Does Innovation Capacity Building Help Regional Development? Policy Expert Narrations on Development in China's "West"

Anna-Barbara Heindl

Abstract

To avoid the middle-income trap, China's leaders call for innovation to accelerate development in China. However, since it is not clear how innovation and (regional) development reinforce each other, there is no blueprint strategy for successful innovation capacity building throughout China. Due to resource scarcity in its "Western" regions, it is thus far from certain that innovation capacity building will support regional development. Departing from sociology of knowledge, narrations are constitutive of policy practice. This article analyses narrative patterns of policy experts to understand how innovation capacity building and regional development are negotiated in China's lagging "West." The comparison of Yunnan and Chongqing cases demonstrates that innovation capacity building is primarily infused with theoretical expectations: resource scarcity does not allow for grounding innovation as a strategy of regional development in the local context. This leads to narrations of "local" alternatives to innovation capacity building in centralist China.

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Introduction

In 2014, China's president Xi Jinping coined the expression "new normal" to describe China's current and future slowed-down economic growth following the financial crisis. While in the past cheap labour force had been a successful driver of development, the "new normal" now requires an increase in total factor productivity for more sustainable economic development. Therefore, China's leaders called for innovation to form the basis of economic development. From an economic perspective, innovation is a novel product or novel process of economic production. The exclusivity that accompanies this novelty grants a competitive advantage on the market through increased returns. From the perspective of processes, these innovations emerge through interactive learning processes involving a variety of actors and the (re-)combination of their knowledge and resources (Moulaert and Sekia, 2003: 289).

In its central documents, China's national government thus re-emphasises the necessity to transform into a knowledge-based economy (e.g. 13th Five Year Plan 2016). Such central documents – or national guidelines – provide a general "marching route" for the whole country (Zhong, 2003: 130). In the Chinese administrative system, subnational governments are responsible for adapting and implementing national guidelines in their local economy (Lieberthal, 2004: 181–183), in order to manage the diversity and marked disparities between Chinese regions (Liefner and Wei, 2014: 1). As a consequence of the obligatory nature of centrally issued documents, all local governments in China will adopt these national guidelines on innovation, even though resources for innovation are rarely available in China's less developed regions but are abundant in the advanced ones (Liu et al., 2018). Yet national guidelines are not context specific and appear to be designed for the contexts of advanced and richly endowed economies in the East of China (Heindl, 2020: 35). It thus remains to be seen how less endowed regions will and can react to this call for transformation.

To date, research on regional innovation in China has failed to explore the context of innovation capacity building and regional development in less developed regions of China. To address this gap, this article draws on the sociology of knowledge approach to discourse (SKAD) analysis to enquire how the context between innovation capacity building and regional development is constructed at the local level; it further examines which knowledge is drawn upon when innovation capacity building is negotiated with other regional development strategies for the region. An interpretive approach to narratives according to SKAD on innovation and regional development is highly relevant since it allows us to work out underlying reservoirs of knowledge, which indeed may have a very practical consequence. As Summers (2012: 445) puts it: "Ideas and practice are constitutive of each other, […] I see narratives as being in dialectical relationship with the practice of political economy"; thus, narratives are directly relevant for explaining local policy-making. SKAD allows the analysis of the entanglement of regional

narrative patterns with Chinese political and societal discourses to explain the practice of innovation capacity building.

My research focuses on narrations by regional "observers" – in this case, people with knowledge of and influence on regional development and innovation: policy consultants, policy-makers, and innovation capacity builders. It compares two relatively heterogeneous regions in China's "West" – Chongqing and Yunnan. Discourses on development historically localise China's less developed regions in the country's "West" (Yeh and Wharton, 2016), in contrast to China's advanced regions along the coast. The research herewith focuses on Chinese regions, which may not be intuitively compatible with national calls for innovation capacity building. The case comparison within the "West" allows for a distinction of national and locally specific narrative patterns with regard to innovation and regional development.

Four dominant narrative patterns can be found in both regions to link innovation capacity building with regional development – geography and the construction of difference; culturalisation; teleology and theory; "locale" – while they are related to each other differently for different purposes in each region.

The article is organised as follows. The next section introduces the research phenomenon of regional innovation in China, followed by a description of data and methodology. Results of both case studies are presented in the fourth section, before they are compared and discussed in the subsequent section. The last section provides a conclusion and suggestions for further research.

Regional Development, Regional Innovation, and Discourses in China

Discourses on development in China divide China's territory into the developed "East" and the underdeveloped "West" (Figure 1), localising the country's marked disparities in a regionalist perspective (Zhuang and Li, 2016). The socio-economic development of China's "West" had been neglected until the 2000s as the government pursued the strategy to let the promising eastern provinces "get rich first" (Liefner and Wei, 2014: 4). However, as the disparities between China's "West" and "East" constantly grew, China's central government re-focused its attention to the neglected regions by releasing an encompassing development strategy in 1999: the "Western Development Strategy" (WDS; 西部大开发, *Xibu da kaifa*; Guo, 2017). Following the WDS, the central government also released strategies for the "Rise of the Central Region" in 2002 and a "Revitalization Plan for the Northeastern Region" in 2003, which also lag behind the development of the east coast of China (Yu, 2018: 179). In this context, the national government had increased its investments in China's "Western" regions, especially infrastructure mega-projects and industry and technology transfer from "East" to "West" (Yeh and Wharton, 2016: 290). Yeh and Wharton (2016) and Yu (2018: 187), however, assess that these infrastructure investments have not yet yielded noteworthy results – not least, because the WDS rationale is centred on state interventionism rather than mobilising private resources for market-oriented development. Therefore, China's government
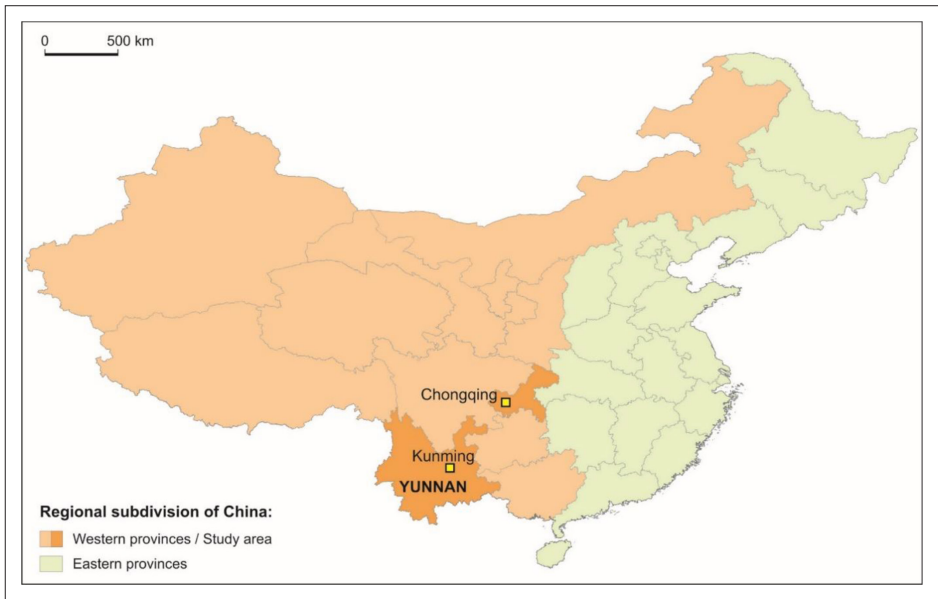
Figure 1. Chongqing and Yunnan in the "West" of China, within the "East/ West" categorisation as in the Western Development Strategy (WDS).

