Milk From the Butterfly Spring:

State and Enterprise in the Yunnan Dairy Industry[1]

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从蝴蝶泉来的牛奶：滇西乳品产业的发展与政企互动

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Abstract

Founded in 1959, the Dengchuan Milk Products Factory was both an individuated enterprise and an asset in the development of western Yunnan. This article examines the six-decade transformation of Dengchuan from state-owned industry, to officially promoted dragon head, and finally as a wholly owned subsidiary of the New Hope Group. Even as the company enjoyed greater managerial

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independence, it has relied on the government for materials, market access, and the development of its dairy base, a relationship that only recently reversed as the company responded to demands for capital investment and productive upscaling. Albeit on a much smaller scale, this relationship is comparable to the business groups that dominate sectoral development in strategic industries.

Keywords

dairy industry, New Hope Group, Yunnan New Hope Diequan Dairy Products LLC, state-enterprise alliance, business groups, Dali prefecture, upscaling, privatization

摘要

邓川乳品公司的前身云南邓川乳品厂，成立于 1959 年。“改革开放”之后，邓川奶粉厂经历了从地方企业到个体企业的改革，随后又成为滇西乳品业开发中的地方优质资产。八十年代以来，即便公司独立管理运营，仍然需要依赖政府来保障市场准入和原料供应，洱源县也成为保障公司生产的奶牛饲养基地。本文考察邓川乳品公司作为地方龙头企业经大理州政府推荐被新希望集团收购成为旗下子公司的转型过程，进而讨论近年来滇西乳品业发展过程中，以邓川乳品公司为代表的小规模企业，通过资本运作和扩大生产将企业培养成为堪与大型企业集团相抗衡的实力型公司的政企互动模式。

关键词

乳制品工业、新希望集团、邓川奶粉厂、政企互动、商业集团、大理州、规模化、 私有化

Maker of the Butterfly Spring 蝶泉 brand of milk powder, the Yunnan Dengchuan Diequan Dairy

Products LLC 云南邓川蝶泉有限责任公司 embodies the changing interaction between state and enterprise within China's rural transformation. Founded in 1959 as a state initiative, and under state ownership, the company (hereafter abbreviated as Dengchuan) grew prodigiously during the commercial reforms of the 1980s and 1990s. In 2003, the government of Eryuan county sold its stake to the Sichuan-based New Hope Group 新希望集团, launching Dengchuan into a new era of explosive growth. Since then, Dengchuan has gone on to become one of the largest milk producers in southwest China, with markets across Southeast Asia, and a 2013 output worth 622 million yuan, out of a provincial dairy output of 1.85 billion yuan (107.7 million and 305.9 million USD, respectively) (DN, 2014: 246).

Dengchuan's transformation demonstrates the enduring and evolving relationship between enterprises and the state-led development of key industrial sectors, mediated by the interests of career cadres, investors, farmers, and consumers. Dengchuan was founded as part of a government economic plan to build industry in western Yunnan, and was tasked with leading the modernization of the region's dairy production. Even as the company took on greater managerial responsibility, it continued to rely on the local government for commercial promotion and milking infrastructure, and left to small farmers the expense and risk of maintaining the dairy herd. The 2003 sale to New Hope did not end state involvement in the company's strategic planning. Rather, the accelerated transformation of China's dairy industry, following the safety scandals of 2008, bound both Dengchuan and its new industry rivals to strict targets and standards in the interests of local development, food safety, and China's brand image, working closely with various levels of government in order to execute what in many ways remains a planned economy.

Using company histories, yearbooks, and interviews with persons in the local dairy industry, this article examines the development of Dengchuan both as an individuated enterprise and as an asset in the state-led development of the dairy industry in western Yunnan. The first perspective is the transition of a state-owned enterprise (SOE) to managerial autonomy and private ownership; the second, the evolving stake of the local state in Dengchuan as an engine of rural sectoral growth. Together, these two perspectives illustrate the deep grounding of current and former SOEs in their political environment as well as the difficulty of separating market from nonmarket motives in the context of a politically important, if not necessarily strategic, sector.

