks because economic conditions change and the material interests of multi-scalar actors may diverge. In this process, the leadership of the local state allows it to adapt to the goals of different actors.

Third, the ever-changing external economic and political environment calls for an evolutionary coalition to search and anchor available resources for industrial development adaptable to external changes. The evolutionary and adaptable feature is of great significance because a static coalition is impossible on one hand and an inadaptable coalition is much less valuable for industrial transformation (Figure 1).

3 | DATA AND METHODOLOGICAL ISSUES

Kunshan, a county-level city in Jiangsu province, is located in the middle of Suzhou and Shanghai with a land area of 928 km^2 and 1.7 million permanent residents at the end of 2017. This study selects Kunshan as a case to illustrate our conceptual framework for the following reasons. First, Kunshan has performed an extremely successful transformation from a resource-scarce poor agriculture county to a rich industrial county-level city. In the early stage of reform and opening-up, Kunshan was a traditional agricultural county without an industrial base. It ranked last in terms of both economic output and annual per capital income among the six counties under the jurisdiction of Suzhou municipal city in 1983 (Hu & Xu, 2019). However, Kunshan became the champion in "China's Top 100 Counties" in the year of 2018 with a GDP of 383 billion yuan (Xia

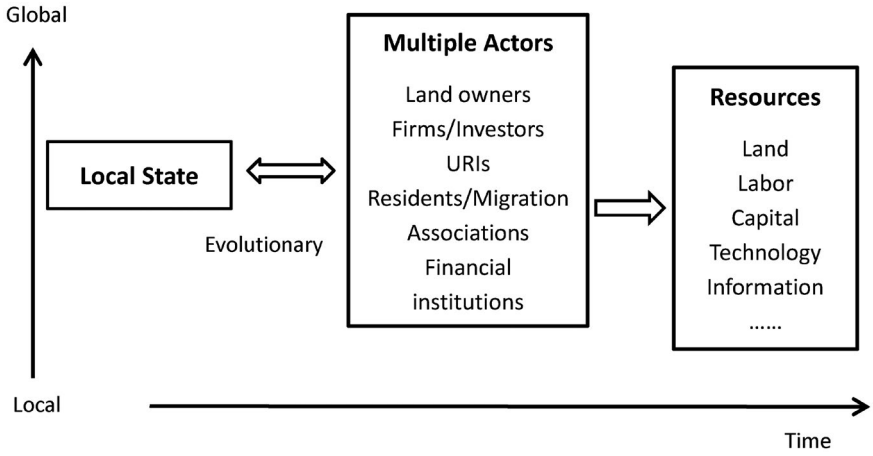

FIGURE 1 An evolutionary coalition adaptable to local industrial development

& Jiao, 2019). The question of how Kunshan achieved its path transformation cannot by satisfactorily answered by the regional branching approach and requires a more detailed investigation.

Second, the lack of necessary industrial resources within Kunshan implies that it has to depend upon external powers at different scales to develop local industries. Kunshan has attracted a cluster of Taiwan-invested enterprises which contributed 40% of GDP, 50% of gross industrial output, 60% of utilization of foreign investment and 70% of total imports and exports to the whole city (Hu & Xu, 2019). This special economic structure requires an analysis of the interaction between local institutions and global players and a discussion of how multiple actors from different scales co-shape local industrial evolution in a bottom-up fashion (Dawley et al., 2019).

The data employed by this paper come from a diversity of sources to illustrate and cross-validate our conceptual framework. We conducted 15 face-to-face interviews with local officials (including retired officials who witnessed and experienced the transformation of Kunshan), managers of Taiwan-invested corporates, the director of Association of Taiwan Investment Enterprises on the Mainland (ATIEM) and local residents in 2018–2019. The interviews typically lasted for two hours and the questions included were semi-structured and directed around resource accessibility for new industries from both internal and external channels, the role of local state and other actors in Kunshan's development and transformation, the challenges and opportunities facing Kunshan in different stages etc.

The Annual Survey of Industrial Firms (ASIF) collected by the National Bureau of Statistics permits us to analyze local industrial evolution at both firm and industrial levels during 1998–2009 in Kunshan. Another important data source are Kunshan Statistical Yearbooks for various years compiled by the Kunshan Bureau of Statistics. Other documents, such as government reports, archives and planning documents, published literature on Kunshan, and newspaper accounts are fully utilized by this study.

4 | THE ORIGIN OF KUNSHAN'S MANUFACTURING INDUSTRY: COALITIONS FOR INITIAL RESOURCES FOR NEW INDUSTRY FORMATION

4.1 | Coalition with landholding farmers for land

From 1949 to the early reform and opening-up, Kunshan was a traditional agricultural county (Hu & Xu, 2019). Whereas rural industrialization in the 1970s was well-developed by other counties in Southern Jiangsu province that launched a distinctive form of territorial economic development in China called the "Sunan (Southern Jiangsu) model", Kunshan was still dominated by agriculture without much effort to develop town-based enterprises, causing Kunshan to be nicknamed "the little sixth": the poorest economic performer among the six counties in Suzhou municipality (Chien, 2007; Wei, 2002). In 1984, local leadership determined to develop its industrial economy through establishing an industrial park with self-raised funds. With only 3 million yuan in fiscal capital, local government borrowed 12 million yuan from banks and demarcated 3.75 km^2 to create an industrial park that is the base of today's Kunshan Economic and Technological Development Zone (KETD).[2]

The creation of an industrial park caused a large number of farmers to lose their land, but local government gave them the same treatment and benefits as urban workers and provided capable young people with alternative jobs (Kunshan Rural Economy Research Group, 2016). Throughout its industrial transformation during the last four decades, Kunshan government

has mobilized a mass of land for industrial purposes, but Kunshan paid attention to farmers' well-being. For example, local government extended full insurance (social, medical and more) to farmers to make their lives more secure, and it also provided free vocational education to farmers and encouraged them to start their own business (Tangen, 2010). Besides benefiting from the land requisition compensation and resettlement, local farmers also made profits from local industrial growth by renting their houses to growing numbers of migrant workers (Wei, 2010). In short, the great benefits reaped from the process of industrialization by farmers enticed landholding actors to form a coalition with local government for industrial growth.

