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The Constitutive Role of State Structures in Strategic Coupling: On the Formation and Evolution of Sino-German Production Networks in Jieyang, China

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abstract

Research on the strategic coupling between regions and global lead firms has largely assumed that the regional assets for coupling are ready made and are largely unchanging throughout the coupling process. This article takes this assumption as its critical point of departure and presents a new framework that considers how regional assets are actively (re)configured across multiple scales in ways that could redefine the prevailing mode of strategic coupling. The empirical basis of this framework is derived from a long-term case study on the formation and evolution of Sino-German production networks in environmental goods and services (EGS) in Jieyang, a relatively peripheral city in Guangdong province in China. The analysis draws from thirty-three interviews and seven focus group discussions, conducted between 2014 and 2020, with nonstate and state actors in Jieyang. Findings highlight how Zhongde, a coalition of Jieyang-based firms, transcended the limitations of structural coupling, which exemplifies uneven power relations between regions and lead firms, and attained more balanced coupling relations with German-led EGS global production networks (GPNs) through realigning interests with those of national-level institutions. Responding positively to the structural constraints and opportunities within a Chinese state structure based on experimental governance, Zhongde connected German EGS lead firms to the highly profitable but protected EGS market in China. This ability to jump between scales underscores the cross-scalar and dynamic aspects of strategic coupling: Zhongde was able to meet German-led EGS GPNs' demand for market access

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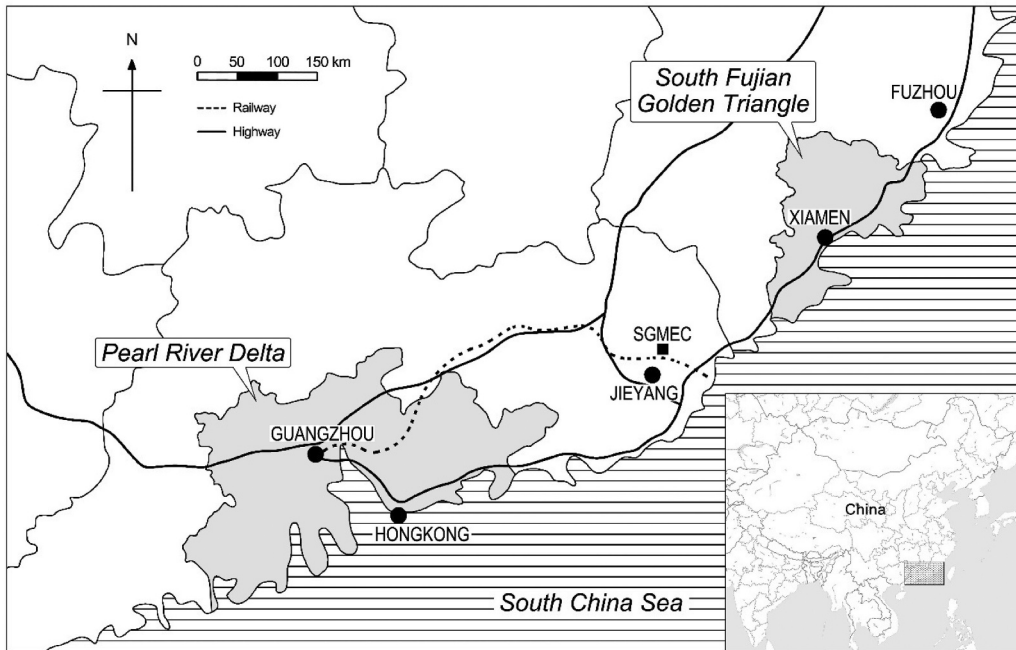
and enhanced localization economies through reconfiguring regional assets. Abstracting from these findings, the article enhances the explanation of the evolution of strategic coupling by conceptualizing its intrinsic dynamism and incorporating state structural effects. Finally, it presents two directions for further research on GPN reconfigurations.

The proactive and often competitive enrollment of subnational regions¹ in the global circuit of capital accumulation has been conceptualized as strategic coupling (Coe et al. 2004; MacKinnon 2012; Yeung 2016). Coe et al. (2004) define strategic coupling as the *interactive effects* of regional dynamics and the demands of global production networks (GPNs). Integral to this interaction is a process of bargaining and collaboration between regionally specific actors (e.g., local firms and state institutions) and primary drivers of GPNs (also known as lead firms). For more than a decade, cutting-edge research on strategic coupling has revealed heterogeneous objectives such as local firms' acquisition of up-to-date technology and regional state institutions' attempts to expand regional employment and/or drive economic restructuring through counteracting the lock-in of local clusters (Dawley 2014; Isaksen 2015). Receiving less critical research attention, however, is the assumption that the regional assets for coupling with lead firms are ready made and are largely unchanging throughout the coupling process. This article takes this assumption as its critical point of departure and argues for a more dynamic analytical framework that considers how the regional assets for coupling can be *actively (re)configured* across multiple scales in ways that may redefine the prevailing characteristics of strategic coupling.

The empirical basis of this framework is derived from a long-term case study on the formation of Sino-German production networks in environmental goods and services (EGS) in Jieyang, a relatively peripheral city in Guangdong, one of China's most industrialized provinces (Figure 1). Previous attempts at GPN enrollment in Jieyang could be attributed to a particular mode of coupling which MacKinnon (2013, 309) terms "structural coupling," namely, the incorporation of regions into GPNs through the "structural power of lead firms attracted by regional assets such as labour surpluses and available industrial sites." And it was premised on this relatively weak structural position *vis-à-vis* global lead firms that local industrial actors proactively developed the Sino-German Metal Eco-City (SGMEC), the first privately led industrial park at the municipal level in China and the only private park among all ten Sino-German Small and Medium-Sized Enterprise (SME) Cooperation Zones approved by the Chinese Ministry of Industry and Information Technology (MIIT).

It soon became apparent, however, that structural coupling is an outside-in conceptual matching with Jieyang's initial context, and it could not explain the SGMEC's *emergence* as a major node in EGS GPNs following the reconfiguration of regional assets in Jieyang. While it is possible to draw from MacKinnon's (2012) conceptual typology to describe this emergence as an evolution from structural coupling (which reflects pronounced uneven power relations) to strategic coupling (which reflects more balanced power relations), it is not clear *why* this evolution took place. Further complicating the picture was the cross-scalar aspect of the evolutionary process: it was driven by local stakeholders, the MIIT, and German investors rather than the Jieyang municipal government. This is a unique development in itself because proactive local governments are typically primary drivers of engagement with foreign capital (Wang and Lee 2007; Wang and Gooderham 2014). And it highlights two additional

¹ Regions are taken in this article to mean subnational territorial entities within China. These entities encompass various scales, from cross-provincial regions (e.g., western China) to city-regions like Jieyang. In China, all regional governments are considered local governments (*difang zhengfu* 地方政府). For the purpose of conceptual specificity, the reference to local government in this article refers to those located in Jieyang, and they are used interchangeably with regional government and regional institutions, key conceptual terms used in the literature on strategic coupling. References to local governments at other scales will be explicitly stated, for example, the Guangdong provincial government.



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Figure 1. Jieyang in Guangdong province, China.
Source: Authors' original map.

questions that demand further explanatory power from the existing GPN framework: Why did the Jieyang government adopt a passive approach? And how did this passivity shape the evolution of the SGMEC from a structurally weak industrial park to a global hub of EGS production?

As the article will elaborate, mismatching interests between local state and nonstate actors were constraints that impelled stakeholders in Jieyang to seek further linkages with German firms through scaling up its connections with and access to national-level institutes. Specifically, these stakeholders sought to broaden their global networks through incorporating the strategic concerns of the MIIT and, in turn, benefit from access to high-profile industrial and bank support that accompanied the endorsement from a major national institution. Subsequent alignment with national-level developmental objectives ensued, with prominent state-owned enterprises (SOEs) playing direct roles in the provision of EGS and, consequently, in enhancing Jieyang's capacities to secure more benefits through coupling with EGS GPNs. On this empirical basis, the article develops a new framework to reconceptualize region-GPN coupling as a dynamic and cross-scalar process that shapes and is shaped by the opportunities and constraints of the state structures in which regions are located. In the context of this case study, place-based experimental endeavors drove the fluid reconfiguration of actors, assets, and networks across a range of scales to *construct* and *consolidate* Jieyang's access to GPNs. Yet consolidation does not guarantee perennial success: whether region-GPN relations could remain mutually beneficial is intrinsically open-ended and calls for further multisited research.