It does so in four parts. The first introduces work on Chinese business groups (BGs) as a framework for examining the breadth of enterprise alliances, and introduces what the dairy industry, which relies on and adds value to local agriculture, can tell us about the interactions of state and enterprise interest beyond the single parameter of ownership. The next three parts examine three stages of Dengchuan's history: as a small but intensely promoted SOE from 1959 to 1989, a marketized "dragon head industry" 龙头企业 from 1989 to 2003, and as a privately owned subsidiary since 2003. While noting the obvious changes, our focus will be on demonstrating the underlying continuity: the bridges that continue to link state and enterprise interests and initiatives with Dengchuan's productive and market growth.

Business Groups and Local SOEs in Transition

A common shorthand describes China's economic transformation as a process of "privatization," albeit an incomplete one. Yet despite early predictions that privately run companies would naturally outcompete the state sector, or that private capital would flee it, state entities retain possession and managerial influence over a vast swath of industries, both strategic and nonstrategic.

Continued state influence over even the most celebrated champions of Chinese capitalism is often portrayed in negative terms, either as bureaucratic predation of productive businesses, or conversely as a source of backdoor support that gives an unfair advantage to domestic companies (Zhou, 2019: 410). In contrast, Chinese portrayals of the relationship between the state and business have been positive, especially with the acceptance of private entrepreneurs into the party (Kahn, 2002). Resurrecting a wartime metaphor about the relationship between the army and the masses, Niu Gensheng 牛根生 (founder of the massive dairy processor Mengniu 蒙牛) compared business and government to "fish and water" (Snell, 2014: 134). In reality, however, there is no single model. Blecher and Shue (2001) divide local state influence into four types: entrepreneurial, predatory, clientelist, and developmental. But even well-intentioned interventions can have all manner of unintended, and often perverse, consequences, such as channeling resources, knowledge, or initiatives to unproductive ends. As China's repeated food safety crises show, the problems are sometimes neither solely those of state nor those of business, but rather the interaction between the two (Delman, 2003: 13; Waldron, Brown, and Longworth, 2010; Snell, 2014).

Few enterprises are truly autonomous. Enterprises are connected by a variety of legal and customary ties—debt, cross-investment, policy influence, transfer of personnel, and intellectual property—to a variety of stakeholders, including other companies, as well as any number of financial, research, and political entities. A simple understanding of privatization is thus a double inaccuracy, reducing these many ties to the single parameter of ownership while flattening a complicated political landscape into a unitary "state."

In order to better appreciate this larger plurality of enterprise alliances, we turn to the large and growing literature regarding business groups. The business group (BG) is a catch-all conception spanning the wide range of relationships that lie between short-term transactional ties and legal consolidation. Since the nature and value of group structures vary with each country's legal and policy regime, much of the literature on BGs focuses on national trends, particularly as they are historically or culturally unique. Work on the large industrial chains in Japan and South Korea emphasizes how government backing helps companies to seek finance or market access, and the concomitant pressures placed on politically linked firms to support such nonmarket ends as local development, knowledge transfer, or the funneling of resources to troubled industries.

The growing body of literature on BGs in China gives primacy to state influence. Keister (2009) shows how national leaders initially emulated Japanese strategies during the 1980s, encouraging enterprises to form horizontal alliances, only to see these same ties become liabilities as conditions changed over the subsequent decade (see also Lee and Jin, 2009; Seo, Lee, and Wang, 2010). Picking up the story after 2000, Lin and Milhaupt (2013) show how strategic industries such as telecoms, steel, and real estate became organized into elaborate, sector-specific corporate groups that combined SOEs with listed companies, research institutes, and mechanisms for internal finance, all overseen by the State-Owned Assets Supervision and Administration Commission (SASAC) of the State Council 国务院国有资产监督管理委员会. Other research has analyzed the ways that Chinese BGs create and benefit from political alliances as they form groups or diversify into subsidiaries (Hu and Shi, 2009; Zhu and Zhu, 2016).