4.2 | Coalition with industrial firms within and beyond China for capital and technology

After the land issue had been addressed, the issues of where and how to attract inward investment became more imperative for Kunshan in the early 1980s. According to Wu Kequan, the head of Kunshan county government, Kunshan had "five shortages" for industrial development: shortages of capital, technology, products, managerial experience, and talent. Local leadership was aware that Shanghai possessed all the resources they badly needed, and Kunshan should adopt a "horizontal alliance" with Shanghai for path creation. By 1986, Kunshan had attracted 14 investment projects with a total volume of 150 million yuan from Shanghai (Hu & Xu, 2019). To fully utilize its geographical proximity to Shanghai, Kunshan invited and encouraged Shanghai's senior engineers to share their technology and train local labor as technical instructors in their spare time, usually on Sundays, these people thus were called "Sunday engineers".

Aside from its alliance with Shanghai, Kunshan made every effort to attract foreign investment. Kunshan successfully welcomed its first Sino-foreign joint venture (a glove factory) in 1985, not only because of its proximity to Shanghai but also due to the enthusiasm and activism of Kunshan's leadership.[3]

4.3 | Coalition with upper-level governments

The coalition of local government, landholding actors, and industrial firms would not have been possible without the acquiescence and endorsement of upper-level governments. Chien (2007) identified three mechanisms of local-central interactions in terms of locally initiated projects such as the establishment of industrial parks: the state's intention to connive; ex-post state endorsement; and ex-ante state adoption. The industrial park project was approved by the Kunshan local People's Congress without reporting to upper-level government, but central government connived this action because Kunshan de facto followed national developmental strategy. Later, after Kunshan's initial industrial park attained good economic performance, the local government started to seek the state's ex-post endorsement to turn the county-level industrial park into a national economic and technological development zone to better attract inward investment. Through formal and informal interactions with the central state, such as inviting its leaders to visit Kunshan and Kunshan's attendance to conferences organized about national development zones, Kunshan's industrial park was finally granted national status by the State council in 1992.

The interaction with municipal and provincial government is also of significance during Kunshan's industrial transformation. In 1987, after two years' operation, the foreign partner of Kunshan's first Sino-foreign joint venture proposed to increase its investment and requested local

government to match the other 50% of capital as per the agreement. Suffering from a lack of capital, the Kunshan government came up with the idea of land leasing and suggested that the foreign partner fund a wholly foreign-owned enterprise. This could be a perfect scheme for both local state and foreign investors. The revenue from land-lease could relieve the fiscal pressure of the local state and the foreign investor could enjoy more freedom in terms of both management and profits. The land-lease policy could also attract more foreign investment.

However, this proposal raised serious doubts from upper-level government officials who did not think it was wise to let a foreign investor take full control of a company. The concept of land leasing was an institutional innovation relating to the reform of state-owned land that required Kunshan's government to lobby the provincial government. In July 1988, the Jiangsu provincial government approved Kunshan's proposal and designated it as a pilot area to transfer land use rights for a fee. Kunshan also successfully lobbied the Suzhou municipal government, Jiangsu provincial government and central government to endorse the foreign wholly owned idea.[4]

5 | THE EVOLUTION OF INDUSTRIAL KUNSHAN IN THE 2000s: DIVERSIFICATION OR SPECIALIZATION?

The coalition of local state, landholding farmers, upper-level governments, and industrial firms at different scales mobilized necessary resources and paved the way for industrial development to follow. However, at the early stage of Kunshan manufacturing, Kunshan government welcomed any kind of industrial capital they could have attracted without a clear target until the mid-1990s. Before 1998, Kunshan's manufacturing sector was mainly dominated by textiles and apparel, chemical raw materials, and chemical products (Kunshan Bureau of Statistics, 1999). The 1990s witnessed an industrial transfer of Taiwan-based IT investors from Pearl River Delta (PRD) to Yangtze River Delta (YRD), especially to Kunshan.

This event was driven by both the desire of Taiwan's investors for a better investment environment and the national policy orientation to Shanghai Pudong development. In 1992, YRD attracted less than 20% of the annual amount of Taiwanese investment, but soon in 1994 it began to overtake the PRD and grabbed 62% of the annual cross-Strait investment in 2004 (Wang & Lee, 2007). In this section, we will show how the pro-growth coalition of local state and Taiwan-based investors was formed and how this coalition affected the industrial evolution of Kunshan.

Kunshan's activism for foreign investment brought its first Taiwan investor in 1990, Shunchang Textile Limited Company, but the significant investment came from WUS Printed Circuit Limited Company with a total investment of 30 million dollars in 1992. The significance of WUS lies not only in the new peak of investment volume it brought to Kunshan, but also in its founder, Wu Ligan's great contribution to help local government attract more Taiwan investment. Wu traveled between Kunshan and Taiwan to advertise the advantages of Kunshan, invite Taiwan investors to visit, and in the end he brought dozens of Taiwan enterprises (Hu & Lu, 2019).

