

Appendices to accompany

The Process of Economic Development in West Sichuan: the Case of Daocheng County

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Appendix 1. List of Place Names

Table 1. Place Names

Pinyin	Mandarin Characters	Anglicized (if available)	Tibetan script	Wylie
Daocheng xian (Daocheng county)	稻城县 (稻巴, 稻坝, 稻壩)		འདབ་པ་རྫོང་	'dab pa rdzong
Kang(ba)	康(巴)	Kham	ཁམས་	kham
Litang xian	理塘县	Lithang	ལི་ཐང་རྫོང་	li thang rdzong
Ganzi zangzu zizhizhou (Ganzi Tibetan Prefecture)	甘孜藏族自治 州	Garzê	དཀར་མཛེས་བོད་ རིགས་རང་སྐྱོང་ ཁུལ་	dkar mdzes bod rigs rang skyong khul
Jinzhu (Jinzhu town) [1]	金珠镇		བཅོངས་འགོལ་ གོང་རྒྱལ་	btsings 'grol grong rdal
Kangding	康定	Dartsedo	དར་རྩེ་མངོ་	dar rtse mdo
Riwa / Xianggelila zhen	日瓦 / 香格里 拉真	Shangri-La	ཤམ་ལྷ་ལ་གོང་རྒྱལ་ [2]	sham bha la grong rdal
Rencun (Ren Village)	仁村		རིང་གོང་	ring grong
Yading ziran baohu qu (Yading nature reserve), Aden	亚丁自然保 护区	Nyiden (Aden)	ཉིན་སྟེང་	nyi steng
Beifeng Xiannairi [3]	北峰仙乃日	Chenresig	ལྷན་རས་གཟིགས་	spyan ras gzigs
Nanfeng Yangmaiyong [3]	南峰央迈勇	Jambeyang	འཇམ་དབལ་ དབྱངས་	'jam dpal dbyang
Dongfeng Xianuoduoji [3]	东峰夏诺多 吉	Chanadorje	ཕྱག་ན་རྩེ་རྩེ་	phyag na rdo rje
Gongga Langjilingsi	贡嘎朗吉岭 寺	Gongkar Namgyalling (Monastery)	གངས་དཀར་རྣམ་ རྒྱལ་སྟོང་དགོན་པ་	gangs dkar rnam rgyal gling dgon pa
Chonggusi [4]	冲古寺		མཚོ་འགོ་དགོམ་	mcho 'go dgom
Benbosi / Bengpusi	奔波寺	Pangphu (Monastery)	སྟོང་ཕུག་དགོན་པ་	spong phug dgon pa

Place names are listed in the order in which they appear in the text.

[1] The Tibetan name likely is a translation of the Mandarin term.

[2] On some road signs the consonant བ་ (ba) has a subjoined consonant ཏ་ (ta).

[3] The three mountains are named after the three bodisattvas Avalokiteshvara (Guanyin), Manjushri, and Vajrapani.

[4] The Tibetan term likely is a translation of the Mandarin term. The final word 'dgom' in the Tibetan name does not exist in the dictionary; it has possibly been mis-spelt on Mandarin signs.

Appendix 2. Field Research in Daocheng County

Field research was conducted independently without affiliation with any institution on the mainland of the People's Republic of China (PRC) nor any other formal introduction, and with only minimal contact with local officials. This is due to

- West Sichuan supposedly not being accessible to researchers (let alone to foreigners),¹ presumably due to the sensitive nationality nature of the region;²
- a preference to preserve the researcher's independence;
- past experience with officials' reticence on any matter that might be considered sensitive, suggesting that formal researcher status would not yield much advantage; and
- I am a professor *in the PRC* (at the Hong Kong University of Science & Technology).

An affiliation with an institution in the PRC mainland and/or formal introductions would have influenced the research. I would have considered, consciously or unconsciously, the possible consequences for those who supported me.³ Nor did I want to try to establish trust with officials in order to obtain 'confidential' information, all the while betraying them in thoughts, and later in writings, if I happened to disagree with them.

Other researchers may view affiliation differently and have used a variety of approaches to field research in Tibetan areas. For example, Kolås and Thowsen (2005) initiated contact with the Ethnic Affairs Research Center of the State Ethnic Affairs Commission and conducted their research with the help (and the accompaniment of staff) of the Institute of Nationalities Studies of the Chinese Academy of Social Sciences. Such extensive research across 25 Tibetan counties in Sichuan, Gansu and Qinghai may no longer be possible today.

A second counter example is Hillman (2003, 2008), who established close relationships within the administration of Diqing Tibetan Autonomous Prefecture in Yunnan province (a much more accessible locality than West Sichuan), perhaps in connection with him co-founding in 2003 and then chairing (at least as of 2010) the Eastern Tibetan [Vocational] Training Institute.⁴ This would also suggest a certain degree of conflict of interest between independent research and running a training institute whose operation is dependent on the local government's approval. The institute website was not accessible as of 18 January 2022 and its facebook page ends with an entry dated 16 January 2013.⁵

¹ Following the PRC's race-based distinction I am a "foreigner," even though I am a citizen of Hong Kong, Special Autonomous Region, PRC.

² As I explored my options, I was told by a Sichuan-based mainland academic that the area is closed to researchers and that in 2015 a research team from a university in Sichuan had been turned back from Ganzi TAP.

³ See Holz (2007) on the extent to which the China research community has been "bought."

⁴ Hillman (2003) describes how he sat among officials at the opening ceremony of the Shangri-La Festival and reports that he knew many of them (to be from diverse ethnic backgrounds) and how he was "privileged to attend the state-sponsored rehearsals".

⁵ Hillman's perspectives of development in Diqing (specifically Hillman, 2010) is criticized by Lokyitsang (2012) as a "flat representation of Shangri-La" devoid of "the experiences of the local people of Shangri-La," supporting "the mono hegemonic historical narrative that places the past and the present in an evolutionary model (i.e. primitive-developing-developed) with (European notions of) "capital" as its prerequisite." Hillman is accused of not questioning China's geographical notion and narrative of Tibet, of downplaying protests in 2008 as "no major social unrest" (when 10,000 PRC military troops were deployed to the region), and missing out on the fact that while "sacred spaces are marketed as the main attraction for foreign tourists" (i.e., have become relevant for the government due to their economic function), Gyalthang (Zhongdian) is "*reclaiming its indigenous space as Tibetan* [emphasis added] through its successful tourist economy."

The majority of interviews were informal—or at least appeared informal to the interviewee—but were typically driven by a set of questions (semi-structured), and typically with notes taken (often via voice recording) immediately afterwards. In most instances, it was a seemingly random conversation for the interviewee; it would last from anywhere between five minutes and an hour (then likely over tea). I didn't volunteer up front that I was an economics professor from a university in Hong Kong engaged in a research project about local economic development. But neither did I hide it. I offered this information, partially or fully, if and as it became relevant. The term *kaocha* (inspection, 考察) turned out to be regarded as a positive term, in particular with no apparent connotation of “foreign spy;” while I was in the field in 2016, a national campaign on awareness of foreign spies unfolded.⁶

Many interviews themselves were random events, typically following my intentional choice of setting and then chatting with anyone who was and willing to talk to me. For some interviews I pursued a particular person or agency.

Some of the most useful information came from spontaneous interviews, such as when a bored-looking young man, waiting for his car to be washed at a roadside carwash, turns out to work for the prefectural electricity provider, is educated, open-minded, and happy to share what he knows from working in the area for years. When I challenge, an enthusiastic discussion ensues.

All communication was in Mandarin (at least on my part). My limited knowledge of Tibetan turned out to be of no use due to the rather distinct local dialect. Even well-rehearsed Tibetan sentences proved unsuccessful, despite a year of Tibetan language studies (which came with a good dose of culture and religion). Kolås and Thowsen (2005) report that they were told “that some Tibetan dialects [in Ganzi TAP] were so different that they were mutually unintelligible” (p.40). Everyone I met, or approached, and that included Tibetan peasants and herders, spoke some form of Chinese, often Sichuanese, that was at least semi-comprehensible to me, and my Mandarin seemed comprehensible to every person I talked to. This is not to say there was no language barrier, there was; just as there was a cultural barrier, an intellectual barrier, or a religious barrier. It means that in almost all instances, if I wanted to obtain some information, I was able to find a way to express myself, and a way was found for me to understand the response.

A large element of the field research was observation. Observation covers a broad spectrum ranging from some form of counting (from hotel rooms to the frequency of police car sirens) to observing people at work, on the streets or in tourist spots. Much photographing took place, from announcements posted on walls to the prices of Caterpillar mushrooms on sale in a shop. Whatever print advertisement material or other information was available, was collected.

I did not see myself as investigative journalist. For example, we know that a newly transferred-in leader tends to use their earlier personal connections to attract individuals and companies from outside the county to the new locality, helped along by financial favors (such as permits for mining or access to land in favorable locations and/or at subsidized prices). These are common practices across ‘backward’ regions (if not the PRC as a whole), which we are broadly aware of. I did not attempt to uncover such arrangements or to evaluate what

⁶ Around this time, according to a fellow academic, a foreigner was removed from Jiuzhaigou on suspicion of being a spy.

might amount to corruption. The picture of economic development in Daocheng that I was able to compile abstracts from the various shades of legality that may engulf the very great number of individual transactions involved in economic development.

I come to the topic as economist, not as Tibetologist, historian, geographer, anthropologist, ethnographer, sociologist, or political scientist, etc. As economist studying the PRC over more than three decades, I am well versed with issues of economic development, and in particular with national income accounting. Although the intricacies of national income accounting and other economic concepts may not be apparent in the article's text, they form the framework for all qualitative evaluation of economic activities in this article and are in good part provided in appendices. My one earlier exposure to things Tibetan is extensive travels over several decades in Tibetan areas as a tourist interested in exploring (or crossing) remote regions on foot.

References specific to this appendix:

Holz, Carsten A. "Have China Scholars All Been Bought?" *Far Eastern Economic Review* 170, no. 3 (April 2007): 36-40.

Lokyitsang, Dawa. "When Gyalthang Became Shangri-La: a Critical Reading." 7 November 2012. At <https://lhakardiaries.com/2012/11/07/when-gyalthang-became-shangri-la-a-critical-reading/>, accessed 16 November 2022.

Appendix 3. Tourism Development *Master Plan*

The Daocheng government commissioned the Sichuan Province Tourism Planning and Design Institute to prepare the *Master Plan*. The *Master Plan* was audited and approved by a committee headed by an official from the provincial Tourism Bureau together with members from various provincial and prefectural bureaus, universities, and the Daocheng government. At the county level, only a deputy county head and the head of the Daocheng tourism bureau were involved.

The *Master Plan* provides a number of rationales for why the development of tourism in Daocheng can succeed. Per capita GDP of the PRC at the time, of USD 800, is generally considered the level at which tourism increases rapidly. Tourism development in Daocheng complements the national policy of [Large-scale] Western [Economic] Development. Tourism development in Daocheng is consistent with a 1998 *provincial* master plan for tourism development. The provincial plan denoted tourism a provincial emerging pillar industry and identified Ganzi TAP as a nature destination, suitable for eco-tourism. The *Master Plan* is also consistent with a 2000 *prefectural* master plan of Ganzi TAP for tourism development. Tourism had already become the biggest economic force in the neighboring county of Zhongdian 中甸 (Diqing TAP) and municipality of Lijiang 丽江, both in Yunnan, as well as at Luguhu 泸沽湖 in Southwest Sichuan bordering Yunnan. Then there was the successful tourism development model of Jiuzhaigou-Huanglongsi 九寨沟—黄龙寺 in Aba prefecture 阿坝藏族羌族自治州 of West Sichuan, 1172km north-East of Jinzhu.

The *Master Plan* envisions the use of the available natural and cultural resources in order to develop sustainable tourism. It promotes step-by-step development within the grand overall plan. The stated principle for development is to use the market as guiding force, focus on effectiveness, and build on a premise of sustainable development. The county economy is to move ahead by leaps and bounds thanks to the government's lead (主导) and its exercise of macroeconomic control, the reliance on Daocheng's unique tourism resources, and multi-channel development efforts.

The *Master Plan* lists four further scenic areas: Haizishan 海子山, E'chushan 俄初山, Kasigou 卡斯沟, and Mengzi Gorge 孟子峡谷, of which, however, only Haizishan has been semi-developed by 2017. Haizishan is a highland plateau between Daocheng and Litang (the road connection to the rest of Sichuan), a moonscape dotted with ponds and often shrouded in clouds or mist. There is little to do except to drive through, though there are opportunities to stop as well as to undertake short side trips.⁷

The *Master Plan* envisages Jinzhu as central city, Riwa 日瓦 as entry and exit point for Yading, and a road connection to Yunnan as access route (with a third-grade mountain road to be in place by 2005 and to be upgraded later). It goes on to list roads connecting Riwa to

⁷ Along the road across the Haizishan plateau are a handful of small parking areas, typically marked by some explanatory sign and equipped with rudimentary toilets. A rock field at the edge of Haizishan, off the road between the Daocheng-Yading Airport and Jinzhu, has cemented walkways through the rocks (affording, perhaps, a 10-minute stroll). The opportunities for longer side trips are not obvious and a guide may be necessary. As of 2016, the side road to what one Han hotelier in Daocheng described as a beautiful scenic spot was in such bad shape that his jeep got mired in mud and had to be pulled out.

Muli county 木里县, in neighboring Liangshan prefecture 凉山彝族自治州 to the southeast, and Geka township 各卡乡 to the southwest, at the time, and until today, largely dirt roads, with continuing connections to the tourist attractions of Luguhu, Lijiang, and Zhongdian.⁸

The *Master Plan* includes a cost benefit analysis, listing total costs for each of the subsequent 5-Year Plan periods (2000-2005, 2005-2010, 2010-2015) and contrasting these costs and assumed interest payments with assumed income.⁹ In the first 5-Year Plan period, the ratio of costs to income is estimated to be 1:0.74, in the second period 1:4.5, and in the third period 1:10. In other words, by 2010-2015 the benefits in form of income (though not profit) exceed the costs ten-fold. Total costs across the 15 years are projected to be CNY 1.1612bn (or CNY 1.33545bn including interest costs) and total income CNY 6.34887bn. The derivation of these costs and income is not explained.

The *Master Plan* projects marketing expenditures for the years 2000, 2005, 2010, and 2015 to be CNY 50,000, 1mio, 2mio, and 3mio, values that are likely much exceeded in reality. I have a collection of marketing materials printed over time, and a fragmented record of various marketing campaigns, all of which suggest much (on the order of 10 to 100 times) higher marketing expenses.

The *Master Plan* then lists in great detail the projects that need to be undertaken. It suggests to make good use of the national policy of Western Development for infrastructure projects, ideally have an airport in place by 2003 (it was finally completed in 2013), and in terms of road construction focus on completing reliable infrastructure within Daocheng (also completed in 2013/14 only) while trying to connect to roads in Yunnan. (A table lists ongoing and upcoming road projects, referring to a separate Daocheng transport infrastructure plan for 1999-2010.)

The projects comprise: 12 scenic spots (comprising viewing locations/buildings, reception and recreation facilities [accounting for the bulk of expenditures], infrastructure, toilets, and environmental protection and other projects) with an investment volume of CNY 857.70mio, 6 tourism highway projects (CNY 97.60mio), 9 main highway projects (CNY 441.85mio), 5 energy and communications projects (CNY 162.00mio), one market promotion project (CNY 31.40mio) and one employment training program (CNY 12.50mio). The total value is CNY 1.60305bn (a value somewhat higher than the costs in the costs-benefit analysis referenced above).

The *Master Plan* (p. 129) explicitly warns of potential “Hanization” (汉化) at the expense of the local Khampa culture:

“If the tourism industry is not supported by cultural content, then there is no firm support (后劲) for development. Therefore the Daocheng government, in tapping into the rich local Kangba 康巴 culture, must ensure that the masses are proud of their culture.”

⁸ Muli has been closed to foreigners for many years but currently appears to be open.

⁹ Costs are broken down not only by 5-Year Plan period, but also by type of undertaking: infrastructure (a total investment of CNY 127.5mio, 80% of which is to be financed by the government), public facilities (CNY 40.85mio, 100%), marketing (CNY 31.4mio, 40%), tourism service facilities (773.2mio, 5%), other non-profit investment (CNY 162mio, 95%), and sustainable development projects (CNY 26.25mio, 90%). All else is to be undertaken by the private sector and “other socio-economic entities.”

The *Master Plan* presents tourism as an opportunity for employment and for strengthening local cultural identity, while expressing concern that the local culture could also be lost, that the local religion will face a severe test, and that a “rubbish” (糟粕) culture will invade the area (listing pornography, gangs, and drugs). The *Master Plan* also lists trash, sewage, noise pollution, the introduction of outside modes of thinking, consumerism, and new cultural and living habits as threats.

The *Master Plan* was followed by a *Yading* [Nature Reserve] *Master Plan* (2006-2020) with specifics on the management of the nature reserve, and a second (Daocheng County) *Master Plan* (2015-2030). I could not obtain a copy of this more recent (Daocheng) *Master Plan* (2015-2030), which, as the earlier *Master Plan*, is not publicly available. The Sichuan government has an online form to request access to information (<http://ysqgk.sc.gov.cn/hudong/email/ysqgk.jsp>, accessed 17 November 2017). I successfully submitted the online form and never heard back.¹⁰

Daocheng County Tourism Development Companies

The *Master Plan* mentions the establishment of a (government) Daocheng Tourism Bureau (稻城旅游局), a Tourism Environmental Protection Department (旅游环境保护处), and a Daocheng County Tourism Development Company (稻城县旅游开发总公司) that later turned into the Daocheng Tourism Development Limited Liability Company (稻城旅游发展有限责任公司). As of 28 November 2017, no details can be found online on either of the two companies.

Today, Yading is administered by the Daocheng Yading Scenic Area Tourism Development Company (稻城亚丁景区旅游开发有限责任公司), established on 7 April 2013 by (i) the (above) Daocheng Tourism Development Limited Liability Company (originating with the county government), and (ii), as majority shareholder, the prefectural tourism development company Ganzi Prefecture Culture and Tourism Investment Development Limited Liability Company (甘孜州文旅投资发展有限责任公司).¹¹

These companies are all state-owned.

¹⁰ I am grateful to Shirley Leung of the HKUST library’s Document Supply Service for her help in trying to locate the document, and her referral to the government’s online form.

¹¹ The Ganzi Prefecture Culture and Tourism Investment Development Limited Liability Company by 3 September 2017 had been renamed a conglomerate (集团). It was originally established on 27 December 2012. Its assets amounted to CNY 780mio. For details see <http://ganzi04782.11467.com/>, <https://xin.baidu.com/detail/compinfo?pid=ovT7Qchxe3l0XzGTvwjaKmYkt53QzIe0hgHa&from=ps>, and <http://www.gzz.gov.cn/10000/10120/13598/2016/10/13/10548305.shtml>, both accessed 28 November 2017.

Appendix 4. Road Access

While the *Master Plan* claims that Yading had been made accessible via a new, 34km “third grade” mountain road (in, implicitly, 1999), long-term Han residents in interviews had no recollection of such a road at that time and reported that until the 2010s, access to Yading was expedition-style on foot or horse, starting from Riwa, and requiring several days. An internet search yields tourist reports covering the early 2000s that confirm the existence of a rudimentary road into Yading.¹² (Perhaps what some consider a road, others consider not a road but a track.)

Provincial road S217 connects Litang 理塘—a way station between the prefectural capital of Kangding 康定 and Daocheng—to Yunnan via Sangdui township (27km north of Jinzhu) in Daocheng and then Xiangcheng county 乡城县. (Also see Figure 1 in the article.) As of late 2017, provincial road S217 between Sangdui township and Xiangcheng county was under extensive repair and expansion (and not accessible). Provincial road S216 runs from Sangdui town 桑堆镇 south via Jinzhu to Riwa, from where it continues southeast towards Panzhihua municipality 攀枝花 via Mengzi township 蒙自乡 and then Muli county 木里县 in Liangshan Yi Autonomous Prefecture 凉山彝族自治州, the latter road currently a dirt road, though in the process of upgrading. A recently completed East-West road cuts across from approximately 45km south of Jinzhu (on the way to Riwa) to approximately 10km south of Xiangcheng county (on the way to Yunnan).

As of 2017, the only feasible road from Daocheng to Yunnan was still, as twenty years earlier, through Xiangcheng, reached either via Sangdui, north of Jinzhu, or via the newer road leading off from between Jinzhu and Riwa. The nearly 400km distance to Zhongdian in Yunnan via the southernmost Ranwu township 然乌乡 of Xiangcheng (Sichuan) in 2017 still included an approximately 100km stretch of low-quality dirt road around the provincial border that is barely manageable by sedan car. The journey takes between 7 and 10 hours by car or bus.

According to a news item of 6 November 2015, a new 135km third-grade road connecting Riwa to Zhongdian in Yunnan is to be completed by October 2018.¹³ This yet to be completed new road from Riwa to Yunnan is to pass through Geza township 格咱乡 in Diqing TAP (with the township located just north of Zhongdian), Pushang 普上和 Langdu 浪都; only the first location can be found at map.baidu.com, on a google map, or in a Sichuan map atlas. The precise routing thus remains unclear. Of this 135km third-grade road, 77km remain to be completed (supposedly by October 2018). The road will have a 30km/hr speed limit. Chinese Wikipedia suggests that a third-grade road is made of asphalt or cement and is intended for daily traffic of 2000-6000 vehicles between counties or lower-level administrative localities.¹⁴

¹² See, for example, <http://www.josephrock.net/2011/06/chapter-10-yading-holy-mountains-of.html>, accessed 15 November 2017.

¹³ See “Kunming Information Port” (昆明信息港, 6 November 2015) as reported at <http://www.yadinginvest.cn/index.php?m=content&c=index&a=show&catid=16&id=103>, accessed 14 November 2017.

¹⁴ See <https://zh.wikipedia.org/wiki/中华人民共和国公路等级>, accessed 14 November 2017; also see <https://baike.baidu.com/item/三级公/1870993?fr=aladdin>.

This seems to be a different routing than the one originally envisaged in the *Master Plan*, via Geka Township 各卡乡, following the river west of Yading downstream, and then up a side valley to Zhongdian, in that it may run further to the north.

Road construction in this area is difficult as roads either have to follow deep rivers in narrow, sometimes gorge-like valleys (with temperatures and humidity in summer approaching subtropical climates, and with raging rivers after rainfall), or cross these valleys higher up and then deal with steep and unstable slopes, climbing up to passes well in excess of 4000m altitude. (When I travelled the Geka route on a truck in 2007, we repeatedly had to get off the truck and find ways to help it along. It took half a day to cover what may have been a 3000m altitude climb over a perhaps 30km distance. An interviewee in October 2017 thought this was still a difficult road.)