The emphasis on national policy and strategic industries can be limiting, overlooking the intensity of political and business activity at sub-provincial (prefecture, county, and township) levels. Relations between state and enterprise at these lower levels are in many ways distinct: industry was previously siloed within provinces, and investment still frequently remains within provincial borders (Arnoldi and Muratova, 2018). More than a mere legacy of economic planning, the bureaucratic division of economic initiatives follows the contours of what Zhou Li-an (2019) has called “jurisdictional management,” in which such administrative key performance indicators as employment and tax revenue are lumped together as the responsibility of local officials, who then work with nonpolitical actors, including business interests, to find solutions. Also missing are sector-specific realities. A very broad view of commercial transformation—be that sweeping theories about surplus extraction, or quantitative analysis of corporate databases like ZEPHYR (https://www.bvdinfo.com/en-gb/our-products/data/specialist/zephyr) or CSMAR (csmar.com)—provides little sense of how industries actually operate. Lin and Milhaupt (2013) are relatively unique in incorporating insights from substantive interviews with key decision makers, but their focus is on government influence rather than the details of actual operations.

The close examination of an industry such as dairy brings clarity to each of these issues. Because dairy both depends on and adds value to agriculture, its productive ecosystem necessarily includes the interests of local government. As an industry, dairy benefits from scale, driving competitive enterprises to seek capital or partners within related industries. As individuated enterprises, dairy processors are symbiotically bound to the larger dairy-producing region and to such infrastructural investments as cattle veterinary stations and a refrigerated milk collection infrastructure. Since a region's raw milk production feeds into and depends upon processing, vertical linkage to processors is a strategic asset for rural development, employment, and taxation. On the national scale, dairy has emerged as a state priority (Li, 2013; Liu, 2013; DuBois, 2019a). Dairy giants like Mengniu and Yili 伊利 receive both assistance and state guidance, and are vitally important to local economies in dairy-producing regions such as Inner Mongolia (Delman, 2003; Snell, 2014). Similar mechanisms are at work at the local level. Dengchuan depended on state support for solving logistical problems such as loans and market access, while Dali relied on dairy for local development as a driver of rural industrialization, agrarian welfare, and sectoral development, as well as to satisfy consumer demand for food. Even after reforms freed Dengchuan's management and privatized its assets, the enterprise has remained inseparable from a network of formal and informal collaborators, including other companies, large and small dairy farmers, and various levels of local government.

Stage 1: 1959-1989—Growing Autonomy within a Planned Sector

The Dengchuan Milk Powder Factory began as a state-directed effort to build industry and food security for the western part of the mountainous Yunnan province. Similar to the experiences of pastoral Gansu and Inner Mongolia, this process depended primarily on developing livestock resources. Blessed with lush, grass-covered hillsides and year-round mild weather, Yunnan already had deeply established traditions of cattle raising and, somewhat unusually for China, of consuming dairy (Yang, 1986: 77–112). Visiting the region in 1954, the vice head of the National Veterinary Bureau, Chen Shaojiong 陈绍迥, praised the quality of the region's cattle as second only to those of Inner Mongolia, and he advised the Yunnan provincial government to import Holsteins, which were over six times as productive as the unimproved Dengchuan breed (DNZ, 1994: 40; DuBois, 2019a: 184–87). The next year, the Provincial Industry Bureau gave its approval to invest 15,000 yuan in order to build a small condensery that could process about 20 percent of the region's current milk production, which was roughly 150,000–200,000 kilograms per year (DNZ, 1994: 2–3).

This pilot was the precursor to a much larger project, the Dengchuan Milk Powder Factory, which broke ground in 1958 and commenced production in November 1959. Led by Dengchuan county head Li Kelin 李克琳 (DNZ, 1994: 14), the factory could annually produce 300 tons of Butterfly Spring Milk Powder, the brand being both an actual place name and an allusion to a song ("Beside the Butterfly Spring") from a popular movie set in the area. The factory relied on a network of state resources: the Yunnan provincial government subsidized the 600,000 yuan cost of construction, while the Shanghai Light Industry Bureau designed the plant and provided the machinery (14). It also became part of an extensive knowledge network. In 1958, and then again in 1964, key workers were sent for two months of training at the Shanghai Number Three Yimin Foods Factory 上海益民食品三厂 and the Shanghai Second Dairy Factory 乳品二厂 (4, 14). Dengchuan hosted county-level meetings of dairy producers, and factory leaders were sent to attend national dairy meetings as far away as Wuxi and Anda 安达 in Heilongjiang.