Due to word of mouth advertising and Taiwan investors' preference to collaboration with Taiwanese, by 2007 Taiwan-invested enterprises accounted for 60%–70% of all foreign-invested enterprises in Kunshan. Foxconn, Compal, Acer, Clevo, Twinhead, Wistron, and many other IT giants opened their factories in Kunshan and brought their production networks. Along with industrial firms, Kunshan also attracted a vast number of immigrant workers. According to official statistics, the registered population in Kunshan was 600,000, compared to only 130,000 temporary residents in 2000. The number of immigrants had exceeded the registered population since

2005 with a growth rate much higher than the latter. Immigrants have become a main force for Kunshan's industrial growth since then and reached 1.3 million in 2014.

Kunshan's IT industry began to take off at the end of the 1990s and reached its peak in 2010. As shown in Figure 2, the output of Kunshan's IT industry had ranked number 1 among all manufacturing sectors since 1999. IT manufacturing sector had contributed 65% of output value to Kunshan's manufacturing in 2009. We further calculated the Herfindahl-Hirschman Index (HHI) based on the output value produced by 30 two-digit manufacturing sectors in Kunshan with data from the Kunshan Statistical Yearbook for various years. The HHI of 1998 was smaller than 0.07, but it climbed to 0.13 four years later. This number doubled within 3 years and HHI was 0.26 in 2005, which further rose to 0.38 by the end of 2009. The continuously rising HHI points to an intensive specification in Kunshan's manufacture during the 2000s. It is the mixed result of external implantation along with global industrial transfer and later industrial clustering effects from the pro-IT coalition by local state and Taiwan investors.

A closer look at the internal structure reveals that the manufacture of electronic computers dominated the IT industry in terms of output value (Figure 3). The output value created by this sub-sector was 74% among all eight subsectors within IT manufacturing in 2009. It suggests that Kunshan's industrial evolution during the period of 1998–2009 is more specialized than diversified.

We further calculate the four-firm concentration ratio (CR4) for output in the electronic computer sector – the CR4 in 2003 was 83.6% and this ratio continuously climbed to 89.5% in 2009 (Table 1). The Taiwan-based IT groups such as Compal, Wistron, and Foxconn had been at the top of the list at the time, which points to a dual specialization: industrial specialization and ownership specialization in Kunshan. It suggests that there might be a chance that a new industry comes out of existing technologically related economic activities to make a region diversified in

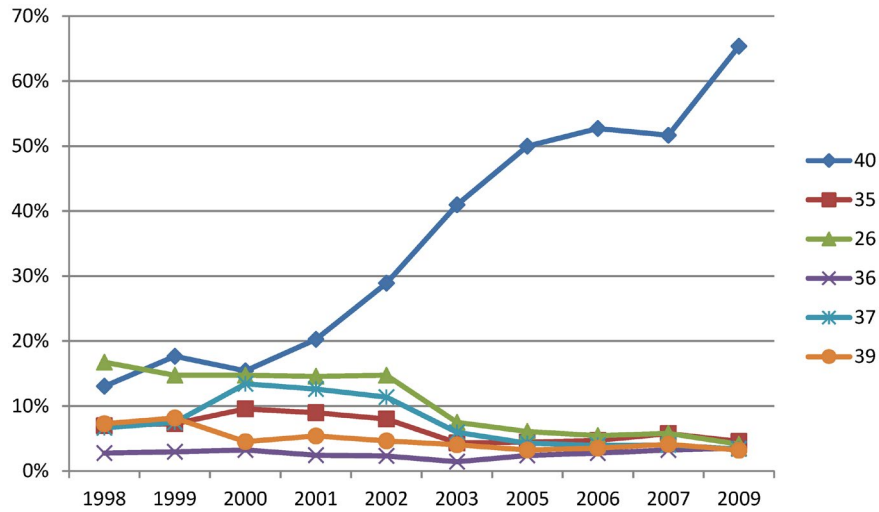

FIGURE 2 Industrial evolution of top six two-digit manufacturing sectors in Kunshan, 1998–2009 (output > 3% in year of 2009). Notes: Data of the years 2004 and 2008 are missing. The industry code is based on Industry Classification Standard 2002 (GB/T4754-2002) released by China's National Bureau of Statistics. 40 – Manufacture of telecommunication equipment, computers, and other electronic products. 35 – Manufacture of general purpose equipment. 26 – Manufacture of chemical raw materials and chemical products. 36 – Manufacture of special purpose equipment. 37 – Manufacture of transportation equipment. 39 – Manufacture of electric equipment and machinery. Source: China Annual Survey of Industrial Firms (ASIF)

a desirable way; simultaneously, there is also a risk that a region could be locked in its existing activities and resulted in an even more specialized rather than diversified industrial structure.

As mentioned above, the industrial evolution was partly driven by the strong coalition of local state and Taiwan-invested enterprises in this stage. The local state provided efficient and effective support to its Taiwan partners. "In recognition of our lower administrative level as a county-level economy, we know the best thing we could offer is our excellent services. Our leaders and officials are always available: no matter it is weekend or holidays or workday at midnight, we are there to back you up" (interview notes).

Xuan Binglong, the then director of KETZ, accidently gathered from a Taiwanese investor (Wu Ligan) that Kunshan got everything its Taiwanese enterprises wanted except for the speed of custom clearance, as enjoyed by an export processing zone (EPZ) such as Hsinchu Science and Technology Industrial Park. Xuan realized that EPZs allow enterprises to enjoy the 24-hr clearance service to imports and also add more value to exports without paying taxes or being subject to import and export regulations and currency controls. This would enhance the competitiveness of export-oriented Taiwan-invested enterprises. He immediately reported this idea to the municipal government and meanwhile prepared a trip to Hsinchu to learn about its experience as an EPZ.

However, the EPZ concept was completely new to mainland China at the time and it again requested lobbing and interactions with upper level governments. The approval process was very tough: Kunshan had to make 84 trips to Beijing to let the central state understand the imperatives of EPZs. Three years after this concept was put forward, Kunshan finally was authorized to establish its EPZ in 2000, along with other 15 regions among which Kunshan was the only county-level city. This suggests that interactions and coalitions with upper-level governments throughout the different stages of Kunshan's industrial evolution were significant. It also shows that Kunshan's local government tried its best to cooperate with its economic partner in the process of industrial transformation.