The empirical materials underpinning the analysis are derived from multiple rounds of fieldwork in Jieyang between October 2014 and January 2020. A range of data was

collected, namely (1) archival documentaries of the SGMEC and the city; (2) in-depth interviews with twenty-two local companies and entrepreneurs, four local public agencies, and seven German firms with China- or Jieyang-based investments; and (3) seven formal and multiple informal group discussions. Contacts for these groups were derived through participant observation (primarily as a consultant for an incubator project of the SGMEC), and the discussions were aimed at understanding the evolving motives and strategies to couple with German and foreign partners. These group discussions typically comprised ten people from the consultation team; the senior management team in the SGMEC; and sometimes, the local government officials such as those working in Jieyang Bureau of Science and Technology. They proved highly valuable for data collection because key stakeholders viewed the researchers as insiders and were willing to reveal more information through semistructured interviews. Following the completion of fieldwork, the data were triangulated and juxtaposed to present a theoretically informed analysis.

This article will be organized into seven parts. The next two sections critically evaluate the scalar and temporal basis of strategic coupling and highlight how regional institutions' ability to engage in strategic coupling are constituted by the national structure within which these institutions are embedded. These critical evaluations form the basis of the analysis in the next three sections. The fourth section documents and explains the formation and emergence of the SGMEC. It pays specific attention to the Jieyang government's unwillingness—or, more specifically, inability—to be involved extensively in the strategic coupling process in the first place. This sets up the twin foci of the fifth section: the involvement and impact of a national-level institution, the MIIT, in embedding EGS GPNs in the SGMEC. A dynamic causal explanation of strategic coupling is then presented as a novel framework in the sixth section. Conceptual advances and further research directions deriving from this framework will be explored in the final section.

Strategic Coupling: Institutions, Agency, and Structure

A rich and mature literature on strategic coupling processes has emerged over the past two decades following the widespread adoption of the GPN framework to analyze regional development. The “coupling” of regions with GPNs is “strategic,” Coe and Hess (2011, 131–32) explain, because (1) it relies on intentional action and active deliberation; (2) it is time and space contingent, involving the construction of a “temporary coalition” between groups of actors who might not otherwise work together to pursue a common objective; and (3) it transcends territorial boundaries, bringing together actors who operate across different spatial scales. Building on these fundamental characteristics, subsequent studies classified strategic coupling into different modes, highlighting how actors in regions and GPNs consciously and proactively engaged in coupling both in spite *and* because of power and asset differentials.

To MacKinnon (2012), coupling takes the form of structural coupling (in which value capture within regions is quickly offshored), strategic coupling (in which regions play more active roles in value creation and where value capture is more evenly shared), and organic coupling (in which lead firms center both value creation and value capture within the regions where these processes originated). Yeung (2015) adapts this classification and identifies three modes of coupling, namely, organic (indigenous innovation), functional (international partnerships), and structural (production platforms). The empirical and conceptual discussion in this article will draw primarily from MacKinnon's (2012) conceptual typology because of its stronger

focus on core-periphery relations (structural coupling), and the constitutive effects of uneven development (as further developed in MacKinnon et al. [2019]) are highly relevant to the Jieyang context. Yet, as mentioned in the introductory section, it is insufficient to match conceptual terms to specific cases. To explain more incisively the evolution between the different modes of coupling, the article highlights and critically addresses three issues in existing research.

First, there is an *open-endedness* to the definition of “actors” that “coordinate, mediate, and arbitrage” strategic interests (Yeung 2009, 213). By extension, the scope of their strategic agency is necessarily fluid. Empirical research has commonly identified such actors as “regional institutions” (Coe et al. 2004, 470), though, it must be added, such actors could indeed be *any* entity that actively connects regional assets and GPN functions together. Since the 2000s, the rapid growth of certain emerging economies as *markets* have triggered the reconfiguration of GPNs (Hansen, Pedersen, and Petersen 2009; Yang 2013). This means global lead firms do not solely seek out an optimal cost-capability ratio to secure competitive advantage in mature markets in developed economies; their aim to capture value in emerging markets offers more agency for regional and national actors in these markets to generate what Yeung and Coe (2015, 37) term “a negotiated outcome through which both producers and customers are actively involved in market creation.”

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MacKinnon et al. (2019, 115) explicitly consider this role of market construction on strategic coupling: “knowledgeable actors, operating within multiscale institutional environments, create paths through the strategic coupling of regional and extraregional assets to mechanisms of path creation and associated markets.” Here, an open view of knowledgeable actors works well because regional institutions’ willingness and capacity to be involved in strategic coupling vary widely. Mismatches between the ambitions of regionally based firms and those of local institutions may therefore occur, and overcoming them to facilitate successful coupling may entail other enrollment avenues. This was precisely the case with the SGMEC, and the challenges of interest mismatch under an evolving national logic of experimental governance in China were taken up by regionally based and nonstate economic actors.

Second, the reference to—or, indeed, the existence of—national firms is specific to geographical–historical contexts and hence is not universal. Yeung (2014, 72) defines national-level coupling as “dynamic processes through which national firms decouple partially or completely from their domestic political-economic structures—developmental states or otherwise—over time and recouple with lead firms in global production networks.” This definition correctly describes the strategies of national firms in East Asian developmental states (South Korea, Taiwan, and Singapore), though the strategic coupling process is significantly different in the Chinese context.

Specifically, the Chinese political–economic structure explicitly invites interterritorial competition for foreign capital, and this process has largely taken place *without* the involvement of national firms that seek to decouple from this structure. While some Chinese state-owned and nonstate enterprises have established transnational operations and have become lead firms in their own right, these firms are also mandated to form a “united front” (*tongzhan* 统战) with the ruling Communist Party of China (CPC).² This distinguishes their strategic coupling experiences from those of other East Asian developmental states (Lee, Heo, and Kim 2014; Horesh and Lim 2017) and accentuates

² The mandate is clearly outlined in a policy document published in September 2020 entitled The Opinion on Strengthening the United Front Work of the Private Economy in the New Era (关于加强新时代民营经济统战工作的意见), http://www.gov.cn/zhengce/2020-09/15/content_5543685.htm.

the necessity to examine the *constitutive effects* of domestic political–economic structures on home-grown firms’ enrollment in GPNs.

Third, while research has made a significant advance by highlighting the reproduction of structural inequalities between global lead firms and regions through strategic coupling, it is not clear why regions were disadvantaged to begin with and what could be done to overcome this. As Dawley (2011) shows, peripheral regions may experience unequal relationships with lead firms and could remain branch plant economies without endogenous growth strategies. MacKinnon (2012, 239) subsequently conceptualizes these relationships as “structural coupling,” namely, the establishment of region-GPN connections on the basis of “entrenched political-economic relations.” Such entrenchments often, if not always, comprise lead firms in dominant positions while regions, which could be sites of branch plants or natural resource extraction, play subservient and short-term roles across GPNs (e.g., MacKinnon 2013; Breul, Revilla Diez, and Sambodo 2019). These are crucial observations of the impacts of strategic coupling on regional development, but these inequalities could precede and may not be solely caused by the region-GPN coupling process. Growth strategies therefore do not need to be exclusively endogenous to the region.

Taking into account the three foregoing conceptual issues, this article will examine (1) why regional actors chose to partake in structural coupling and (2) how they sought to avoid entrenchment in this mode of coupling through enhancing their bargaining positions within their respective national political economies as well as within GPNs. This follows Park’s (2003, 175) call to examine how the “agents that have territorially defined interests at subnational scales are interacting and negotiating with national and global players.” In the context of firm-based production networks, these interactions and negotiations encompass what Yeung (2020, 4) terms “geographically-specific political structures.” In market-oriented GPN investments, in particular, the “iterative process of market development” identified by Yeung and Coe (2015, 37) involves greater strategic participation by actors that are not lead firms. How regional actors operate within their respective state structures therefore impact directly and indirectly on how they engage with the GPNs’ lead firms. This overlap needs to be given full consideration when examining strategic coupling because it offers a distinct angle to explain why some region-GPN inequalities are entrenched while others, such as Jieyang’s position within EGS GPNs, could improve over time.

The Constitutive and Constraining Effects of “Experimentation under Hierarchy” in China

The initial wave of GPN research has underfocused the role of the nation-state and consequently attracted substantial criticism. These responses enriched GPN research by examining how GPN formation and durability (1) is affected by changing geopolitical landscapes (Glassman 2011; Smith 2015); (2) is entangled with contested interests and agendas of a diverse range of actors (Levy 2008; Dawley, MacKinnon, and Pollock 2019); and (3) involves state participation as a facilitator, regulator, producer, and buyer (Horner 2017). The primary contribution of this critical engagement is an incorporation of the state as a key actor for constructing, governing, and mobilizing GPNs. An open question remains, however, regarding the ways through which national-level policies and institutions map onto and impact strategic coupling processes.

Existing research on strategic coupling has latently assumed regulatory downscaling has occurred to the extent that institutions within regions possess sufficient resources and authority to connect with GPNs. At the center of the debate is the manner through

which corporate, collective, and institutional power are reconciled, embedded, and reproduced at the level of city-regions (Henderson et al. 2002). While this is certainly the case in many countries, including China, research has also highlighted how the structural coherence of nation-states is often characterized by a dynamic feedback loop between national-level institutions and subnational regions (Park 2003; Lim 2019; Rolf 2019). What this means for regions operating within broader national frameworks is that they are expected to fulfill national developmental agendas but could actually generate outcomes that contradict, undermine, or exist in parallel with these agendas. National governments would therefore have to respond to these dynamic outcomes either positively (by incentivizing subnational actors to sustain their compliance with policy directives) or negatively (by disciplining subnational actors into compliance).