Apart from the western route, large-scale road construction on the Eastern side of Yading towards Mengzi (stopping short of Muli) and then south to Luguahu 泸沽湖 and into Yunnan was underway in 2017. Completion was not expected for 5-6 years.

Zhongdian in Yunnan and Luguahu at the border to Yunnan are major tourist attractions on the Yunnan side. Both connect in approximately half a day's travel to Lijiang, a major tourist location. Zhongdian is also one of the final stops in Yunnan before heading northwest into the Tibet Autonomous Region.

In recent years, touring the Greater Tibetan region (Northern Yunnan, West Sichuan, the Tibet Autonomous Region, Qinghai, and parts of Gansu) has become highly fashionable. On Yading shuttle buses and in restaurants, Han tourists can be overheard discussing the pros and cons of driving to Lhasa. The "thing to do" is to drive from Yunnan or Sichuan into the Tibet Autonomous Region, then turn around in Lhasa and head back East along a northern route. Restaurants in Daocheng display a map of the route options within a triangle formed by Xi'an, Kunming, and Lhasa. Daocheng and Yading are not on a main route.

Appendix 5. The Holyland Corporation and Yading Tianjie

Holyland Corporation in Riwa

Riwa is located at the confluence of two rivers. One river flows from E'chushan 俄初山 in the west past Rencun to Riwa, while the second river flows from the north, in the valley leading up to the pass to Jinzhu, and joins the first in Riwa on the continuing journey East. A sliver of relatively flat land runs from Riwa upstream towards Rencun, while the valleys in the other two directions (upstream towards Jinzhu, and downstream towards Mengzi Township) are exceedingly narrow. The mountain slopes around Riwa are steep and can only be accessed with difficulty.

The Holyland Corporation is reported to have bought up land—beyond the currently fenced Holyland property—along the approximately 3-4km stretch between Riwa and the beginning of Rencun, the narrow valley shared by the river, the road, and originally empty land approximately the width of one street block. All land purchases were done through the government (rather than being long-term leases from Tibetan households). The Holyland Corporation website gives 406mu as Holyland's total land area, corresponding to 271,000m² or 0.271 km², which would seem to err on the low side given the observed, demarcated extensive Holyland area in Riwa (and not all Holyland land may currently be demarcated as such, recognizable to a visitor).¹⁵

Holyland was founded in April 2006 with registered capital of CNY 200mio as a subsidiary of a Shenzhen investment company (深圳市金沙江投资有限公司), owned by a Han from Guangdong who had earlier been involved in the construction of a hydropower station in Riwa.

In September 2013 the Holyland Corporation opened the only five-star hotel in Riwa, the Holyland Hotel (23,000m²), with 213 rooms. Underneath the Holyland Hotel front area is a 400-seat performance venue (亚丁境界演艺中心), completed in 2017 only.¹⁶ Across the road are the four-star Yading Yizhan (亚丁驿站, Yading Inn) with just below 100 rooms, and a in 2017 newly renovated annex of the Yading Yizhan that became a four-star Ramada Encore hotel as part of Wyndham Worldwide, with approximately 200 rooms. Diagonally across the road from the Holyland Hotel (and adjacent to Holyland's other two hotels) is (Holyland Corporation's) Shambala Tianjie (香巴拉天街), a 12,000m² shopping and restaurant complex with approximately 100 outlets. In spring 2016, the Shambala Tianjie was entirely unoccupied but by October 2017 two dozen shops, convenience stores and restaurants had opened. (In 2016, the Holyland Corporation was trying to sell space in the Shambala Tianjie for CNY 40,000 per square meter. By 2017, the price had come down to between CNY 15,000 and CNY 25,000.) In the evenings, tourists, after returning from

¹⁵ The Holyland website contains various numerical errors, such as the distance to the Daocheng-Yading Airport, given as 88km (instead of approximately 120km), and the distance to Yading, given as 20km (instead of the approximately 7km to the entrance of Yading and approximately 40km to the end of the road, where visitors exit the bus and begin their outdoor experience of Yading). The existence of such basic numerical errors advises caution in accepting the Holyland Corporation's stated land area.

¹⁶ The 2,100m² performance venue was completed in the same year (2017) as the larger and architecturally more modern Daocheng Yading Performing Arts Center, located halfway between Riwa and Rencun and owned by the Daocheng Yading Scenic Area Tourism Development Company.

Yading and driving along ‘Holyland’s road’ (given the officially directed one-way flow of traffic during high season), flocked to this new commercial center of Riwa.

The Holyland Corporation has a quasi-monopoly on high-end hotels in Riwa. An ageing three-star Wizard Aden Hotel (稻城绿野亚丁酒店) at the northern entrance to Riwa and a Daocheng Riwa Airport Hotel (稻城日瓦翔云酒店) at the western edge of Riwa have offered limited competition for some years, while a Holiday Inn Express (稻城亚丁智选假日酒店) opened in 2017 halfway between Riwa and Rencun. Neither of the latter two is within easy walking distance of Riwa’s restaurants and shops.

In 2016, a side wing of the Holyland Hotel housed an office—easily accessible from the main road and with big advertisements and flags out front—promoting the sale of vacation homes within the Holyland Hotel. I have never seen a customer and by 2017 the office had been closed. The vacation homes do not appear on the otherwise extensive Holyland website. My own estimate of the number of hotel rooms, based on the number of windows (of the type that suggests a hotel room), is 300—vs. the number of 213 given on the Holyland website (at <http://www.yadinginvest.cn/>, accessed 13 November 2017)—implying that up to one-third of the Holyland Hotel accommodation space may originally have been designed as vacation homes.

For the Yading Yizhan hotel, the Holyland website gives a size of 17,000m² with 278 rooms, which previously (and, implicitly, in the paragraph on the website) included what became the Ramada Encore, part of Wyndham Worldwide, in 2017. Opening dates of the original Yading Yizhan are given as 2009 and 2011. (This implies that the complete renovation, in late 2016 and early 2017, of what became the Ramada Encore, occurred 5 or 7 years after the original construction of the hotel, giving an indication of the longevity of hotel buildings in the region.)

As of 14 November 2017, hotels.com listed the Ramada Encore in Riwa as the only available hotel in all of “Daocheng” (for various dates). Booking.com, with generally a greater presence in the PRC, listed 17 hotels including the Ramada Encore.¹⁷

The Holyland Corporation has also branched out into other services. In October 2017, through a newly established transport subsidiary, it ran ten new shuttle buses between Riwa and the Yading Visitor Center, as well as three daily buses between Riwa and Jinzhu.¹⁸

According to the Holyland website, the Holyland Corporation plans to build an “International Tourism Small Village” (国际旅游小镇) consisting of:

- a spa hotel (天谷莲轩温泉 SPA 酒店): size 55,000m²—twice the size of the Holyland Hotel—with 500 rooms; the spa has a size of 18,000m² and involves an investment of CNY 250mio;
- a “courtyard-style boutique hotel ‘Kangba First Village’” (院落式精品酒店 ‘康巴第

¹⁷ Perhaps as a consequence of having joined Wyndham Worldwide, the music at breakfast is not Chinese opera music, Communist propaganda songs, or Tibetan-sounding Shangri-La advertisement, but the likes of Loreena McKennitt and New Orleans blues.

¹⁸ See <http://www.yadinginvest.cn/index.php?m=content&c=index&a=show&catid=16&id=116>, accessed 14 November 2017. The transport subsidiary is the Daocheng County Holyland Public Urban-Rural Transport Company (稻城县日松贡布城乡公客运有限公司).

- 一寨’): size 33,267m²; a mix of commercial and (upstairs) hotel areas; and
- a conference hotel: size 36,000m², with 330 rooms and an investment of CNY 450mio.

The total built-up area of all Holyland projects is projected to reach 210,000m²—approximately five times the current built-up space and equivalent to approximately one thousand single family homes—at a total cost of CNY 3bn (no date given).

The Holyland website also mentions that Holyland has established a joint venture (with a 70% controlling stake by Holyland) to build a cable car within Yading, from Longtongba 龙同坝 just past Yading Village to the Chonggu temple (冲古寺), a project that as of 2017 had not yet been started, was not in common awareness, and may have been made superfluous by the continuation of the road and the bus service beyond Longtongba to within 1km of the Chonggu temple.

A simple estimation of the financial viability of the Holyland Corporation is the following: Assuming average staff salaries to be CNY 5,000 per month (in addition to room and board for staff), a value that can be backed up by a range of information, the monthly staff costs of Holyland alone, with 400 staff, is CNY 2mio. Assuming average room prices across the three hotels of CNY 400 during the low season (assume 9 months) and CNY 1,200 in the high season (assume 3 months), and assuming the number of rooms let to be 50 rooms each day during low season (ignoring that the Holyland Hotel was actually closed from mid-December 2016 to end-February 2017, and similarly for the other Holyland hotels, and with even longer-lasting shutdowns in previous years) and 500 rooms each day during the high season, implies monthly average revenue of CNY 4.5mio (with the assumed 3 months of high season accounting for approximately 90% of total revenue). This means that staff costs consumed approximately 44% of revenue.

After accounting for staff costs, the Holyland Corporation then had remaining revenues of CNY 30mio per year to cover all other expenses, from capital costs to taxes. If one-half of the remaining revenues were profit (CNY 15mio), it would take 17 years of such profit to finance construction of (just) the future spa hotel. This means that the Holyland Corporation cannot “bootstrap” further construction projects in Riwa and would have to rely on outside financing for new projects.

The estimate of revenues comes with a large margin of error as the precise number of Holyland visitor nights and the average price per room are guesstimates.¹⁹ The estimate ignores whatever cut travel agencies impose for arranging room reservations. The Holyland Corporation also likely reduced staff numbers in 2017 (with a number of temporary interns from colleges helping out in fall 2017).

After having concluded the above calculations, an internet search revealed that according to the 2016 edition of “Trends in the Hotel Industry,” labor compensation averaged 42.8% of total operating expenses at U.S. hotels in 2015,²⁰ a percentage near-identical to the one calculated here for the Holyland Corporation.

¹⁹ I have a good idea of the room prices of each of the three hotels on ctrip.com in the course of the year, but not about the distribution of visitors across the three hotels.

²⁰ See <http://www.hotelmanagement.net/operate/examination-hotel-labor-costs>, accessed 14 November 2017.

My estimate could err on the lower side of profitability given the experience in the high season in 2017. Thus, on 3 October 2017, the Yading Inn and the Ramada Encore were booked out on ctrip.com, while the Holyland Hotel offered a few remaining rooms for just short of CNY 3,000 per room. This situation prevailed through much of October 2017 and could markedly increase revenues.

Yading Tianjie in Jinzhu

Yading Tianjie is a joint project of Daocheng and the intra-provincial partner city Luzhou Municipality 泸州市. The project follows a standard *duikou* pattern whereby Party organs, governments, or state-owned enterprises in richer regions support a less developed locality. The assignment comes with financial obligations, sometimes takes the form of material contributions, and often goes hand in hand with the 1-2 year dispatch of government officials from the richer to the poorer locality in order to share their experience in successful development and to oversee the use of the financial and/or material resources contributed by the richer locality.

Construction of Yading Tianjie is undertaken by a Luzhou construction company. This company has CNY 120mio registered capital, was first established on 16 November 1986, may have no more than five employees, and is registered with a natural person as investor or controlling shareholder.²¹ Locally, the project is represented by the Daocheng Yading Real Estate Development Limited Liability Company (稻城亚丁房地产开发有限公司). This real estate company was established on 25 December 2013 as a private company with a natural person (Shu Anyun 舒安云) as owner or controlling owner and registered capital of CNY 10mio. The company appears to have no purpose other than to administer the Yading Tianjie project.²²

Nothing is known about the financing of the project; it may involve some budgetary funding in the *duikou* municipality (or some compensatory deal between the *duikou* government and the development company), and otherwise should rely on bank loans, presumably obtained in Luzhou Municipality. With the project implicitly underwritten by governments and further protected by the *duikou* distinction, financing seems to never have been a difficulty; construction occurred uninterruptedly.

As to financing for a potential buyer of a property in Yading Tianjie. In March 2017, the head of the local branch of the Agricultural Bank of China was a regular feature of the Yading Tianjie sales office, standing ready to provide a mortgage to interested buyers.

Individual investors in Yading Tianjie are lured with similar advertisements as tourists. In spring 2016, the luxurious sales office of Yading Tianjie (then still under construction) showed a 7-minute video presenting Jinzhu as an alpine village in pristine nature, the Yading mountains rising behind Yading Tianjie (they are 114km away by road and not visible from Jinzhu), the landscape dotted with happy Tibetans in Tibetan dresses, and the Yading Tianjie development crowded with Westerners. The video showed flights on an airline “transvia.com” to Daocheng-Yading Airport from across the country, including from Luzhou,

²¹ See a website whose url consists of an exceedingly long string of letters and % symbols; probably easiest to find by searching for 四川省泸州市第十建筑工程有限公司 on baidu.com, accessed 11 November 2017. Also see <http://scslzsdsgak.cn.biz72.com/>, accessed 11 November 2017, for the limit of five employees.

²² See <https://www.liepin.com/company/gs14756218/#business-info>, accessed 11 November 2017.

Beijing, Guangzhou, and Shanghai, flight connections that as of 2019 and 2020 had not been established. The website transvia.com exists and is the website of a Spanish travel agency (11 November 2017). Many of the scenes of local products, street stalls, restaurants, and high-quality hotels in the video appear to have been shot in Lijiang in neighboring Yunnan. On sale were shop fronts (with a suggested 8% return on investment) and hotel-type vacation apartments (from CNY 163,000 upwards).

In 2017, with the near-completion of Yading Tianjie, the posh sales office of early 2016 relocated (from what became one of the entrances to Yading Tianjie) to a rather shabby administrative office in a side building. The customer was no longer greeted by sleek sales personnel and glamorous videos but by bored-looking chain-smoking construction operators cutting exceedingly crude jokes mostly at the expense of a young Tibetan sales girl (who served them right back), waiting out their four years in Jinzhu and looking forward to their next assignment, expected for 2018.

Appendix 6. Shangri-La

The *Master Plan* denotes Yading “the last Shangri-La.” Riwa township was officially christened “Shangri-La” township on 25 January 2002, and then “Shangri-La” town on 10 February 2009.²³

Since 2001, Zhongdian, county (city) in Diqing (also Deqen) Tibetan Autonomous Prefecture in neighboring Yunnan (that borders Daocheng) also goes by the name of “Shangri-La” county.²⁴

The Daocheng *Master Plan* was completed around the end of 2001 (with final touches perhaps applied through 2003). This opens up the possibility that the *Master Plan* systematically uses the name *Xianggelila zhen* (Shangri-La town, although Riwa at this time was still a township)—for what is until today referred to as Riwa by the locals—in order to stake its claim vis-à-vis Yunnan’s Shangri-La. It only refers to “Riwa” once, in the image of a map, likely an oversight. (A word processor’s search function does not identify a word in an image.) The *Master Plan* consistently refers to Yunnan’s Shangri-La as Zhongdian, even though at the time the *Master Plan* was drafted, Zhongdian likely had already acquired the name Shangri-La.

Daocheng officials could argue that Yading justifies the Shangri-La connotation introduced in James Hilton’s 1933 novel *Lost Horizon* because James Hilton may have based his Shangri-La on the 1931 report of Joseph Rock, an Austrian-American explorer who wrote extensively about Yading in the *National Geographic*.

According to the Wikipedia entry on Shangri-La, the Tibet Autonomous Region in 2001 proposed that Yunnan, Sichuan and the Tibet Autonomous Region jointly promote Shangri-La tourism. Attempts to establish a China Shangri-La Ecological Tourism Zone in 2002 and 2003 failed, but a declaration of cooperation was signed in 2004.

The link of Yading (or Zhongdian) to James Hilton’s Shangri-La is tenuous. Kenneth C. Davis at the end of a 2012 print edition of *Lost Horizon* writes that “By his own accounts, Hilton was inspired to write this Himalayan adventure by the *National Geographic* articles of Joseph Rock, an Austrian-American botanist and geographer who described his exploits in exotic Tibet” (p. 5 of the “P.S.” section). Geographically, James Hilton’s Shangri-La is located in West Tibet (which would be more than 2,000km West of Yading). It centers on one mountain (“Blue Moon”), rather than on three mountains (Yading). Shangri-La is a lamasery above the valley, whereas Yading is a nature reserves encompassing three mountains, with no lamasery above the valley (but a small temple, Chonggu temple, seemingly a display object only, near the valley floor at the foot of one of the three mountains). Hilton (1933, p. 97) speaks of Shangri-La as a world of “incomparable refinements” and describes it as a place of intellectual and spiritual study with an extensive library and music, whereas Yading is a place of Yak herding that has turned to mass tourism.

²³ See <http://www.xzqh.org/html/show/sc/21802.html>, accessed 9 May 2022.

²⁴ State Council decision of 17 December 2001 (Hillman 2003). Also see Wikipedia entry on Shangri-La, accessed 9 October 2017 According to <https://eu.usatoday.com/story/news/world/2013/09/18/china-airport-tibet-highest/2832921/>, accessed 31 January 2020.

Hillman (2003) in great detail documents the name change of Zhongdian county in Diqing TAP to Shangri-La county and the various linguistic inventions (requiring “the greatest leap of faith,” p. 177) to justify the name change to the State Council of the PRC (without ever referring to the origin of the name, James Hilton’s novel *Lost Horizon*). An additional, political argument was made that in the interest of social stability the principle of ‘naming by the people’ should apply (though the people in Zhongdian had previously never heard of Shangri-La). All the while, Daocheng in Sichuan was competing with Zhongdian in Yunnan to be re-named Shangri-La county, and had also engaged expert advice to prove that it was the true Shangri-La. Zhongdian’s application to the State Council hinted at the fairy tale mysticism intended to attract tourists with arguments such as “the name represents what people of all races are searching for—a desire that among people and between people and nature there be no conflict, no chaos (*qingluan*), only economic prosperity, national unity (*minzu tuanjie*) and social stability” (Hillman, 2003, p. 179). Another argument was that the name change would make Diqing TAP a ‘leading’ Tibetan area in China.

According to Liu and Li (1997), reporting in the *China Daily*, “Shangri-La” means “a perfect world with snowy mountains and rich forests.” “On this peaceful and fertile land, unadorned people worship their gods in splendid lamaseries. There is complete harmony between man and nature, and man and man.” Shangri-La shall “continue to symbolize the longing of human beings for a perfect and peaceful world.” Locating Shangri-La in Diqing TAP identifies this Tibetan area and society as a place where “ethnic groups have lived together peacefully for thousands of years.”

Kolås (2004, p.274) points out the striking contrast between a public, government-endorsed and propagated depiction, since the 1950s, of traditional Tibetan society as a ‘feudal’ and ‘slave society’—with Marxist notions of an early evolutionary stage of ‘backwardness’ and ‘primitivity’ added on—versus this new view of Diqing TAP as the location of Shangri-La.

References specific to this appendix:

- Hillman, Ben. “Paradise Under Construction: Minorities, Myths and Modernity in Northwest Yunnan.” *Asian Ethnicity* 4, no. 2 (June 2003): 175-88.
- Kolås, Ashild. “Tourism and the Making of Place in Shangri-La.” *Tourism Geographies* 6, no. 3 (August 2004): 262-78.

Appendix 7. Tourist Numbers

Yading tourist capacity

The *Master Plan* perceives two limits to the development of tourism: environmental capacity and a space rationale. It relies on United Nations World Tourism Organization figures to estimate the space requirements and space availability in each part of Yading. Adding up these numbers—presented in a table in a *Master Plan*—suggests a maximum sustainable number of daily visitors of 9,276. (The *Master Plan* does not present an explicit maximum number.)

In 2017, the maximum number for admission was set at 16,054 visitors per day, a limit that was reached at least on the 3rd and 4th of October 2017. In the previous year, 2016, the limit had been set at 12,000 visitors, and in 2014 at 5,050.²⁵

In the meantime, the number of buses carrying visitors from the in fall 2017 newly completed Yading Visitor Center (游客中心) at the upper end of Rencun (previously at the lower end of Rencun) into Yading increased from 83 to 163 in 2017 through new purchases and leases (Xinhua, 5 October 2017). Each bus can carry 39 passengers and takes close to an hour for the one-way trip from the Yading Visitor Center to the end of the road within Yading (from where visitors continue on a trail). This implies that if all 163 buses were in operation, could depart and arrive simultaneously and accommodate and discharge their passengers instantaneously, and were to leave the Yading Visitor Center in four waves at 7am, 9am, 11am, and 1pm (with return waves at 2pm, 4pm, 6pm, and 8pm [probably too late in the evening]), the maximum carrying capacity is 163 buses times 39 seats times 4 trips, or 25,428 visitors. The quality (in particular, the limited width) of the road and the infrastructure at the Yading Visitor Center as well as at the end of the road would not allow the smooth operation of such a large number of buses.

Approximately 0.5km beyond the end of the road in Yading, electric carts run for a further approximately 7km along the valley floor to the Luorong cattle station (which no longer sees any cattle but is a concrete parking lot for electric carts). The number of electric carts increased from 60 (at an unknown date in the past) to 100 by October 2017 (Xinhua, 5 October 2017). Each cart can carry 12 passengers and takes approximately 15 minutes for the one-way journey. Assuming full capacity (not likely given the quality of the track), the maximum carrying capacity is 4,800 persons per hour, or 24,000 in five hours, similar to the maximum bus capacity for the transfer from the Yading Visitor Center at the upper end of Rencun to the end of the road inside Yading.

Monthly distribution of visitors to Daocheng

Visitor numbers are highly concentrated in July through October, four months that accounted for 82.5% of all visitors to Daocheng in 2015 (see figure in text). The strong cyclicity is also apparent in the number of hotels in Jinzhu offering rooms on the online travel site Ctrip,

²⁵ For the 2014 figure see Liu and Liu (2015).

and in hotel prices that peak at three to four times annual averages around the 1 October week (see below in this appendix).