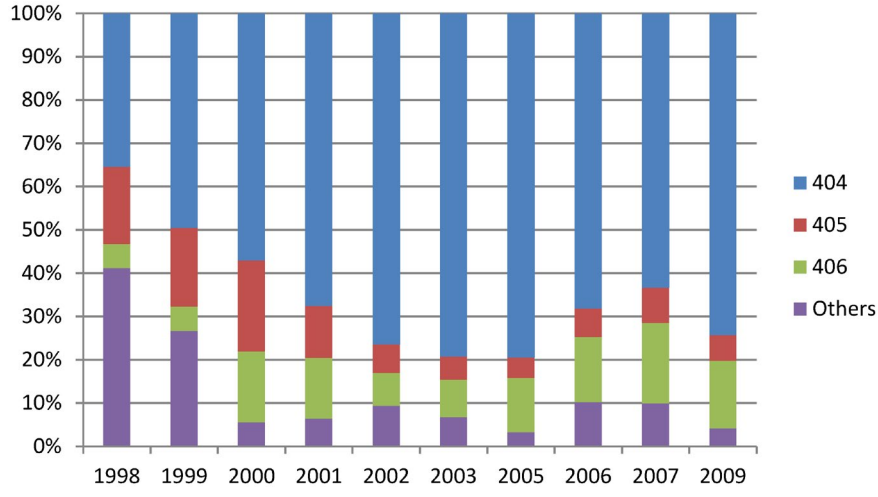

FIGURE 3 Distribution of IT manufacturing industry in Kunshan by output value. Notes: 404 – Manufacture of electronic computer. 405 – Manufacture of electronic device (transistor, electronic tube, integrated circuit etc.). 406 – Manufacture of electronic component. Others – including all other sub-sectors within sector 40. They are 401 (Manufacture of telecommunication equipment), 402 (Manufacture of radar and related equipment), 403 (Manufacture of broadcast and television equipment), 407 (Manufacture of home audio and video equipment) and 409 (others). Source: China Annual Survey of Industrial Firms (ASIF)

TABLE 1 Kunshan's top business groups in the manufacture of electronic computers (industrial code 404) in 2003 and 2009

Name of groups/ firms	No. of establishments	Headquarters	Year founded	Output value (million yuan)	Output value (%)	Export value (million yuan)	Export value (%)	Export value/ output value (%)
2009 (CR4 = 89.5%, total 78 establishments)								
Compal Electronics	5	Taiwan	1984	113,298	48.2	113,286	49.1	99.99
Wistron Corporation	3	Taiwan	2001	83,515	35.4	83,321	36.1	99.77
Foxconn Technology	1	Taiwan	1974	7,708	3.3	7,674	3.3	99.56
Sanmina Corporation	1	USA	1980	6,249	2.6	4,805	2.1	76.89
Total	78			235,862		230,812		97.85
2003 (CR4 = 83.6%, total 25 establishments)								
Compal Electronics	3	Taiwan	1999	18,469	60.7	18,380	62.4	99.52
Wistron Corporation	1	Taiwan	2001	2,906	9.5	2,905	9.9	99.97
Foxconn Technology	1	Taiwan	1974	2,502	8.2	2,276	7.7	90.97
Sanmina Corporation	1	USA	1980	1,576	5.2	1,265	4.3	80.27
Total	25			30,445		29,440		96.70%

Note: Export data for 2003 are originally missing one digit. We suspect there is a typesetting error and made a correction for this.

Source: China Annual Survey of Industrial Firms (ASIF); websites of each company.

According to Hu and Xu (2019), the establishment of EPZs enabled Kunshan to welcome over 70 Taiwan-invested enterprises with an investment of 1.3 billion US dollars in three years to establish a complete IT industrial chain. In 2005, the total volume of imports and exports were 18 billion US dollars, which was much higher than what Kunshan had promised to upper-level governments. Taiwanese investors were quite impressive by Kunshan's activism, enthusiasm and efficiency, which further attracted related IT enterprises to Kunshan and strengthened its industrial specialization in the IT industry at this stage.

6 | PLANNING FOR NEW EMERGING INDUSTRY BASED ON TECHNOLOGICAL RELATEDNESS AND BEYOND

The strong coalition created by Kunshan's local state and Taiwan's investors allowed Kunshan to become the major global production base for notebook computers. Kunshan produced 120 million laptops at its peak in 2010, but this output quickly decreased to 65 million units in early 2014 with a loss of 100 billion RMB output value (Liu, 2014). At the end of 2017, the output of laptops made by Kunshan decreased to 38 million according to official statistics (Kunshan Bureau of Statistics, 2018). This loss was mainly caused by the new industrial transfer of IT firms to central and western China, such as Chongqing and Hubei where the production costs were significant lower than in Kunshan (Gao et al., 2017; Hu & Lu, 2019). Chongqing, a centrally governed municipality in western China, produced 40% of the world's laptop computers in 2015 (Yang, 2017).

Kunshan's local government began to explore other paths of industrial transformation and upgrading since the mid-2000s given that Kunshan's economic growth model, driven largely by Taiwan-invested labor-intensive industries with a lower value added, was no longer sustainable. The 2008 economic crisis had caused 37 enterprises to close down in Kunshan, among which 22 were Taiwan-invested small- or middle-sized enterprises (Xu & Liu, 2014). In the same year, Kunshan government started to push Taiwan-invested firms to transform and upgrade through policy-making and fund-setting. Then Party Secretary Zhang Guohua said to news media in 2010, "if manufacturing enterprises cannot make money in Kunshan anymore, then, I told them, you should look for other places where could bring you more money" (Luo, 2014).