However, even with this help, the factory itself encountered significant difficulties in its early years. Much of the dairy herd had been slaughtered during the Great Leap famine, which occurred just as the factory was being completed (DNZ, 1994: 3). Although ambitious measures to expand further growing areas (including one disastrous attempt to harvest hay from the steep slopes of Cangshan 苍山) doubled the size of the local dairy herd from 3,837 head in 1961 to 7,600 in 1966, primary dairy production remained primitive and dispersed across a vast area (see Figure 1). Milk was stored in metal cans and delivered by horse cart to a collection station, and thence to the factory, which initially had no refrigeration and was plagued by shortages of electricity and water. Machinery and workers at the factory often sat idle, a problem that was compounded as the fall into political extremism during the late 1960s left orders for raw milk routinely unfilled (DNZ, 1994: 1–12). Absenteeism was also rife.[3] A former manager recalled how the younger factory workers disappeared for days at a time to go off and "make revolution," noting that there was neither a way nor often any real reason to keep them at the factory.

[3] For a comparative perspective on managerial incentive in command enterprises, see Tymiński, 2019. Scranton (2019) emphasizes the ingenuity of Chinese enterprises in the face of material shortages.

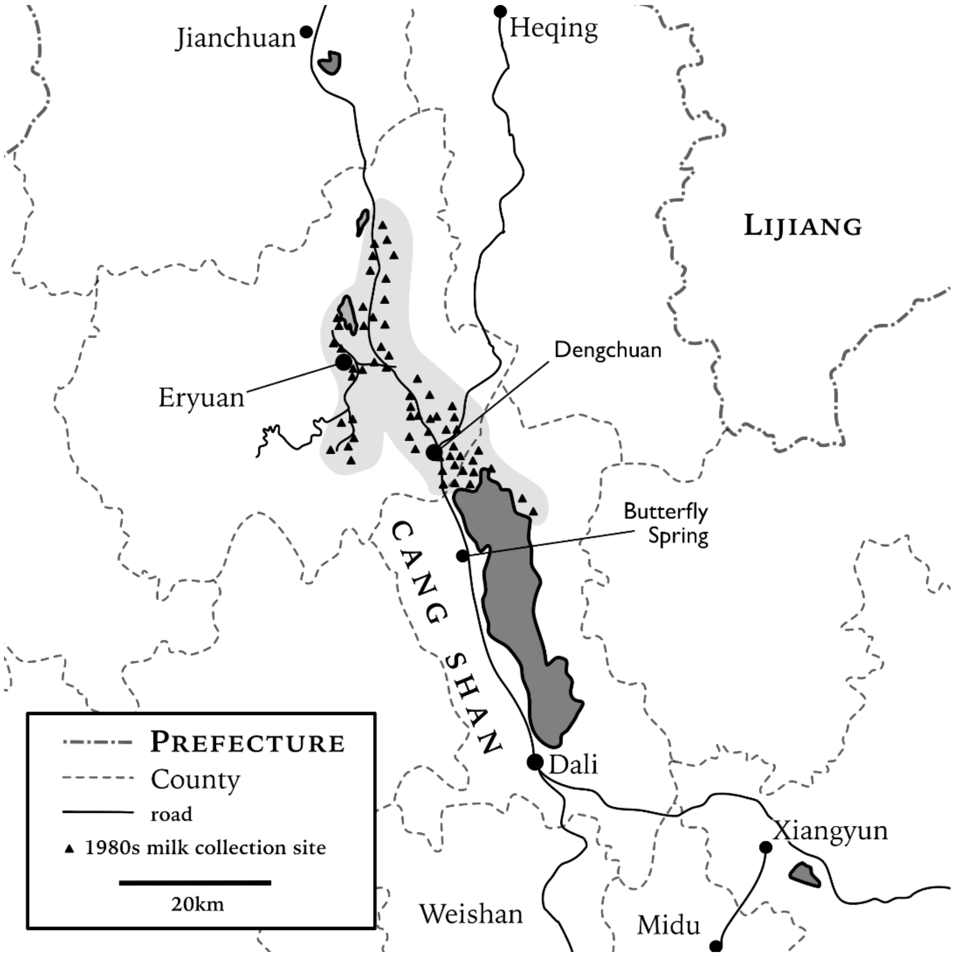

Figure 1. Location of the Dengchuan factory. The original collection area is shaded in gray.

Source: Adapted from DNZ, 1994.