The experience on the ground suggests that visitor numbers may be even more concentrated in October than the official statistics indicate. On 3 and 4 October 2017, visitors to Yading reached the admission limit of 16,054 set by the Yading administration by 11 am and ticket sales were suspended. In the morning of 3 October, traffic moved at less than walking speed along the 7 km road from Riwa to the entrance of Yading. This was a sensation for local Tibetans who stood at the side of the road and watched while some began to hawk everything related to Yading, from show tickets to maps and parking spaces. By 5 October, visitor numbers fell back to 13,795.²⁶

The July 2015 percentage of total annual visitors, of 25.2% appears too high. Late May through August is the rainy season. It is cold and wet, and Yading may be shrouded in clouds for weeks on end. In July 2016, I encountered rain in Daocheng every day and suspect that the Yading mountains did not have a single day of good weather (definitely not the day I went up into Yading). Observed daily visitor numbers at Yading in mid-July were about 500, in stark contrast to the 13,916 average daily visitor nights in Daocheng and the 6,326 to Yading alone that are implied by the official statistics. The hotels that I stayed in had very low occupancy rates—most nights I seemed to be only customer, or one of only a handful of customers, in 30-100 room hotels—and Jinzhu and Riwa appeared thinly populated with only a sprinkling of tourists.

Visitor numbers in other months, such as March, however, appear plausible.²⁷ The October 2015 visitor number, of 357,000 to Daocheng (11,516 average daily visitor nights) is also plausible, if not an underestimate, given various reports as well as my observations in October 2017.

October 2015 visitor numbers

According to a news item from *Ganzi ribao* of 9 October 2015, visitor numbers to Daocheng Yading—presumably limited to Yading—in all of the 2015 Golden Week were 37,680 with total revenues of CNY 38 mio (increases of 43.4% and 45.6%, respectively, over the previous year). These Yading visitor and revenue figures amounted to 3.3% of the corresponding Ganzi TAP figures. Yading tourism thus accounted for only a tiny fraction of all tourism in Ganzi TAP in this period of 2015.²⁸

According to the Ganzi Prefecture Tourism Net with a news item of 20 October 2015, Daocheng visitor numbers by 5 October 2015 had reached 51,084, and tourism income was CNY 54.075 mio, up 107.9% and 109.7%, respectively, over the same period in the previous year.²⁹ These tourist numbers would seem to confirm the official October 2015 Daocheng visitor number of 357,000.

²⁶ For the visitor numbers see Xinhua (5 October 2017).

²⁷ In March 2017, Yading had approximately 200 observed visitors, which would seem to confirm the official March 2015 statistic (4,283 monthly visitors to Yading, or an average 138 daily visitors).

²⁸ See <http://www.yadinginvest.cn/index.php?m=content&c=index&a=show&catid=16&id=101>, accessed 14 November 2017.

²⁹ See the report at <http://www.yadinginvest.cn/index.php?m=content&c=index&a=show&catid=16&id=102>, accessed 14 November 2017.

2017 visitor number

In the Golden Week of 2017, daily visitor numbers (nights) in Daocheng likely reached into the 30,000s, given that visitors inevitably spend at least two nights in Daocheng and daily Yading visitor numbers were in the mid-10,000s.³⁰

This exceeds the accommodation capacity. In October 2017, a personal count of establishments of accommodation in Jinzhu, Riwa, and Rencun yielded 242 establishments (Table 6 further below) with 9,331 rooms (8,583 plus 748, Table 7).³¹ With an assumed average 2.35 beds per room (*Master Plan*), Jinzhu, Riwa, and Rencun by October 2017 were able to accommodate 21,928 visitors. Additional inns in Yading Village and along the road between Riwa and Jinzhu brought the total number of beds to around 23-25,000,³² with the remainder then accounted for by homestays, tent camps set up by Tibetans, and some self-driving tourists arriving in camper vans or bringing their own tents to camp in a Tibetan's courtyard or along the road between Jinzhu and Riwa (a cold and typically moist affair). Hotel rooms remained available during the Golden Week of 2017, albeit at prices of up to ten times regular summer prices.³³

The estimate of the 2017 visitor number in the text is based on the observed October 2017 visitor numbers: 30 days times 10,000 visitors per day to Yading times 2.5 nights per visitor yields 750,000 visitor nights in October 2017, more than double the October 2015 figure. Visitor numbers in 2017 could be exceptionally high due to the temporary closure on 8 August 2017 of Jiuzhaigou 九寨沟 and Huanglong 黄龙, highly popular tourist destinations in Northwest Sichuan, following an earthquake. In the 2018 Golden Week, visitor numbers were reportedly lower, purportedly due to snowfall in the approach to Ganzi TAP with media reports of daylong traffic jams.³⁴

Visitor statistics and foreign visitors

The table of domestic tourist numbers (国内旅游人次) by county provided in the *Ganzi Statistical Yearbook* lists Yading visitor numbers separately from Daocheng visitor numbers (as it does for Hailuogou 海螺沟 in Luding county 泸定县). The total tourist number in the table equals the sum of tourists in all localities only if the Yading tourist number is counted separately from the Daocheng tourist number (rather than being treated as a sub-category of Daocheng), and similarly for Hailuogou and Luding (where the tourist number in the first, the scenic area, exceeds that in the second, the county). If the Hailuogou figure were an error and Hailuogou were a subset of Luding county, and if the Ganzi TAP total reflected a *mistaken* summing up of all county data *plus* Hailuogou and Yading, then Yading would presumably

³⁰ Visitors stay in Daocheng the nights before and after their Yading visit (and an additional night if they return to Yading for a second day, or spend another day in the area).

³¹ A further 72 establishments with approximately 4,267 rooms were under construction in July 2016, and 54 establishments with approximately 2,908 rooms in October 2017.

³² The *Sichuan Yearbook 2016* in its entry on Daocheng mentions for *all of* Daocheng a total number of 21,000 beds in 2015, suggesting that the here documented 2017 numbers of beds for Jinzhu, Riwa and Rencun are an underestimate of the available tourist beds in all of Daocheng.

³³ The tents set up in the lobbies of some hotels/inns as emergency accommodation remained empty in 2017, suggesting somewhat of an improvement over the accommodation situation in earlier years in that the influx of tourists did not meet potential hosts' expectations.

³⁴ See http://sc.ifeng.com/a/20181011/6937698_0.shtml, accessed 12 February 2019.

be a subset of Daocheng. The official total Daocheng (including Yading) visitor numbers and tourism income figures would then be over-estimates.

Looking back, the *Master Plan* was consistently too optimistic regarding the number of overseas tourists. For 2015, the *Master Plan* envisaged 520,000 domestic and 80,000 overseas visitors. In fact, the number of foreign visitors lagged far behind with 1,650 in Daocheng excluding Yading (and none given for Yading).³⁵ The total number of domestic visitor nights in 2015, however, at 1,713,798, exceeded the projection three-fold.

In more detail: Planned visitor numbers are the sum of domestic and foreign visitors. For 2000, these are a planned 10,000 domestic and 200 foreign tourists; for 2005, 180,000 and 20,000; for 2010, 360,000 and 40,000; and for 2015: 520,000 and 80,000 (*Master Plan*, p. 41). The *Master Plan* (p. 41 and p. 71) further lists different totals, in 2005, 2010, and 2015 of 250,000, 450,000, and 600,000 visitors. (Actual visitor numbers in 1998 and 1999 were 500 and 3,000, after construction of an elementary road from Riwa to Yading in 1999.)

The lack of official foreign visitor numbers for Yading (but not for Daocheng) possibly reflects a data compilation problem. My own experience suggests that on most days some foreign visitors enter Yading. In the old visitor center, their passport information was being entered into a booklet. Perhaps a foreign visitor number of a few hundred persons per year was too embarrassing (too low) to be reported. If the Daocheng foreign visitor number were correct, a similar number likely applies to Yading. If tourist numbers for Yading were based on ticket sales, the foreigners may well be included with the domestic tourists. The reported monthly domestic visitor numbers tend to end in two or three zeroes (except in January and February), suggesting that all visitor numbers are approximate values.

The *Master Plan* (p. 41) envisages domestic visitors to spend more money per night than foreign visitors (CNY 350 vs. CNY 200, in 2015). The actual visitor imbalance in favor of domestic vs. foreign visitors then works to Daocheng's benefit.

Travel arrangements

Most visitors arrive by car, many by airplane, and a few by bus. As of 5 October 2015, more than 8,000 vehicles had arrived at Daocheng Yading, up from the previous year, and at this point into the Golden Week accounting for more than 80% of all tourists to Yading.³⁶ Of the 37,680 visitors to Daocheng and Yading in the Golden Week in 2015, 7,072 had arrived by plane (and then presumably relied on buses to travel from the Daocheng-Yading Airport to Yading).³⁷ In the Golden Week in 2017, approximately five daily buses ran from Jinzhu (and two to three buses from Riwa) to Kangding or Chengdu, and an additional 1-3 daily buses plied the road to Yunnan. This implies a maximum of approximately 500 daily visitors by bus—10 buses with 50 seats each—at the very height of the high season.

³⁵ A breakdown of actual visitor numbers into domestic vs. foreign is available only for 2015.

³⁶ See Ganzhi Prefecture Tourism Net, 20 October 2015, as reported at <http://www.yadinginvest.cn/index.php?m=content&c=index&a=show&catid=16&id=102>, accessed 14 November 2017. The bulk of self-driving tourists, 38%, came from Chengdu and Chongqing, 12% from Beijing, Shanghai, and Guangdong, 30% from Guizhou and Yunnan, and 20% from all other places together.

³⁷ See *Ganzi ribao* of 9 October 2015, as reported at <http://www.yadinginvest.cn/index.php?m=content&c=index&a=show&catid=16&id=101>, accessed 14 November 2017.

In 2017, in the morning of 3 October, cars were in many places lined up parallel in two lines along a single lane up to 7km in the approach to the Yading Visitor Center. None of these tourists, unless they had prior reservations, would make it into Yading that day as ticket sales were suspended at 11am when the maximum number of tourists to be admitted to Yading in one day had been reached. They would also not have been able to find parking anywhere near the Yading Visitor Center. Local Tibetans were offering parking spaces for CNY 50 on their properties along the highway, from where tourists could then take one of the Riwa shuttle buses (also stuck in traffic) to the Yading Visitor Center at the upper end of Rencun.

Master Plan projection of hotel rooms/beds and hotel quality

The *Master Plan* found tourism facilities in Daocheng to be woefully inadequate, ranging from the absence of any hotel with a star rating to a lack of electricity, telecommunications, and sewage treatment in Riwa, and “chaos” (混亂) at the cattle station in Yading. It projected an increase in hotel rooms and beds from end-2000 with 166 rooms and 390 beds (this implies a ratio of 2.35 beds per room) to 3,590 beds by 2005, 5,880 by 2010, and 9,200 by 2015. By 2015, the actual number of 21,000 beds (*Sichuan Yearbook 2016*, entry on Daocheng) was more than double the originally projected number.

For 2005/2010/2015, the projected number of beds in three-star hotels was 0/600/900. At least by 2017, this latter figure was likely by far exceeded. The approximately 250 places of accommodation listed for Daocheng on ctrip.com in October 2017 comprised five hotels with a PRC rating of 4.5 stars,³⁸ none with a 4-star rating, and two dozen hotels with a 3-star or 3.5-star rating. If each hotel had 100 rooms, this implies a total of approximately 3000 rooms or 7,050 beds (3000 rooms times 2.35 beds per room at 3-star level), compared to the *Master Plan's* projected 900 beds at 3-star level (and none above 3-star level). The highest-rated hotels seemed in most demand at all times in 2016 and 2017. Han tourists from Chengdu or Chongqing arriving in their BMW or Porsche SUVs would either head for one of these better hotels or for an upmarket Tibetan inn.

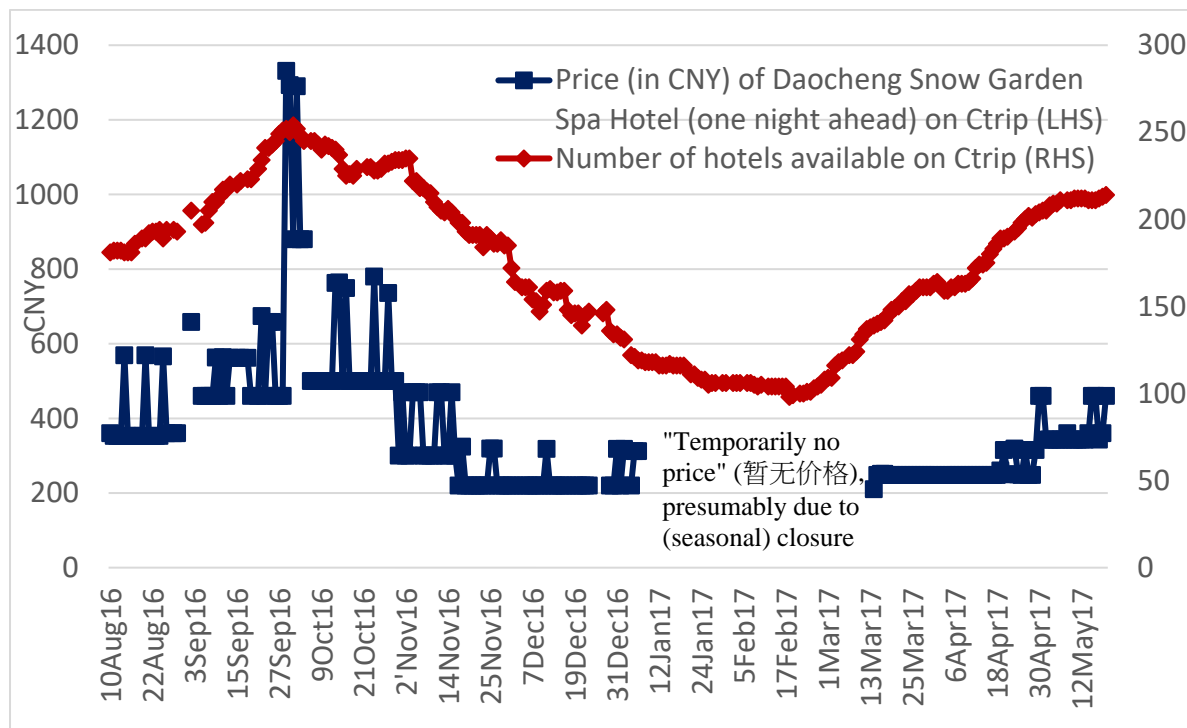
Seasonal fluctuation in hotel room availability and price

Figure 1 presents a daily record of the number of hotels offering rooms on Ctrip from 10 August 2016 through 19 May 2017, as well as the lowest room price in the Daocheng Snow Garden Spa Hotel (稻城雪域花园温泉酒店)—the best hotel in Jinzhu with a Ctrip rating of 4.5 points/stars—for the next day.

The chart shows the extreme cyclicity throughout the year in the number of hotels offering rooms on Ctrip, with the number falling off in early November and not recovering until early April. The chart likely exaggerates the number of hotels offering rooms: At one point I booked a hotel on Ctrip for early spring but upon arrival found the hotel deserted, locked, and without any instructions on what to do in this case. (My reservation was eventually honoured by another hotel belonging to the same company.) Conversations with hotel employees suggest that most hotels close sometime in late November and do not reopen until March or April the following year.

³⁸ The Holyland Hotel in Riwa is listed as a 4.5-star hotel, despite its self-description as a 5-star hotel and despite its superior quality in comparison to the other 4.5 star hotels

Room prices (in the Daocheng Snow Garden Spa Hotel) exhibit a similar cyclical behaviour with an extreme peak around the 1 October week, when they reach 3-4 times the standard price of much of the remainder of the year. The pattern of room prices suggests that the 1 May week is not as popular a time for travel to Daocheng as the 1 October week.



Notes: Data were obtained by daily checking (i) hotel availability and (ii) the lowest room price for the Daocheng Snow Garden Spa Hotel (稻城雪域花园温泉酒店) for the next day, from 10 August 2016 through 19 May 2017. (On a few random occasions/days, no check was conducted.) The Daocheng Snow Garden Spa Hotel in 2016/2017 was the best hotel in Jinzhu, with a Ctrip rating of 4.5 points/stars.

Source: Ctrip, at <http://www.ctrip.com>. (An implausible outlier of 18 December 2016 was removed.)

Figure 1. Daocheng County Hotel Prices and Availability 2016-2017 (Ctrip)

References specific to this appendix:

LIU Yuwen, and LIU Shoujiang (刘皓雯, 刘守江). “The Tourism Trash Problem along the Section of National Highway 318 and Provincial Highway 317 from Ya’an to Daocheng, and Solutions” (318 国道及 217 省道雅安至稻城段旅游垃圾问题与治理). *Sichuan Environment* (四川环境) 34, no. 3 (June 2015): 91-95.

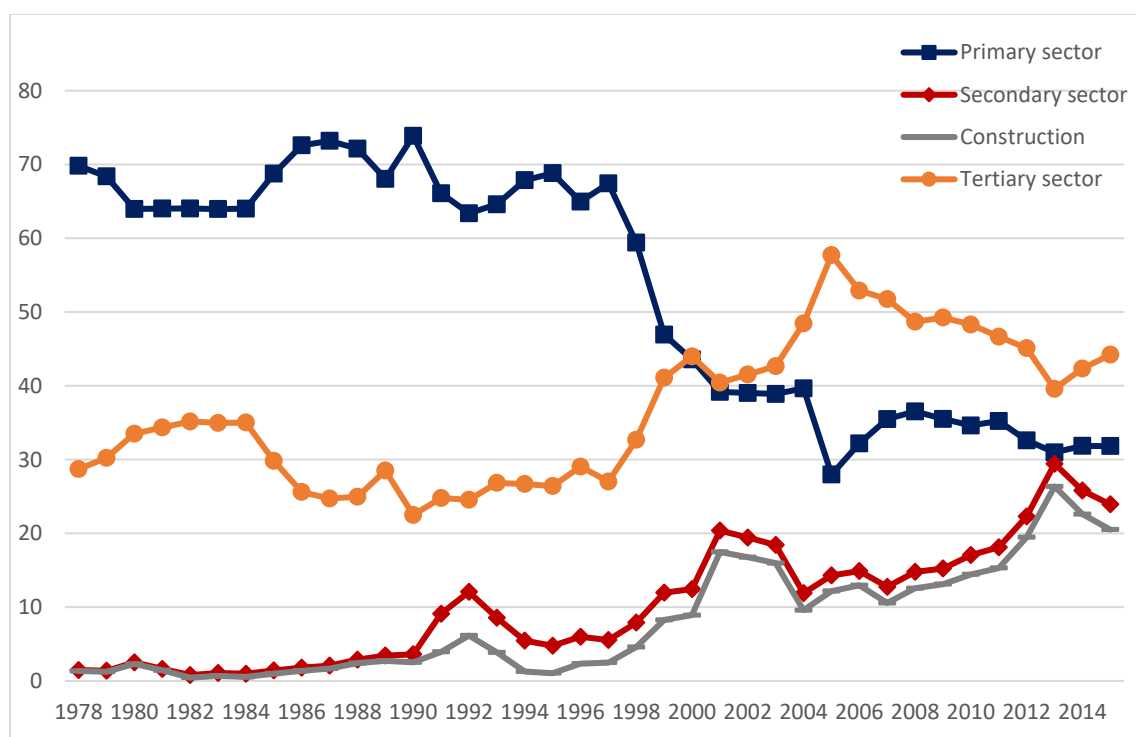
Xinhua. 5 October 2017. While Jiuzhaigou is closed, Daocheng Yading has become a tourist hotspot” (九寨沟停业整修 稻城亚丁火了). Was temporarily available at http://news.xinhuanet.com/fortune/2017-10/05/c_1121764664.htm, accessed 7 October 2017.

Appendix 8. GDP Growth and Private Economy over Time

Sectoral components of GDP and GDP growth

Official time series data on value-added are available by (broad) economic sector for the years since 1978. The following paragraphs interpret Daocheng's official national income accounts data, keeping in mind that the official GDP value in recent years likely vastly underestimates actual GDP

Throughout the 1980s and most of the 1990s, agriculture accounted for two-thirds of GDP (Figure 2). A major structural change occurred between 1997 and 2001 with an increase in service sector and construction activity relative to agriculture. The share of agricultural value-added in GDP declined from 67% (in 1997) to 40% (in 2001). This was matched by an increase in the share of services from 27% to 40%, and in the secondary sector (mostly in the sub-sector construction) from 6% to 20%. The structural change coincides with the turn towards tourism development, and slightly precedes the formal introduction of the Western Development Program. (See Table 2 for 2010 and 2015 data.)



Construction is a sub-sector of the secondary sector, industry being the other exhaustive sub-sector. Sources: *Ganzi Statistical Yearbook 2016* (for 2014, 2015), *2015* (for 2013), *2014* (for 2012), *2013* (for 2011), *2012* (for 2010), *2010* (for 2005-2009), and *2008* (for 1978-2004).

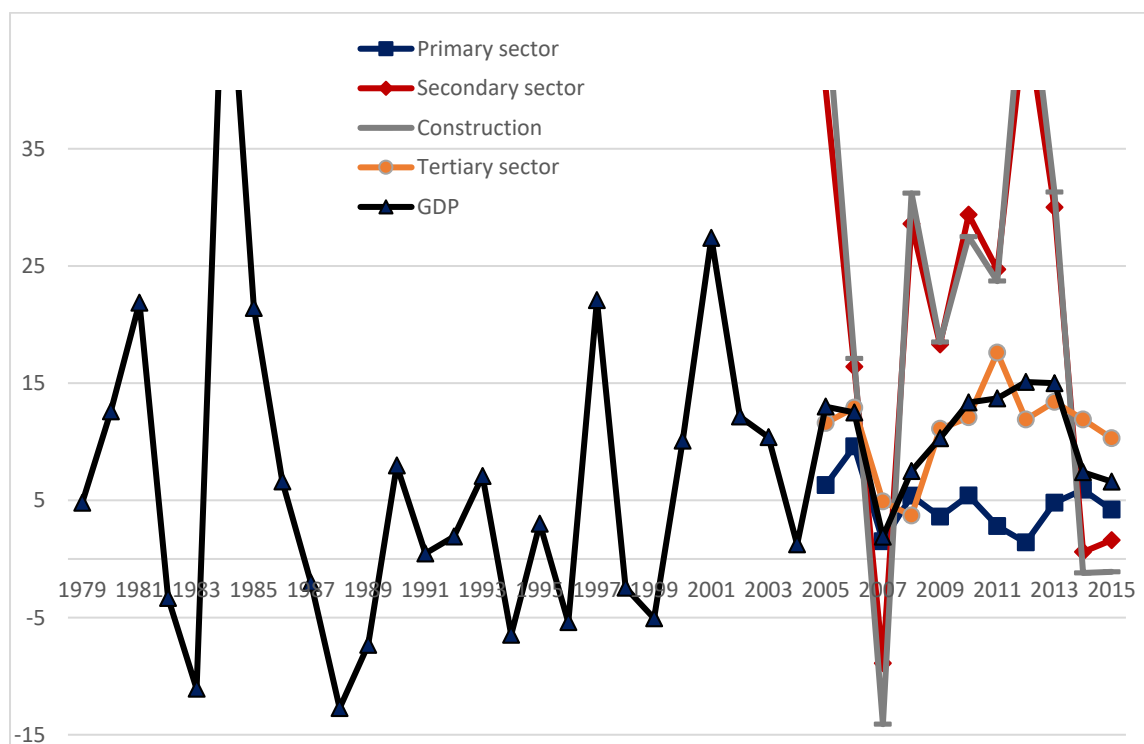
Figure 2. Daocheng County Sector Shares in GDP (%)

According to the official national income accounts data, since 2001 agriculture's share of GDP has stayed roughly between 30% and 40%. The share of the tertiary sector peaked at

57% of GDP in 2005 and then declined continuously to 40% in 2013 before picking up again slightly. The share of the secondary sector (predominantly construction) first declined to 12% in 2004, and then began a steady rise to 26% in 2013 before falling back to 20% in 2015. The reversal in 2014 could be related to Xi Jinping’s assumption of the position of Party Secretary in late 2012 and the effects of the ensuing “anti-corruption” campaign, or it could simply be that a first wave of hotel construction had come to an end in time for the 2013/2014 completion of tarred roads and the airport.