8 Underpinning this feedback loop is a distinctive feature of the Chinese political economy that Heilmann (2008) terms “experimentation under hierarchy”. This regulatory approach is integral to a system of reciprocal accountability introduced by the Deng Xiaoping leadership to reward innovative developmental initiatives from local governments through political upward mobility and economic interests³ (Shirk 1993; Heilmann 2018). Experimental governance has been conceptualized as a complete policy-making process in which the “popular entrepreneurialism at the outset triggered the local policy adjustments,” while policy hedging and senior patronage play a key role in “legitimizing, defending and scaling up local experiments” (Heilmann 2008, 9). Research has demonstrated this approach to be widely adopted at different administrative scales to ensure new developmental agendas do not undermine systemic stability (Miao and Lang 2015; Zhou 2021). At the same time, however, experimentation under hierarchy continues to be faced with two difficulties.

First, national-level instructions permeate ambiguously through continuous rounds of experimentation engendered by the system of reciprocal accountability. Indeed, the expected behavior of local governments could be encapsulated by a commonly used instruction in CPC policy notices: “to grasp the true spirit of the superiors” (*linghui shangji de jingshen* 领会上级精神). The fluid term in this phrase is “grasp” (*linghui* 领会): it entails a degree of introspection and second-guessing precisely because the so-called “spirit” higher up the hierarchy is often presented ambiguously and/or in abstract form rather than as explicit instructions (*zhikeyihui, bukeyanchuan* 只可意会, 不可言传). Unsurprisingly, there is every possibility these governments may not be able to grasp the true agendas of national-level institutions despite their best efforts.

Second, once local governments are confident they have ascertained national-level agendas, a high degree of competitive lobbying is still required to secure patronage (Heilmann 2008). Because of the hierarchical administrative structure, these national institutions hold more power and are therefore the primary targets for lobbying. The outcome, as Heilmann (2018, 107) aptly sums up, is “an intensely politicized process driven by tactical opportunism, personal rivalries, clashes of interests and ideologies, ad hoc crisis management, or strategic consensus-building.” Due to the difficulties of political lobbying and the pressures to submit political results, some local governments actually turn the open-endedness of experimental governance on its head by taking advantage of unclear directives, a process that exemplifies what Wedeman (2001, 71) terms strategic disobedience. As Wedeman (2001) argues, “structurally induced ambi-

³ Economic interests include the capacity to extract taxes and fees from local industries; cadre-entrepreneurial leadership in local economic development corporations (*jingjifazhan zonggongsi* 经济发展总公司) through direct ownership or credit access; and, sometimes, reciprocal relations with private business to gain levies not subject to central control.

guities create opportunities [for cadres] to engage in willful disobedience because they imply that willful disobedience will go unpunished.”

One widespread disobedience over the past three decades was the proliferation of local government financing vehicles (LGFVs) across the country. LGFVs are essentially a means for localities to raise funds through government-guaranteed debt. Their emergence is a direct outcome of a tax sharing scheme (*fenshui zhi* 分税制) introduced in 1994 that effectively redistributed local fiscal revenue upward toward Beijing (He, Zhou, and Huang 2016). One primary measure of LGFVs—still active to this day—is to use land as collateral to secure debt financing. Official statistical data reveal the land-related fiscal income (hereafter land sales), including land use rights sale and other taxes attached to real estate development, comprised over 40 percent of local governments’ revenue since 2003 and reached 53 percent in 2019 (China State Statistical Bureau 2019). Because LGFVs became a major risk to systemic financial stability, the central government launched an experimental policy in 2014 to rein in their expansion. In their place is a fund-raising approach termed public private partnerships (PPP; *zhengfu yu shehui ziben hezuo* 政府与社会资本合作). This approach paradoxically creates room for local governments to seek capital from nonstate sources but simultaneously reinforces structural inequality because cities with unsatisfactory track records in fiscal performance, and thus high default risks, will experience difficulties in securing bank loans for launching PPP projects.

This article argues that strategic coupling involving Chinese regions necessarily overlaps this national-level regulatory context that encourages experimental endeavors. Place-based experimentation could either generate positive outcomes, such as profit-seeking competition between the local governments, or result in struggles, resistance, and even disobedience by local actors lacking the necessary resources and political support to maximize the opportunities within the prevailing regulatory structure. Indeed, not every local experimental effort will be ultimately endorsed, popularized, and formalized by the central state (i.e., progress through the entire policy cycle), but it offers an avenue to launch new initiatives on regional development. The article will now examine how experimentation under hierarchy affects the (in)ability of institutions and actors in Jieyang to drive strategic coupling.

The Emergence of the SGMEC (2012–early 2013): Minimum Support from Regional Institutions

A robust industry in metal production was established in Jieyang following economic liberalization reforms in 1978. In 2012, over 7,000 metal firms generated one-fifth of Jieyang’s industrial value. This cluster was initially dependent on the buying power of global brands owing to their leading design and marketing capacities, producing exclusively for the mature markets in developed economies. Firms in Jieyang gained competitive advantage by serving as the original equipment manufacturing (OEM) suppliers for many global brand leaders in the US (e.g., Contigo), Japan (e.g., Pearl), and Korea (e.g., Lock & Lock). The mode of coupling in this phase resembles a form of structural coupling based on the cost competitiveness of SMEs in Chinese regions. Positioned as lower-tier suppliers to global lead firms, these SMEs also exhibit weak links and occupy inferior power positions in GPNs. Similar to many other coastal city-regions in China, Jieyang’s initial global connections were established in a bottom-up and ad hoc manner since there was an absence of active participation and explicit interventions by both global lead firms and local state institutions.

The externally oriented Jieyang economy came under huge pressure after the global financial crisis struck in 2008. In response, domestic actors tried to align with the national-level restructuring strategy to develop innovation-oriented and domestic-market-driven industries. The outcome was mixed: while some metal firms developed certain original design manufacturer functions with their own branded products that were sold both domestically and overseas, many still struggled to upgrade and remained as low-end suppliers. During the initial round of fieldwork in 2014, upstream firms in Jieyang expressed their desire to seek new opportunities in other related or unrelated industries due to sagging raw material prices as a result of steel production overcapacity. These firms in Jieyang's metal industry were united by a common desire to overcome the constraints associated with structural coupling through creating new growth channels.

To address this challenge, twenty-three key members from the Jieyang Metal Association founded the Southern Metal Eco City Ltd. in late 2012. Initially, it aimed to develop an industrial park that could resolve two specific problems in the industry—low value-added and severe environmental pollution arising from metal waste discharge. The overarching aim was to attain zero discharge of metal surface treatment by the local firms. In early 2013, the firm was renamed Zhongde Metal Group (中德金属集团; hereafter Zhongde). Its formation coincided with the growing activities of Rudolf Sharping, a former German Social Democratic Party (SPD) lead politician, in China's politico-economic arena since the early 2010s owing to the coordination efforts from International Department of the CPC Central Committee (IDCPCCC) to strengthen Sino-European cooperation. Together with IDCPCCC, Sharping visited Jieyang in early 2013 and tried to coax Zhongde into considering the niche opportunities for Sino-German industrial linkages. A formal group discussion with Zhongde's senior managers in 2014 revealed how Sharping aimed to help with forming these linkages by exploiting his network resources both in the German political realm and in German industry associations. A new impetus for Sino-German cooperation was thus established.

Nevertheless, the momentum of forging the Sino-German linkages was still in the making at this nascent stage. Because local governments functioned as key asset stakeholders and institutional facilitators of industries within their judiciaries, Zhongde approached the Jieyang municipal government for support in the first instance. This constitutes the starting point of coupling processes as illustrated in Figure 2. What ensued, however, was less about commitment on the part of the municipal government for industrial benefits and more about short-term fiscal gains. As the authors' group discussions with senior managers in 2015 revealed, Chen Dong, the then-mayor, expended a significant amount of time—estimated to be more than 300 times in 2013—in discussions with Zhongde to develop its park initiative. Yet the managers inferred the government was more interested in the potential fiscal revenues from selling the industrial park land to Zhongde.