A local official claimed, "we have built up a close and deep relationship with Taiwan investors during the past decades. Emotionally, it is not easy for us to ask them to relocate. What we did is to gradually enhance the standards of environmental protection to push them to either upgrade or relocate. However, the 2014 explosion of a Taiwan-owned factory[5] was so terrible that it forced us to do some serious reflections upon our low value-added industrial economy and to take a firm hand to push Taiwan-invested enterprises to be independent, innovative, and move up towards the higher value chain. Meanwhile, we actively extend our cooperation with global players in the emerging fields that we try to promote" (interview notes).

In 2005, Kunshan built up its German Industrial Park to attract investors from European countries and United States. This park had clustered 134 enterprises with 1 billion US dollars investment at the end of 2017 (Jin, 2017). It was acknowledged as a Sino-German international science and technology cooperation base by the Ministry of Science and Technology in 2013. The robotic industry base in Kunshan New & High-tech Industrial Development Zone (KSND) agglomerated global leaders such as Kawasaki Robostage, Comau, Kuka, Makino etc. Since 2010, Kunshan government has formulated a clear industrial development strategy, that is, relying on the current two leading industries – IT and equipment manufacturing – to strongly develop eight emerging industries.

According to Kunshan's 13th Five-Year Plan (2016–2020) on manufacturing industry, the eight newly emerging industries sitting on Kunshan's priority list are: new flat panel display; high-end equipment manufacturing; new materials; software and integrated circuits; smart grid and the internet of things; biomedicine and new medical instruments; energy saving and environmental protection; and new energy. Compared to its 12th Five-Year Plan, software and integrated circuits as well as high-end equipment manufacturing are newly added.

As shown in Table 2, the newly emerging industries in Kunshan have accounted for 44% of gross output value to the manufacturing industry during the period of 2013–2016. Flat panel displays had contributed one-third of output value to the emerging industries, followed by high-end equipment manufacturing which accounted for over one quarter of output value. New materials, and smart grid and internet of things generated about 16% and 9% of output value in this period, respectively. Bio-technology and new medicine seem to be the weakest among the eight industries.

Kunshan's local state explicitly disclosed the priority firms they would like to support in the fields of several newly emerging industries in its 13th Five-Year Plan on Industrial Economy. As shown in Table 3, local government attempted to form a coalition with firms from a diversity of industries in this stage. Firstly, although a number of Taiwan-invested enterprises play an important role in the fields of new flat panel displays as well as smart grid and internet of things, Kunshan government started to diversity its strategic industrial partners by supporting influential investors from Japan, South Korea, Italy, and the United States. More importantly, a majority of firms Kunshan targeted are domestic firms with a great potential to be innovative. It points to Kunshan's effort trying to transform its export-oriented economy into a more endogenous innovation-driven one. The actual utilization of foreign investment by Kunshan had been dropping from 1,725 million US dollars in 2010 to 753 million US dollars in 2017 (Kunshan Bureau of Statistics, 2018).

Spatially, centering on these strategic emerging industries, Kunshan had established nine national industry bases and one provincial base at the end of 2015 to transform and diversify its local industrial structure (Table 4). More recently, Kunshan's small interfering RNA (siRNA) and biomedicine industry base was approved by the China Torch Program in 2017. This shows that the effort and initial performance made by Kunshan to promote its newly emerging industries and diversity in its industrial structure has been recognized by central government, which gives Kunshan local state more incentives to pursue better performance in the years to come.

However, it is still too early to tell whether the effort made by Kunshan could lead to a successful transformation again. Except for vacating land for high-end enterprises, Kunshan also anchored 472 private equity firms and other financial institutions to offer financial support to emerging firms (Shi, 2017a). Bearing in mind that the growth of emerging industries is closely associated with the inflows of high-qualified talents as well as the spillover effects of URIs, Kunshan local government strives to mobilize such resources from national and global scales to create a pro-innovation industrial environment.

Another move for this ambition is to pursue a strategic alliance with Duke University. As a county-level city, Kunshan had been suffering from its shortage of prestigious URIs. Duke University put forward its internationalization strategy in 2006 and was looking for a Chinese partner the next year when the Kunshan local state was desperately seeking for an industrial transformation through training and attracting high-qualified talents (Wang, 2017). Both parties soon reached a consensus to jointly establish a university in Kunshan. However, such jointly established education program is required to have a Chinese university as an academic partner. In 2010, Wuhan University joined in to officially launch this program, which had been approved by the Ministry of Education in 2013.

TABLE 2 Main economic indicators of emerging industries in Kunshan

	2013	2014	2015	2016
Number of enterprises (unit)	443	486	501	507
Average number of employed persons (10,000 persons)	32.93	35.09	34.27	33.63
Gross output value (million yuan)	327,071	343,359	361,170	378,727
New flat panel displays	123,333	111,786	119,877	127,716
% to all emerging industries	38	33	33	34
New materials	52,438	60,779	58,442	58,569
% to all emerging industries	16	18	16	15
Smart grid and internet of things	28,113	28,822	30,314	36,398
% to all emerging industries	9	8	8	10
High-end equipment manufacturing	85,466	97,125	107,083	109,455
% to all emerging industries	26	28	30	29
Energy saving and environmental protection	13,729	14,552	14,631	15,041
% to all emerging industries	4	4	4	4
New energy	10,732	12,445	12,521	13,114
% to all emerging industries	3	4	3	3
Bio-technology and new medicines	4,930	5,524	5,917	5,886
% to all emerging industries	2	2	2	2
Integrated circuit	8,329	12,326	12,384	13,548
% to all emerging industries	3	4	3	4
% to total gross output value by all manufacturing	44.6	42.7	43.7	43.7

Source: Kunshan Statistical Yearbook 2014; Kunshan Statistical Yearbook 2015; Kunshan Statistical Yearbook 2016; Kunshan Statistical Yearbook 2017.