In the 1980s and 1990s, real GDP growth varied drastically from year to year with annual real growth rates in the 20 and 30 percent range but also at negative 10% (Figure 3). Real GDP growth entered a steady upward trend in 2007, when it was at 2%, to 15% in 2013, before dropping back to around 5% in 2014 and 2015. Some of the variability may well be due to the difficulty of compiling accurate GDP statistics in a remote county by staff who may not even be well acquainted with national income accounting.

Growth rates in sector value-added are available for the years since 2004. Growth rates in primary sector (agricultural) value-added are relatively stable around 5% while those of the tertiary sector experienced variations between approximately 5% and 15%. The secondary sector, in contrast, driven by its sub-sector construction, experienced wild swings in growth rates from negative 14% in 2007 to positive 50% in 2012. Construction is also responsible for the relatively low GDP growth rates in 2014 and 2015.



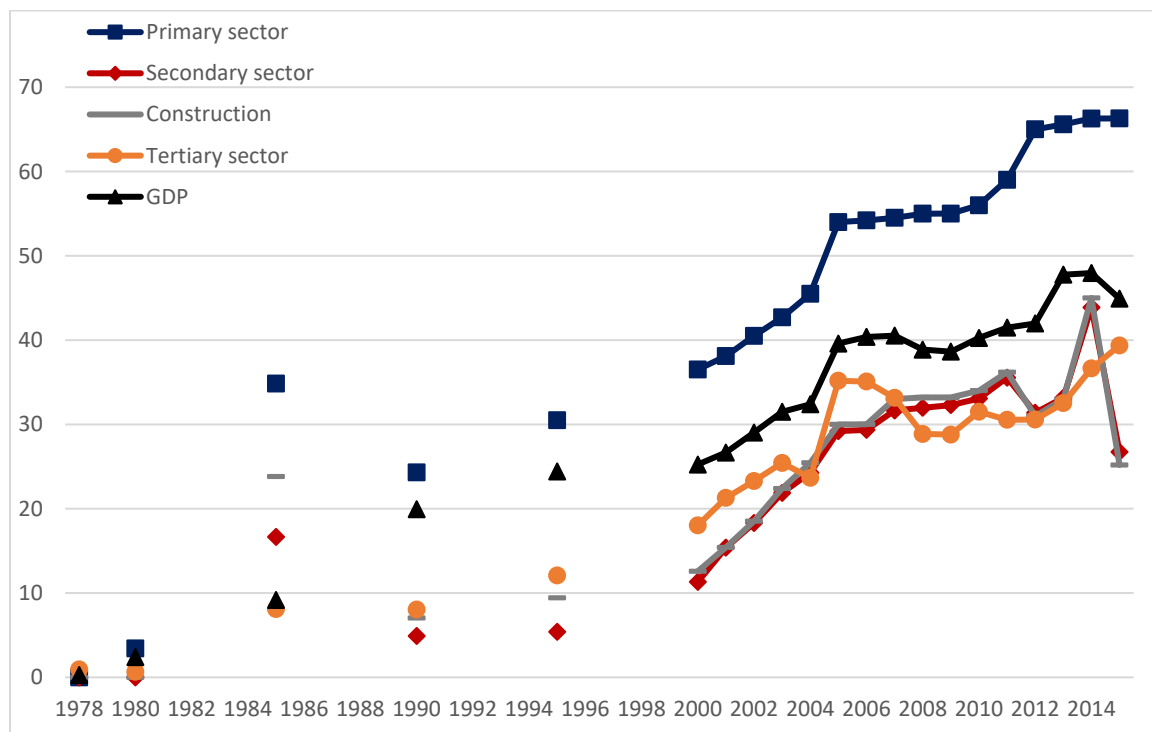
Construction is a sub-sector of the secondary sector, industry being the other exhaustive sub-sector. For sources, see Figure 2. Earlier sectoral real growth rates are available but vary drastically (with apparent underlying data problems, such as a sector growth index rising from 100 to 200 to 300).

Figure 3. Daocheng County GDP and Sector Value-added Real Growth Rates (%)

Private economy

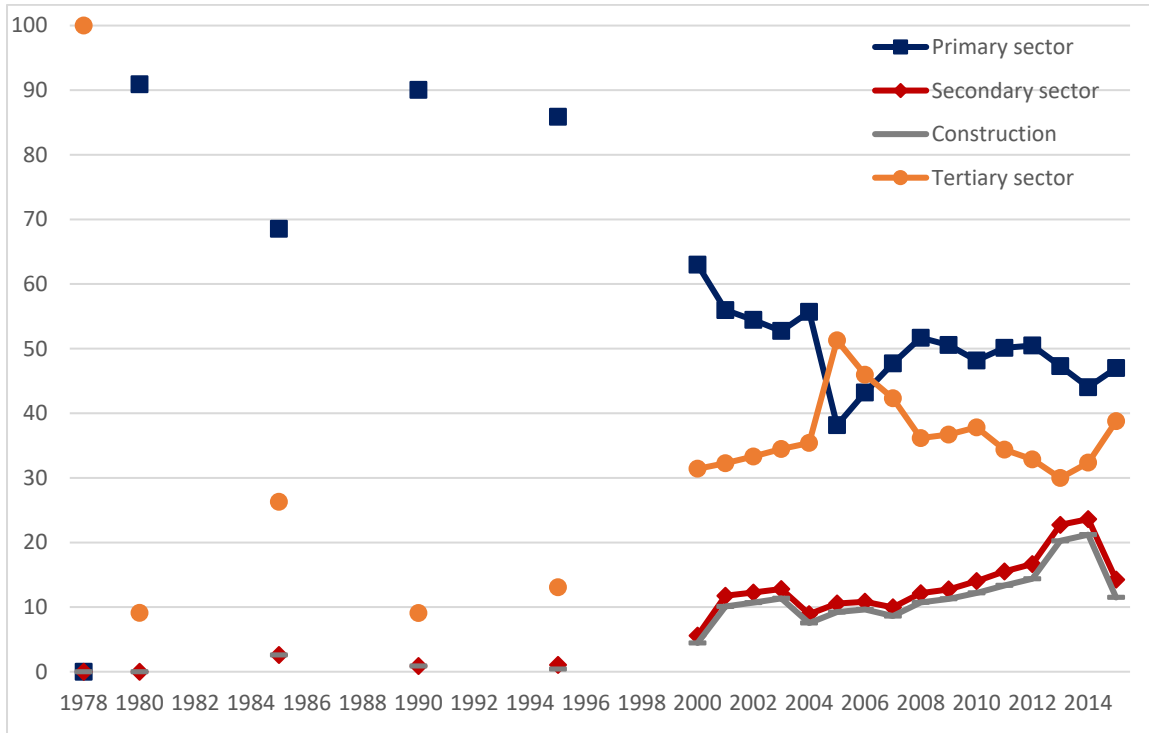
The “private economy” (民营经济) accounted for 45% of Daocheng’s GDP in 2015 (Table 2, or shortened table in the article text). It produced two-thirds of agricultural value-added, one-third of the (miniscule) industrial value-added, and one-quarter of construction value-added. The patterns in the tertiary sector (overall 39% private) are as one would expect: The private economy dominates trade, hotels and catering, real estate development, and services to households, and is absent from those sectors that reflect government services. The time series data show an inexorable rise in the private share of each sector’s economic activities over time, except for a noticeable decline in the private economy’s share in construction from 45% in 2014 to 25% in 2015 (Figure 4).

Within the private economy, agriculture accounts for the biggest share of privately produced value-added in the 1980s and the 1990s with 90%, and around 50% in the 2000s and 2010s (Figure 5). Services’ share in the private economy’s output varied around 10% in the 1980s and 1990s before rising to 30% in the 2000s, then rising even further before dropping off and oscillating between 30% and 40%. The smallest share of the private economy consists of construction, at around 10% since 2001, with a brief increase to 20% in 2013 and 2014. (The final year in the chart is 2015.) This suggests that GDP growth especially in 2014 received a boost from extraordinarily high private construction, and that a collapse in private construction in 2015 (consistent with stalled hotel construction in 2016 and 2017) then contributed to the lowest GDP growth rate since 2007, of 6.6%.



Construction is a sub-sector of the secondary sector, industry being the other exhaustive sub-sector. For sources, see Figure 2.

Figure 4. Daocheng County Private Share in Sector’s Value-added (and GDP) (%)



For sources, see Figure 2.

Figure 5. Daocheng County Sector Shares in Private Aggregate Value-added (%)

Table 2. Sector Shares in GDP and Private Sector Shares (%)

	PRC		Daocheng County				
	Shares in GDP			Private economy only			
	2015	2010	2015	2010	2015	2010	2015
Total	100	100	100	40	45	40	45
Primary sector	9	35	32	19	21	56	66
<i>of which: agriculture (farming)</i>		<i>15</i>	<i>16</i>				
<i>of which: forestry</i>		<i>4</i>	<i>3</i>				
<i>of which: husbandry</i>		<i>16</i>	<i>13</i>				
<i>of which: fishery</i>		<i>0</i>	<i>0</i>				
<i>of which: agricultural services</i>		<i>0</i>	<i>0</i>				
Secondary sector	41	17	24	6	6	33	27
Industry	34	3	3	1	1	28	36
<i>of which: above-norm</i>			<i>0</i>				
<i>of which: below-norm</i>			<i>3</i>				
Construction	7	14	21	5	5	34	25
Tertiary sector	50	48	44	15	17	32	39
Transport, storage, post	4	0	0	0	0	70	100
Wholesale, retail trade	10	4	3	3	3	75	96
<i>of which: wholesale trade</i>		<i>1</i>	<i>2</i>				
<i>of which: retail trade</i>		<i>3</i>	<i>1</i>				
Hotels and catering	2	8	7	7	7	91	95
<i>of which: hotels</i>		<i>2</i>	<i>2</i>				
<i>of which: catering</i>		<i>6</i>	<i>6</i>				
Financial intermediation	8	4	7		0		0
Real estate	6	3	2	3	2	100	100
For-profit services	(8)	3	6				
<i>of which: information transmission, software and information technology</i>	<i>3</i>	<i>1</i>	<i>1</i>				
<i>of which: other for-profit services</i>		<i>2</i>	<i>5</i>				
Leasing and business services	2		0		0		100
Services to households; repair; other services	2		5		5		100
Culture, sports and entertainment	1		0		0		39
Not-for-profit services	(9)	26	19				
<i>of which: public administration</i>	<i>4</i>	<i>16</i>	<i>8</i>				
<i>of which: other not-for-profit services</i>		<i>11</i>	<i>10</i>				
Management of water conservancy, environment and public facilities	1		0		0		0
Scientific research and technical services	2		1		0		0
Education	4		8		0		5
Health and social services	2		1		0		8

Notes:

For-profit and not-for-profit values at national level are obtained as summed sub-category values to match the Daocheng classification.

Beginning in 2013, agricultural services (a sub-sector of agriculture of miniscule size) no longer count as part of the primary sector (even though they are listed with the primary sector), but as part of the tertiary sector.

The private economy value-added classification's "transport" does not mention storage and post.

The standard sector classification system used in some of the underlying statistical tables (with variations), and also used for employment and other variables, is as follows: Agriculture (possibly including agricultural services, which in recent years are included in the tertiary sector) 农林牧渔业, Mining 采矿业, Manufacturing 制造业, Utilities 电力、煤气及水的生产和供应, Construction 建筑业, Transport, storage and post, 交通运输、仓储和邮政业, Information transmission, computer services, and software industry, 信息传输、计算机服务和软件业, Wholesale and retail trade 批发和零售业, Accommodation and catering 住宿和餐饮业, Finance 金融业, Real estate 房地产业, Leasing and business services 租赁和商务服务业, Scientific research, technical services, and geological prospecting 科学研究、技术服务和地质勘查业, Water conservancy, environment, and public facilities management 水利、环境和公共设施管理业, Household and other services 居民服务和其他服务业, Education 教育, Health, social security, and social welfare 卫生、社会保障和社会福利业, Culture, sports, and entertainment 文化、体育和娱乐业, Public administration and social organizations 公共管理和社会组织.

Sources: *Ganzi Statistical Yearbook 2011, 2016. Statistical Yearbook 2017* (Table 3.6).

Aggregate expenditures

Daocheng’s large fiscal in-transfers support a particular pattern of aggregate expenditures: Daocheng’s gross capital formation (“investment”) in 2015 was a highly unusual 120 per cent of official GDP.³⁹ Investment in Daocheng thus exceeded the value of all economic activity in the county. This suggests that investment in Daocheng—and thereby economic growth—is financed predominantly through fiscal and other in-transfers. The counterpart to the high investment value was imports equal to 84 per cent of GDP and virtually no exports (Table 3). With actual GDP three to five times the official value, what is completely missing in the aggregate expenditure statistics is the tourism industry, by definition an export of services (that happens to be on a scale of more than 300% of official GDP), likely implying yet higher imports.⁴⁰

Table 3. Aggregate Expenditures Component Shares (%)

	PRC	Daocheng County				
	2015	2011	2012	2013	2014	2015
Aggregate expenditures	100	100	100	100	100	100
Consumption	52	53	53	53	57	62
Household consumption	38	38	38	38	40	47
#Rural	8	18	18	18	20	22
#Urban	30	20	20	20	20	25
Government consumption	14	15	15	15	18	15
Gross capital formation	45	175	175	175	150	120
Gross fixed capital formation	43	173	173	173	148	118
Inventory investment	2	2	2	2	2	2
Net exports	3	-128	-128	-128	-107	-82
Exports		1	1	2	1	1
Imports		129	129	130	109	84

Sources: *Ganzi Statistical Yearbook 2013* (with values of 2011 and 2012), *2014*, *2015*, *2016*.

Nationwide data are from <http://www.stats.gov.cn>, accessed 2 March 2018. The *Ganzi Statistical Yearbook 2012* reports data for 2010 and 2011 that do not match GDP values and do not link up with the aggregate expenditure values of the later years. Earlier *Ganzi Statistical Yearbook* issues do not report county level aggregate expenditures.

³⁹ The consumption share in GDP is not out of line with the nationwide average (62% of GDP in Daocheng vs. 52% nationwide), though consumption is predominantly “rural” (22% vs. 8%).

⁴⁰ The proportions were even more extreme in 2011-2013 with gross fixed capital formation at 175% of GDP and imports equal to 129-130% of GDP. The data quality of the aggregate expenditure components is severely deficient. Services provided to tourists constitute an export; exports accounting for only 1% of aggregate expenditures is not credible. Neither is the relative constancy of the component percentage shares over time. The value of aggregate expenditures must equal the value of GDP (apart from measurement errors); the fact, noted above, that Daocheng’s official GDP severely underestimates actual GDP implies that the official aggregate expenditures equally are underestimates.

Appendix 9. Tourism Income

The *Compendium of Tourism Statistics*, issued by the World Tourism Organization, in its “index of indicators and basic data” (provided online),⁴¹ lists under the heading “tourism industries” the following sectors:

- Accommodation for visitors (here: hotels),
- Food and beverage serving activities (here: catering),
- Passenger transportation (here: transport),
- Travel agencies and other reservation services activities (ignored here and probably not a major industry in Daocheng beyond small-scale undertakings, such as family offerings of horse riding tours), and
- “Other tourism industries” (not covered here, except for a fraction of trade).

The focus in this appendix is on the first two, hotels and catering, with some consideration given to transport and trade.

*Tourism income = visitor nights * CNY 990 (in 2015, across Ganzi TAP)*

The *Ganzi Statistical Yearbook* provides tourist numbers and tourism income by month.⁴² Dividing tourism income by the tourist numbers for the 20 localities of Ganzi TAP—18 counties, with Yading and Hailuogou (海螺沟) listed separately—yields tourism income per visitor-night (“per visitor”). In each month of 2015, tourism income per visitor in all except one locality of Ganzi TAP equals CNY 990 (with CNY 1,314 for Derong County, each month). The same uniform pattern prevails across counties and months in earlier years (with an occasional deviation).⁴³

Tourism income per visitor is likely an assumed value, given the uniformity of this value across localities and months as well as its pattern over time with a value of CNY 650 from 2007 through 2010, then variations on CNY 675 in 2011 and 2012, and finally CNY 990 in 2013-2015. (For the average annual value of Daocheng see Table 5.) Consequently, either the tourist numbers or tourism income (or both) are derived values.

Tourism income is likely to be the derived value. The statistics office will not be sending a survey form to every legal person unit and every sole proprietorship in Daocheng asking them the value of their business with tourists, who, at least in the case of transport or trade, could not even be identified, and then end up with a value that is invariant across localities and, to some extent, time.

⁴¹ See <http://statistics.unwto.org/content/compendium-tourism-statistics>, accessed early February 2018.

⁴² The list of definitions provided in a separate explanatory section of the *Ganzi Statistical Yearbook* does not define tourist numbers (旅游人次) or tourism income (旅游接待收入) and does not explain how these values are compiled; the explanatory section appears copied from some provincial or national compendium and bears little relationship to the data provided for Ganzi TAP.

⁴³ One significant exception is December 2014, when the values vary drastically across localities and appear by far too high in some counties, such as Daocheng, with CNY 3,785 (Daocheng excluding Yading CNY 989, close to the CNY 990 value of all other months, and Yading CNY 7,290). On the separate listing of Yading and Hailuogou also see Appendix 7.

Tourist numbers (visitor nights) likely are at least in part actually compiled values, with perhaps some guesstimates. First, tourist numbers are probably easier to collect—such as via records of establishments of accommodation and Yading tickets sold—than tourism income values. Second, in an unusual large number of months, tourist numbers come with one to three zeroes at the end (while tourism income values do not), unlikely for a derived value but possible for a compiled value that is rounded, perhaps due to data compilation difficulties. Third, various separate current (news) reports with individual tourist numbers suggest that the official tourist numbers for Daocheng published in the *Ganzi Statistical Yearbook* are at least approximately correct. The likeliest procedure then is one where tourism income per visitor is given (assumed), the tourist numbers are compiled and/or estimated, and tourism income is derived as their product.

The official tourism income figure raises questions about the quality of Daocheng's official GDP and sectoral value-added data. While the 2013 ratio of tourism income to GDP (of 0.3) is credible, by 2015 Daocheng's official GDP value appears to miss out on the effects of the sudden tourist boom. This may be intentional, such as to project the image of a poor county in need of outside help. There could also be practical reasons: Economic activities organized by non-locals may not be reported to the local statistics office, and the statistics office may then not have the capacity to compile accurate GDP data.⁴⁴ (This also implies that much of Daocheng's economy is controlled by non-locals.)

Double-check on tourism income per visitor

Daocheng's implicit (official) value of tourism income per visitor (night), CNY 990, can be double-checked against national data.

Nationwide *business revenue* in legal person hotels and catering *above-designated size* in 2015 was CNY 851.22bn, while the number of *all* domestic visitors (“person-times,” 人次)—not limited to hotels of “above-designated size”—was 4.000bn (with the number of ‘zeroes’ suggesting this official number is an approximation). This means that if the PRC in 2015 had had only establishments of accommodation and catering “above-designated size,” the hotel and catering revenue per visitor was CNY 213. The official statistics provide no indication of the extent of “below-designated size” legal person hotels and catering and non-legal person hotels and catering, and thus no value of total business revenues in hotels and catering.

More data are available in the 2013 economic census. To the extent that ratios and relationships are likely quite stable over time, the conclusions derived for 2013 also hold for 2015.

In 2013, based on additional data from the 2013 economic census, nationwide employment in below-designated size (legal person) hotels and catering was equivalent to 52% of employment in above-designated size legal person hotels and catering establishments, and employment in sole proprietorships (not legal persons) with their 10.694mio employees

⁴⁴ In the case of Tianjin, the GDP estimate was revised downwards in January 2018 in order to “remove the activity of thousands of companies that registered locally to enjoy tax breaks but whose business activities took place elsewhere” (*Financial Times*, 11 April 2018, “China Red-Tape Cuts Prompt Surge in Business Registrations.”) In the case of Daocheng, the local statistics office likely is under-staffed, and staff may not be particularly qualified. While non-locals (supposedly) pay local business taxes, the tax authority and the statistics office may not communicate.

equivalent to an additional 234% (Table 4).⁴⁵ Raising the tourism income value of CNY 213 per visitor—obtained when relating the business revenue of above-designated size establishments to the number of all visitors—by 286% (52% plus 234%) yields hotel and catering tourism income per visitor of CNY 822. This is an upper bound estimate for tourism income in hotels and catering.

Table 4. Tourism-related Data, Economic Census 2013

	Legal person units 法人单位数	Year-end employment 年末从业人数	Business revenue (mio) 营业收入	Main business revenue (mio) 主营业务收入	Business revenue per employee
Legal persons (2013 economic census)					
Hotels 住宿业	73,464	2,943,241	436,268	429,467	148,227
Catering 餐饮业	126,127	3,973,084	615,487	609,947	154,914
Sum (or average)	199,591	6,916,325	1,051,755	1,039,414	152,068
Above-designated size legal person units (Statistical Yearbook)					
Hotels	18,437	2,094,000	352,800		168,481
Catering	26,743	2,468,000	453,330		183,683
Sum (or average)	45,180	4,562,000	806,130		176,705
Below-designated size residual legal person units (obtained as difference)					
Hotels	55,027	849,241	83,468		98,285
Catering	99,384	1,505,084	162,157		107,740
Sum (or average)	154,411	2,354,325	245,625		104,329
Legal persons / above-designated size legal person units					
Hotels	3.98	1.41	1.24		0.88
Catering	4.72	1.61	1.36		0.84
Sum (or average)	4.42	1.52	1.30		0.86
Sole proprietorships (2013 economic census)					
	Registered unit 有证照个体经营户	Employment 从业人员数			
Hotels and catering	2,408,000	10,694,000			
Per legal persons	12.06	1.55			

Note: Economy-wide hotels and catering value-added in 2013 was CNY 1,022,830mio (database on NBS website, <http://www.stats.gov.cn>).