Source: Cartography by Stephan Pohl.

recently linked the WDS with its grand Belt and Road Initiative (BRI) to reach out to international markets in order to increase the pool of resources for regional development (Summers, 2018; Yeh and Wharton, 2016). Nevertheless, it is questionable whether regional economies in China's "West" have already built up respective institutional and economic resources that could enable them to establish innovation as a factor for development. The following section will look into the geography of innovation (Feldman, 1994) as a theoretical reference to understand which resources and institutional arrangements are significant for establishing a regional knowledge-based economy.

The Geography of Innovation and Regional Development

Literature on the geography of innovation suggests that the regional level is crucial for innovation processes: spatial (i.e. regional) proximity provides an effective exchange of resources among a multitude of actors with particular knowledge, a combination that is necessary for successful innovation (Moulaert and Sekia, 2003). These innovation-relevant resources and actors are usually classified as research capacities (venture), capital, entrepreneurs, universities, and intermediaries – such as technology brokers (Howells, 2006) – whose exchange is driven by an institutional and cultural framework – such as the provision of networking platforms or a shared understanding of business

practices in the region (Cooke, 1992). The theory of geography of innovation, however, is based on stylised facts (Feldman and Kogler, 2011) and case studies in economically advanced regions (Cooke, 1992; Saxenian, 1983). Case studies on less developed regions indeed make suggestions on how to understand the context of lower development and innovation; yet they do not allow for generalisation or other forms of theoretical explanation (e.g. Crescenzi and Rodríguez-Pose, 2012; Komninaki, 2015; Padilla-Pérez et al., 2009: 141). Hence, it is not clear what enables innovation in regions with less abundant innovation resources and actors. Despite these theoretical knowledge gaps, political and expert discourse has appointed the "regional" level to the scale where economic and innovation capacity development should take place (Bathelt and Henn, 2017). Consequently, regional innovation policies, which aim at fostering the regional innovation framework or particular actors ex ante (Padilla-Pérez et al., 2009) to enable innovation, are concept-driven and normative, orientating along "best-practice" examples rather than solid theory (Bathelt and Henn, 2017). Likewise, the Chinese government employs this normative concept (Brødsgaard and Rutten, 2017) to call for the development of innovation-based regional economies in the country. Yet the national government does not provide blueprints for how innovation systems should be set up in China's less developed regions, which differ markedly from "best practice" examples of the geography of innovation. This is evident in Chinese policy documents on the national and regional levels: they do not offer ideas on how to develop innovation capacities in a co-ordinated manner (Liu et al., 2017: 660) nor on how innovation may intertwine with development in the individual regions (Heindl, 2020: 35).

It is therefore not possible to analyse from policy documents how local governments (will) place innovation as a regional development factor, especially in resource-scarce regions, where an innovation system framework is likely not (yet) in place (Bathelt and Henn, 2017: 466–467). Instead, it is the underlying knowledge structures that are more productive for research that actors involved in innovation and regional development draw upon when negotiating the context of innovation and regional development. Despite its authoritarian system, local policy processes in China are still negotiated among different factions (Heilmann, 2008: 1), leaving room for consultancy and different representations of interest. It is therefore crucial to understand how different kinds of actors draw on different knowledge structures when they discuss innovation as a part of regional development. The analysis of knowledge structures will help understand how innovation and regional development are being linked to each other, granting access to a basic understanding generally resonating in the shaping of innovation and regional development. SKAD holds that both "making sense of the world" and action in a reflexive way influence and are influenced by a collective knowledge reservoir (i.e. structure) of a knowledge community (Keller, 2011: 11). Concurring with Summers (2012: 446), this article thus considers "narratives as being in dialectical relationship with the practice of political economy"; I therefore aim to answer the following question: which narrative patterns – as expressions of a common knowledge reservoir – are constructed, and which discourses are drawn upon to place innovation as a factor in regional development in less developed regions of China?

Method of Analysis and Data

This article draws on interpretive analysis, a method that allows us to work out the discursive context between innovation as a factor in regional development in order to better understand rationales behind innovation policy-making and implementation in China's less developed "West." After introducing the research areas and the sample, I will place particular attention on the applied method of interpretive data analysis.