Their reasoning was because the intensive exchanges between the local mayor and Zhongde occurred at a time when the master land plan of the SGMEC, an official document determining land use types, was *already* approved and had moved to the stage of determining the detailed control plan for development densities (an important aspect for local governments and real estate developers to maximize land revenue). And while the Jieyang government hoped the industrial park, which covers twenty-five square kilometers, would generate land value appreciation through a high-quality developmental path, there were no explicit commitments on how it would contribute to making it happen. This situation is typical of Chinese peripheral cities' transition to a land revenue regime

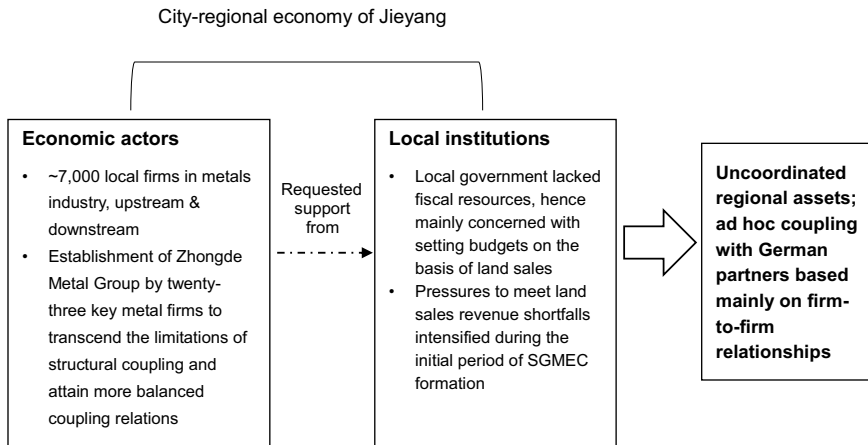


Figure 2. Initial attempts at strategic coupling with German lead firms in Jieyang.
Source: Authors' illustration.

that was introduced in the previous section: the Jieyang government was constrained structurally by the reformed fiscal system and had to raise funds through land sales; yet it had little resources to ensure these sales were attractive and hence could generate positive developmental outcomes in the medium to longer terms. Jieyang's peripherality within the national regulatory structure was exacerbated by a new round of centrally driven fiscal experimentation from 2012. Officially termed as "replacing the business tax with a value-added tax" (*yinggaizeng* 营改增), this new scheme would lead local governments to lose one of their biggest shares of benefits, namely, the business tax. Unsurprisingly, the Jieyang government became even more focused on generating revenue from land sales.

The previous inference from the SGMEC managers regarding the Jieyang government's narrow focus on land revenue becomes more credible when it is evaluated *vis-à-vis* the statistical evidence. First, the Jieyang 2013 fiscal budgetary report states that realized state-owned land sales revenue was 943 million RMB (~US\$152.1 million)⁴ less than the budgetary plan and contributed to payment imbalances and new rounds of government debt.⁵ Second, annual fiscal budgetary reports indicate Jieyang's budgetary land sales revenue rose by 26 percent from 1214 million RMB (~US\$195.8 million) in 2012 to 1535 million RMB (~US\$247.6 million) in 2013, and subsequently rocketed to 3727 million RMB (~US\$601.1 million) and 3775 million RMB (~US\$608.9 million) in 2014 and 2015.⁶ These statistics collectively suggest the Jieyang government was under substantial fiscal pressure to meet its budgeted land sales revenue and consequently intensified efforts to secure land sales opportunities.

In spite of Zhongde's attempts to nurture *clientelist ties* with local cadres by addressing their narrow revenue focus, the unwillingness of the Jieyang government to commit gradually became explicit: Zhongde tried to materialize local governmental support through securing 40 percent tax refunds for the firms settling in the industrial

⁴ Conversions for figures prior to 2017 are based on the rate of 6.2 RMB to a dollar; figures from 2017 and after are converted at the rate of 6.75 RMB to a dollar.

⁵ The municipal fiscal budget and balance is annually reported in the Jieyang government website, <http://www.jieyang.gov.cn/zwgk/jcxxgk/czxx/sjcz/>.

⁶ The municipal fiscal budget and balance is annually reported in the Jieyang government website, <http://www.jieyang.gov.cn/zwgk/jcxxgk/czxx/sjcz/>.

park, but this, according to an informal discussion with Zhongde's senior managers in 2015, turned out to be a rubber check with no effective date of implementation. This outcome reflects the unpredictable dynamics of local development within the experimentation under the hierarchy governance approach introduced in the previous section. As Heilmann (2008, 24) puts it, "a symbiotic relationship between officials and entrepreneurs that is conducive to economic growth is likely only in a stable political environment in which actors can afford to take a longer-term perspective." Yet the situation in Jieyang reflects a constraining effect of reciprocal accountability that is exemplified in Li's (2019) recent study: Chinese government officials have become less willing to introduce truly innovative practices because risk-taking is negatively associated with career advancement. The impact of this emergent constraint on attempts to change the SGMEC's mode of strategic coupling is illustrated in Figure 2 (far right box).

- Specifically, transcending the limitations of structural coupling proved difficult because minimum local state support engendered a precarious and uncoordinated connection between industrial capacities in Jieyang and those of German lead firms.
- 12 This connection was not a balanced form of strategic coupling because the German firms were uncertain about the potential of the industrial park without state backing, while Zhongde was unable to deepen collaborations through drawing from the primary form of governmental support it was promised—the 40 percent tax refunds. If anything, the initial phase of the SGMEC exemplifies a place-based developmental dilemma engendered by the interest mismatch between local officials in Jieyang, who acted conservatively to avoid undermining their political positions, and nonstate business actors, who proactively sought more balanced coupling with GPNs. But this was to change shortly thereafter.

Strategic Coupling through Jumping between Scales: Expansion and Growth of the SGMEC (Late 2013–16)

Two interrelated developments subsequently created an opportunity for regional experimental endeavors through establishing high-level Sino-German linkages that Zhongde had not previously envisaged. Since the early 2000s, national policy makers began to pay increasing attention to environmental stewardship. A clear call was issued in China's 11th Five Year Plan (2006–10) for reforms to create an environmentally friendly society. In 2012, the Chinese State Council issued the 12th Five Year Plan on Strategic Industries,⁷ and the Energy Conservation & Environmental Protection industry was classified as the first among the seven selected industries. This signified the transformation of the EGS industry in China from a supportive role to an economic growth engine. While this new policy direction reflects the determination of the Chinese central government to improve environmental stewardship and upgrade the domestic industrial structure to one that is clean and high value added, it left open, in line with its experimental governance approach, the route to achieve this objective.

On a global scale, the Belt and Road Initiative (BRI), an ambitious vision implemented by President Xi Jinping since October 2013, offered concrete avenues to strengthen cooperation with the EU. Against this backdrop, a comprehensive EU–

⁷ The strategy to promote environment-related industry stands out in the No. 28 [2012] document issued by the Chinese State Council 12th Five Year Development Plan on National Strategic Emerging Industries (“十二五” 国家战略性新兴产业发展规划), http://www.gov.cn/zwgc/2012-07/20/content_2187770.htm.

China investment agreement was implemented at the beginning of 2014. Responding to the EU's concerns regarding the environmental impact of massive infrastructure projects under the BRI, the bilateral investment agreement identified green growth as the key area of strategic cooperation, which includes the new energy sector, sustainable urbanization, and environmental protection.⁸ This was particularly welcome for EU firms in the EGS sector: while they enjoyed significant competitive advantage, major market entry barriers still exist in China in spite of its accession to the World Trade Organization in the early 2000s (George et al. 2008). These barriers include intellectual property rights infringement, government regulations, licensing schemes, local favoritism, etc. Addressing the market downturn that caused many (industrial) customers to relocate after the 2008 global financial crisis, the 2014 investment agreement provided an opportunity for the EU (German) lead firms in EGS and their related SME suppliers to proactively cater to the massive demand for environmental stewardship in the Chinese market.

These new developments jointly injected momentum into Zhongde's strategic coupling with German partners. In conformity with the park's initial goal to set up a zero-discharge environmental solution for the local metal firms, Zhongde envisioned (re)coupling with higher value-added EGS GPNs. According to an interview with one of its senior managers in 2020, Zhongde finally forged a strong aim during 2014 and 2015: to become the bridgehead for Sino-German production networks and an inward investment hotbed for European (mainly German) SMEs. This signified a reinforced momentum for coupling with the global lead firms.

Zhongde built on this new thrust by framing the SGMEC project beyond the scope of local industrial restructuring. Focusing on the newly identified green growth sector, it positioned the SGMEC as a strategic node not only in the new round of Sino-German (European) geo-economic cooperation but also the Chinese central government's vision of a green economy. Zhongde's approach gained further prominence in 2014 after the Second Dialogue between the CPC and the SPD of Germany was held in Jieyang. While the field research was unable to attribute this meeting causally to Zhongde's activities, informal conversations reveal that Zhongde was proactive in lobbying different actors before and during this significant event so as to strengthen the quality of its enrollment in EGS GPNs.

Zhongde's efforts reaped dividends after the national state institution, the MIIT, designated the SGMEC the title of Sino-German SME Cooperation Zone in May 2015. This status enhanced its capacity to compete for external resources, for example, by applying for provincial or national projects related to national developmental goals. To the MIIT, the zone would fulfill an outstanding political task: the Made in China 2025 (MIC25) developmental strategy that aims to upgrade China's industrial capacities to world-leading levels. Strengthening geo-economic relations with the EU was identified as a key route to MIC25 because it would enable China-based firms to learn from and cross-fertilize ideas with EU-based firms. The SGMEC offered a solid platform for the MIIT to showcase China-EU economic collaborations by bringing together a substantial number of Chinese firms and global lead firms in EGS GPNs.