Sources: *Economic Census 2013*, Tables 2-A-1 through 2-A-4, and Table 1-14 for sole proprietorships; *Statistical Yearbook 2016*, Table 17-1 (for data on the above-designated size units).

Tourism income per visitor in below-designated size legal person establishments and in sole proprietorships is unlikely to be as high as in above-designated size establishments. In 2013, business revenue per employee in below-designated size legal person hotels and catering was CNY 104,329, approximately 60% of the CNY 176,705 in the case of above-designated size legal person units. Business revenue per employee in sole proprietorships is likely even lower, perhaps half the level in below-designated size legal person units (or 30% of business revenue per employee in above-designated size legal person units). A value of tourism income per visitor in hotels and catering that discounts business revenue per employee in

⁴⁵ Legal person data and sole proprietorship data are provided in the 2013 economic census. The *Statistical Yearbook* has the (legal person) above-designated size data, which allows the derivation of the (legal person) below-designated size data from the (total) legal person data in the 2013 economic census.

below-designated size legal person units and in sole proprietorships to 70% and 40%, respectively, yields a value of CNY 400-450 tourism income in hotels and catering per visitor, about twice the value based on above-designated size legal persons only.⁴⁶

This is only one-half of the implicit (official) value of tourism income per visitor of Daocheng in 2013 of CNY 990. (The implicit official value for 2012 is much closer, at CNY 682.) But the estimated value of CNY 400-450 comes with two caveats. First, Daocheng, given its remoteness and exclusivity, may well be a destination with above-average daily tourist income. Second, the estimated value of CNY 400-450 covers only hotels and catering but tourism income is not limited to hotels and catering. In Ganzi TAP, value-added in transport is equal to three-quarters of value-added in hotels and catering, while value-added in trade (of which some constitutes sales to tourists) is approximately equal to value-added in hotels and catering (see note below Table 5). Doubling the estimated CNY 400-450 of tourism income in hotels and catering to account for transport (assuming about two-thirds of transport is due to tourism) and trade (assuming half of trade is due to tourism), yields a value of CNY 800-900 that comes reasonably close to Daocheng's implicit (official) value of tourism income per visitor (night) of CNY 990.

Tourism income vs. value-added

In 2013, the national value of business revenue in hotels and catering *legal persons* was near-identical to (3% larger than) *economy-wide* value-added in the sector hotels and catering (reported underneath Table 4). This somewhat fortuitous nationwide relationship allows a rough estimate of tourism value-added in Daocheng.

If one assumes that Daocheng's official tourism income value is correct, and if one assumes that Daocheng is no different from the national economy in that business revenue in hotels and catering by legal persons—a subset of business revenue in all hotels and catering—is approximately equal to economy-wide value-added in hotels and catering (*Economic Census 2013*), then the following additional conclusions regarding Daocheng's GDP follow.

If all of Daocheng's tourism income in 2015 accrued to hotels and catering, and if 'tourism income' is another term for (or good approximation of) 'business revenue' (which is likely), then an adjusted value of business revenue that covers only legal person hotels and catering—approximated using the nationwide share of '1/1.43' of all business revenue (Table 5)—is CNY 1.18657bn (CNY 1.6968bn / 1.43). This value, an approximation of value-added in hotels and catering, is equal to twice Daocheng's official GDP in 2015.

If one calculates a corrected GDP figure for 2015 that includes a corrected value for value-added in hotels and catering while retaining the value-added of all other sectors, or a corrected value for value-added in hotels and catering together with transport and trade, the resulting corrected GDP value is 2.91 or 2.88 times Daocheng's official GDP value.

To put Daocheng's tourism income yet further into perspective: The share of "travel receipts" in GDP was 18% in Croatia and 13% in Malta and in Cyprus, the European countries with the highest shares of travel receipts in GDP.⁴⁷ If tourism income in Daocheng, with its extreme reliance on tourism, were 50% of GDP, the resulting "true" GDP value for Daocheng in 2015 is six times the official GDP value.

⁴⁶ The calculation is $CNY\ 213 * [1 + (0.6 * 52\% + 0.3 * 234\%)] = CNY\ 428$.

⁴⁷ See http://ec.europa.eu/eurostat/statistics-explained/index.php/Tourism_statistics, accessed 2 March 2018.

More on business revenue and tourism income vs. value-added

The fact that in 2013 the national value of business revenue in hotels and catering *legal persons* is near-identical to (3% larger than) *economy-wide* value-added in the sector hotels and catering warrants further considerations.

While the value-added data cover economy-wide hotels and catering (including sole proprietorships), the value for business revenue only covers legal persons (excluding sole proprietorships that in 2013 accounted for an additional 155% of employment in hotels and catering, with no data available on their business revenue or value-added). This means that some of the business revenue in legal persons and in sole proprietorships does not constitute value-added but intermediate inputs (which is plausible).

Assuming, as above, that business revenue per employee in sole proprietorships is approximately one-third of that in all legal persons hotel and catering units,⁴⁸ an employment figure for sole proprietorships in 2013 that is equal to 155% of employment in legal person hotel and catering units implies that business revenue across *all* hotel and catering units (legal persons and sole proprietorships) is approximately 50% higher ($1/3 * 155\%$) than that in legal person hotel and catering units only. National hotel and catering value-added then is equivalent to two-thirds of national business revenue across all hotel and catering units. That is plausible.

The Daocheng ‘tourism income’ is not defined in the source. If tourism income is derived as product of the (likely assumed) tourism income per visitor and tourist numbers, and if tourist numbers include those in sole proprietorships (likely), then the Daocheng tourism income value also covers the sole proprietorships, and Daocheng value-added in hotels and catering then is likely equal to approximately two-thirds of Daocheng tourism income in hotels and catering. (Some of Daocheng’s tourism income is derived from transport, and possibly trade. As long as the transformation rate from business revenue to value-added is the same across sectors, this does not affect the conclusions.)

Alternatively, an argument could also be made that ‘tourism income’ (旅游接待收入)—the term used in the *Ganzi Statistical Yearbook*—per se denotes value-added, given that it is titled ‘income’ rather than some term such as ‘revenue,’ with income across the economy by definition equal to GDP (national value-added). It may be for good reason that business revenue (营业额) is called ‘revenue’ and not ‘income.’ In that case, no one-third discount need be applied to tourism income when deriving tourism value-added.⁴⁹ The Chinese term 收入, however, is not unambiguously ‘income’ as it can also be translated as ‘revenue.’

In the case of Yading, it is unclear what the tourism income refers to. The Yading entrance fee is CNY 150, and the bus transfer from the Yading Visitor Center to the end of the road CNY 120; these do not add up to the implicit CNY 990 tourism income per visitor (dividing

⁴⁸ Business revenue per employee in sole proprietorships is assumed to be about half that in below-designated size legal person hotels and catering, and thereby business revenue per employee in sole proprietorships is approximately one-third of that in all legal person hotel and catering units. The data, in 2013, are $(\text{CNY } 104,329 / 2) / \text{CNY } 152,068 = 34.30\%$.

⁴⁹ Focusing on the income side, tourism *income* in largest part reflects compensation of labor and capital, with at best a small amount expended on intermediate inputs. (Also see Appendix 5, which suggests that close to half of revenue in the hotel business is labor compensation.) The compensation of labor and capital constitutes income, or GDP (value-added).

the official Yading tourism income value by the official Yading visitor numbers). With Yading tourism income approximately equal to half of Daocheng's tourism income, even inclusion of overnight visitors to Yading Village in Yading tourism income is insufficient to reach a value close to CNY 990 per visitor. Thus, either Yading's tourism income is unrealistic (assuming the visitor numbers are correct) or the use of CNY 990 is justified by some arbitrary split of tourism income and visitor numbers to 'Daocheng including Yading' into 'Daocheng (excluding Yading)' and Yading.

If 'tourism income' is a revenue measure (rather than an income or value-added measure), as is likely, then some of the Yading tourism income will reflect Yading entrance and bus fees. Entrance fees constitute value-added if they exactly cover the employment and capital costs of running the nature reserve. Given the uniform tourism income values per visitor across localities, and other localities not necessarily being in possession of tourist attractions that can demand fees on the scale of Yading, Yading's tourism income, if anything, should be higher given the Yading entrance and bus fees.

Further findings regarding tourism income

The data presented in Table 4 allow the following additional conclusions for 2013:

Business revenue per employee in hotels (legal persons) is almost identical to business revenue per employee in the catering industry (legal persons).

Business revenue and *main* business revenue in hotels and catering legal persons differ by a negligible amount (or percentage).

The number of below-designated size legal person units in the hotel business is three times larger than the number of above-designated size legal person units; for catering, the multiple is four. But in terms of year-end employment, above-designated size hotels account for 71% of employment in the hotel business (legal persons), while in catering the share is 62%. In terms of business revenue, the percentages are 81% and 74%.

References specific to this appendix:

Economic Census 2013. 中国经济普查年鉴 2013 (China Economic Census Yearbook 2013). Available online at <http://www.stats.gov.cn>, accessed 14 March 2018.

Table 5. Daocheng County Tourism Income and Value-added

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Daocheng tourism including Yading (official data)									
Visitor numbers	67,212	46,607	123,192	246,477	296,000	123,600	172,280	898,000	1,713,798
Tourism income (CNY mio)	44	30	80	160	200	84	171	941	1,697
Tourism income / visitor (CNY)	650	650	650	650	675	682	990	1,048	990
Daocheng GDP (CNY mio) (official data)									
Tertiary sector value-added (VA)	204	237	261	312	390	457	526	554	598
Transport VA	106	115	128	151	182	206	208	235	264
Hotels and catering VA	19.5	14.2	16.3	23.4	26.0	31.2	33.6	36.5	44.6
Hotels VA				6.0	6.4	7.8	8.0	8.9	11.3
Catering VA				17.5	19.6	23.4	25.6	27.6	33.3
Trade	8.5	10.9	12.3	13.7	15.3	16.2	17.4	13.5	17.0
Daocheng tourism income / GDP									
Tourism income / tertiary sector VA	0.2	0.1	0.3	0.5	0.5	0.2	0.3	1.7	2.8
Tourism income / transport VA	0.4	0.3	0.6	1.1	1.1	0.4	0.8	4.0	6.4
Tourism income / hotels and catering VA	74.0	44.6	105.4	180.0	195.9	75.9	135.4	543.9	767.7
Tourism income / hotels VA	2.2	2.1	4.9	6.8	7.7	2.7	5.1	25.8	38.1
Tourism income / catering VA				26.7	31.2	10.8	21.3	105.6	150.1
Tourism income / trade VA				9.2	10.2	3.6	6.7	34.1	51.0
Tourism income / trade VA	5.2	2.8	6.5	11.7	13.1	5.2	9.8	69.5	99.6
Nationwide tourism data: legal person units above-designated size									
(1) Business revenue / engaged persons in hotels and catering (CNY)	108,587	120,600	123,475	139,011	159,434	175,012	176,705	188,497	206,007
(2) Hotels: number of rooms per engaged person		1.08	1.01	1.07	1.18	1.59	1.27	1.62	1.76
(3) Share of hotels in number of engaged persons in 'hotels and catering'	0.51	0.50	0.50	0.49	0.49	0.46	0.46	0.46	0.46
(4) Share of hotels in business revenue of 'hotels and catering'	0.49	0.46	0.46	0.47	0.46	0.44	0.44	0.43	0.43
(5) 'Hotels and catering' VA economy-wide/ business revenue in 'hotels and catering'	1.49	1.37	1.41	1.29	1.21	1.20	1.27	1.37	1.43
Implied Daocheng County values									
(6) Engaged persons obtained as Daocheng tourism income / (1)	402	249	648	1,153	1,254	481	965	4,992	8,238
(7) Daocheng 'tourism' VA (CNY mio) proxied by: Daocheng tourism income * (5)	65	41	113	206	242	101	216	1,288	2,422
(8) This Daocheng 'tourism' VA [7] / Daocheng official GDP	0.3	0.2	0.4	0.7	0.8	0.2	0.4	2.3	4.1

'VA:' value-added. 'Transport:' transport, storage, and post.

Notes:

Above-designated size: Annual income of main business of CNY 2mio and above (*Statistical Yearbook 2016*, p. 574). In 2007, the data cover above-designated size legal person enterprises and productive units, since 2008 only above-designated size legal person enterprises. (This definitional change may have had little practical impact; the number of "legal person units" [in 2007, according to the note underneath the statistical table, including other productive units] increased from 25,041 in 2007 to 37,151 in 2008; business revenue increased from CNY 371.15bn to CNY 482.443bn.) The coverage of

business revenues switches at the same time from (in the official translation) “annual turnover” (年营业额) to “annual main business income” (年主营业务收入). (Data from the economic census 2013 presented in Appendix 9 suggest a 1% difference between business revenue and *main* business revenue.)

The national data in the table here relate values of (only) the above-designated size units to (total) economy-wide value-added,

‘Engaged persons’ are year-end values. This contrasts with the Daocheng employment numbers presented in Table 11, which (at that point by choice) are mid-year numbers. The differences in Daocheng mid-year vs. end-year values are of negligible size. (For example, Daocheng total formal employment mid-year 2015 was 3,880 and end-year 2015 4,015, i.e., 3.5% higher.)

Implied Daocheng County values are likely too high since Daocheng tourism income is not limited to legal person units above-designated size.

For 2015, a breakdown of Daocheng visitor numbers and tourism income into ‘Daocheng excluding Yading’ and ‘Yading’ is available. Visitor numbers in ‘Daocheng excluding Yading’ and in ‘Yading’ in 2015 were 1,112,476 and 601,322; tourism income was CNY 1,101mio and CNY 595mio; and revenue per visitor was CNY 990 in both.

Across Ganzi TAP in 2015, transport value-added and (wholesale and retail) trade value-added were equivalent to 76.36% and 95.74%, respectively, of value-added in hotels and catering. Transport value-added accounted for 3.00% of Ganzi TAP GDP. Transport value-added in Kangding (county-level town) alone accounted for 58.19% of all transport value-added of Ganzi TAP. For Ganzi TAP, tourism income in 2015 of CNY 10.75038bn amounted to 50.46% of GDP of 21.30439bn and was equivalent to 13 times value-added in hotels and catering (CNY 837.27mio), 17 times value-added in transport (CNY 639.35mio), and 13 times value-added in trade (CNY 801.62mio).

Sources: *Ganzi Statistical Yearbook 2008 through 2016*, *Statistical Yearbook 2012 and 2016* (tourism-related data), and the NBS database (www.stats.gov.cn, for GDP-related data).

Appendix 10. Hotel and Room Count

A visual survey of places of accommodation in Jinzhu, Riwa, Rencun Village and Yading Village conducted in July 2016 and in October 2017 yielded a set of data on the number of places of accommodation and the number of rooms. Buildings under construction were identified as hotels either due to their size and layout, or because, as was frequently the case, of signs explicitly stating that this particular building was available for sale or lease to be turned into a hotel. The count of hotel rooms typically relied on a count of windows (or window holes in the wall) of the type that suggested hotel rooms (or future hotel rooms); in a few instances, actual data was available, which then also suggested that the window count method is quite reliable (with perhaps at most a 10% margin of error).

In July 2016, Jinzhu, Riwa, Rencun Village and Yading Village had a combined total of 201 hotels (including inns and hostels), with a further 82 (an additional 41%) under construction (Table 6). By October 2017, 242 hotels were in operation, 41 more than in the previous year, and a further 64 (an additional 26%) were under construction, with, however, construction in most cases apparently having stopped. The largest construction projects seemed to be without activity at both points in time, in July 2016 and in October 2017, and without sign of progress between these two dates.

Table 6. Daocheng County Hotel Count

	July 2016		October 2017	
	Existing	Under construction	Existing	Under construction
A: Jinzhu	114	36	123	34
B: Riwa	57	5	67	5
C: Rencun Village	20	31	42	15
D: Yading Village	10	10	10	10
A + B + C	191	72	232	54
B + C + D	87	46	119	30
A + B + C + D	201	82	242	64

Notes:

“Under construction” denotes under construction, or building shell without continuing construction, or building/shell with “for rent” sign.

The various Chinese terms for establishments are, as a rule, translated as follows: hotel = 宾馆, 酒店; inn = 客栈 (with hostels = 旅社 included with inns). When in doubt, I applied the English term that best matched what I saw in front of me.

The values for Yading Village are estimates, with those of October 2017 likely being underestimates. On both occasions, July 2016 and October 2017, I walked every street, path, and dirt road in Jinzhu, Riwa, and Rencun Village and entered in a spreadsheet street name (if available), hotel name, number of stories, and an estimate of the number of rooms as judged by the number of windows that appeared to reflect hotel rooms. For some hotels, I was also able to obtain a room count from a website or local information (which typically confirmed my estimate).

Unfinished hotels under construction tend to be large. In the case of the room count in July 2016 (Table 7), the four locations had a combined total of (approximately) 7,334 rooms in operation and (approximately) 4,467 rooms under construction, equal to 61% of the existing

stock of rooms (while the number of hotels under construction was equivalent to only 26% of the existing stock of hotels).

Table 7. Daocheng County Room Count

	July 2016			October 2017		
	Existing		Under	Existing		Under
	Hotel	Inn/Hostel	construction	Hotel	Inn/Hostel	construction
A: Jinzhu	3432	578	2435	4199	538	1978
B: Riwa	2344	110	358	2616	210	192
C: Rencun Village	670		1474	1768		738
D: Yading Village		200	200		200	200
A + B + C	6446	688	4267	8583	748	2908
B + C + D	3014	310	2032	4384	410	1130
A + B + C + D	6446	888	4467	8583	948	3108

Notes: See previous table. The classification of establishments of accommodation into hotels vs. inns and hostels is not being maintained for Rencun Village because of the fluid transition between the two categories. An establishment may be called an “inn” but have 50 or more rooms and in every respect resemble a hotel. In July 2016, the majority of establishments would probably qualify as inns. By October 2017 several large (formal) hotels had newly opened. The inns in Yading Village appear slightly further towards the inns’ side of the hotel-inn spectrum.

The total count of available rooms increased significantly between 2016 and 2017, from 7,334 in 2016 (6,446 plus 888 in Table 7) to 9,531 in 2017, a 30% increase in available rooms compared to the 20% increase in completed hotels. Another 3,108 rooms were under construction in 2017, down by one-third from the 4,467 rooms under construction in 2016. With construction having largely stopped across all unfinished hotel building sites in 2017, this implies that a number of hotel rooms equal to one-third of finished capacity was perhaps not to be completed any time soon.

The *Master Plan* assumes an average 2.35 beds per room. The room count implies that Jinzhu, Riwa, Rencun Village and Yading Village were able to accommodate 22,398 visitors in October 2017. The *Sichuan Yearbook 2016* in its entry on Daocheng mentions for *all of* Daocheng a total number of 21,000 beds in 2015, suggesting that the here documented 2017 numbers of beds for Jinzhu, Riwa, Rencun Village and Yading Village are an underestimate of the available tourist beds in all of Daocheng.

With visitors inevitably spending at least two nights in Daocheng (to visit Yading for the full day needed for access and sightseeing), visitor numbers in the Golden Week of 2017 likely reached into the 30,000s. This exceeds the accommodation capacity in Jinzhu, Riwa, Rencun Village and Yading Village.

Appendix 11. Daocheng-Yading Airport

Daocheng-Yading Airport (DCY) is located at an altitude of 4,411 meters (14,472 feet), 46km north of Jinzhu. It was completed in 2013, with the first official flight on 16 September 2013 to Chengdu. The airport reduces the travel time from the provincial capital of Chengdu from 18 hours or two days by bus to 65 minutes by plane (a 430km flight distance) followed by a 45 minute taxi or shuttle bus ride to Jinzhu..

When the airport opened in September 2013 with regular flights to the provincial capital of Chengdu, further regular flights were planned to Ma'erkang county and Chongqing municipality starting October. (One of the Chengdu flights stops over in the prefecture seat Kangding twice a week.) Flights to Guangzhou, Shanghai and Xi'an were to follow in 2014. As of 2018, there were still no flights to Ma'erkang, Guangzhou, and Shanghai. Flights to Chongqing eventually started on 28 June 2014 (five days a week). In May 2017, three weekly flight to Xi'an were added.

In 2017 and 2018, Daocheng-Yading Airport had approximately 2.5 flights per day: one or two flights during the low season, and up to 5 flights during the high season. In mid-February 2019, low season, the flight frequency was still one or two flights per day; all flights originated in and returned to Chengdu.

Only one type of plane flies to Daocheng-Yading Airport, namely the A319. The Airbus website states that the standard configuration on the A319 is a 124-seat configuration, but there is also an option with a 156 passenger seating capacity.⁵⁰ Assuming 150 seats and multiplying by 2.5 flights per day yields a maximum 375 inbound and 375 outbound passengers per day, or 273,750 passengers per year.

Daocheng-Yading Airport's official handling capacity of 280,000 passengers per year perfectly matches the estimated number of passenger seats per year. But the official handling capacity appears an underestimate.⁵¹ With five flights per day during high-season, the handling capacity is at least double. Given the half dozen check-in counters and two security lanes, the airport would seem to be able to process at least 250 outgoing passengers an hour, or 1250 in the course of a morning. (Probably due to weather patterns, all Daocheng-Yading Airport flights tend to land and depart in the morning.) Adding to this an equal number of incoming passengers, who require no particular processing beyond luggage handling, and the total easily exceeds 2500 passengers a day (1250 outgoing, 1250 incoming, in the course of a morning).⁵² The actual capacity then exceeds the official number of 280,000 passengers per year three- to four-fold. Perhaps the official figure for the "handling capacity" is simply a realistic estimate of the annual number for passenger turnover.

⁵⁰ See <http://www.airbus.com/aircraftfamilies/passengeraircraft/a320family/a319/>, accessed 30 June 2016.

⁵¹ For the handling capacity, see <http://www.usatoday.com/story/news/world/2013/09/18/china-airport-tibet-highest/2832921/>, accessed 29 June 2016. For more airport-related factual information see, for example, <http://www.ibtimes.com/worlds-highest-airport-part-chinas-multibillion-dollar-push-tibetan-plateau-1406780>, <http://www.usatoday.com/story/news/world/2013/09/18/china-airport-tibet-highest/2832921/>, and <http://en.yibada.com/articles/29236/20150425/china-airports-in-extremely-high-locations-new-standards.htm>, all accessed 29 June 2016.