Research Areas

This analysis draws on the city of Chongqing and Yunnan province as examples of China's less developed regions, where innovation and resources for it are not as abundant as in China's advanced regions along the coast (Liu et al., 2018). Being situated in China's lagging "West," these regions constitute cases of ex ante regional innovation frameworks, which innovation policies are supposed to construct. To address the question which narratives are constructed and which discourses are drawn upon to place innovation as a factor in regional development, particularly in less developed regions of China, the comparative feature of this analysis is especially important: it allows us to examine how and to what extent narrative patterns may be more general for less developed regions in China, inferring a more general knowledge reservoir.

We chose Chongqing in order to include the case of a dynamically developing, though not yet caught-up, region in China's "West." As a stark contrast to this, we drew on the province of Yunnan as a case on the other end of the developmental range. Within the category of the less developed "West," Chongqing and Yunnan exhibit marked disparities (Figure 2, Table 1). The reason for picking Chongqing as a case is thus a theoretical one, the city being the leading region within the "West." We selected Yunnan because of pragmatic reasons. Other regions at the rear end of the "Western" developmental spectrum, such as Gansu, might have served the comparison equally well.

Despite Chongqing's denomination as a city, it may be treated as a province to ensure comparability: due to its geographical size, Chongqing exhibits spatio-economic structures similar to provinces rather than cities under direct government. With its relatively large percentage of rural population (48.41 per cent), Chongqing compares better to provinces (Yunnan: 66 per cent) than to other cities under direct government (e.g. Shanghai: 11.40 per cent or Beijing: 15 per cent; Chinese Population and Employment Yearbook, 2010).

Chongqing was appointed to act as a growth pole for the "West" of China by the national government, and was subsequently integrated into the global economy from the 1990s onwards (Summers, 2018: 63). From 1997, Chongqing gained the administrative status as a city under direct government (Li and Wu, 2012: 68). The independence of Chongqing from the province of Sichuan attracted more investment from inland sources, while at the same time local politicians were able to position Chongqing as the "gateway to 'Western' China" (Summers, 2018: 65). This importance of Chongqing as a growth pole or gateway to the "West" has been further supported and extended by Xi's BRI, which improves the position of Chongqing as a gateway to the global economy.
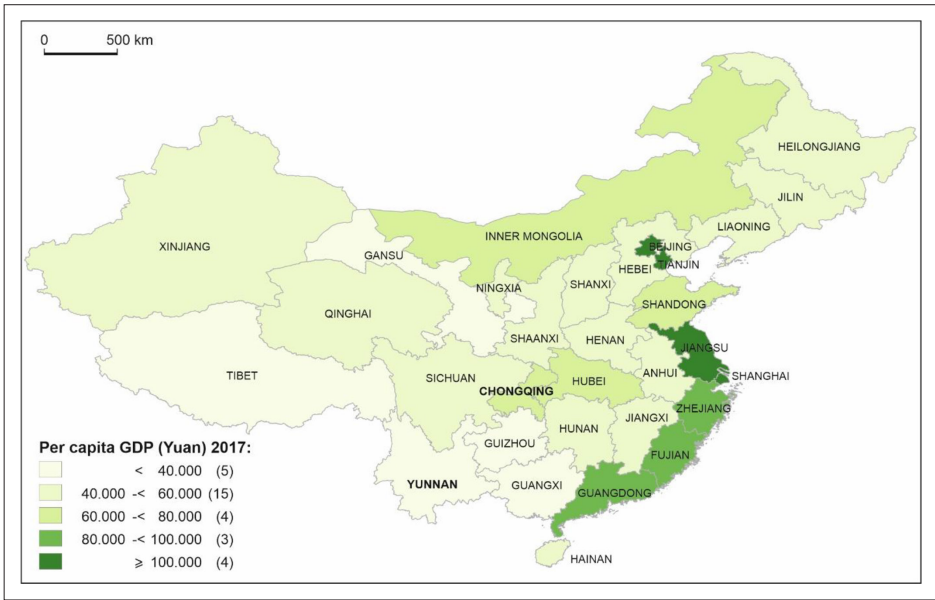
Figure 2. Regional Disparities as Represented by GDP Per Capita.
Source: Cartography by Stephan Pohl.

Chongqing's economic development path is shaped by relocation of heavy industry from China's east coast during the Sino-Japanese war in the late 1930s resulting in industrialisation (Summers, 2018: 63). However, the early industrialisation also meant that, subsequent to the communist rule, the resources were and are today still largely controlled by the government. Only in the late 1990s in the course of the WDS, the Chinese government started privatising some of Chongqing's state-owned assets (Chen, 1998). Due to the delay of central government effort to develop China's regions other than the east coast (Guo, 2017: 324), the overall level of development and quality of resources necessary for innovation processes in Chongqing is still rather low (Kroll, 2016: 65; Liu et al., 2018). Yet, "more recently, Chongqing officials have been keen to note that the city is at the top of many rankings among cities in 'Western' China" (Summers, 2018: 65).

Yunnan, in contrast, is a province in "Western" China that ranks low in comparison to China's provinces and those in the "West" with regard to innovation resource endowment (compare Liu et al., 2018). Table 1 gives indicators for these resources drawn from the literature on regional innovation in China. Given that stylised facts ground the definition of innovation resources (see "Regional Development, Regional Innovation […]" section), this table can merely serve as an approximation to highlight the different preconditions for innovation capacity building in Yunnan and Chongqing. Data are drawn from the current literature on the geography of innovation in China.

Even though Yunnan experienced a period of industrial relocation from the east coast, too, it did not develop solid industrialisation. In contrast to Chongqing, the province has been less central to national government development efforts (Summers, 2013: 55).

Table 1. Innovation Resources in Chongqing and Yunnan.

	Chongqing	Yunnan
Administrative status	City with provincial status	Province
Attributed role	Growth pole for the "West"	Bridgehead to Southeast Asia
GPD per capita (CNY) 2018	65,933	37,136
Average GDP growth, 2009–2017	18.22%	13.80%
Main industries	Manufacturing	Agriculture; mining; tourism
Dominance of company types/output	Large-scale enterprises; State-owned enterprises	Large-scale enterprises; State-owned enterprises
Science & Technology (S&T) quality	Small public research basis	Small public research basis
Research & Development expenses in CNY 100 Mio	36.463 (2017)	10.936 (2015)
Local government expenditure on S&T in CNY 100 Mio, 2017	59.31	53.42
Total growth of expenditures, 2009–2017	281.41%	181.31%

Sources: Kroll (2016); Li et al. (2016); National Bureau of Statistics in China (2020).