What is distinctive in this instance—and this is a key point that has scarcely been addressed in the literature on reciprocal accountability and experimental governance in

⁸ When the negotiation on EU-China investment agreement commenced, the 2020 Strategic Plan on Sino-European Cooperation (中欧合作2020战略规划) had been developed by both parties, defining the common goals of Sino-European cooperation, https://www.fmprc.gov.cn/web/gjhdq_676201/gjhdqzz_681964/1206_679930/1207_679942/t1101803.shtml.

China—is the proactive lobbying of a national institution by a *nonstate* economic actor (Zhongde) instead of local state actors. This highlights two major aspects of the previously mentioned dynamic feedback loop within the Chinese regulatory structure: nonstate economic actors have significant room to participate in and benefit from experimental governance, while national-level state institutions also have substantial flexibility to collaborate with nonstate local actors if/when local state institutions are unable or unwilling to align with national-level policy goals.

As Zhongde strengthened its strategic emphasis on coupling with the MIIT, it tried to distance itself from the initial network builder, Rudolf Sharping. As Zhongde's senior managers implied in an informal discussion in 2015, this was because Sharping's reputation in Germany did not always warrant positive networking results. Rather, Zhongde leveraged the distinct reputation effect arising from national-level recognition to attract EU (German) networking partners who value market access for their exclusive niche technology over cost considerations. The comment from one informant illustrates this effect of indirect *institutional backing*:

- 14 The Sino-German Technology Centre [one affiliated organization under the SGMEC] is a provincial-level platform and will be signed in front of Chinese and German leader in the summit. Prof. X in Fraunhofer in Berlin was reluctant to cooperate with Zhongde before, but this time he is very happy and said he will fly to Jieyang in person. (Interview, key informant from Germany, September 2015; translated from Chinese)

Figure 3 illustrates how Zhongde's attempt to scale up the SGMEC's position generated a breakthrough in the strategic coupling process. Particularly noteworthy was the involvement of the Jieyang government *after* national-level lobbying proved successful

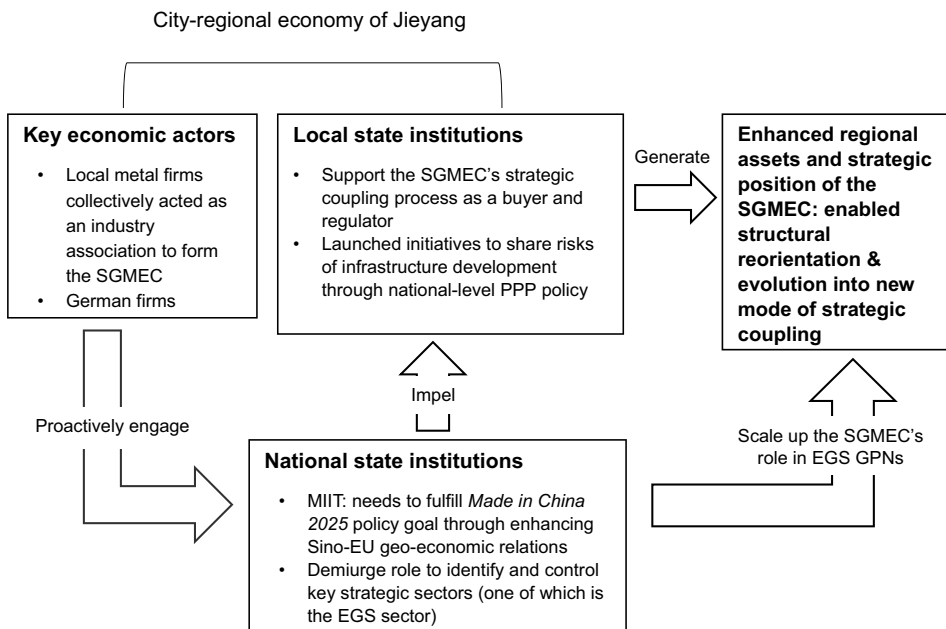


Figure 3. Strategic coupling in Jieyang with German lead firms after jumping between scales. Source: Authors' illustration.

and Jieyang could benefit from the demiurge role of the central state to control and promote key sectors (the EGS sector in this study). This sets in motion, in two interrelated steps, what Horner (2017) identifies as the four state roles in GPNs—facilitator, regulator, buyer, and producer: Zhongde first focused on the central state’s role as a facilitator and a producer before it tried to maximize the Jieyang government’s public procurement and regulatory capacities.

Through the MIIT’s facilitative capacity to secure credit from state banks and publicly funded research programs, Zhongde further upgraded its structural position by seeking cooperation with SOEs, in turn utilizing the central state’s role as producers. This enhanced position was exemplified by the enrollment of Guangdong Rising Asset Management Corporation (GRAMC) as one of the three shareholders in the SGMEC’s demonstration project—the Sino-German Resource Recycling Base (SGRRB)—together with Zhongde and the ALBA Group from Germany. GRAMC is the third largest SOE in Guangdong Province, and it offers crucial access to the highly profitable yet highly protected environmental industry in China. Specifically, the SOE enjoys an *institutional advantage* in terms of acquiring licenses and government procurement. The alliance with the GRAMC therefore created a precious strategic coupling opportunity for both ALBA and Zhongde.

ALBA Group is one of the top ten global companies in the EGS sector and a leader in the field of solid waste management. After establishing its Asian regional headquarters in Hong Kong in 2011, ALBA has been trying to expand its recycling business in Chinese city-regions, such as Beijing, Shanghai, and Hainan. While (hazardous) waste treatment is deemed a high value-added business opportunity, German firms face great obstacles in accessing China’s EGS market (OECD 2016). Collaborating with Zhongde and GRAMC in Jieyang therefore offers a crucial avenue for ALBA to penetrate the Chinese market. Here, the involvement of a prominent Chinese SOE in Jieyang reflects regions’ ability to exert structural power in the region-GPN coupling process. As one of the twenty-three key shareholders in Zhongde puts it, access to the lucrative EGS sector is only possible “once you are allowed to play the game” (Informal discussion, local entrepreneur, September 2015). And this opportunity emerged because the significance of the SGMEC was scaled up to establish strategic relations with the MIIT and GRAMC.

Zhongde’s deliberate focus on the local government’s role as a buyer through the channel of public procurement made it more attractive for ALBA to establish its first household waste recycling business in Jieyang. Witnessed by President Xi Jinping and Chancellor Angela Merkel during Xi’s visit to Germany in 2014, the establishment of the previously mentioned environmental project SGRRB involved the Jieyang government as the purchaser of the package solution for household waste treatment.

Close relations with the local government were further highlighted to potential German and European partners and generated an implicit understanding that regulatory rules vital to the localization of EGS production would receive more attention. When it comes to translating German EGS lead firms’ know-how into market revenues in China, the establishment of localized standards is essential to the global lead firms producing environment-related specialized equipment. Zhongde’s ability to leverage the regulatory capacities of the Jieyang government hence became particularly attractive. As one manager of a German lead firm in highly specialized pipes, Bauku, explains,

It took us two years of negotiation to settle down [in the SGMEC]. The key reason is that SGMEC can assist in facilitating the localization of our pipe technology. It aims to boost it as

a demonstration project and establish accordingly the local standards, even national standards later. (Interview, Chinese manager of Bauku, June 2015; translated from Chinese)

Such leveraging proved vital for Zhongde's other coupling focus: partner searching and matching for German and European firms that seek opportunities in the Chinese market but possess limited resources to conduct credit scanning and market research. Finding credible partners proved to be essential because intellectual property protection was formally and informally discussed as one of the biggest challenges for German firms seeking collaborative relations in Jieyang. One of the senior managers in Zhongde puts this arrangement in perspective:

You don't have to deal with conflict of intellectual right issues, Zhongde can assist in this aspect [through its good relations with the local government]. And from the very beginning, the association will pick the trustable partners for you [based on its local experience], so you've got credit guarantee. (Interview, Senior manager L, June 2015; translated from Chinese)

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Many EGS firms were established in the SGMEC as a result of this scale jumping process. Over ninety firms were set up in the SGMEC by 2017, of which thirty firms were registered with capital over 5 million RMB (~US\$740,000) in the EGS-related sector (and hence were considered large firms). The remaining firms were mainly the local metal firms that required access to the metal surface treatment service available in the SGMEC. Ten out of the thirty large firms were foreign-invested (eight joint ventures and two wholly owned), most of which are lead firms in the EGS sector, including resource recycling, turn-key service on clean energy equipment, water treatment equipment, and EGS components of high technological threshold (e.g., large diameter profile pipes). Out of the rest of the twenty domestic large firms, thirteen firms were invested or co-invested by key Zhongde shareholders' companies (reflecting endogenous entrepreneurialism), while the remaining seven firms were invested by nonlocal corporate groups.