Beginning in the mid-1970s, local milk production began moving toward recovery, and thence to growth. In 1971 the local government reinstated an earlier policy of awarding grain subsidies to high milk producers (DNZ, 1994: 16, 45). However, shortages continued, even though by 1975 there were seven communes, twenty production brigades, and twenty-four production teams producing milk for sale to the factory (20). In that year, Dengchuan factory leaders stepped forward with suggestions for improving milk production and collection, increasing the price paid for raw milk and encouraging farmers to improve feeding and herd vaccination practices (5). But the real change to primary production would only come with market reforms. Modeled on national grain policies, these reforms returned livestock to households, first as loans and then in the form of ownership. Between 1979 and 1989, the official purchase price of raw milk was raised five times, from 0.36 to 0.64 yuan per jin (46, 64).[4] As a result, milk collection quickly improved, with daily deliveries to the factory rising from a high of eighteen tons in 1981 to twenty-five in 1982 and thirty-six in 1983. The Dali prefectural government encouraged the industry by investing in infrastructural improvements in the form of new veterinary and breeding stations, as well as a growing network of milk collection stations, from seven in 1959 to sixty-two in 1988. Assisted by government loans to farming households, as well as a national program to provide breeding stock to designated "dairy cattle production bases" 牛奶生产基地 (of which Dali's Eryuan 洱源 county was one of seven nationwide), the region's dairy herd, which had stagnated for over a decade, quadrupled in size in just nine years, from under 7,500 head in 1978 to over 30,000 in 1987.[5] With Eryuan at the core, Dali prefecture in 1988 expanded the scope of its dairy base to include projects in Dali, Midu 弥渡, Weishan 巍山, and Jianchuan 剑川 counties (DN, 1991: 194–95).

Factory management adapted quickly to these new commercial opportunities. Facing milk

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[4] These reforms were enacted locally and at different speeds. For an example from Inner Mongolia, see Hulunbuir, 1999: 794–95.

[5] It is worth noting that herd growth is constrained by many factors besides resources. Major limitations include intentional culling to ensure breeding by the best milk producers, i.e., quality over quantity of the cows, as well as the concomitant growth of new markets for beef cattle and live animal exports to dairies elsewhere.

shortages in the early 1960s, government planners had ordered the factory to make soybean milk powder instead. In the mid-1970s, the factory repurposed its machinery to make fortified wheat milk 麦乳精, which it sold in chocolate and coffee flavors (DNZ, 1994: 4, 8, 22). By the 1980s, it was making new products on its own initiative, and for additional revenue. Aided by a 200,000 yuan loan from the Yunnan provincial government, it added lines to produce tinned beef, bull serum, and a feed additive made from ground cow bones (DNZ, 1994: 7–8; DN, 1991: 227). Of course, milk remained the core business, and as the only significant end processor, Dengchuan was ready to capitalize on the recovery of dairy production. Enjoying gradually increasing authority over purchasing and sales, Dengchuan advertised in local trade magazines and established sales outlets in Dali and Kunming. In 1981, it made its first private market sales, which by 1985 would account for 40 percent of its output (DNZ, 1994: 109, 114–15, 117).[6] By any measure, the new era suited the company well. In 1983, it earned a 1.33 million yuan profit, greater than its first nineteen years combined. And by 1988, that number had risen to 1.65 million yuan (130, 132).

Even as Dengchuan embraced new market opportunities, its expansion remained closely tied to the state. During the early years of reform, high production had earned the factory official accolades (such as the title of “Daqing large enterprise” by the Yunnan Revolutionary Committee) or a cash bonus, such as the ten thousand yuan given by the prefectural party and government jointly as a reward for exceeding the 1978 production quota of wheat milk (DNZ, 1994: 22). Capital upgrades for processing initially followed the 1950s-era “unified receipt and allocation” 统收统支 finance system that returned enterprise profits to the central government, which then reallocated funds back to the factory based on proportions from the preceding year’s budget (128–42). Enjoying

[6] In that same year, the number of TVEs registered in Dali increased tenfold (DN, 1990: 16).

increasing autonomy in the use of these funds, the company invested 800,000 yuan in 1982 to refurbish old machinery and purchase new milk-spraying equipment (130). But by the middle of the decade, the factory had begun outgrowing its state-allocated operating budget and was routinely taking out low interest bank loans in order to cover shortfalls in the circulating capital that it needed to purchase raw milk and packaging supplies (Table 1). Profits alone were insufficient to cover this expansion. In 1985, less than 8 percent of the year's profit remained for equipment repair and product development. Even as relaxation of the unified receipt and allocation finance system placed ever greater risk and accountability with the enterprise (Xu, Cortese, and Zhang, 2014), taxes and fees continued to command the greater part of profits. Out of a 1988 profit of 1.65 million, less than a third remained for investment.