Agriculture, the exploitation of natural resources, and tourism dominate the provincial economy. Officials of Yunnan province foster internationalisation with neighbouring countries to promote their development, re-positioning Yunnan from a "remote" and "exotic" province to a "bridgehead" to Southeast Asia to gain attention from the central government (Su, 2014; Summers, 2012, 2013). This effort finds its echo only now in Xi's BRI strategy released in 2013. Yunnan was thus included in the study due to its ranking as one of the provinces with the lowest GDP per capita, contrasting Chongqing as a city with one of the highest GDP per capita in the "West" of China. Yunnan was included for its new impetus in regional development through BRI, constituting a basis for comparison with Chongqing, which exhibits dynamics too, with regard to its role as a "growth pole" for the "West."

Sample

For the interpretive analysis of narrative patterns and discourses, I draw on SKAD. Using interview data, SKAD allows us to work out individual agents' narrative patterns and how those are related to (more general) knowledge structures. I draw on such individuals who have contextual knowledge (Meuser and Nagel, 2002) of local innovation conditions and regional economic development; these interviewed "observers" share knowledge of two contexts of action: first, the situation of local companies and their

Table 2. Sample Structure.

Sample	Place of interview: Chongqing		Place of interview: Kunming	
	Anonymous #	Date of interview	Anonymous #	Date of interview
Policy consultants: Professors on regional development, industries, and the geography of innovation	15–18	June 2018	1 2,3 4	Sept 2018 June 2018 Sept 2018
Policy advisers: Researchers of Academy of Sciences	27	June 2018	–	–
Innovation capacity builders: Incubation service managers; Science & industrial park/ development zone managers (main board); Intellectual property managers	19 20 21 22–26	April 2018 June 2018 April 2018 June 2018	5 6 7 8	June 2018 Nov 2017 June 2018 Sept 2018
Policy-makers: Science & Technology Department staff[a]	28	June 2018	13,14	June 2018
Total number of interviewees	14		10	

[a]Department responsible for innovation policy-making at city level.

needs and, second, of policy processes and politics with regard to innovation and regional development in their respective region. This focus on the observers' perspective therefore does not only allow for an analysis of which discourses affect regional innovation policy-making, but it is also able to take alternative narrative patterns and their relation to the local context critically into account. The sampling thus targeted people with an influence on innovation policy design (policy consultants and policy-makers) as well as those managing policy implementation, that is, innovation capacity building (Table 2). The individuals in the sampling differ with regard to their influence on policy design: while the staff from local science and technology (S&T) departments are directly involved in policy-making, members of Chinese Academy of Sciences advise on the policy process (Li et al., 2016). Policy consultants – researchers in this sample – provide expertise on the regional and industry-specific contexts of innovation for policy-making. Managers of innovation processes and innovation capacity building in turn implement these innovation policies. The sampling was approached through snowball sampling.

I collected my interview data in Chongqing (fourteen interviews) and Kunming, Yunnan (ten interviews) between September 2017 and November 2018 in semistructured interviews of 1–2.5 hours duration each. The interview structure changed throughout the research process: the typical qualitative-iterative design guaranteed theoretical saturation regarding innovation and regional development in each region. The interviews were conducted in Chinese and English with simultaneous English translation where applicable. The interviews were recorded and later transcribed into English and Chinese. The Chinese part of the interviews was additionally translated into German by a Chinese native speaker with German philology training. The translation was conducted as close to the Chinese original as possible.

Analysis

Researcher Positioning.   As a researcher from Germany with no prior experience in Chinese policy practice, I took the following measures to compensate for my outsider status. First, most of the interviews were arranged by my research partner from a Chinese university. His standing as a professor on innovation and regional development and his personal relationships drawn upon for sampling provided a level of trust between the interviewees and me (for a discussion on the decisive role of research partners as trusted gatekeepers for field access in China, see Alpermann, 2012). To further foster a common agenda between the parties, the interview situations were always moderated and co-conducted by my Chinese co-researchers. After each interview, we had the opportunity to reflect on the interview setting together, which provided a further level of understanding and check-and-balancing of my outsider perspective.

Furthermore, an outsider perspective does have advantages, particularly in China: research practice by foreigners shows that interviewees might be inclined towards speaking their mind if they can do so either in a foreign language or with foreigners outside Chinese society (Alpermann, 2012).

Articulation Analysis.   To enhance understanding with regard to the outsider–insider trade-off, I developed and applied a method that additionally helps in overcoming these challenges of the insider versus outsider perspective in analysis. The following section will briefly introduce the necessity and development of the method.

Kruse and Schmieder (2012) draw on the interpretive paradigm to show that an interpretive approach to texts in the research context of foreign languages and cultures is particularly important to separate the researcher's own system of "making sense" (Schütz, 2004: 155) from that of the text to avoid "over"-interpretation. Since SKAD provides a research perspective rather than a concrete method (Keller, 2011: 12), I developed an approach (Heindl, forthcoming) based on the discourse analysis method by Glasze et al. (2009), which had to be adapted to the specific requirements of interpretive approaches to texts in a foreign language. Since I lack linguistic understanding of Chinese, I needed an approach that allows for a separation of the Chinese interviewees' systems of making sense, and mine (Kruse et al., 2012). The adapted method thus had to

provide an explication of the interviewees' "way of speaking," requiring an analysis as close to the text as possible. At the same time, the method should not neglect the content level beyond power relations produced through language, which usually constitute the focus of scholars working on and with foreign languages (e.g. conversation analysis; Berkenbusch, 2012; positioning analysis; Kruse and Schmieder, 2012).