⁵² Probably due to weather patterns, all Daocheng-Yading Airport flights tend to land and depart in the morning.

Construction of the airport can probably not be justified on economic grounds. The airport cost CNY 1.58bn to build (officially declared costs). Assuming an airport lifetime of 20 years (too short) and zero interest costs (too low), the construction cost, spread linearly over twenty years, averages CNY 79mio per year. Add maintenance and running costs of on the order of CNY 20mio per year.⁵³ Continuing with a cost of CNY 100mio per year and 280,000 passengers per year, this translates into CNY 357 per passenger per flight. Since it is unlikely that one-half of the typical ticket price goes for Daocheng-Yading Airport fees (and some fees will also have to be paid at the other airport connected by the flight), the outcome is a substantial, continuous government subsidy for each passenger on each flight. The perpetual government subsidy would suggest that the building of the airport was not an economic decision, but either a political one (further integrating Daocheng into Sichuan) or a military one (facilitate the quick transfer of military personnel and equipment), or one that considers linkage effects in that subsidized flight prices lead to significant profit elsewhere in the local economy (or any combination of such reasons). Or perhaps the airport represents a massive financial mis-calculation.

The airport is not a reliable entry or exit point for Daocheng, to the extent that the lack of reliability may constrain tourism. (Three of the author's four flights in 2016 and 2017 were delayed or cancelled.⁵⁴) In 2016, Air China in particular had a reputation among Daocheng-Yading Airport staff of not landing (of circling above Daocheng-Yading airport and then returning to their departure airports) even when other airlines landed. The issue appears to be one of safety in the case of high-altitude airports. Li Jian, deputy head of the Civil Aviation Administration of China, on 24 April 2015 announced that super-high altitude airports require stricter safety measures than those located at low altitude. Consequently, pending the development of PRC standards for such airports within the next two to three years, plans for super-high altitude airports would no longer be approved.⁵⁵ (International technology standards for super-high altitude airports apparently do not exist.)

While a rationale for what the security issues are is not available, what is known is that aircraft engines produce less thrust at high altitude than near sea level (and the Daocheng-Yading Airport runway at 13,800 feet length is therefore exceptionally long). Any disturbance halfway through the landing process may not leave the aircraft with enough runway length to take off again.

For the airlines, the airport reliability issue implies significant additional costs. The airplane may be tied up, in unpredictable fashion, for extended periods of time (when the plane does not depart, or departs but does not land and returns to the departure airport for another attempt to land at Daocheng-Yading later in the day). Delayed passengers on flights out of Daocheng-Yading need to eventually be transported back to Jinzhu and accommodated for at least one night. One has to wonder if the airlines actually want to fly to Daocheng-Yading or if they are being pressured by government or regulatory agencies into doing so.

⁵³ Assume maintenance and equipment operating costs equivalent to 1% of construction costs, i.e., CNY 15.8mio per year, and 50 employees (from check-in personnel to security personnel, luggage handlers, and aircraft maintenance/servicing personnel) with an average salary of CNY 7,000 per month and 50% additional employment costs, i.e., CNY 6.3mio per year. Together, this is approximately CNY 20mio per year.

⁵⁴ The author's two flights in 2016 were both marred by problems: the first flight was eventually delayed by 28 hours, the second flight consisted of a round-trip Chengdu-Daocheng without touching down in Daocheng, followed by an immediate second, successful attempt from Chengdu to Daocheng after refuelling in Chengdu. A third flight, out of Daocheng in July 2017, was significantly delayed and airport staff allowed me to switch to another flight, with another airline, in order to be able to catch my connection in Chengdu. A fourth flight from Chengdu to Daocheng in late September 2017 was on time.

⁵⁵ See Li Jian, deputy head of the Civil Aviation Administration of China, on 23 April 2015 announced that super-high altitude airports require stricter safety measures than those located at low altitude, anew accessed 5 December 2022.

Appendix 12. Fiscal Data (and Banking Data)

For a brief summary discussion of the fiscal data, see the text of the article. (Also see Figure 6 and Figure 7.) A few additional observations follow below.

While Daocheng's fiscal expenditure pattern contains no surprises—the government provides typical public goods from public safety to health and education (Table 8)⁵⁶—the revenue side exhibits anomalies: Daocheng's revenues are not production- but sales-based. In 2015, the value-added tax (VAT) and the corporate income tax accounted for only 4% and 6% of local fiscal revenue, compared to 20% and 18% nationwide.⁵⁷ Sales taxes accounted for 35% of local fiscal revenue (compared to 13% nationwide) and “fund income” (Table 9)—predominantly state-owned land use rights transfer income—for 19%.⁵⁸

The low share of VAT in Daocheng's revenues also implies that the central government's tax extraction (on which no data are available) from Daocheng is likely minimal. The central government's share of VAT receipts is 75%, which means that the central government collects VAT in Daocheng equivalent to 12% of Daocheng's fiscal revenues. Daocheng's large fiscal expenditures, thus, cannot be financed just through refunds of the central government's VAT receipts to the locality.

Revenue streams have been highly variable over time, with the contributions to local fiscal revenue of the three exhaustive components tax revenue, non-tax revenue (with a significant item “other income”), and “fund income” fluctuating from year to year. In 2008, for example, fund income accounted for 60.6% of local fiscal revenue, and 98.2% of these 60.6% consisted of state-owned land use right transfer income.

The banking system channels funds out of Daocheng, in line with the practice in other rural localities in the PRC. In 2015, deposits were equivalent to 315% of GDP but loans equivalent to only 87% of GDP. Loans tended to be long-term or medium-term (90.2% of loans) and to be highly focused on agriculture (98.6% of all loans), with no further information provided. Lending to agriculture could be exclusively to state agriculture. (One-third of official Daocheng agricultural value-added in 2015 originated with non-private units, Table 2.)

These data may not reflect the true picture in Daocheng. Lending for larger investment projects, such as for the construction of a large hotel, could well be organized locally, but, given the size of lending involved (requiring higher-level bank branch approval), be ultimately booked by higher-level branches of the financial institution. Lending may also occur through off-balance sheet transactions of local financial institutions, or by other financial institutions outside Daocheng, perhaps particularly relevant if the investor is an outside investor.

⁵⁶ Transport's share of fiscal expenditures in 2015 is relatively high at 22.4% (4.6% in 2014). According to Daocheng's official GDP statistics, the county had virtually no value-added in the transport sector. This implies that the government purchased transport services from *non-local companies* to the tune of half the value of the county's GDP.

⁵⁷ National values (for 2015) are from the NBS database (accessed in February and March 2018).

⁵⁸ Highly variable “fund income” over time implies corresponding fluctuations in local revenues.

Table 8. Daocheng County Fiscal Revenue and Expenditure Shares (%)

	2002	2007	2008	2009	2010	2011	2012	2013	2014	2015
Percentage of local fiscal revenue										
A. Total fiscal revenue				118.3	116.5	120.5	110.4	116.9	111.2	103.5
B. Local fiscal revenue	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
B.1 General budget revenue: Total	91.7	96.1	39.4	72.0	80.9	84.3	47.0	83.9	63.2	81.0
B.1.a. Tax revenue	81.8	20.3	36.7	60.7	56.5	47.7	30.4	68.1	46.8	53.0
VAT		1.2	1.5	2.2	2.1	2.7	1.3	2.9	2.5	4.0
Sales tax		13.8	24.7	38.9	36.7	33.1	21.0	51.1	30.8	34.5
Corporate income tax		0.0	1.0	0.2	1.5	3.5	3.5	4.4	3.6	5.7
Personal income tax		2.0	4.2	7.7	5.3	2.8	0.8	1.4	1.9	2.8
Resource tax		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5
Urban maintenance & construction tax		0.6	1.2	1.5	1.8	1.4	0.8	2.6	1.7	1.7
Property tax		0.0	0.3	1.3	0.9	1.3	0.8	2.2	1.5	0.7
Stamp duty		0.0	0.1	0.6	0.8	0.3	0.2	0.4	0.3	0.3
Urban land use tax		0.0	0.1	0.4	0.1	1.2	0.4	0.4	0.5	0.2
Land VAT		0.0	0.0	0.2	0.0	0.0	0.0	0.6	0.1	0.7
Vehicle and boat tax		0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
Farmland use tax		0.0	0.0	1.4	3.6	0.0	1.2	0.0	1.4	0.0
Deed tax		2.3	0.0	6.1	3.6	1.3	0.4	2.1	2.2	1.6
Other tax revenue		0.4	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B.1.b. Non-tax revenue	9.9	75.8	2.7	11.3	24.4	36.6	16.5	15.8	16.3	28.0
Special income		73.8	0.9	1.5	1.4	1.5	1.0	1.8	1.1	4.6
Administrative fees and charges		0.6	0.2	1.5	1.3	1.5	1.1	3.6	7.3	10.9
Penalty revenue		0.1	0.5	1.2	0.9	1.0	0.6	1.5	1.7	0.8
State-owned capital operating income		0.7	0.6	0.8	0.7	0.6	0.0	1.3	0.0	0.0
State-owned resource/asset usage rev.		0.5	0.2	2.1	2.7	1.7	1.4	2.9	1.0	0.6
Other income		0.0	0.2	4.2	17.3	30.2	12.5	4.7	5.2	11.1
B.2 Fund income	8.3	3.9	60.6	28.0	19.1	15.7	53.0	16.1	36.8	19.0
Percentage of sum 'general budget expenditure plus fund expenditure'										
C. Total fiscal expenditure				100.0	100.0	100.0	100.0	100.0	100.0	100.3
D. Sum general budget & fund expenditure	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
D.1. General budget expenditure	99.3	99.2	94.6	98.0	97.8	98.2	99.8	98.7	96.4	97.7
General public service		18.4	17.8	10.9	11.8	10.2	10.3	11.4	9.0	10.0
National defense		0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1
Public safety		7.5	7.1	6.9	7.9	4.3	5.1	4.7	6.0	4.4
Education		11.4	9.1	9.2	9.7	9.7	13.1	10.9	5.7	8.6
Science and technology		0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Culture, sports, and media		1.8	1.0	0.9	1.6	1.4	1.0	2.5	1.4	1.0
Social security and employment		14.0	16.4	12.9	10.1	7.6	8.2	8.3	7.0	8.2
Health		5.8	6.9	9.8	7.6	5.5	6.2	7.7	5.1	6.2
Energy saving, environmental protection		8.5	8.6	8.9	9.4	4.6	2.3	7.1	2.8	2.5
Urban and rural community affairs		1.9	1.9	0.1	0.7	0.5	8.4	6.1	16.2	0.7
Agriculture, forestry, and water affairs		6.1	10.6	6.5	13.8	9.1	9.4	13.0	13.8	15.1
Transport		3.0	2.2	19.5	8.6	23.4	20.5	4.6	7.5	22.4
Resource exploration, power, info. etc.		0.0	0.0	0.3	0.6	0.5	0.2	0.2	0.2	0.2
Business services etc.		1.1	1.5	0.0	0.5	7.1	4.3	5.1	14.6	7.4
Financial expenditure		0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0
Earthquake recovery, reconstruction exp.		0.0	0.0	0.5	0.4	0.0	0.0	0.0	0.0	0.0
Land, marine, and meteorology exp.		0.0	0.0	0.0	0.3	0.8	0.3	1.6	1.9	2.6
Housing protection exp.		0.0	0.0	0.0	6.9	5.9	4.7	4.4	3.5	2.9
Grain and oil material reserve managem.		0.0	0.0	0.9	0.2	0.0	0.0	0.0	0.1	0.1
Debt service payments		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Other expenditure		19.5	11.2	10.5	7.5	6.9	5.2	10.9	1.5	5.0
D.2. Fund expenditure	0.7	0.8	5.4	2.0	2.2	1.8	0.2	1.3	3.6	2.3
Total expenditure / total revenue (C/A)				18.0	13.6	19.2	9.0	14.8	10.4	9.1
Sum expenditure / local revenue (D/B)	16.3	7.4	10.2	21.3	15.9	23.1	9.9	17.4	11.6	9.4
Total revenue (A) / GDP				0.09	0.10	0.10	0.18	0.13	0.23	0.22
Local revenue (B) / GDP	0.04	0.14	0.11	0.07	0.09	0.08	0.16	0.11	0.20	0.21
Expenditure (C) / GDP				1.6	1.4	1.9	1.6	1.9	2.4	2.0
Sum expenditure (D) / GDP	0.6	1.0	1.1	1.6	1.4	1.9	1.6	1.9	2.4	2.0

Note: Item D is obtained as sum of D.1. and D.2.

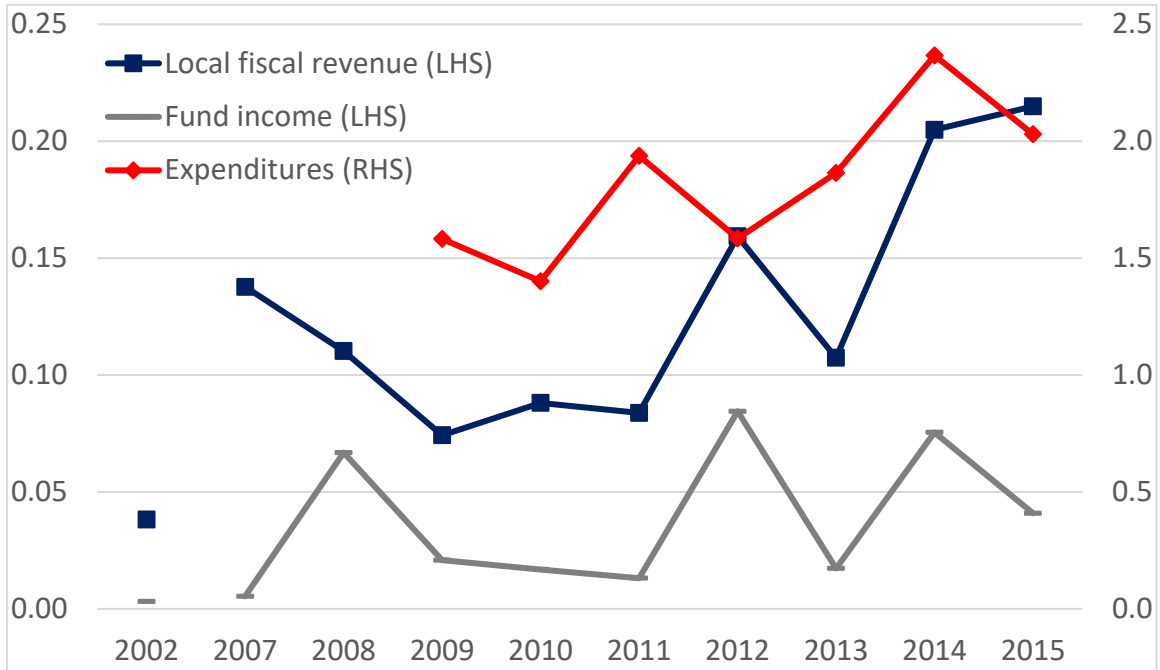
Source: *Ganzi Statistical Yearbook 2003, 2008, ..., 2016.*

Table 9. Daocheng County Government Funds Income and Expenditures

	2002	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total government fund income	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Government housing fund income									0.1	
State-owned land use right transfer income		77.3	98.2	73.5	72.0	85.2	84.1	71.4	80.7	85.4
State-owned land earnings fund income				2.6	2.7	2.5	3.1	2.6	3.0	3.2
Agricultural land dev. fund income				13.1	13.1	0.0	10.9	9.4	10.5	11.1
Urban infrastructure support fee income									0.2	0.1
Sewage treatment fee income										0.2
Other fund income		22.7	1.8							
Forest fund income				3.7	3.4			4.7	0.8	
Local education surcharge income				1.7	2.3	5.3	1.0	7.5	1.9	
Disabled persons employment security fund income				5.5	6.5	7.0	1.0	4.4	2.6	
Total government fund expenditure	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Expenditure related to the national film industry development special fund										2.8
Expenditure related to assignment of state-owned land use rights		87.3	91.5							71.3
Expenditure related to the new construction land use fees										0.7
Expenditure related to the bulk cement special fund										1.2
Expenditure related to the new all materials special fund										3.5
Expenditure related to the lottery public welfare fund										9.6
Expenditure related to other gov. funds										10.7
Other fund expenditure		12.7	8.5							
General public service				25.0						
Education				2.2	1.2	1.6	7.4	5.7	1.7	
Culture, sports, and media					0.6		0.3	0.9	0.3	
Social security and employment				3.5	3.0	1.2	0.9	5.3	2.9	
Urban and rural community affairs				61.3	20.0	63.8	86.2	67.9	79.7	
Agriculture, forestry, and water affairs				7.9	9.2	9.5	1.7	3.1	9.1	
Other expenditures					55.8	23.8	3.6	17.0	3.5	
Business services, etc.					10.2				2.4	
Resource exploration, power, info., etc.									0.3	
Fund income / fund expenditure	0.77	0.67	1.11	0.66	0.54	0.37	1.00	0.72	0.89	0.86

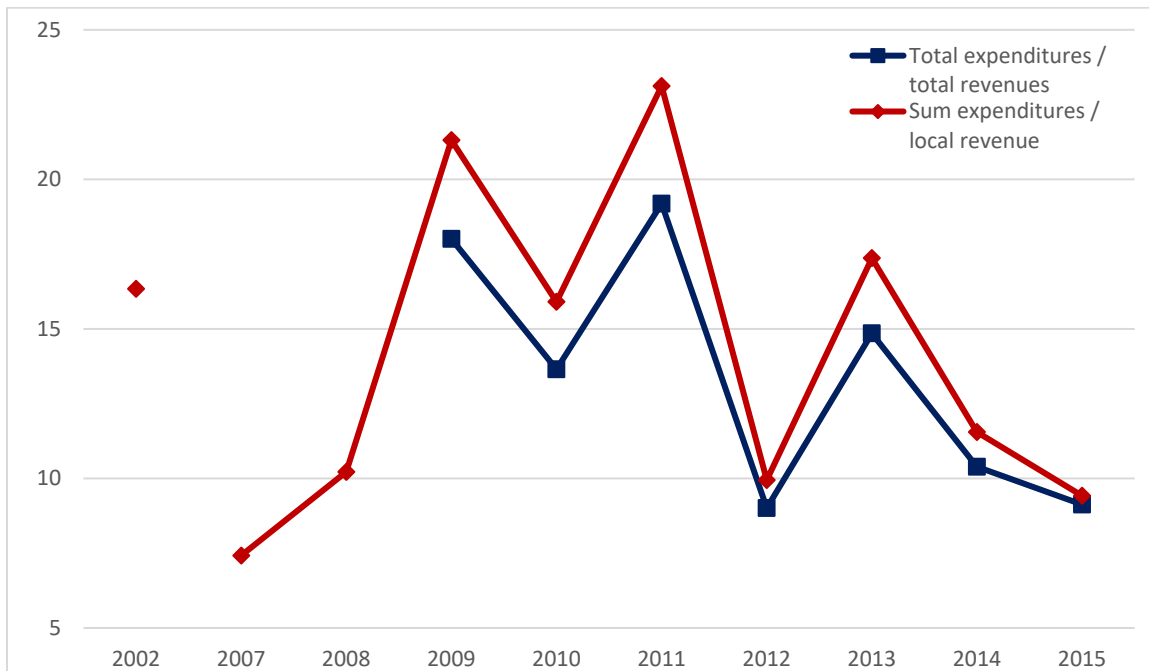
Note: entries with value 0.0 were removed for ease of reading the table.

Source: *Ganzi Statistical Yearbook 2003, 2008, ..., 2016.*



Source: Table 8.

Figure 6. Daocheng County Ratios of Budget Measures to GDP



Note: the sum of the values of all expenditure categories equals "total expenditures" in those years (since 2009) that "total expenditure" values are provided separately in the statistics (with a trivial difference in 2015).

Source: Table 8.

Figure 7. Daocheng County Ratios of Fiscal Expenditure to Revenues

Appendix 13. Costs of Road Construction

According to a construction notice at a road construction site in Riwa in 2017, the cost of building an approximately 30 meter long bridge in Riwa together with 3.2km of road was CNY 1.25bn. This amount appears so large that one cannot help but wonder if the notice is off by a factor of 10. (CNY 1.25bn is more than the *Master Plan* budgeted for Daocheng infrastructure measures, such as road construction, for all 15 years from 2001-2015.)

Data for the U.S. suggest that construction of a rural 2-lane undivided road costs approximately USD 2-3mio per mile, while resurfacing a major highway costs USD 157,000 per mile.⁵⁹

The provincial road from Daocheng-Yading Airport to Riwa is 120km long. In addition, the original road to Yunnan that branches off in Sangdui runs for another perhaps 40km within Daocheng, and the new road from just north of Riwa towards Xiangcheng may equally run for perhaps 40km within Daocheng. This makes for a total of 200km (124 miles) of roads. (This total excludes the roads within the urban areas of Jinzhu and Riwa, as well as the two roads from Riwa into Yunnan that were under long-term construction in 2017.)

Road construction in Daocheng typically implies fortifying an existing dirt road and surfacing it for the first time. If one assumes that such a process would cost USD 2mio per mile in the U.S. and that the exchange rate is CNY 6.5 per USD, then the domestic cost of 124 miles (200km) of road construction in Daocheng is approximately CNY 1bn. One could argue that road construction should be cheaper in the PRC because of cheaper labor, but, on the other hand, the road construction machinery could well be imported from the U.S. and therefore be more expensive, and road construction in such a remote location at such high altitude with difficult road building conditions may well increase construction costs.

The cost of bridge construction per mile likely is a multitude of the cost of road construction per mile; the cited Riwa construction costs may be an indicator of just how expensive bridge building can be. The 124 miles of road construction, while not comprising a bridge the size of the one in Riwa, still includes many smaller bridges. One may thus want to double or triple the road construction costs derived in the previous paragraph.

⁵⁹ See <https://medium.com/@TimSylvester/i-agree-it-sounds-astronomical-but-i-actually-understated-the-costs-according-to-artba-2e8baeac2a46>, accessed 11 February 2019.

Appendix 14. Employment and Population Data

Daocheng's employment data are incomplete. The population data allow a first estimate of total employment before moving on to the available formal sector employment statistics and then alternative estimates of employment.