The new university is named Duke Kunshan University (DKU) and is located in KSND with the hope to transform Kunshan into China's own "Silicon Valley", an international innovation hub (Kirby & Zendell, 2014). After successfully running the graduate degree programs in business and global health since 2014, DKU has begun to launch undergraduate degree programs in 2018. The Sino-US (Kunshan) Science and Technology Innovation Center is a newly established platform in 2018 by Kunshan government, Duke University and Wuhan University that takes DKU as a window to attract US innovative resources, promote cooperation with China's prestigious URIs and finally to build a regional innovation system.

This action enhances Kunshan's international visibility, which may help attract international investors. More importantly, it may create an academic atmosphere and change people's perception of Kunshan as merely an industrial city without any prestigious higher education institutes. Actually, DKU is not the first program that Kunshan government sought for external powers to anchor science and technology resources. Kunshan co-founded the Tsinghua Science and Technology Park Kunshan Park (hereafter TSTP Kunshan) with Tsinghua University in 2003 and since then Kunshan has formed a long-term coalition with Tsinghua University. For example,

TABLE 3 Priority firms in Kunshan's 13th Five-Year Planning on Industrial Economy

Industries	Priority firms	Year of founded	Registered assets (million yuan)	Headquarter
New flat panel displays	Infovision Optoelectronics (Kunshan) Co., Ltd	2005	3,000	Taiwan
	AU Optronics Corporation (Kunshan) Co., Ltd	2009	10,927	Taiwan
	KunShan Visionox Technology	2010	317	Mainland China
	Kunshan Guoxian Optoelectronics	2012	6,707	Mainland China
New materials	Kunshan Dotop Metal Technology Co., Ltd.	2009	50	Mainland China
	Kingfa Sci.&Tech. Co., Ltd.	2010	680	Mainland China
	Kunshan Sunshinetex New Material Co., Ltd.	2004	35	Mainland China
	Kunshan Zhiqimei Materials Technology Co., Ltd.	2014	2,272	Taiwan
	Dongxu (Kunshan) Display Material Co., Ltd.	2014	1,300	Mainland China
	Kunshan Samsung Electro-Mechanics	2009	1,694	Korea
Smart grid and internet of things	Kunshan Nicera Electrical Appliance Co., Ltd.	1995	449	Japan
	Kunshan Shuangqiao Sensor	2001	6	Mainland China
	Jiangsu Kunshan General Electric Co., Ltd.	1992	50	Mainland China
	MiTAC (Kunshan) Co., Ltd.	2000	475	Taiwan
	Fugang Electric (Kunshan) Co., Ltd.	2002	851	Taiwan
	LG Electronics (Kunshan) Co., Ltd.	2003	50	Korea
	Kunshan Lanto Electronic Co., Ltd.	2004	1,220	Mainland China
	Gemtek Electronics (Kunshan) Co., Ltd.	2004	105	Taiwan
	Compal Networking (Kunshan) Co., Ltd.	2006	87	Taiwan
	Jiangsu Zhengbai Electric Co., Ltd.	2006	75	Mainland China
	Tyco Electronics (Kunshan) Co., Ltd.	2005	84	USA
	Suzhou Aizhi Motor Co., Ltd.	2001	150	Mainland China
	Kunshan Unelectra Electric Co., Ltd.	1993	39	Taiwan
	Acme Electronics (Kunshan) Co., Ltd.	2000	255	Taiwan

(Continues)

TABLE 3 (Continued)

Industries	Priority firms	Year of founded	Registered assets (million yuan)	Headquarter
Robot and intelligence manufacturing	Kunshan Huaheng Welding Co., Ltd.	1995	259	Mainland China
	AdvanTech (China) Co., Ltd.	2000	397	Taiwan
	Hiecise Precision Equipment Co., Ltd.	2003	56	Mainland China
	Austong Intelligent Robot Technology Co., Ltd.	2008	12	Mainland China
	Kawasaki Robotics (Kunshan) Co., Ltd.	2012	109	Japan
	Comau (Kunshan) Automation Co., Ltd.	2011	56	Italy
	Suzhou Pangolin Robot Co., Ltd	2006	14	Mainland China
	Kunshan Tungray Automation Co., Ltd.	2010	40	Mainland China
Bio-technology and new medical devices	Suzhou Ribo Life Science Co., Ltd	2007	31	Mainland China
	Suzhou Zelgen Biopharmaceuticals Co., Ltd.	2009	180	Mainland China
Integrated circuit	Brigates Microelectronics (Kunshan) Co., Ltd.	2008	145	Mainland China
	ViewSil Microelectronics (Kunshan) Co., Ltd.	2005	53	Mainland China
	Suzhou YunChip Microelectronics Co., Ltd.	2010	13	Mainland China
	Suzhou Easepower Microelectronic Technology Co., Ltd.	2011	–	Mainland China
	Kunshan Ruiwei Xinsheng Microelectronic Technology Co., Ltd.	2013	11	Mainland China
	Suzhou Tianwei Technology Co., Ltd.	2012	30	Mainland China
	Kunshan Huatai Microelectronic Technology Co., Ltd.	2010	10	Mainland China
	Huatian Technology (Kunshan) Electronics Co., Ltd.	2008	940	Mainland China
	Kunshan Q-Tech Microelectronics Technology Co., Ltd.	2007	2,625	Mainland China
	Advanced Semiconductor Engineering (Kunshan) Co., Ltd.	2004	2,016	Taiwan

Source: Kunshan 13th Five-Year Planning on Industrial Economy; Firm information is searched via Baidu Baike and homepage of firms; 1 US dollar =7 yuan.