Glasze et al. (2009) developed their method of coding for discourse analysis on written media documents, but their approach is also applicable to interview data. They focus on discourse elements from a linguistic perspective – words, a word sequence, or a sematic concept – and articulations – connected discourse elements – to conduct their analysis. Discursive articulations are thus a result of repeatedly produced connections between two or more words, or word sequences, to form a discursive structure (Glasze et al., 2009: 295–296) – or narrative pattern (Glasze, 2013: 114). While Glasze et al. (2009) focus on narrative patterns within discourses (as reproduced in texts; Parker, 1990), I am instead interested in narrative patterns emerging from individuals as provided by the SKAD perspective. To work out these articulations in a structured way, Glasze et al. (2009: 296) suggest a framework for categorising the quality of the connections between the elements: relations of equivalence, of opposition, of causality, and of temporality.

In my approach, I predefined elements to code the interview data. I coded the material according to the elements "regional (economic) development," "development," "innovation," and "regional innovation system" across the interviews, resulting in 114 assertions from Kunming interviewees and eighty-three assertions from Chongqing interviewees. In contrast to Glasze et al. (2009), for whose discourse analysis it is important to code re-appearing word (sequences) and semantic concepts in media documents, my coding strategy of predefined elements was less focused on specific expressions. Rather, my coding included all paragraphs that were content-related to the above-mentioned elements. Next, I analysed the English and German translations of the assertions, respectively, by categorising particles, especially conjunctions, according to the quality of relations as a basis for interpretation: equivalence, opposition, causality, and temporality. The structure of each coded assertion was cross-checked with the simultaneous translation during the interview (Kruse et al., 2012: 36). While Glasze et al.'s discourse analysis is particularly interested in how quality relations re-appear and re-connect in their texts, in my approach to the interview data quality relations were more important to make the way of reasoning explicit in each sentence. Framed by this, I was still able to focus on the content, while supplementing the analysis by a close control of their representation by the interviewees. For interpretation, I further drew on Alpermann and Fröhlich (2017), Alpermann and Selcuk (2012), and Alpermann (2012), who outline the main conversational and grammatical signifiers in Chinese conversation and discourse to cross-check the basis of my interpretation of how assertions were presented by the interviewees. Such an approach finally allowed for an analysis of narrative patterns across interviewees, examining regional differences in argumentation. I found that some of the emergent narrative patterns were related to discourses, so that I could also trace a common knowledge reservoir beyond the regional context.

Results

The following presentation of results will focus on narrative patterns, which both Chongqing and Yunnan interviewees construct, on the relationship between innovation and regional development. These topical patterns are differently structured and focus on different purposes in the different regions. The main narrative patterns by both Chongqing and Yunnan observers, which link innovation with regional development, are: geography and the construction of difference; culturalisation; teleology; scientific theory and national government; and "locale." The analysis further shows that in both regions the interviewees link their narrative patterns to discourses in Chinese society as identified in the literature, revealing a common knowledge reservoir in their representations: the discourse of inequality between the "West" and the "East" of China (e.g. Yeh and Wharton, 2016); Marxism and Confucianism as the basis for the Chinese Communist Party's (CCP's) legitimacy (e.g. Lieberthal, 2004: 7; Strafella, 2015); and discourse on natural resources and ethnic minorities in the "West" (e.g. Barabantseva, 2009; Litzinger, 2004).

Yunnan

Geography and the Construction of Difference.   By referring to Yunnan as a "border region" located at the "margins," the interviewees explain Yunnan's lack of spatio-economic functionalisation. This neglect of economic functionalisation is for one related to the fact that keeping political stability is considered a more important task for Yunnan: "[…] from the perspective of location, political stability is more important than economic development in China's border areas" (Anonymous 2, 2018). For the other, Yunnan's disadvantageous "geographical space" (Anonymous 6, 2017), which is "not very convenient for transportation" (Anonymous 3, 2018), is made responsible for the fact that Yunnan's economy is hindered in developing in the same fashion as China's more advanced regions. The observers further include Yunnan in the national discursive construction of the "West" and "Southwest" (compare Yeh and Wharton, 2016), which attributes a severe lack of resources to these regions. Drawing on Yunnan's belonging to the "West" and "Southwest," they actively construct a difference to the "East," the "Coast," and the "North" to make higher-ranking authorities as well as circumstances and actors other than themselves responsible for Yunnan's developmental deficit. An interviewee talks about expected benefits from the BRI with the comment "We have been waiting for many years" (Anonymous 1, 2018) in order to construct Yunnan's economic and political actors as passive and dependent on national government impulses for development. This construction of passivity through belonging to the underdeveloped "West" seems necessary since the observers consider the lack of local resources as too decisive to enable endogenous (innovation) development. Even though Yunnan's officials indeed made independent efforts for development by establishing their province as a bridgehead to Southeast Asia well before BRI, the Chinese authoritarian system still requires acknowledgement by the national government before local strategies can be put into practice (Summers, 2013: 55). This might explain why the observers do not grant themselves an active role, but rather wait for impulses from above: the observers see the

national programmes WDS and BRI as decisive for future development, which, they expect, will deliver favourable spatial functionalisation in the future.

When arguing the reasons of Yunnan's current state of regional development, the observers hardly consider innovation as an element for development, since local resources are too scarce. Future imagination, however, indeed takes innovation for development into account. Some observers are able to construct a positive differentiation of Yunnan and the "West": the overall positive regard of Yunnan's "diversity" of regional characteristics in terms of "geographical characteristics, cultural diversity, diversity of biological resources" (Anonymous 3, 2018) render it possible to imagine a future orientation of economic development along these particular characteristics. They therefore see the right to their own development path, especially since the higher order that belongs to the "West" and, thus, their underdevelopment, is not their own "fault": "[…] from the perspective of resource allocation and resource combination in our geospatial space, I think that the innovation of Yunnan in the future will still be very different from the coastal areas. Go out of your own path" (Anonymous 6, 2017). With this emphasis on their particular resources, the observers echo the recent and strong dedication of the national government to solve ecological problems, reinforced by an interviewee with this comment: "Xi Jinping has said that green water and green mountains are the golden mountain and silver mountain. An important way is ecological compensation in [for] developed areas" (Anonymous 2, 2018).