Population and employment

Daocheng's permanent resident population in 2015 was 32,709 persons (Table 10). Applying the 2015 nationwide ratio of employment to population (of 56.3%) to the Daocheng permanent resident population yields 18,415 employees.⁶⁰ Alternatively, Daocheng's registered household population was 31,643 (public security bureau record), 3% lower. The latter figure comes with a breakdown into four age categories. Applying nationwide age-specific labor force participation rates to the Daocheng population by age yields 16,457 employees (52.0%).⁶¹

Table 10. Daocheng County Population (2015)

Public security bureau record			
	Total	Non-agricultural (非农业人口)	Agricultural (农业人口)
Households	7,134		
Persons	31,643	4,265	27,378
In %:		13.5	86.5
Age <18	25.6		
Age 18-35	26.7		
Age 35-60	36.2		
Age >60	11.5		
Resident population			
	Total	Urban (城镇)	Rural (乡村)
Persons	32,709	7,739	24,970
In %		23.7	76.3

Sources: *Ganzi Statistical Yearbook 2016*.

Formal sector employment (and labor remuneration)

Daocheng's official employment statistics report only 3,880 employees (in 100 work units, 单位); 219 of these employees are employees of private units (Table 11). Since these statistics report only 8 employees in agriculture, they must exclude the rural (agricultural) population that accounts for 87% of Daocheng's registered household population (Table 10).

⁶⁰ For the national ratio see the employment and population data in the NBS database, accessed 2 March 2018.

⁶¹ Employment was calculated by applying the national age-specific employment shares—obtained from the data of the long-form questionnaire in the *Population Census 2010*, after aggregation across age cohorts to match the age groups for which Daocheng population data are available—to the Daocheng population data. (Daocheng's age group 18-35 was assumed to cover ages 18-34 as the subsequent Daocheng age group is 35-60. With the youngest age group in the Daocheng population statistics being the age group "younger than 18," Daocheng's population age 16 and 17 was assumed to be in the same proportion to the age group 18-34 as nationwide.)

Table 11. Daocheng County Official Employment (2015)

	Non-private units					Private units				
	Num-ber of units	Ave-rage em-ployment	# on-post empl.	Labor remuneration (yuan) per em-mployee	on-post empl.	Sector share in total employ-ment (%)	Column titles as on left			
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(4)	(6)
Total	84	3,661	3,032	66,275	75,286	100	16	219	31,164	100.0
Agriculture							2	8	36,500	3.7
Mining							1	9	29,889	4.1
Manufacturing							2	27	17,815	12.3
Utilities	2	70	46	51,971	66,174	2	3	40	33,075	18.3
Construction										
Transport	2	431	431	82,889	82,889	12				
Information technology										
Trade	2	17	17	49,824	49,824	0	3	8	36,125	3.7
Hotels and catering	4	187	171	43,043	42,684	5	4	100	33,520	45.7
Finance	2	55	53	78,018	80,132	2				
Real estate										
Leasing										
Science	3	181	181	16,359	16,359	5				
Water conservancy	2	199	86	37,337	64,698	5	1	27	30,333	12.3
Household services										
Education	6	539	465	71,866	79,671	15				
Health	5	254	238	74,476	78,042	7				
Culture	3	31	31	85,032	85,032	1				
Public administration	53	1,697	1,313	70,361	84,024	46				
By ownership										
Total	84	3,661	3,032	66,275	75,286	100.0				
State	77	3,016	2,403	65,241	76,218	82.4				
Collective	1	27	27	77,519	77,519	0.7				
Other										
Implicit residual	6	618	602	70,832	71,468	16.9				
By administration type										
Total (all units)	84	3,661	3,032	66,275	75,286	100.0				
Enterprises	12	760	718	69,145	71,256	20.8				
State	5	115	89	58,113	67,921	3.1				
Collective	1	27	27	77,519	77,519	0.7				
Other										
Implicit residual	6	618	602	70,832	71,468	16.9				
Administrative units	23	1,352	1,115	59,774	68,033	36.9				
State	23	1,352	1,115	59,774	68,033	36.9				
Collective										
Government departments	49	1,549	1,199	70,542	84,445	42.3				

“Average employment” denotes average annual employment. “On-post” denotes 在岗职工.

Note: The “average employment” numbers used here contrast with the Daocheng number of “engaged persons” reported in Table 5, which are end-year numbers. The differences in mid-year vs. end-year values are of negligible size. (For example, Daocheng total formal employment mid-year 2015 was 3,880 and end-year 2015 4,015, i.e., 3.5% higher.)

Some aggregate values (with a breakdown into “non-private” and “private”) are also reported in a separate table in the source, listing a total number of 100 (work) units and a total number of average annual employment of 3,880 (the sums of the values of non-private and private units in this table here). The separate table in the

source under-reports labor remuneration in private units by a factor of ten (an obvious error), and then replicates the same error in the values it reports for totals.

Source: *Ganzi Statistical Yearbook 2016*.

Of the 3,880 employees, 94% (3,661) work in “non-private” units. Almost half of the 3,661 official employees in non-private units work in public administration (46%), followed by education (15%), transport (12%) and health (5%). In other words, more than three-quarters of non-private formal employment is in public goods sectors.

The fact that the rural/agricultural population is excluded from the employment data leaves as source for the 3,880 formal employees either the “non-agricultural” population of 4,265 persons (implying an employment rate of 91%), or the urban permanent resident population of 7,739 persons (implying an employment rate of 50%, more likely to be applicable).

The formal sector employment data come with some peculiarities. Thus, formal employment in the construction sector is zero even while official construction value-added is substantial; presumably, these workers come with construction companies from outside Daocheng and are then ignored in the employment statistics. In a second instance, transport accounts for 12% of formal sector (non-private) employment and science for 5%, but each of these two sectors accounts for less than 0.5% of official value-added, which is not credible.

The formal sector employment data appear heavily biased towards the public (non-private) sector. In a breakdown according to the type of unit, 42% of employment is in government departments and 37% in (state) administrative units; only 21% is in enterprises, the ownership of four-fifths of which is undefined (Table 11).

The prevalence of the state is also confirmed in an ownership breakdown, with 82% of employment in non-private units being in state units and 16.9% in an implicit residual category that likely captures non-regular employment in state units. The 16.9% value is close to the share of not-on post employees, at 16.4% (Table 11). It is thus plausible that the undefined category obtained as implicit residual simply covers state employees whose positions are not part of the authorized employment numbers (编制). Two-thirds of the not-on post employees work in government departments and almost all of the remainder in administrative units.

The official employment data come with values for labor remuneration. Aggregate labor remuneration in administrative units and government departments in Daocheng in 2015 amounted to 32% of official GDP, three times the share of the public sector wage bill in OECD countries (10%, 2000-2013 average) and much higher than the typically below 10% share in developing economies.⁶²

Labor remuneration of formal employees is twice as high in non-private units (CNY 66,725) than in private units at (CNY 31,164, Table 11). Average labor remuneration across all formal employees of CNY 64,293 is more than twice as high as the official *urban household* per capita disposable income of CNY 26,030. The difference can presumably be accounted for by income taxes and the fact that some labor remuneration may not constitute disposable income, as well as by potentially differing coverage of the two variables (the compilation of household income statistics may not be limited to formal employees).

⁶² For the international comparison, see the *Financial Times* of 6 March 2018 (p. 9) “FT Big Read. Middle East.”

Summary estimates of actual employment / supporting documentation for numbers presented in the text

Assuming the nationwide share of laborers in the population (56.3%) equally applies to Daocheng, its permanent resident population of 32,709 translates into 18,415 laborers. In other words, on the order of 14,500 laborers are missing from the official employment statistics (18,415 less 3,880 formal employees). With an official “agricultural population” of 27,378, many of the missing laborers will likely be found in subsistence agriculture, and possibly in informal employment.

A rough estimate of total Daocheng employment in 2015 is 33,000:

- agriculture: 15,000 (as an approximation of the rural population times the nationwide employment share of the population);
- tourism (hotels and catering, transport, one-third of trade): approximately 13,250 (7,500, 3,250, and 2,500, based on related variables, such as in the case of hotels the number of hotel rooms and typical ratios of hotel staff per hotel room [more details below]);
- construction: approximately 1,500 [more details below]; and
- all other, formal non-agricultural employment: more than 3,137 (the official figure of 3,880 less 287 formal employment in hotels and catering, 431 in transport, 17 in trade, and 8 in agriculture), likely an underestimate of employment in the remaining sectors.

Employment in hotels and catering

Of the total of 3,880 employees (Table 11), only 287 work in hotels and catering, 441 in transport, and 25 in trade. That does not match reality. Dividing a room estimate for Daocheng in 2015 of 8,936 rooms by the nationwide number of rooms per engaged person in above-designated size legal unit hotels (1.76, Table 5) suggests 5,077 employees in the *hotel* industry in Daocheng.⁶³ The nationwide share of *hotel* employees in the number of engaged persons in ‘hotels and catering’ (0.46, Table 5) then implies 5,960 employees in *catering* in Daocheng. Employment in hotels and catering sums to 11,037.⁶⁴ Since not all establishments of accommodation in Daocheng are “above-designated size legal unit hotels”—some are below-designated size establishments or sole proprietorships, which employ fewer staff per room—one may want to lower this employment estimate from 11,037 by perhaps one-third, to 7,500. (Also see alternative, detailed calculations below.)

Employment in transport and trade

Across Ganzi TAP, transport value-added is equivalent to three-quarters of hotels and catering value-added (see note below Table 5). If value-added per employee in transport is assumed to be twice that in hotels and catering (and all transport is assumed to be related to tourism), then 3,250 tourism-related persons are employed in the sector transport ($0.75 * 0.5 * 7,500$, with the figure of 7,500 employees in hotels and catering derived above).

⁶³ The room number is obtained by dividing the reported number of 21,000 hotel beds (*Sichuan Yearbook 2016*, entry on Daocheng) by the *Master Plan*’s estimated number of beds per room of 2.35.

⁶⁴ An international standard of employment per hotel room yields a similar number for hotel employment; see Appendix 9.

A similar calculation can be made for the sector ‘trade,’ with perhaps one-third of all (wholesale and retail) trade directly and indirectly related to tourism. In Ganzi TAP, value-added in trade is of similar size as value-added in hotels and catering (see note below Table 5). If value-added per employee in trade in Daocheng were similar to that in hotels and catering, then trade would account for another 2,500 tourism-related employees ($1/3 * 7500$) in Daocheng.

A rough estimate of tourism-related employment in hotels and catering, transport, and trade then is 13,250 (7,500 plus 3,250 plus 2,500).⁶⁵

Employment in construction

In the official statistics, employment in the construction sector in Daocheng is zero, as it is in several other sectors, suggesting data compilation or definitional issues (such as construction workers not being considered formal employees). In contrast, official construction value-added is non-zero. A guesstimate of construction employment is 1,500.

More on tourism employment

Employment in hotels and catering can be derived via tourism income if one assumes that all tourism income in Daocheng is earned in hotels and catering only (or that business revenue per employee in other relevant sectors, such as transport and, partially, trade, is similar to that in hotels and catering), and that Daocheng hotels and catering share the same characteristics as the nationwide average.

Tourism-related employment in Daocheng then follows from dividing Daocheng tourism income by (national) business revenue per employee in hotels and catering. Business revenue per employee in hotels and catering in 2015 can be derived from the 2015 (national) value of business revenue per employee in above-designated size legal person units, properly adjusted (based on 2013 data) to take into account below-designated size legal person units and sole proprietorships.

With business revenue per employee in below-designated size legal person hotel and catering units in 2013 approximately equivalent to 60% of that in above-designated size legal person hotel and catering units in 2013 (*Economic Census 2013*, Table 4), and that in sole proprietorships an assumed 30%, weighting by the employment figures (Table 4) implies average business revenue per employee across hotels and catering in 2013 of CNY 91,401, approximately half (51.73%) that of the above-designated size legal person hotel and catering units in 2013.⁶⁶ For 2013, dividing Daocheng’s 2013 tourism income of CNY 170.56mio (Table 5) by this estimated nationwide business revenue per employee yields an employment number of 1,866.

⁶⁵ Alternative approaches to calculating employment in tourism include an approach based on tourism income (Appendix 9), which suggests tourism-related employment across Daocheng of 10,000-16,000 persons.

⁶⁶ The calculation is $[(4,562,000 \text{ persons} * \text{CNY } 176,705 \text{ per person}) + (2,354,325 * 104,329) + (10,694,000 * 104,329/2)] / (4,562,000 + 2,354,325 + 10,694,000) = \text{CNY } 91,401$, which is 51.73% of the business revenue per employee in above-designated size legal person units (CNY 176,705).

For 2015, dividing Daocheng's 2015 tourism income of CNY 1,696.66mio by 51.73% of 2015 nationwide above-designated size legal person unit business revenue per engaged person of CNY 206,007 yields an employment number of 15,921. Given personal observations on the ground, this estimate appears on the high side. One may question the estimate because much of employment in sole proprietorships in Daocheng likely is part-time, and in many instances probably limited to the high season of July through October. Additionally, business revenue per employee in transport could be higher than in hotels and catering, and the use of the hotels and catering values then over-estimates employment (by dividing tourism income by an estimated value of business revenue per employee that is too small).

A perhaps lower bound estimate of tourism employment is obtained by ignoring sole proprietorships altogether. Dividing Daocheng 2013 tourism income of CNY 170.56mio by the 2013 economic census (legal person) nationwide value of business revenue per employee in hotels and catering of CNY 152,068 implies 1,122 employees. The 2013 economic census nationwide value of business revenue per employee equals 86.06% of nationwide business revenue per employee in above-designated size legal person units (*Statistical Yearbook*). Taking such an adjustment to the 2015 nationwide value of business revenue per employee in above-designated size legal person units of CNY 206,607, implies—given Daocheng's tourism income of CNY 1,696.66mio—9,570 employees in 2015.

An alternative employment figure, for hotels only, can be derived from employment-per-room data. The PRC national statistics (Table 5, with 1.76 rooms per engaged person) imply an average of 5.7 persons per 10 rooms, resulting in 5,077 hotel employees.

The World Tourism Organization publishes alternative employment-per-room data. The World Tourism Organization recommends the following optimum number of staff per 10 rooms: 3-star hotel: 8 persons; 4-star hotel: 12 persons; 5-star hotel: 20 persons.⁶⁷ The average establishment of accommodation in Daocheng is probably a 3-star hotel (or lower), suggesting an average 8 staff (or fewer) per 10 rooms. At the *international standard* of 8 persons per 10 hotel rooms in 3-star hotels and an approximate 7,000 hotel rooms in 2015, hotels (alone) in Daocheng employed 5,600 persons; this is 10% more than 5,077 persons based on the PRC nationwide average.⁶⁸

Given the 2013 economic census nationwide employment data, catering could employ the same number of laborers as do hotels. For transport, a rough estimate of employment in Daocheng based on personal observations (as alternative to the calculations above) is 1,000-2,000. These observations suggest 326 bus drivers for the 163 buses running within Yading, 100 Tibetans staffing the electric carts within Yading, on the order of 100 formal taxi drivers in Jinzhu and another 100 drivers of informal taxis, 50-100 staff at the airport, and perhaps another 500 drivers serving the tourism business as bus, SUV, or jeep drivers.

⁶⁷ See <http://www.city-of-hotels.com/165/hotel-staff-en.html>, accessed 2 March 2018.

⁶⁸ Employment in Daocheng's hotels could deviate from the international as well as the national standard for a number of reasons. Thus, capacity utilization in Daocheng could be particularly low given the strong seasonality of tourism in Daocheng. Using the national number of rooms per engaged person in above-designated size legal person hotels as reference point ignores that many hotels may be below-designated size—or not even legal persons, but sole proprietorships—with potentially lower levels of staffing. This would suggest lowering the employment estimate for hotels in Daocheng. On the other hand, given the relatively low labor costs in Daocheng and perhaps low average efficiency of labor in Daocheng, staffing could also be higher than elsewhere.

A good part of wholesale and retail trade also serves tourism, adding perhaps another 1,000-2,000 laborers. This brings total tourism-related employment again to a level of around 15,000.

Tibetan population

An employment figure of 33,000 (32,887 in the employment breakdown above) also has implications for the population value. On the order of 14,000 employees (an estimated total of 33,000 less a, based on official population statistics plausible 15,000 agricultural laborers, less 3,872 non-agricultural, official formal employees)—plus their non-working family members—appear not to be considered residents in the official statistics.⁶⁹ At the nationwide share of employees in the population of 56.3%, this translates into 25,000 additional residents in Daocheng, bringing the grand total to approximately 58,000 residents (25,000 + the official 32,709).

With an official Tibetan population of 31,564 (96.5% of 32,709 official residents), the actual Tibetan population share (in the 58,000 population) becomes 55%. The non-Tibetans then number 26,145, as the sum of 1,144 officially recognized non-Tibetans and 25,000 additional residents who can virtually all be expected to be non-Tibetans. If all 26,145 non-Tibetans were located in urban areas of Daocheng and only Tibetans lived in rural areas (with an official rural population of 24,970), the 26,145 non-Tibetans would outnumber the 6,594 Tibetans in urban areas approximately 4 to 1.

Separately, the *Master Plan* allows an estimate of the non-Tibetan population of Jinzhuzhen in 1999. According to the *Master Plan*, the population of Daocheng in 1999 was 27,324, of which more than 96% were Tibetans; the agricultural population was 24,275. Of the Jinzhu population, 70% were Han. For these official numbers to match, and under the assumption that everyone outside Jinzhu is Tibetan, the population of Jinzhu (a figure not published) must have been 1561. If all the non-agricultural population were located in Jinzhu (or in other Daocheng towns with a similar 70% Han share of the population), then the official Tibetan share of the Daocheng population would be 92% (not “more than 96%”). The 70% Han share of the Jinzhu population in 1999 makes sense given that Jinzhu was established as an administrative center of the PRC government, located between several Tibetan hamlets (agglomeration of houses amidst fields), which by now are no longer distinct from the administrative town. (These 1999 figures ignore those Han who are not considered residents in the official population statistics.)

Employment issues

Gerschenkron (1962a) raised the concern that in a ‘backward’ economy labor is relatively expensive because the labor force is not an industrial one. Another employment aspect is the commodification of labor. The issue of industrial labor—with individuals selling their time in exchange for compensation rather than work done to achieve a particular task—is well-known in the literature (for example, Ayres, 1952, Thompson, 1967) and has recently been raised by Tang and Eom (2019) for the case of labor in PRC firms in Africa. All the elements

⁶⁹ Many Han workers return to their place of origin when tourism winds down in November / December until mid-March. Any survey-based population count, as the permanent resident count likely is, could occur late in the year. The 2010 population census date was 1 November, though the actual survey may have been conducted later.

of industrial labor, from rigid clock-time to discipline, division of labor and supervision, would seem to run counter to the traditional Tibetan subsistence lifestyle.

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Appendix 15. Revenue Diversification: Local Special Products

A key aspect of economic development based on tourism, according to the *Master Plan*, is the development of tourist commodities (旅游商品), i.e., of products to be purchased by tourists. Income from retail sales is reported to account for 25% of Sichuan's tourism income and 70% of Hong Kong's, with developed foreign tourist markets typically at 50%. The Daocheng *Master Plan*'s objective for Daocheng, which around 2000 had practically no income from retail sales to tourists, was for retail sales to reach 10% of tourism income in 2005 and 15% by 2015.

The *Master Plan* suggests the development of local specialties with what seem arbitrary output projections for the upcoming three 5-year periods (2001-2015) for dried fruit (干果, including walnuts) to be produced in five lower-altitude townships in Daocheng. Other products listed in the *Master Plan* are Chinese medicine herbs, Yak meat, and forest by-products such as Matsutake mushrooms.⁷⁰ Institutions are to be established that further research the various possibilities and then promote implementation and facilitate sales.

As of 2017, such projections remain elusive. While dried Yak meat is available and various shops sell Chinese medicine (in particular, the Caterpillar mushroom), these sales at best account for a lower single-digit percentage share of tourism income. Local dried fruit were not on sale in Jinzhu and Riwa in 2016 and 2017.⁷¹

The Matsutake mushroom prominently features in restaurants. The *Master Plan* suggests a harvest of 200 tons, presumably annually, valued at CNY 1.1mio (*Master Plan*, Table 3.4.1, p. 103), without, however, providing a time frame or expanding on current output at the time of writing of the *Master Plan*.⁷² The bulk of this harvest is unlikely to find its way onto tourists' plates or into their shopping bags as the market is focused on quick, minor processing and then exporting to Japan by plane.⁷³

Tibetan jewelry is widely available, whether in shops or offered by Tibetan hawkers, such as in a small wooded park south of Jinzhu where tourist buses stop for photo shoots of the fall scenery. But, again, the volume of transactions and the returns appear minuscule. The necklaces sold by Tibetan hawkers at rock-bottom prices (CNY 15-20) are likely produced in a PRC factory elsewhere (or imported from Nepal), meaning the local Tibetans are traders, not producers, which limits local income and value-added.

⁷⁰ The dried fruit production supposedly requires an investment on the order of CNY 10m, while the cultivation of Yaks requires an investment of CNY 778,000 to fence off 19,000 mu of land on which to raise 1,900 Yaks,

⁷¹ In October 2017, locals made the rounds of Jinzhu and Riwa trying to sell honeycombs to unenthusiastic tourists. In Jinzhu, half a dozen women from neighboring Xiangcheng county selling apples and walnuts had set up temporary stalls at the entrance to the wet market. These are very small-scale, localized undertakings; the (excellent) Xiangcheng apples were not available in Riwa, let alone in Diqing in neighboring Yunnan, or at the fruit stalls (formal and informal) in the Tibetan area of Chengdu.

⁷² By 2016, the Matsutake price was around CNY 70 per Chinese pound (500g), compared to the price of CNY 5.5 implicit in the *Master Plan*'s values.

⁷³ Fresh Matsutake mushroom is a seasonal product, available in July and August, sometimes extending into September. Even if every second tourist were to have one Matsutake dish during their two-day stay in Daocheng, it would still only account for a small fraction of total tourist expenditures (perhaps 2-3%, CNY 100 * 0.5 / CNY 2,000), and only during a couple of months of the year.

Appendix 16. Household Income

Official per capita GDP in Daocheng in 2015 of CNY 18,442 per person was one-third the nationwide average of CNY 50,251. The official household income statistics paint an almost equally bleak picture (Table 12). Average household income per person in 2015 of CNY 12,735 was just above half the nationwide figure and came with a more than three-fold discrepancy between urban and rural household incomes.⁷⁴

But the official household income statistics provide only a partial picture.⁷⁵ These income statistics ignore several sources of income:

- Matsutake and Caterpillar mushroom harvests. For individual households, income from mushroom harvesting can run into several tens of thousands of *renminbi*.
- Bartered labor. Building a home is a household activity and typically involves two dozen neighbors and relatives on a work exchange basis.
- Informal labor.
- Rural land leases.