Table 1. Dengchuan Growth, 1975 to 1989 (yuan)

	1975	1980	1985	1989
Total product sales	1,013,027	2,242,092	9,187,000	17,711,648
Circulating capital	146,157	212,716	811,460	893,726
Year-end fixed assets	826,466	1,102,571	3,883,481	7,948,633
Annualized asset growth		5.93%	28.64%	19.61%

Source: DNZ, 1994: 134–5.

In response, the company began to take on productive debt.[7] In late 1985, Director Xiao Guofan 肖国藩 and Deputy Director Luo Guobin 罗国斌 invited the deputy director of the Yunnan Agricultural Bank and the head of the Loans Department of the Foreign Trade Bureau to discuss the possibility of a loan for expanding the factory. Over the next two years, management invested 2.2 million yuan, the largest sum thus far, on new refrigeration and processing equipment. As the factory basked in political accolades (having been named a "model labor enterprise" in 1987 and a "progressive enterprise" in 1988—DNZ, 1994: 9–10, 179), Xiao and Luo began reaching out to county and provincial officials for permission to embark upon the greatest expansion yet: an all new Dutch-made production line with a daily processing capacity of 100 tons of fresh milk. In 1987, the plant received permission from the Yunnan Light Industry Bureau to borrow 3.03 million USD worth of foreign exchange loans from the Netherlands government. These were matched by contributions from the Dali prefecture government, loans from local banks, and the purchase by the provincial electricity company of a new power generating plant, bringing the total cost to 20 million yuan (140, 179; DN, 1991: 226). In January 1988, representatives of the Yunnan government and the Dutch Stork Company met in the Golden Dragon Hotel of Eryuan city to watch Luo Guobin sign the contract on behalf of the factory.

While Dengchuan upgraded its own processing capacity, it also reaped the benefit of government investment in infrastructure, and left farmers with the risk and expense of cattle raising. For all its detail, the history of the factory in 1994 barely mentions the issue of cattle ownership

[7] Willingness to take on debt was seen in both collective enterprises and new TVEs across the dairy supply chain (see DuBois, 2019a). Government-encouraged debt in the interests of scale continued into the 2000s (DN, 2003: 124).

except to say that the provincial herd "exists" in certain numbers. This is not an oversight. Even at this early stage, producers elsewhere in China had pioneered the system (known as the company + base + rural household) of outsourcing milk production in order to focus on processing capacity, distribution, and brand growth (Delman, 2003: 9–11; Snell, 2014: 60; Wang, Chen, and Klein, 2015). Like them, Dengchuan was the end point of a dairy production chain that relied upon thousands of farming households and a state network of infrastructural improvements, including stations for cattle breeding, veterinary services, and milk collection. This advantage would propel the company through its next decade.

Stage 2: 1989–2000—Dengchuan as Industry Leader

The following decade of accelerated growth continued to intermingle the development of the region, the local dairy industry, and Dengchuan specifically. According to a 1989 strategic economic plan for Dali city (which despite the name was still 70 percent rural), the new decade laid out two key challenges: creating flagship industries (here called "fists" 卷头, but later institutionalized as "dragon heads")[8] for the region, and seeking markets for local exports (Qiu, 1989: 59).