Teleology. When talking about the role of innovation for regional development, the observers generally draw on a teleological understanding of development. That means they consider economic development to proceed in predefined steps towards a final end, whereas Yunnan has not yet reached the (final) level of an innovation-based economy. Most of the observers, however, agree that it is "very necessary, very necessary [for Yunnan] to be in an era of innovation" (Anonymous 3, 2018). The argument of step-wise development resonates in the teleological understanding of history and development that is basic to the CCP's state ideologies of Confucianism (Lieberthal, 2004: 7) and Marxism (Ci, 1994; Sayers, 2019). From this perspective, it is closely related to the notion of "catching-up," which used to be central to Chinese national innovation policies (Zhou and Liu, 2016). The lack of resources for innovation makes it necessary to detach their explanations of how innovation and regional development relate to each other from the local context. They shift all innovation capacity building efforts discursively to the (teleological) future, drawing on national leaders' thoughts and scientific theories as well as national guidelines and innovation strategies instead of local examples; they do not develop ideas about concrete measures and ideas of how to reach the goal of establishing an innovation-based economy. Due to the lack of local points of reference for innovation, they do not explicitly link innovation to the next steps on the development path. Instead, the observers draw on the vague national strategies of BRI and WDS to argue for spatial functionalisation as an effective tool to leverage development in the future.

Locale. The observers mostly draw on a narrative pattern of teleology to explain an ideal or future context between innovation and regional development in Yunnan. When

the observers draw on the "locale" for explaining this context, they argue that there is currently no notable contribution of innovation to the economy in Yunnan. In negative ways, they relate to resource scarcity or culture (compare next paragraph) as a reason for missing S&T innovations. One interviewee even makes the criticism that Yunnan is supposed to innovate for the sake of national politics, not for the end result of development in Yunnan: "Because innovation entrepreneurship is good for the whole country, it can promote the development of economy. But […] we cannot innovate for the sake of innovation" (Anonymous 3, 2018). In a more productive way, the observers refer to the local context to establish their independence from national government, similarly to how they use the "West" to argue for their own advantages: natural resources have great potential for a non-S&T, alternative path of development. Therein, they even argue that the local government is much more knowledgeable on the local situation so that it is potentially able to develop more appropriate policies and measures for the Yunnan case. However, at the same time they make the criticism that the local government intervenes too strongly in the economy, so that the driving force of innovation to date is the state rather than the market.

Culturalisation.   While geography and the construction of difference are used to explain the lag of economic development, the observers draw on culture to explain the absence of innovation. They maintain that the local population and local companies do not have the capabilities or the cultural premises to build innovation resources independently; local Yunnan people are "[…] feeling their life is relaxed, so they think, so I'm so relaxed, why am I working so hard to find a trouble for me [laughing] to develop a new technology or to pay more attention on the innovation […]" (Anonymous 5, 2018). More directly, an interviewee holds that Yunnan's cultural diversity is responsible for the lack of innovation:

> […] Yunnan is a city[1] that we have a lot of different kinds of people and also, it's a city that close to many different nations so […] that they struggle in different kind of cultures, different kinds of thinkings, ideas, so that makes they cannot just focus on one target. (Anonymous 8, 2018)

Innovation here is understood as something alien to the local context and to the local markets. This may be related to how the Chinese discourse (also reproduced in WDS; Barabantseva, 2009) treats ethnic minorities in China: by essentialising their ethnicity, modernisation and development are not considered compatible with their ascribed folkloric way of living. Particularly Yunnan is home to a multitude of different ethnic groups, constituting about one-third of the population. At the same time, all my interview partners were Han Chinese, the biggest group in China, which dominates in size and powerful positions (Barabantseva, 2009: 242; 250). It is hence easy to imagine that the interview partners draw on this hegemonic discourse to explain the lack of innovation and, at the same time, to distance themselves as Han from the deficit in innovation activities.
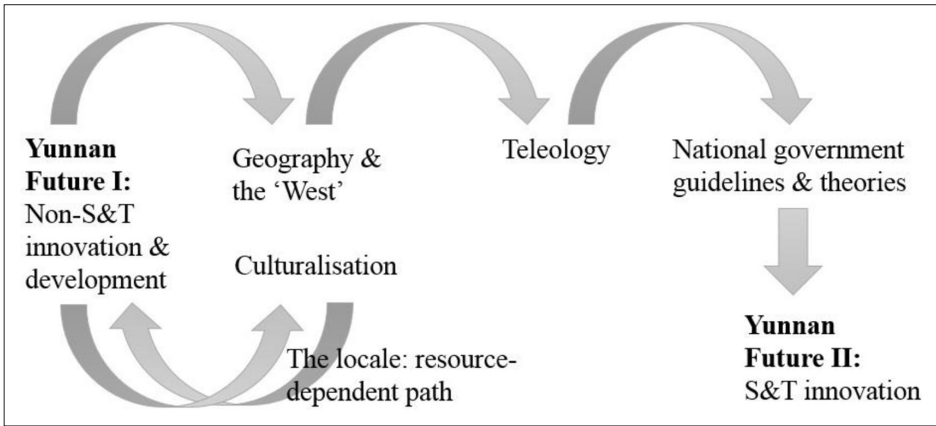
Figure 3. Argumentation Pattern on the Context of Innovation and Regional Development in Yunnan.
Note. S&T = Science and Technology.

Hence, the observers see a significant lack of Yunnan people's initiative, and they see the need for the state to establish an innovation environment: to date, there is no capacity or cultural precondition in the private sector for innovation. Similar to the use of geography, the local observers draw on characteristics that are hard to change to make government authorities responsible for innovation development. On the other hand, culturalisation is also being used in a positive way to establish local independence. Culture and cultural diversity as a particular asset of Yunnan is marked as a difference to hi-tech innovations. Due to resource scarcity, the S&T innovation type is not an option for Yunnan's regional development; the observers appropriate Yunnan's culture and folklore as an advantage to drive economic development via tourism and innovation via marketing strategies, reflecting government efforts to commercialise ethnic minorities in the 1990s (Litzinger, 2004). Culturalisation is thus used to diminish the predominantly S&T-oriented demands for innovation by the national government (see Amelung, 2014: 543, on the importance of S&T for China's legitimisation of technocratic rule). The narrative patterns thus link up to the argumentation pattern shown in Figure 3.