TABLE 4 Kunshan's Ten Industry Bases at the end of 12th Five-Year Plan

	Name of industry base	National level	Provincial level	Title awarded
1	Optoelectronics industrial park	✓		National New Industrialization Demonstration Base (2010) National High-tech Industrialization Base (2010)
2	Mold industry base	✓		China Torch Program Kunshan Mold Industry Base (2003) National Innovation Base of Developing Trade through Science and Technology (2009)
3	Renewable energy industry base	✓		China Torch Program Kunshan Renewable Energy Industry Base (2009)
4	Robot industry base	✓		China Torch Program Jiangsu Kunshan Robot Industry Base (2012)
5	High-end equipment manufacturing industry base	✓		China Torch Program Kunshan High-end Equipment Manufacturing Industry Base (2011)
6	Kunshan software park	✓		China Torch Program Software Industry Base (Kunshan) (2004) National High-tech Entrepreneurship Service Center (2014)
7	Printed circuit broad industry base	✓		China Torch Program Kunshan Printed Circuit Broad Industry Base (2010)
8	Sensor industry base	✓		China Torch Program Kunshan Sensor Industry Base (2000)
9	Kunshan (Zhangpu) precision machinery industry base	✓		China Torch Program Kunshan (Zhangpu) Precision Machinery Industry Base (2013)
10	Service outsourcing industry base		✓	Jiangsu Province International Service Outsourcing Base City

Source: Kunshan Strategic Emerging Industrial Development "13th Five-Year" Plan.

Visionox, grown out of the "organic light emitting display" (OLED) research project in Tsinghua University, selected Kunshan to further expand its production scale in 2006 and established the new panel display technological center with Kunshan Industrial Technology Research Institute in 2009. As of 2018, about 300 Tsinghua University alumni have chosen Kunshan to conduct entrepreneurial activities (Gu, 2018).

The strategic cooperation between local government and Tsinghua University also produced China's first siRNA industry base which fostered the industrialization of siRNA and cultivated local emerging industry. Recently, Kunshan has initiated collaborations with Zhejiang University by founding Zhejiang University Kunshan Innovation Center in 2012 (Shi, 2017b). Kunshan has been a home of 38 provincial incubators and 196 research and development institutions at early 2019 (Sun, 2019). Kunshan initiated its Zu Chongzhi Independent and Controllable Industry Technology Breakthrough Plan that aims at mobilizing global science and technology resources to solve the technical issues confronted by local firms in the fields of photoelectricity, semiconductors, miRNA and biomedicine, and intelligence manufacturing of Kunshan. On March 14, 2019, Kunshan held a launch ceremony for this plan to officially announce a list of its technical needs that were raised by 115 firms with a supporting funds of 1.7 billion yuan (Ye, 2019).

In summary, Kunshan's local state initiated a new coalition with both domestic firms and international ones beyond the Taiwan area, as well as URIs from different geographical scales to build its regional innovation system and create an innovative environment to promote its emerging industries. During this process, the close and strong relationship between local state and Taiwan-invested enterprises had been gradually weakened, although Kunshan was approved in 2013 as a "deepening cross-straits industrial cooperation pilot zone" to advance the transformation and upgrade of Taiwan-invested enterprises, and although some of Taiwan-invested enterprises still play an important role in the manufacture of new panel display and integrated circuit.

Among the eight emerging industries, some of them are technologically related to its existing industries, but others are completely irrelevant, such as the biomedicine industry which is a product of planning: it was initiated by local state, supported by university professors/entrepreneurs, formed by the coalition of local state, Tsinghua University, Tsinghua Science and Technology Park Kunshan Park and entrepreneurial talents. This implies that the emergence of unrelated industries is more policy-driven and dependent on non-local forces such as external implantation, whereas the growth of related industries is relatively more market-driven and comes out of locally existing industries or institutions. The evolutionary coalition in different stages in Kunshan for industrial transformation is illustrated in Figure 4.

7 | CONCLUSION AND DISCUSSION

Regional industrial evolution has been considered a process of regional branching in which new industry is technologically related to existing industrial activities. This technology-focused, firm-centered, and endogenistic perspective has been challenged in recent years. New path creation depends upon the mobilization and alignment of necessary resources, such as land, capital, labor and technology, which are scattered in multiple actors at different scales. However, the issues of which actors are involved and how their relationship has evolved in driving industrial evolution in transitional China remain largely unknown. We argue that regional industrial evolution in China is driven by a local state-orchestrated pro-growth coalition of multiple actors from different scales, which aims at creating general consensus for an industrial growth agenda through a discourse of mutual benefits.

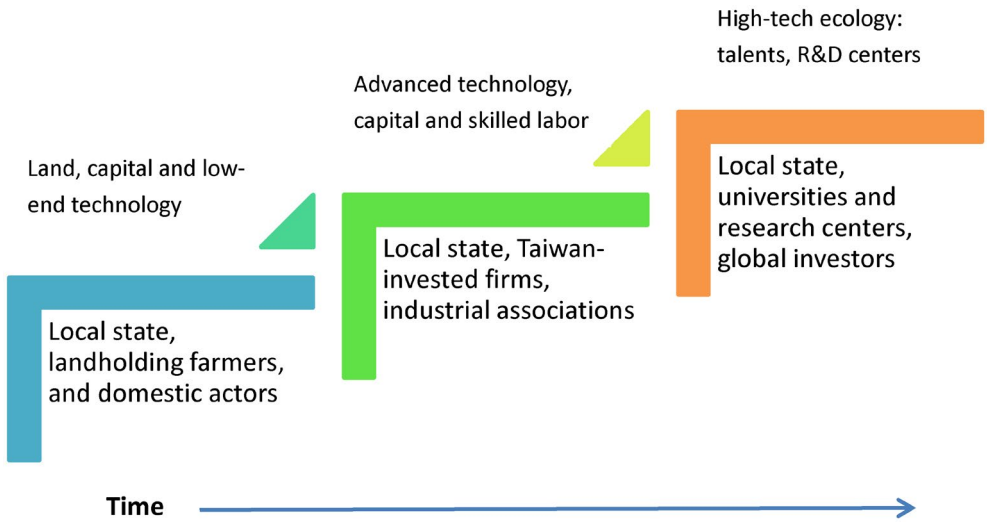

FIGURE 4 An evolutionary coalition seeking resources for industrial transformation in Kunshan