Altogether, these unreported household income sources are likely to raise official household income by about 70%, to the nationwide average (second-to-last row, Table 12).⁷⁶

One could further consider the fiscal in-transfers, reflecting the extraordinary public goods provision relative to local income levels, from education to health care and various government services. These transfers imply a subsidy for every Daocheng resident equivalent to two and a half times official average household income.⁷⁷ Summing official per capita household income, estimated informal income, and fiscal in-transfers yields a per capita income value of CNY 54,502, two and a half times the nationwide average.

Per capita income data are averages and convey no information about income inequality. Average labor remuneration for formal employees in non-private units in 2015 was CNY 66,275,⁷⁸ eight times rural disposable income per person. In the largely unrecorded tourism economy, with employment four times larger than in the formal economy, average labor remuneration may be up to twice that of formal employees in non-private units.⁷⁹ To the extent that such tourism income is earned by non-locals, these numbers suggest a significant, perhaps six-fold income gap between non-locals and locals (including all sources of income).

⁷⁴ Rural household income presumably reflects official imputations of the value of self-produced self-consumed agricultural products since agriculture is predominantly subsistence agriculture. Almost all urban household income is wage income (88%, Table 12). The small share of transfer income, 2%, suggests that few residents venture outside their county to work and to send home remittances.

⁷⁵ While Daocheng's official GDP statistics vastly underestimate actual GDP, the household income statistics could yet be somewhat accurate in their coverage of the largely Tibetan, local (official resident) population. These official data are presumably collected directly from resident households.

⁷⁶ The production and informal sale of local "special products" may yield yet additional income; see Appendix 15.

⁷⁷ This doesn't yet consider the significant implicit financial in-transfers for road and airport construction and maintenance.

⁷⁸ See Appendix 14.

⁷⁹ Attributing all tourism income to the approximately 13,250 tourism-related employees implies CNY 128,075 per employee.

Table 12. Daocheng County Household Income (2015)

	CNY
Reference: nationwide household (disposable) income per person (可支配收入)	21,966
I. Household income per person (A, B, weighted by permanent resident numbers)	12,735
A. Urban household (城镇住户): disposable income (可支配收入) per person	26,030
Wage income (工资性收入)	88%
Operating income (经营性收入)	5%
Property income (财产性收入)	5%
Transfer income (转移性收入)	2%
B. Rural population (农村居民): disposable income per person	8,615
II. Matsutake harvest^a per person	1,000
III. Caterpillar mushroom harvest^b per person	2,500
IV. Bartered labor^c (for example, housing construction)	1,250
V. Informal labor^d	2,000
VI. Rural land leases^e	2,000
Sum: II + III + IV + V + VI	8,750
Sum: I + II + III + IV + V + VI	21,485
VII. (Total fiscal 'expenditures - revenues') per person	33,017

Notes:

GDP per permanent resident in Daocheng is CNY 18,442 (nationwide: CNY 50,251).

The total number of residents is 32,709 with 7,739 urban and 24,970 rural residents; also see Table 10.

Source of official data: *Ganzi Statistical Yearbook 2016*; nationwide values from the NBS database (<http://www.stats.gov.cn>, accessed 5 April 2018 and 23 February 2019). For the assumptions underlying items II-VI, see Appendix 16.

The following assumptions underlie the derivation of the values of the various household income categories reported in Table 12.

*Matsutake harvest*⁸⁰

Matsutake, Songrong 松茸 (བེ་ཤིང་ཤ་མོ་, beshing shamo), *Tricholoma matsutake*

(1) Assume an annual Matsutake harvest of 200 tons, as projected in the *Master Plan*, with prices of CNY 70 per Chinese pound (500g), then divide by the official county population.

(2) Alternatively, Woodhouse, McGowan and Milner-Gulland (2013) report for Sangdui in Daocheng from a survey of 50 households that the typical household collected 32kg of Matsutake mushrooms. The Matsutake price in 2017 was approximately CNY 120 per kg. Average household size in Daocheng is 4.4 persons (Appendix 14).

⁸⁰ Arora (2008) reports for Zhongdian in Yunnan, just across the provincial border from Daocheng, that the sale of Matsutake contributes more to the income of the Diqing Autonomous Tibetan Autonomous Prefecture than any other crop. In the "two villages or townships" that he investigated, the mean household income from Matsutake (in likely 1995) was CNY 22,166 and CNY 19,583, respectively, while the village chiefs put average income for the two-month Matsutake season at CNY 5,000-6,000 per person and CNY 5,000-7,000 per adult. Average income from Matsutake harvesting per person per day was equal to seven to eight times the average daily wage in Shanghai. Matsutake income accounted for anywhere between 40% and 90% of household income in the two villages (Arora, 2008, p. 282). Yeh (1998, p. 4) reports that "In some of the most productive villages of Zhongdian, it is not uncommon for families to make 6300-7500 USD (50,000-60,000 yuan) during the harvesting season."

Caterpillar mushroom harvest

Caterpillar, Chongcao 虫草 (Yartsa Gunbu, དབྱུར་རྩ་དགུན་འབྲུ, dbyar rtsa dgun 'bu),
Ophiocordyceps sinensis

(1) Assume 10% of the (official) population engages in Caterpillar mushroom harvesting, and each person harvests 10 Caterpillar mushrooms per day over 50 days (an estimate based on interviews). Caterpillar mushrooms sell for CNY 50 each.

(2) Alternatively, Woodhouse, McGowan and Milner-Gulland (2013) report for Sangdui in Daocheng from a survey of 50 households that the typical household collected 404 Caterpillar mushrooms in 2009 (sold at an average price of USD 2.6 at the time). At 2017 prices, this implies CNY 4,600 per person, almost twice the amount under the first set of assumptions.

Bartered labor

Assume 25% of the population engages in bartered labor for 25 days each year at an imputed wage of CNY 200 per day.

Informal labor

Assume 10% of the population engages in activities such as long-distance collective taxi services for 200 days of the year with an income of CNY 100 per day. This could, for example, be actual engagement one one-third of these days with daily income of CNY 300 when actual engagement occurs, or it could be 200 continuous days of informal daily labor in a restaurant.

Rural land leases

Assume 300 land leases (typically to Han investors / hoteliers), each with an annual rental value of CNY 200,000.

References specific to this appendix:

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Appendix 17. Tibet Tourism Development Models and Cultural Commodification

Jiuzhaigou-Huangong in Northwest Sichuan and Lijiang and Zhongdian/Diqing in Yunnan are often cited as models for Daocheng's economic development. That ignores the lower altitudes of these locations, their significantly more reliable climate, their diversity of attractions (rather than a focus on just one, relatively small nature reserve) and industries, and a local population that is substantially more integrated into the development process.

Tourism in Lijiang is centered on a sprawling 'old town' consisting of pedestrian-only cobble-stone streets and wooden houses (rebuilt in 'old style,' after an earthquake in 1996) that turns into a carnival at night. A second major attraction is the Jade-Dragon-Snow Mountain, a scenic area that tourists are driven through on tour buses to be released at certain spots for a few minutes, before being whisked up by cableway to the Glacier Park at an altitude of 4,506m, with no further to go and nothing to do except to take snapshots of oneself at this altitude, sucking on oxygen bottles.

Lijiang is situated on a *national* highway to the Tibet Autonomous Region (important for self-driving tourists on a grand Tibet tour), rather than a couple of days' side trip from tourists' major routes. It is a large, economically diversified city with a railway line and a busy airport that has none of the altitude and almost none of the weather issues of the Daocheng-Yading Airport. Lijiang has a first-comer advantage with a long-established and much larger tourist infrastructure around its main tourist attraction, the old town. Lijiang also has none of the political nationality issues of Daocheng on the Tibetan Plateau.

Lijiang's altitude is only 2400m / 7,874 feet (the typical borderline altitude for altitude sickness), which implies a very significant difference in tourists' well-being. Lijiang is a tourist destination where one can relax and live, in comparison to which Yading is at best a must-have-seen destination.

Tourism in Zhongdian (Shangri-La) county, at 3200m altitude, also takes recourse to the 'old town' model (also rebuilt in 'old style,' after a fire in 2014), an old town that is perhaps a quarter the size of that of Lijiang and much less frequented. The other major attraction is the Songtsamling Monastery, the largest Buddhist monastery in Yunnan. As Hillman (2005) writes—referencing an "ethnically Tibetan prefecture" in southwest China that can only be Diqing—the monastery is crucial to the area's Tibetanness. Tourism earns the prefecture and county governments more in revenue than all other sectors combined, and the work of religious institutions and leaders is viewed as complementary to local government objectives. The government, by promoting tourism, thus kills three birds with one stone: it achieves key government objectives including economic development, it enters a symbiosis with the local religious order (rather than having to subordinate a potentially conflicting authority), and it maintains social stability via the teachings of the monastic order and its relationships with the population.

Both Lijiang and Zhongdian thus boast attractive old towns, at manageable altitudes, combined with easily accessible local attractions (scenic area in the case of Lijiang, and monastery in the case of Zhongdian). In the case of Daocheng, neither Jinzhu nor Riwa have an attractive old town, and at least Jinzhu is at too high an altitude for comfort. Yading is not easily accessible and disappoints much of the year due to inclement weather.

The benefits of tourism in Lijiang and Zhongdian appear much more widely spread than in Daocheng. For example, according to Hillman (2009), in Diqing the local maker of traditional knives became one of the richest men locally and traditional pottery was revived. Tourism in Daocheng, being focused on Yading, has not led to any such success story for local handicrafts. If anything, with tourists traveling far and wide, handicrafts sold in Daocheng will likely appear too crude to be of interest. The cheap necklaces sold by Tibetan hawkers at tourist stands at the little woods outside Daocheng are not produced locally and carry all the signs of mass manufacturing, perhaps in a factory in East China.

Hillman (2009) also raises the issue of ethnic identity, wondering if tourism consolidates national unity while commodifying ethnic minorities for tourist consumption. For Diqing, he notes that “Tibetan culture is celebrated as the keystone of local development strategies” (p. 6) and Tibetans participating in tourism reflects a “renewed price in their cultural heritage” (p. 5).⁸¹ He notes that while displays of ethnicity have in the past been discouraged if not persecuted, “ethnic tourism has the power to raise ethnic consciousness” and “contributes to a process of ethnic identity formation and reformulation” (p.6).⁸² The opposite appears to be the case in Daocheng.

Nor has there been any revival of Tibetan Buddhism in Daocheng, in contrast to what Hillman notes for the case of Diqing. Hillman (2003) describes how a key occupation of the Zhongdian government is its relationship to the local Buddhist tradition, in particular the Songtsamlin Monastery; already in 1999, Diqing gave over RMB 7 million yuan to the monastery and the relationship was carefully managed and balanced in subsequent years. The fact that the predominant form of Tibetan Buddhism in Diqing follows the Gelugpa tradition (i.e., the Dalai Lama’s tradition) has significant political implications: The PRC government, by presenting itself as patron and supporter of Tibetan Buddhism thus provides an alternative to the Dalai Lama and creates a Tibetan-Chinese identity distinct from the Tibetan national identity preserved abroad.

Yading is not a singular case of nature tourism. Jiuzhaigou and nearby Huangling in Northwest Sichuan are almost exclusively focused on nature tourism, at much lower altitudes than Yading, with most attractions at between 1,400 and 2,000 meters. Tourism in Jiuzhaigou originated with the resumption of pilgrimages and the reconstruction of monasteries in the 1980s (Hayes 2016). Local Tibetans supplemented their agricultural incomes with subsidiary tourist industries ranging from handicraft and souvenir trade, inn-keeping, and then an expansion into horse trekking and folklore entertainment.

Similarly, tourism at Huanglong also began in the 1980s. “In 1983 the peak and high slopes of Eastern Conch Mountain, Golden Lakes Valley, and various adjacent areas were designated as the 640 square-kilometer Yellow Dragon [Huanglong] Valley Scenic District and Protection Zone, sometimes now referred to as a “National Park” (Huber, 2006).⁸³ Huber writes that Tibetan associations with the mountain were appropriated and manipulated by

⁸¹ For further details on the integration of the local population into the development process, see, for example, Hillman (2010).

⁸² The issue of culture, its preservation and presentation has been widely discussed in the literature. For example, Dombroski (2006) pointed out that empowerment is not the same as cultural preservation. To illustrate, under the traditional Tibetan serf system culture may have been preserved but most Tibetans were not empowered. A “romanticisation” (Dombroski, 2006) of “traditional cultures” should not distract from a broader discussion of whether and how economic change should occur.

⁸³ Huanglong was designated a national scenic area in 1982 and in 1992 became a UNESCO-designated World Natural Heritage park (Kang, 2009).

Han as they saw fit, “without any reference to the Tibetans themselves” (p.23). This included renaming landscapes and places in ethnic Tibetan areas with Chinese names, using Han settlements as reference points, and the Han creation of new (Tibetan) “myths.” Thus a “temple fair” was newly invented,⁸⁴ and the Long March was ex-post relocated to have led through the area (now enshrined in a monument). Huber’s observations for the case of Huanglong would seem to equally apply to Daocheng, including the use of myths where, in the case of Yading, “Shangri-La” (and Joseph Rock) facilitated the process of myth creation and added the attractiveness of a foreign obsession with the locality.

The treatment of the Tibetan areas of West Sichuan as a Tibetan film set or Tibetan theme park, against the backdrop of the natural environment, thus did not start with Yading, but may have reached a new climax in the marketing of Yading.

Dombroski (2006) notes for the case of Jiuzhaigou that tourism has contributed toward community development and cultural revitalisation in that Tibetan villages within the nature reserve first supplemented their agricultural income with various forms of tourism-related income and then became solely reliant on tourism income. But the choice to submit children to the Han education system has also ultimately led to what locals perceived as all-out Hanization of their children through their own choice of identity. Such a development must not have gone unnoticed at the higher echelons of the Han administration in Sichuan, if not the central government, and the Ganzi TAP tourism plan for 2000-2015 may well have been adopted with such an experience in mind.

Tibetan’s understanding of well-being (in a particular village in Jiuzhaigou), following Dombroski (2006), comprises the ability to earn a livelihood (ranging from running water in each village to electricity, housing improvements, higher income, job options within the tourism industry, and investment shares in a joint village-state restaurant facility), choice over one’s future with access through education to jobs locally and beyond, and cultural and family identity which, it turns out, was severely eroded for the next generation that underwent the Han education system.⁸⁵

As Sofielda and Li (2011) report, when Jiuzhaigou was first opened for tourism in 1984, there was no economic activity other than pastoralism by Tibetans concentrated in six impoverished villages in the park. By 2009, with 3.8 million visitors to the park, the local Tibetans were among the richest rural people in China thanks to income from ownership (or part ownership) of the monopoly bus company in the park and the only restaurant located in the park, and from 180 Tibetan arts and crafts souvenir outlets, cultural performances, and the provision of tourist accommodation in the park.⁸⁶

According to Schrempf and Hayes (2009), in the Jiuzhaigou/Huanglong region Tibetans played an important early role in the development of tourism, for example, accounting for

⁸⁴ Also see Schrempf and Hayes (2009) on the invention of a trade fair and even the construction of a temple solely for tourism purposes.

⁸⁵ Harrell et al. (2016) argue that families in Jiuzhaigou would hardly want to return to farming today, enjoying, as they do, spacious, beautifully decorated houses, cars, fast internet access, a reliable income from tourism, and access to good education for their children; only the older generation may bemoan the loss of landscape heterogeneity and the loss of tending to animals.

⁸⁶ Sofielda and Li (2011) identify basic principles for the creation of a nature tourism destination in the PRC. Thus, tourism development strives to identify the essence of a landscape and, given that nature is perceived as imperfect, “improve” upon nature through human intervention (pavilions, temples, trails, rock cliff engravings, ponds, etc.). This also holds for Yading, with wooden walkways harmoniously fit into the landscape, pavilions, a temple, rock cliff paintings, and ponds.

more than half of local businesses in Songpan (the regional city) in 2000.⁸⁷ But by 2005, the Tibetan share was down to 14%. Han have a comparative advantage in tourism development due to their language skills and cultural affinity to the tourists. Tibetans are increasingly relegated to the limited number of undertakings where they enjoy a comparative advantage over the Han, such as horse trekking. The land—except the nature reserves and other areas claimed by the government—remains under Tibetan control.

Similarly in Daocheng, the local Tibetan population has generally bought into the development idea and Han “modernity,” even though in Daocheng the local population appears much less integrated into the development process than in Jiuzhaigou and Huanglong. In Daocheng, Tibetans were never at the forefront of tourism development. It was the state that came in with its *Master Plan* and systematically developed the tourism industry.

Cultural commodification may have reached a new pinnacle in Daocheng. Yading Tianjie embellishes its faux Tibetan buildings with Tibetan paintings and large prayer wheels.⁸⁸ A Han private entrepreneur builds his version of a Tibetan stone palace (hotel) in Rencun, complete with a massive stuffed Yak head over the imperial entrance gate to the bar. Jinzhu boasts an architecturally impressive modern-Tibetan (though not in use) “people’s fitness and activities center” (稻城全民健身活动中心).⁸⁹ A Han industry sells Tibetan snacks and Tibetan jewelry.

During the high season, the “Sichuan Province Ganzi Tibetan Autonomous Prefecture Nationality Song and Dance Troupe” (四川省甘孜藏族自治州民族歌舞团), based in Kangding, has a daily evening performance at the new Daocheng Yading Performing Arts Center (稻城亚丁演艺中心) in Riwa.⁹⁰ Some hotels and restaurants in Riwa offer dinner accompanied by performances.⁹¹ In a village outside Jinzhu, an entrepreneur stages rudimentary Tibetan dinner shows for tour groups in a large tent.

Ren (2014) argues that local consciousness of the traditional Kham culture in Daocheng is virtually non-existent. She attributes this deficit to the high rate of illiteracy (51.4% for people age 15 and above in 2000) and suggests to increase awareness and protection of traditional local language, food, art, and etiquette, and to integrate these into daily life. She emphasizes the need for more extensive education of the young, without, however, establishing a link between the formal education system and protection of local culture. A counter argument would be that the formal education system in Daocheng destroys rather than preserves any awareness of local culture. Nor does she address the fact that the local schooling system serves all children irrespective of nationality, including the children of the Han population that might not look favorably on their children studying Tibetan folklore.

⁸⁷ The export of local products has been successfully implemented in the Jiuzhaigou/Huangong area with the creation of local brand names under the auspices of a “Sichuan Songpan County Huanglong Tourism Market Development Company” (Schrempf and Hayes, 2009).

⁸⁸ As of October 2017, at least the prayer wheel at the western entrance had been adopted by some locals, with older Tibetans who idled in the vicinity occasionally spinning it.

⁸⁹ It was completed in late 2016 or early 2017, but as of October 2017 was locked and not in use. It resembles a concert hall or performing arts venue that could hold a thousand people. A smaller, second building behind it houses a movie theater with two venues. As of 1 October 2017, the movie theater is operational but appeared largely deserted.

⁹⁰ The Performing Arts Center is operated by the Daocheng Yading Scenic Area Tourism Development Company (稻城亚丁景区旅游开发有限责任公司), which otherwise administers Yading. During the peak season in fall 2017, performers toured Riwa restaurants in late afternoon in an attempt to attract tourists to their evening performance.

⁹¹ Yading visitors, however, are typically exhausted after a day on the mountain, and troubled by the altitude. Interest in shows appeared small in early October 2017.

Given the prevalence of the Han influence in the county, any classes on Tibetan folklore provided by a Han schooling system might serve little other purpose than to prepare children to present a Han version of Tibetan culture if they later work in the tourism industry.

Jiang (2017), examining the effect of tourism on poverty alleviation in Daocheng—with 983 households or 4,174 people living in poverty—reports that the impact is relatively small. From the author's point of view, the government's poverty alleviation measures do not accurately target poverty (but operate as “flood irrigation” (漫灌)), it is confounded with agricultural support measures, it tends to be short-term oriented, and the cheap local minority labor is not being effectively used. The ones who benefit from local tourism development are outside developers while the locals may end up bearing the negative effects of tourism development. The author is also critical of the capacity of the local population to engage in tourism: the locals are described as being of mental poverty (精神贫困) with all too often an expectation that the government “should help” and an attitude of “wait, rely, want” (等、靠、要). They tend to lack the skills necessary to engage in tourism and cannot even act as guides since they are not sufficiently fluent in Mandarin. Many are comfortable with the status quo, do not want to engage in tourism, and lack a “getting rich” consciousness (缺乏致富意识). Those who are just above the poverty line are in danger of falling back below the poverty line.

Beyond Lijiang, Zhongdian, Jiuzhaigou-Huangling, and Daocheng, many other localities in the PRC are pursuing tourism development as economic development strategy. Cheng and Tang (2016) report on Shizhu County in Chongqing Municipality. There, tourism is centered on a 4A national scenic area county with its own ethnic nationality, the ‘Tu’ (or Tujia 土家). The history of Shizhu's tourism development resembles that of Daocheng, with the establishment of a tourism bureau and a tourism development company in 1999, followed by various strategies and eventually elevation of the scenic (county) area to national 4A level. Massive investment in infrastructure and in tourism development followed, including what appears a phenomenally expensive performance venue in 2013 at a cost of CNY 120mio. But as the authors note, the outlook is far from optimistic: Locals are being assimilated to the point where there is little ethnic culture left, the quality of the tourism industry is low (supposedly largely based on low-quality performances and the catering business), and Shizhu's national-level forest park (国家森林公园) competes with another 11 national-level forest parks nearby, all offering more or less the same. Poverty alleviation via tourism is an issue here, too, though poverty seems largely eradicated (and whether that is due to tourism remains questionable).

It is hard not to see a pattern of herd behavior, with national-level general policies leading to identical developments of the tourism industry nationwide, whether that is in Shizhu County in Chongqing Municipality, Xishuangbanna in Southern Yunnan (Yang, Wall, and Smith, 2006) where locals who originally benefited from tourism nowadays rather build concrete houses than the rickety bamboo houses that attracted the tourists in the first place, or Daocheng. The policy proposals sound vaguely similar: protect and develop the local ethnic cultural resource (or folklore), develop “boutique tourism” (旅游精品), whatever that may mean, make best use of the linkage effects of tourism development on other industries, and improve the quality of local staff through education. Academic reports on a locality, the propaganda literature, developers' advertisements and statements by Party and government officials all begin to sound alike, repeating over and over again what appear to be the latest

fashionable slogans, presumably following some central decision on using tourism to develop 'backward' economies in potentially attractive nature settings.

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