Chongqing

Geography, the Construction of Difference, and Culturalisation.   Similar to Yunnan observers, Chongqing interviewees place Chongqing in the "West" of China. They construct a difference between the "West" and the "East/Coast" for different purposes, which are linked to the narrative patterns of culturalisation and independence in the "locale." They draw on the discursive construct to the "West" to defend the current structure of the Chongqing economy, which is not (yet) driven by innovation. The recourse on the "West" thus serves to give up responsibility for the current state of development to the

national context. The observers culturalise innovation as a concept of China's east coast, which does not conform to the "Western" way of thinking:

> Because Chongqing, as the central city of the 'Western' region, […] conceptually, from the overall thinking, it should be said that there is a certain difference with our coastal developed regions. This also determines the limitations of the ideological concept, which also determines that in the subsequent stages of technological innovation, capital investment and policy, some changes in thinking at all levels […]. (Anonymous 21, 2018)

However, all Chongqing observers hold that Chongqing's culture has to be transformed in order to embrace innovation in the future. In contrast to Yunnan observers, interviewees relate the fact that innovation is "not as deep-rooted" (Anonymous 16, 2018) in the "West" as in the "East" to state capacities: "Our department and internals from the 'Western' region […] are not the same [as the eastern regions], and […] the understanding of innovation is still very short" (Anonymous 16, 2018); in Yunnan, culturalisation is directed more towards private individuals. In the "West" and, thus, in Chongqing, the lack of innovation in the economy is related to wider systemic problems: the provincial and local governments do not only miss the apt way of thinking to enable innovation, but they also hinder innovation by neglecting market forces and intervening too much.

Geography, the Construction of Difference, and the "Locale".   The "West" is further used to defend the situation that Chongqing is not innovation driven in comparison to the eastern provinces. Since the "West" is an underdeveloped region, Chongqing does not have the opportunity to and should not (yet) focus on innovation. Industrial development, regardless of knowledge as a contributor, is noted as much more important than enhancing innovation per se. Here, the negative approach to the "West" as an underdeveloped region thus serves, similar to Yunnan, to constitute independence from national government, or at least reduce the demand of national innovation guidelines by constructing their own regional path to development. Similarly, in a more positive reference to the "West" as an underdeveloped region, the observers describe Chongqing as a city that is at the forefront of development in the "West" (Summers, 2018: 65) – even though in this respect, they do not link this positive development to innovation. If they refer to innovation as an important aspect of Chongqing's economy, it is to sketch the future, imagined context between Chongqing-specific industries and innovation – which is, at the moment, not realisable due to inappropriate policies and government behaviour. However, the discourse of uneven development between the "West" and the "East" generally supersedes the local context when observers explain the relationship between innovation and regional development.

Scientific Theories, National Government, and Teleology.   As in Yunnan, the general approach to development is based on a teleological understanding. The observers see Chongqing as being at a relatively low stage of development, which explains why Chongqing's economy produces, if at all, innovations on a low level; this means

imitational innovation and adaptive innovation, which does not require much S&T (Heindl, 2020: 35; imitational and adaptive innovation differ from radical innovation in so far as they imitate or add new features to existing products instead of developing a radically new solution for a problem; compare Fagerberg, 2005). This teleological account of Chongqing's state of development requires further theoretical arguments to thoroughly explain the relationship between innovation and regional development – while it is, at the same time, hardly possible to draw on the missing local context to relate innovation to Chongqing's current situation. Innovation is therefore constructed as a demand by the national government on the local economies in China, which is consequently not explained by drawing on the local context. While the observers draw on the "West" to argue why innovation is difficult to establish in Chongqing at the moment, they refer to national government guidelines to imagine the future context between innovation and Chongqing's development. They state that "the central government can grasp some situations through different aspects; how to mobilise the enthusiasm of enterprises through optimising policies, how to let different places get some development opportunities from innovation" (Anonymous 19, 2018). Observers reproduce such a stance by linking the Chongqing situation to the national slogans, which demand a change "from high-speed development to high-quality development" (Anonymous 23, 2018) and a "leap forward" in the mode of "leaping development" (Anonymous 21, 2018). Similar to what the reference to the "locale" has already indicated, the observers do not have the opportunity to argue the need for innovation from the current local context. Rather, they draw on teleological understanding of development and national guidelines and theories to give significance to innovation for the Chongqing context and thus reproduce innovation as a national endeavour rather than a locally emergent phenomenon. The teleological approach to innovation as well as national demands thus superimpose the relationship between innovation and regional development on to local examples and stories.

From such teleological understanding interrelated with national government task to provide for innovation strategies, the observers deduct a need for (better) government guidance to create innovation capacities. In contrast to Yunnan, the Chongqing observers see a potential for innovation due to Chongqing's industrialisation. That means they can imagine innovation as a part of Chongqing's economy in the future, even though currently they look to the national government for reasons and guidance. This may be due to the fact that they see the problems that the "West" imposes on Chongqing as being more decisive than Chongqing's local situation, for which they could take responsibility. The future imagination of innovation as a contributor to economic development is thus based on theory rather than local context. The narrative patterns thus link up to the argumentation pattern shown in Figure 4.