Among these thirteen Jieyang-originated firms, four have licensed the EGS-related high technology from Germany. From the archival analysis combined with field discussion, these thirteen firms, especially the four firms that invested heavily in learning the German EGS technology, were to become the localized suppliers for key EGS components of medium-low technological levels (e.g., membranes, pipes, valves) to the lead firms such as ALBA and DeveTec (a German firm in green energy equipment manufacturing). Also noteworthy was the involvement of a company affiliated with the China Development Bank (CDB), a national policy bank tasked with issuing loans to launch high-profile national development projects, as a co-investor (together with Zhongde) in a large EGS firm in the SGMEC.⁹ This company's willingness to invest is another tangible outcome of the scaled up reputation effect of the SGMEC following the MIIT's endorsement. Overall, the overrepresentation of Zhongde shareholders amongst the Chinese investors and the SGMEC's ability to attract a significant amount of high-quality external investments underscores Zhongde's success in driving technological upgrading and asset redeployment from the coupling processes in the SGMEC.

⁹ This company, Jieyang Sino-German Environmental Technology Ltd. (揭阳市中德环保科技有限公司) was established in 2015. The registered capital of 400 million RMB (~US\$64.5 million) is the highest in the SGMEC, of which 73.49 percent was invested by Zhongde, and 26.51 percent by the CDB's wholly owned subsidiary, CDB Development Fund Ltd. (国开发展基金有限公司).

This expansion marks a distinct evolution from the unclear industrial focus of coupling in 2013: Zhongde reoriented its industrial capacities toward EGS after recognizing and mobilizing both the central and local state's positive roles. In so doing, as the top right box in Figure 3 indicates, Zhongde created the regional assets that the EGS lead firms value, namely, market access, relatively reliable institutional protection, and the potential to develop localized supply chains that save costs for locally oriented products and services. The approach of jumping between scales thus enhanced the competitive position of the SGMEC and enabled it to move from structural coupling to strategic coupling, in MacKinnon's (2012) conceptual terms, with the EGS GPNs. Yet, this was not the end of the region-GPN coupling process. The state structure was again instrumental in cementing the positive coupling momentum during the repositioning phase of the SGMEC.

Repositioning Phase of the SGMEC (2017–)

With the involvement of national-level institutions and high-profile SOEs, Zhongde formulated strong development goals, and the SGMEC entered into a track of fast expansion. After 2016, however, it started to encounter tight cash flow and thus slowed down investments to build the platform for Sino-German cooperation, including the roads inside the park, service center, incubation center, and networking activities. Indeed, issues regarding the financial sustainability of the SGMEC project already emerged during the expansionary period. This development exemplifies the precarious nature of strategic coupling driven by place-based experimental endeavors. And as an informal discussion with a senior manager in 2015 reveals, Zhongde shareholders anticipated this precarity early on and felt there was a need to share risks with the local government.

To tackle this challenge, Zhongde grasped the opportunities to secure financial support through the then-policy boom on PPP. As introduced previously, the PPP had emerged as a new multichannel fund-raising tool to cover city governments' expenses on development projects. During the group discussions in 2015, the senior managers expressed keenness to persuade the Jieyang government to forge a partnership with Zhongde via a PPP. Nevertheless, Jieyang falls within the purview of disadvantaged cities in this round of state-mandated reconfiguration of regional economies. The then-mayor, Chen Dong, was a young party cadre who possessed limited political networks. As described before, he was interested in fostering the success of the SGMEC, especially after the scaling up process, and he supported it as much as possible through the role as regulator and buyer of the environmental service. Yet the Jieyang government failed to deliver Zhongde any fiscal promises throughout the first two phases of the SGMEC's evolution, either in the form of tax relief or credit stimulus. Regardless of the initial success in anchoring some strategic German lead firms and sharpening the coupling focus on the EGS sector, Zhongde was grappling with unsustainably colossal infrastructure investments that failed to generate timely cost recovery.

This situation changed, however, after Ye Niuping was appointed Jieyang's mayor in December 2017. Mayor Ye's primary political asset, according to the interview with the senior manager in Zhongde, was his leadership in the iconic city development project, Guangzhou University Town (GUT). Built in 2004, GUT is a symbol of Chinese speculative urbanism (Li, Li, and Wang 2014). Over 60 percent of the development cost was raised through bank loans underwritten by the Guangdong provincial government as the financial guarantor (Li, Li, and Wang 2014). Besides the political role of leading the construction of GUT during 2003 and 2006, his

political appointment experiences have been centered around infrastructure development, construction management, and industrial park administration.

As a senior manager of the SGMEC implicitly noted during an interview in 2020, Mayor Ye exploited his extensive political networks, including those with the state-owned financial intermediaries, to acquire the financing credit for the buyout of the SGMEC project under the PPP policy (as summarized in Figure 3). After more than a year of negotiation and planning, the Jieyang government finally purchased from Zhongde the hard and service infrastructure in the SGMEC. In October 2019, the SGMEC Administrative Committee (SGMEC-AC) was formally established, signifying the handover of park development rights and liabilities from the nonstate actor, Zhongde, to the local government. Through this risk sharing of infrastructural development with the Jieyang government, Zhongde secured the means to sustain its strategic coupling process. This development reflects, again, how strategic coupling in China is constituted by the dynamic feedback loop between actors operating at different scales within the Chinese state structure.

18 To rebuild its leadership in Sino-German geo-economic cooperation after the buyout, Zhongde utilized its network assets and served as the key service provider of investment promotion for the SGMEC-AC. This led to the awarding of management rights of the China SME Center (CSMEC), established by the MIIT in Europe in 2018. While playing a subsidiary role in supporting the MIIT's political goal to expand Chinese geo-economic influence across Europe, CSMEC was a crucial hub for Chinese firms, especially those affiliated with the MIIT, to establish trust and locate potential cooperation opportunities with EU-based firms. Managing CSMEC would allow Zhongde to leverage this state-level contact point and, in turn, generate direct benefits for Jieyang-based suppliers of EGS components through creating convenient access to EU firms, as well as other Chinese firms, in order to expand Jieyang firms' customer base.

To this end, Zhongde transferred over ten of its regional offices in Europe (mostly in Germany, some in the Czech Republic, Poland, and France) into the MIIT-appointed contact points. Some regional offices (e.g., Frankfurt) were even able to hire local influential ex-politicians as the network builders. The Sino-German SME Conference, a brand created by Zhongde during the initial attempts at strategic coupling, became a regular feature under the management of CSMEC. This development exemplifies how Zhongde capitalized on its close relations with the MIIT and drew on its extensive networking experiences to create hubs where Chinese industries strategically connect with German and European partners. In other words, the Jieyang-based nonstate actor benefited from the double and interactive coupling with both national policy patrons and global lead firms. Quoting from the manager in CSMEC, "We ... have successfully *valorized* our network resources and the brand of Sino-German cooperation in which we have invested heavily over the past few years" (Interview, senior manager, January 2020).

Discussion: A Dynamic Causal Explanation of Strategic Coupling

The case study presented in this article underscores the importance of an evolutionary and cross-scalar approach to conceptualizing strategic coupling. It spotlights the dynamic coevolution of multiple spatialities in the region-GPN nexus and, in turn, demonstrates how strategic coupling is both a cross-scalar and open-ended process. Indeed, it can be argued that Jieyang's initial articulation with GPNs and the first phase of the SGMEC reflects an outside-in matching with the prevailing structural coupling

concept as developed by MacKinnon (2012). What could not be explained by this conceptual matching are the causal effects of the Chinese state structure on the SGMEC's growing ability to create and capture more value through a strategic mode of coupling. To address this gap, this article develops a novel framework that injects explanatory power to strategic coupling by highlighting its intrinsic dynamism (which foregrounds the role of agency within initially peripheral regions) and incorporating state structural effects. In so doing, it demonstrates how the processes of strategic coupling are contingent on the *agency* of its stakeholders to identify and act on opportunities within state structures.