We examined Kunshan's industrial evolution during the past four decades since the 1978 economic reform and opening-up. The industrial transformation of Kunshan from a poor agricultural county to an industrial and innovation center has primarily experienced three stages driven by an evolutionary pro-growth coalition. During the early 1980s to mid-1990s, Kunshan achieved its industrialization by building its own industrial park which was propelled by the coalition of local state, land-holding farmers, upper-level governments, and industrial firms from Shanghai, Third Front regions, Taiwan and foreign countries. The second stage, from the late 1990s to the late 2000s, witnessed a strong coalition of local state and Taiwanese investors, which led Kunshan to form an IT industrial cluster of Taiwan-invested enterprises that completely dominated Kunshan's manufacturing industry. While the complicated relationship with upper-level governments, especially the central state, has been involving through all stages of Kunshan's industrial development, the coalition of local state, domestic firms and international enterprises from regions beyond Taiwan, and URIs at both national and international levels became the key to the promotion of newly emerging industries in the third stage. The coalition led and orchestrated by Kunshan's local state is evolutionary in these three stages along with the industrial transformation and adaptation to internal development needs and external economic and policy environment.

While this study highlights the bright side of Kunshan's industrial transformation, Kunshan also confronted many obstacles during this process. For instance, the early industrialization not only brought Kunshan new industries and capital but also environmental pollution and social problems. The coalition of different actors is based on common goals and mutual interests that may become divergent and even conflict with each other. The conflict of interests between the local state and polluting and low-end Taiwan-invested enterprises became quite obvious when Kunshan abandoned its labor-intensive and low-cost developmental pattern and instead started to pursue a more innovative and sustainable path for industrial development. While an evolutionary pro-growth coalition led by local state is a key to Kunshan's industrial transformation, Kunshan's success is also associated with its geographical proximity to Shanghai and historical opportunities offered by global industrial transfer as well as national policy (Pudong development) and local institutional innovation (establishment of EPZ) etc. These interwoven factors all contribute to Kunshan's industrial development, which cannot be easily copied by other cities.

This article highlights the changing power relationship between local actors and global players. The literature on GVCs and global production networks views multinational corporations as powerful actors who are mobile and proactively coupled with local assets. As the early stage of its development, Kunshan desperately sought industrial capital and corresponding technology and managerial experience, which put them in a relatively weak position to deal with external investors. Taiwan-invested enterprises, though labor-intensive, cost-sensitive, and highly polluting, had power over the Kunshan state at that time. With the rise of its industrial economy, Kunshan discovered its new deficit: lack of highly qualified talent, advanced technology, and other innovative resources that could not be provided by its Taiwan partners. This encouraged the Kunshan government to decouple with many of its Taiwan-invested enterprises. This leads to a strategic juncture: a more symmetrical power relationship between local and global actors, or a new asymmetry between a strong local state and weaker global players.

New path creation by regional branching is a slow process. For regions in China confronted by a highly competitive global environment as well as pressure from other regions, a proactive local government can be a key asset in creating new paths of development. A local state's ability to establish a flexible and evolutionary coalition adaptable to internal developmental demands and external economic, technological, and institutional changes can distinguish successful regional industrial transformation from others. Beyond the conventional EEG views of firm-concentric accounts, our study suggests that the role of multiple actors and their coalition led by the local state in various forms as well as their relational power embedded in specific institutional framework co-shape regional industrial transformation (Hassink et al., 2019).

This article advocates an inclusive theoretical framework that avoids a one-dimensional approach to capture a multi-actor, multi-scalar, and policy-led industrial evolution process. It appeals for a geographical political economy (GPE) perspective that situates industrial evolution in a broader institutional and geographic setting that incorporates local and global actors and the development paths driven by them (MacKinnon et al., 2019).

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ENDNOTES

[1] Yang (2017) shows that the emergence and rapid development of Chongqing's laptop manufacturing industry in China can be attributed to foreign investments by Taiwan-based contract manufacturers as well as the emerging strategic partnership between these firms and local government.

[2] "At that time, the action of park-building without the approval of upper level governments was actually 'illegal' so local leaders could be sent to jail, which shows the determination of the local state" (interview note, 2018).

[3] To facilitate this project, Kunshan did all the investment approval work on its own, which included 123 visits to Nanjing (capital of Jiangsu province) and Beijing to get 732 stamps from different departments to make the joint venture happen (Hu & Yao, 2019).

[4] "We persuaded our upper-level leaders: without using our own capital, foreign wholly owned enterprises could solve the employment problem, promote export and foreign exchange, bring local tax and relieve the tension of

fiscal pressure of local government and so on. It took us three months to get things done and our first wholly foreign-owned enterprise, Suwangni Glove Limited Company, was founded in 1988" (interview notes).

[5] The dust explosion happened on August 2, 2014 in the Zhongrong factory and caused the deaths of 146 workers and 114 were injured. Various local officials were implicated which forced Kunshan's local state to decouple the coalition with highly polluting and low value-added Taiwan-invested firms.

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