Case Comparison

The following case comparison serves to understand which narratives and discourses become significant due to the local context, and which narratives may be subject to more general knowledge reservoirs in China's less developed regions with regard to
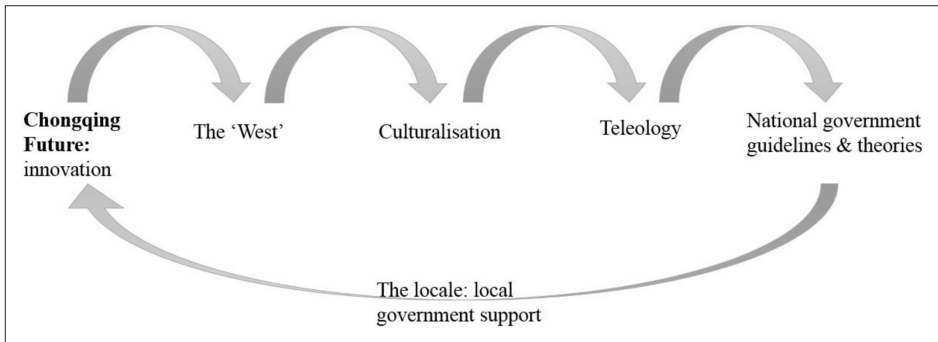
Figure 4. Argumentation Pattern on the Context of Innovation and Regional Development in Chongqing.

innovation for regional development. In general, the analysis shows that Yunnan and Chongqing observers construct similar narrative patterns and draw on the same discourses. They do so, however, for different purposes, which is mirrored in differing argumentation patterns (Figures 3 and 4).

Case Commonalities: Discourse of Inequality and Teleological Approach to Development

In both cases, the argumentation patterns of Yunnan and Chongqing observers draw on the discourse of inequality between the "West" and the "East" to render local responsibility for the current state of development. With that, they assign the task of initiating development to the higher-order national government. They can make the national government responsible by drawing on a common teleological understanding: since they consider development towards an innovation-based economy as a necessary development, they look towards the "experienced" national government and its plans and theories to design their upgrading strategies. Local resources are currently not sufficient to design a strategy completely on their own (Table 3).

Case Differences: Culturalisation and the Use of the "Locale"

In Chongqing an argumentation pattern emerges holding the national and local state jointly responsible for building an environment for S&T innovation (Figure 4). Chongqing, however, has basic resources (for example, industry and universities) available for such a future endeavour, while the positive culturalisation of the "East" is used to argue that national government plans and theories are still necessary to enable the "alien" concept of innovation to take root in Chongqing.

In Yunnan, observers draw exclusively on national government plans and theories to argue for an innovation-based economy in the future (Figure 3). The reason here is that Yunnan has

Table 3. Narrative Patterns and Their Link to Discourses.

Narrative patterns	Link to discourses: Yunnan	Link to discourses: Chongqing
Geography and construction of difference	Discourse of inequality between the "West" and the "East" of China	Discourse of inequality between the "West" and the "East" of China
Teleology and theory	Marxism, Confucianism	Marxism, Confucianism
The "locale"	Discourse on natural resources and ethnic minorities	Discourse of inequality between the "West" and the "East" of China
Culturalisation	Discourse on natural resources and ethnic minorities	Discourse of inequality between the "West" and the "East" of China

Note: Author's own elaboration.

hardly any basic local resources available that would allow for a locally determined design of innovation development strategies (Heindl and Liefner, 2019). Therefore, national government plans and theories are used to outline the development of an innovation-based economy in the future, but are not filled with experience or resources from the local context. To maintain independence from national government, however, the observers culturalise Yunnan in a productive – but also derogatory – way, linking to discourses on diversity in Yunnan (Litzinger, 2004): by appropriating Yunnan's unique natural and cultural "resources," they argue for their own path to development, which is not necessarily connected to S&T-innovation, but to some other yet undefined form of creating new economic value.

In conclusion, while Chongqing observers manage to integrate the national government's demand into their future imagination of innovation for development by referring to their own resources, the Yunnan observers are devoid of local resources and must oppose national government S&T plans to maintain independence, in spite of a common understanding of development between the national and local scale.

Conclusion

The comparison of both case studies results in conceptual lessons for innovation policy research and for the geography of innovation in China. It was shown that local knowledge is co-produced through discourses representing a common knowledge reservoir across regions in China. Therefore, the national scale and the local scales are not only intertwined with regard to administrative organisation, but also in a discursive sense. Despite decentralisation and local policy experimentation (Teets et al., 2017), this research suggests that in a discursive sense, "general beliefs" might strongly determine the understanding of innovation development in the "locale"; among policy-makers, consultants, and implementers, innovation is portrayed as an abstract concept, which does not necessarily result endogenously from local contexts in less-developed regions. Therefore, a theoretical orientation as given by China's national government seems necessary in these regions to "artificially" construct innovation

environments. That regional innovation capacity building in developing regions is an ex ante (Padilla-Pérez et al., 2009: 143) and widely normative policy endeavour (Bathelt and Henn, 2017: 466) becomes obvious when discourses render the national government inevitable for local innovation development, while at the same time locally emergent narratives aim to maintain local independence – this antagonism between local independence and the call for guidance by the national government shows that it is far from clear how innovation capacities can and if they should be developed in the local context. From policy perspective, there may be alternative paths to development, which suit local interests in the Chinese system more than innovation capacity building. Research in economic geography and academic consultancy (Crescenzi and Rodríguez-Pose, 2012) is yet often absolute in positing innovation as a successful means for regional development (Barnes et al., 2007). There is thus a greater need for critical perspectives to complement the geography of innovation for ex ante cases of innovation capacity building, where analytic approaches to research regional innovation and normative policy-making often remain undifferentiated.

For the case of China, and especially for the research on China's innovation capacity building, this means that local preconditions and resulting discourses must be taken into consideration much more than they are today within innovation studies. This research has highlighted the individual cases of Chongqing and Yunnan, but in other "Western" provinces we may meet other economic and political conditions and thus different narratives favouring or hampering innovation capacity building. Yet the prominence of the narrative link-up to the "lagging West" discourse in the cases researched suggests that it will play an influential part in other "Western" regions too.

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Note

1. It is not clear why the interviewee refers to Yunnan as a city in this part of his/her talk. He/she usually refers to Yunnan as a region and might have simply confused the terms while speaking about Yunnan and Kunming in this context.

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