Abstracting from the key findings of this case study, Figure 4 presents a dynamic causal explanation of the evolution of structural coupling, a mode of coupling common to many peripheral regions in industrializing economies, to more balanced coupling relations where power and profits are more evenly shared. As the top of Figure 4 shows, structural constraints and opportunities *combine* to both impel and incentivize region-GPN coupling. Why this combination occurs is context specific, to be sure. In Jieyang, structural opportunities emerged from the open-endedness of nationwide experimental governance in China. This means that the nonstate economic actors in Jieyang are not necessarily confined to forming exclusive temporary coalitions, a primary characteristic of strategic coupling, with local political interests, but rather possess strategic room to establish such coalitions through cross-sectional and cross-scalar political networks (for instance, through the national ministries and SOEs). National ministries in China tend to collaborate with nonstate local actors if their proposed experimental endeavors create little political instability and yet could fulfill national policy objectives. As mentioned previously, partaking in the development of the SGMEC would enable the MIIT to attain a core

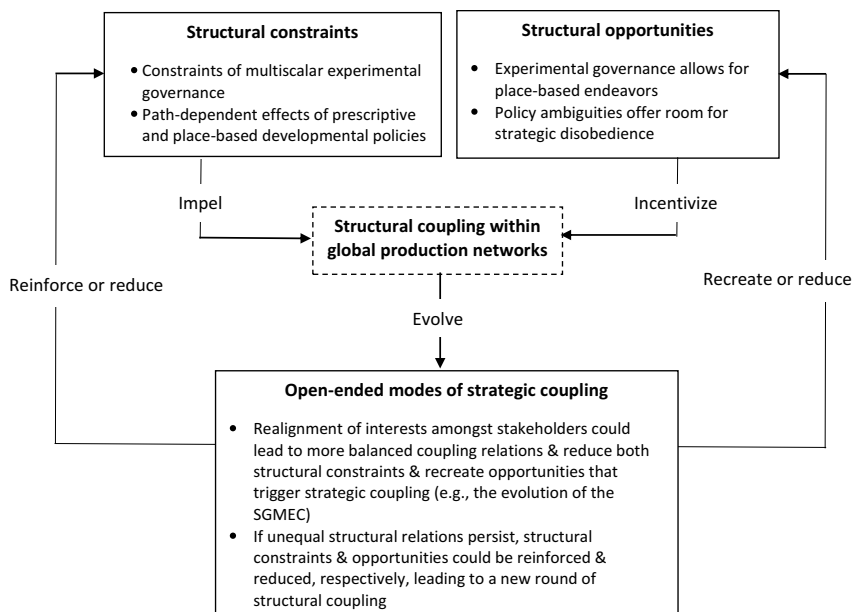


Figure 4. A dynamic and cross-scalar framework for examining strategic coupling in initially peripheral regions.

Source: Authors' illustration.

policy target—the development of geo-economic relations with Germany/the EU through which the learning and cooperation positively contribute to the MIC25 national strategy.

At the same time, strategic coupling is constituted by structural constraints. These constraints exist not only within the production networks of global lead firms but also within the national state structures in which regions are embedded. These structures consequently generate variable region-GPN relations because they are not monolithic. Of particular significance in this study is the relatively passive role of the Jieyang municipal government in the initial coupling process. It reflects, to a large extent, the constraining effects of a highly unequal and spatially selective approach to economic development across China: because Jieyang was peripheralized in the preceding rounds of experimental policy innovations, including reforms on *yinggaizeng* (营改增) and the PPP arrangement, the local government lagged behind in its capacities to jumpstart growth and was further entrenched in a subordinate structural relationship *both* within the national hierarchical structure and within GPNs. It was precisely this subordinate relationship that impelled nonstate economic actors to seek more balanced coupling with GPNs.

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Once region-GPN coupling occurs, it evolves and gives rise to two possible modes of coupling, as shown at the bottom of Figure 4. The emergent coupling relations may retain the same unequal structural relations, or they may generate a realignment of interests that lead to more equal relations. These emerging modes of region-GPN coupling will then feed back to the state structures in either positive (i.e., reduce constraints on and recreate incentives for strategic coupling) or negative ways (i.e., lead to a reproduction of structural coupling), and consequently affect the structural power that lead firms wield over subnational regions.

A realignment of interests occurred in Jieyang through the strategic calculation and intentional action of Zhongde. Its ability to respond positively to structural conditions—both constraints and opportunities—and connect German EGS lead firms to the highly profitable and protected EGS sector in China firmly underscores the cross-scalar and dynamic aspects of strategic coupling. In this case, Zhongde cast influence not only on the local industrial scene but also produced national-level political relevance through integrating EGS GPNs that primarily favor market access and enhanced economies of scale from localization.

It is important, however, not to view this snapshot of positive feedback as a permanent outcome. Indeed, the short-termism of local state governance in China, as well as the dependence on patronage from higher-ranking political forces, could still generate negative outcomes as strategic coupling evolves. Specifically, the Jieyang government's ability to embed the German EGS lead firms through its roles as a buyer and regulator could potentially dissipate if (1) the MIIT, responding to the command of the central state, no longer deems Sino-German geo-economic cooperation as a significant political task if geopolitical tensions keep rising; and (2) the key national policy patrons leave office and effectively break ties with the central ministry and its corresponding endorsement of the SGMEC. Likewise, relying on SOEs to access the highly protected EGS market is also risky. Skepticism still remains among Chinese private investors with regard to the legitimate scope of mixed ownership. Alongside SOE leaders' subservience to party priorities and departmentalist interests (see Leutert 2016 for a detailed discussion on mixed ownership), the three-party ownership arrangement could potentially face mismatched interests with the expansion of coupling into more processes and/or markets (e.g., to other waste treatment markets that ALBA

is interested in capturing). The ensuing insecurity may then preclude further investments from the global lead firms.

Conclusion

The proliferation of research on GPNs across multiple sectors and territories has benefited from the application of one core concept—strategic coupling. At the same time, this concept has come under critical scrutiny precisely because it takes on different expressions in different contexts. While there is a growing recognition that strategic coupling has to be examined as a *cross-scalar* and *dynamic* process, fine-grained empirical studies are still rare. This article addressed this gap by demonstrating how strategic coupling involves the fluid reconfiguration of actors and assets across a range of scales—from Jieyang to the Chinese central government to Germany and the EU—to enhance a peripheral region’s access to GPNs. In so doing, it generates three conceptual advances: the strategic coupling process (1) is dynamic and open-ended as it goes beyond the moment of enrolment into GPNs, (2) could be underpinned by the intentional and changing calculations of actors across multiple scales and need not be primarily driven by regional governments, and (3) could potentially upgrade a region’s structural position both within the domestic political economy as well as within GPNs.

These contributions collectively foreground the value of refining the GPN research agenda as new empirical data on strategic coupling emerge. Studies of GPNs have predominantly placed lead firms at the center of examination, but the power and capacity of lead firms to govern their sites of production are now challenged by the rise of technonationalism and geopolitical tensions to promote national-specific industrial standards and developmental agendas (Shim and Shin 2016; Coe and Yeung 2019). These challenges disrupt previously stable GPNs that are underpinned by high levels of modularization and standardization, and create pressures to reconfigure GPNs through replicating activities on a country-by-country basis to enhance local responsiveness (Hansen, Pedersen, and Petersen 2009; Benito, Petersen, and Welch 2019). It is against this evolutionary context that strategic coupling becomes arguably more important than ever—whether GPN reconfigurations can successfully create network durability and resilience are contingent on the new geographies in which these GPNs are based. And the conceptual advances in this article point to two directions for further research on GPN reconfigurations.

First, the new framework underscores the possibility for regions to achieve what Yeung and Coe (2015, 37) term “a negotiated outcome through which both producers and customers are actively involved in market creation” as global lead firms become more focused on enhancing responsiveness to individual domestic markets. Previous studies on strategic coupling are often positioned within the previous paradigm of highly coordinated production networks at a global scale (e.g., a given activity such as research and development or assembly manufacturing that is highly concentrated in a limited number of locations), and actors operating in and through peripheral regions are often portrayed as having limited agency other than providing homogenous race-to-the-bottom conditions such as cheap labor and land (Wei, Li, and Wang 2007). This article bridges this gap by taking as its primary focus the agency of individual actors, nonstate and/or state linked, in the strategic coupling process. In turn, it calls attention to further research that foregrounds the (re)negotiation process between structurally disadvantaged peripheral regions and global lead firms.

Second, the conceptual framework offers a new avenue to ascertain and assess the constitutive role of state structures in the strategic coupling process. As the spontaneous evolution of the SGMEC shows, initial calculations on enrollment in GPNs

may change as different state-affiliated actors are brought into play. The involvement of these actors invariably alters the temporary coalitions that constitute strategic coupling, which then raises the question whether forming new coalitions will trigger a change in the *mode* of coupling or cause a total unraveling of region-GPN coupling (i.e., decoupling). A major new state actor in this case study is the MIIT, whose entry reinforces the *constitutive effect* of the Chinese administrative hierarchy on regional developmental approaches. Specifically, it boosted the ability of Zhongde, the primary regional actor driving the strategic coupling process, to attain its overarching aim—to upgrade and restructure the low value-added metal industry in Jieyang. The new coalition enabled Jieyang to move beyond its initially weak structural position to not only become a key hub of EGS GPNs in the world today but also become a platform for nurturing potential global lead firms (i.e., organic coupling).

22 Achieving these positive coupling outcomes is only possible, however, if regional actors are able to overcome structural constraints and transform structural opportunities in ways that enable new modes of coupling. How this process will play out in other peripheral regions within the current global context of GPN reconfigurations requires further research that would, in turn, advance knowledge on the constitutive role of state structures in strategic coupling.

References

- Benito, G. R. R., Petersen, B., and Welch, L. S. 2019. The global value chain and internationalization theory. *Journal of International Business Studies* 50 (8): 1414–23. doi:10.1057/s41267-019-00218-8.
- Breul, M., Revilla Diez, J., and Sambodo, M. T. 2019. Filtering strategic coupling: Territorial intermediaries in oil and gas global production networks in Southeast Asia. *Journal of Economic Geography* 19 (4): 829–51. doi:10.1093/jeg/lby063.
- China State Statistical Bureau. 2019. *Zhongguo Tongji Nianjian*. [China statistical year-book]. Beijing: China Statistics Press.
- Coe, N., and Hess, M. 2011. Local and regional development: A global production network approach. *Handbook of local and regional development*, ed. A. Pike, A. Rodríguez-Pose, and J. Tomaney, 128–38. London: Routledge.
- Coe, N., Hess, M., Yeung, H. W., Dicken, P., and Henderson, J. 2004. 'Globalizing' regional development: A global production networks perspective. *Transactions of the Institute of British Geographers* 29 (4): 468–84. doi:10.1111/j.0020-2754.2004.00142.x.
- Coe, N., and Yeung, H. W. 2019. Global production networks: Mapping recent conceptual developments. *Journal of Economic Geography* 19 (4): 775–801. doi:10.1093/jeg/lbz018.
- Dawley, S. 2011. Transnational corporations and local and regional development. *Handbook of local and regional development*, ed. A. Pike, A. Rodríguez-Pose, and J. Tomaney, 394–412. London: Routledge.
- . 2014. Creating new paths? Offshore wind, policy activism, and peripheral region development. *Economic Geography* 90 (1): 91–112. doi:10.1111/ecge.12028.
- Dawley, S., MacKinnon, D., and Pollock, R. 2019. Creating strategic couplings in global production networks: Regional institutions and lead firm investment in the Humber region, UK. *Journal of Economic Geography* 19 (4): 853–72. doi:10.1093/jeg/lbz004.
- George, C., Pan, J., Evans, D., and Jackson, B. 2008. *Trade sustainability impact assessment for the negotiations of a partnership and cooperation agreement between the EU and China*. Brussels, Belgium: Commission of the European Communities.

- Glassman, J. 2011. The geo-political economy of global production networks. *Geography Compass* 5 (4): 154–64. doi:10.1111/j.1749-8198.2011.00416.x.
- Hansen, M. W., Pedersen, T., and Petersen, B. 2009. MNC strategies and linkage effects in developing countries. *Journal of World Business* 44 (2): 121–30. doi:10.1016/j.jwb.2008.05.002.
- He, C., Zhou, Y., and Huang, Z. 2016. Fiscal decentralization, political centralization, and land urbanization in China. *Urban Geography* 37 (3): 436–57. doi:10.1080/02723638.2015.1063242.
- Heilmann, S. 2008. Policy experimentation in China's economic rise. *Studies in Comparative International Development* 43 (1): 1–26. doi:10.1007/s12116-007-9014-4.
- . 2018. *Red swan: How unorthodox policy-making facilitated China's rise*. Hong Kong: CUHK Press.
- Henderson, J., Dicken, P., Hess, M., Coe, N., and Yeung, H. W. 2002. Global production networks and the analysis of economic development. *Review of International Political Economy* 9 (3): 436–64. doi:10.1080/09692290210150842.
- Horesh, N., and Lim, K. F. 2017. *An East Asian Challenge to Western Neoliberalism: Critical Perspectives on the 'China Model'*. Abingdon, UK: Routledge.
- Horner, R. 2017. Beyond facilitator? State roles in global value chains and global production networks. *Geography Compass* 11 (2): e12307. doi:10.1111/gec3.12307.
- Isaksen, A. 2015. Industrial development in thin regions: Trapped in path extension? *Journal of Economic Geography* 15 (3): 585–600. doi:10.1093/jeg/lbu026.
- Lee, Y.-S., Heo, I., and Kim, H. 2014. The role of the state as an inter-scalar mediator in globalizing liquid crystal display industry development in South Korea. *Review of International Political Economy* 21 (1): 102–29. doi:10.1080/09692290.2013.809781.
- Leutert, W. 2016. Challenges ahead in China's reform of state-owned enterprises. *Asia Policy* 21 (1): 83–99. doi:10.1353/asp.2016.0013.
- Levy, D. 2008. Political contestation in global production networks. *Academy of Management Review* 33 (4): 943–63. doi:10.5465/amr.2008.34422006.
- Li, L. 2019. The cadre resignation tide in the wake of the 18th Party Congress. *China: An International Journal* 17 (3): 188–99.
- Li, Z., Li, X., and Wang, L. 2014. Speculative urbanism and the making of university towns in China: A case of Guangzhou University Town. *Habitat International* 44 (October): 422–31. doi:10.1016/j.habitatint.2014.08.005.
- Lim, K. F. 2019. *On shifting foundations: State rescaling, policy experimentation and economic restructuring in post-1949 China*. RGS-IBG Book Series. Oxford: Wiley-Blackwell.
- MacKinnon, D. 2012. Beyond strategic coupling: Reassessing the firm-region nexus in global production networks. *Journal of Economic Geography* 12 (1): 227–45. doi:10.1093/jeg/lbr009.
- . 2013. Strategic coupling and regional development in resource economies: The case of the Pilbara. *Australian Geographer* 44 (3): 305–21. 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): 113–35. doi:10.1080/00130095.2018.1498294.
- Miao, B., and Lang, G. 2015. A tale of two eco-cities: Experimentation under hierarchy in Shanghai and Tianjin. *Urban Policy and Research* 33 (2): 247–63. doi:10.1080/08111146.2014.967390.
- OECD. 2016. *Summary Report—OECD Expert Workshop on Optimising Global Value Chains for Environmental Goods and Services*. Paris: OECD.
- Park, B.-G. 2003. Politics of scale and the globalization of the South Korean automobile industry. *Economic Geography* 79 (2): 173–94. doi:10.1111/j.1944-8287.2003.tb00207.x.
- Rolf, S. 2019. National development through global production networks? The case of Dongguan, China. *Political Geography* 73 (August): 48–59. doi:10.1016/j.polgeo.2019.05.006.
- Shim, Y., and Shin, D.-H. 2016. Analyzing China's fintech industry from the perspective of actor-network theory. *Telecommunications Policy* 40 (2–3): 168–81. doi:10.1016/j.telpol.2015.11.005.
- Shirk, S. L. 1993. *The political logic of economic reform in China*. Berkeley: University of California Press.

- Smith, A. 2015. The state, institutional frameworks and the dynamics of capital in global production networks. *Progress in Human Geography* 39 (3): 290–315. doi:10.1177/0309132513518292.
- Wang, J., and Gooderham, P. 2014. Institutional change and regional development in China: The case of commodity trading markets. *Environment and Planning C, Government & Policy* 32 (3): 471–90. doi:10.1068/c11254b.
- Wang, J. H., and Lee, C. K. 2007. Global production networks and local institution building: The development of the information-technology industry in Suzhou, China. *Environment & Planning A* 39 (8): 1873–88. doi:10.1068/a38428.
- Wedeman, A. 2001. Incompetence, noise, and fear in central-local relations in China. *Studies in Comparative International Development* 35 (4): 59–83. doi:10.1007/BF02732708.
- Wei, Y. D., Li, W., and Wang, C. 2007. Restructuring industrial districts, scaling up regional development: A study of the Wenzhou model, China. *Economic Geography* 83 (4): 421–44. doi:10.1111/j.1944-8287.2007.tb00381.x.
- Yang, C. 2013. From strategic coupling to recoupling and decoupling: Restructuring global production networks and regional evolution in China. *European Planning Studies* 21 (7): 1046–63. doi:10.1080/09654313.2013.733852.
- 24 Yeung, H. W. 2009. Transnational corporations, global production networks, and urban and regional development: A geographer's perspective on multinational enterprises and the global economy. *Growth and Change* 40 (2): 197–226. doi:10.1111/j.1468-2257.2009.00473.x.
- . 2014. Governing the market in a globalizing era: Developmental states, global production networks and inter-firm dynamics in East Asia. *Review of International Political Economy* 21 (1): 70–101. doi:10.1080/09692290.2012.756415.
- . 2015. Regional development in the global economy: A dynamic perspective of strategic coupling in global production networks. *Regional Science: Policy & Practice* 7 (1): 1–23.
- . 2016. *Strategic coupling: East Asian industrial transformation in the new global economy*. Ithaca, NY: Cornell University Press.
- . 2020. The trouble with global production networks. *Environment & Planning A* 53 (2): 428–38. doi:10.1177/0308518X20972720.
- Yeung, H. W., and Coe, N. 2015. Toward a dynamic theory of global production networks. *Economic Geography* 91 (1): 29–58. doi:10.1111/ecge.12063.
- Zhou, Y. 2021. Qujing (取经) as policy mobility with Chinese characteristics: A case study of ultralow-energy building policy in China. *Environment and Planning A: Economy and Space* 53 (2): 410–27. doi:10.1177/0308518X20960736.