An answer to both lay in the ambitious expansion of livestock industries, including dairy production. Although the Dali cigarette factory 大理卷烟厂 was by far the largest source of tax payments, food production was an emerging priority, and livestock industries for products such as

[8] The term "dragon head" was created as part of the agricultural industrialization reforms of the late 1990s. Designated firms were positioned as industry leaders, and "receive support in areas regarding credit funds, project planning, tax fee collection and land usage" as well as the ability to conduct foreign trade and public offerings (State Planning Commission 1998, in Snell, 2014: 45).

eggs, market pigs, and dairy were promoted as particularly promising areas of new growth (DI, 1995). Even when coordinated by the province or prefecture, targets and plans were generally set at the county level. In 1993, four counties banded together in a livestock expansion project: Heqing and Midu were to develop pig industries, Weishan to develop beef cattle, and Jianchuan would specialize in dairy cattle (DN, 1994: 92). Over the course of the decade, the dairy center of Eryuan county, the site of the Dengchuan factory, was instructed to grow its dairy herd from 27,000 in 1987 to 30,000 by the year 2000. Neighboring Dali was to quadruple its herd from 3,600 to 15,000 (Qiu, 1989: 76–77).

To promote the industry, Eryuan created centers of concentrated resources, instructing village cadres to oversee cattle breeding programs, reform feed production, expand hay planting and harvesting, and encourage households to specialize in dairy. The Eryuan "integrated dairy base" combined government-supported breed improvement, feed and veterinary stations, and model dairy villages in order to improve cattle rearing and milk collection practices (DN, 1993: 71; EN, 1999: 209). In 1992, this one base held 82.6 percent of the prefecture's dairy cattle (DN, 1993: 115). In 1996, the county initiated a four-year, 8.26 million yuan dairy commercialization project, with much of the investment going to skills training and the development of new areas for growing feed and silage (EN, 1999: 213; 2000: 141; 2001: 152). Prefecturally funded experiments led to improved feeding regimes, while collaboration with the provincial feed research station formulated the Golden Bell 金丹 brand specifically for local dairy cattle.[9] The success of these policies, plus the rising market price for raw milk, was best reflected by the rapid growth of the dairy herd and the amount of

[9] The veterinary network was already established in Weishan in 1988 and expanded after an outbreak of schistosoma (DN, 1991: 197; 1999: 128).

milk sold to Dengchuan, which remained the only significant processor. Compared to 1990, the dairy herd in Eryuan had grown by 35 percent, but milk collection had doubled, showing that the industry was growing not only larger, but also more efficient (DN, 1996: 90–91) (see Table 2).[10]

Table 2. Dali Dairy Herd and Milk Production, 1959–2013

	Dairy herd (head)	Milk products (annual output, tons)
1959		300
1960	4,475	
1961	3,837	
1965	6,091	
1966	7,600	
1970	7,719	
1975	5,900	
1978	7,443	405
1979	8,200	
1980	10,431	
1984	18,070	
1985	23,800	1,512

[10] These data are best used as a general indicator of growth patterns. Outside of the question of deliberately falsified statistics, a living herd is always changing in size, while early output figures occasionally conflate milk powder and overall milk products. For additional assessment of the problems and uses of official livestock statistics, albeit focused primarily on meat production, see Waldron, Brown, and Longworth, 2006: 11–27.

1986	26,962	
1987	27,500	
1988	29,109	2,484
1989	30,073	2,354
1990	37,200	2,684
1991	42,500	3,557
1992	46,943	4,568
1993	53,862	
1995		4,334
1996		4,508
1997		5,180
1998	60,600	
1999	59,500	
2003		43,004
2004	83,200	60,137
2005	82,700	69,000
2006	119,000	84,300
2007	129,400	153,700
2008	135,300	173,200
2009	141,800	169,700
2010	144,735	189,200
2011	151,976	216,000
2012	154,900	302,500
2013		311,000

Source: DNZ, 1994: 2–6, 39, 51–53; DN, various years; Qiu, 1989: 50, 76.

However, even as the county concentrated its resources, actual cattle ownership was spread among smallholders. Such was the case nationally as well, as family farms responded with enthusiasm to policies aimed at increasing livestock production (Delman, 2003: 5). In 1998, the Dali prefectural government disbursed over six thousand loans across the entire livestock sector, a total of 25 million yuan, but an average of just under four thousand yuan each (DN, 1999: 128). Even as industries like pig farming, and even beef cattle production, began moving to scale (109), dairy production remained small. In 1998, only thirty-five farms in the entire prefecture held more than thirty head of dairy cattle (DN, 1998: 105).

Already enjoying more market demand than they could satisfy (市场供不应求), Dengchuan was to play numerous roles in the larger industry expansion. It was expected that the company would take some ownership for the regional expansion of milk production by paying for the construction of cattle breeding stations (Qiu, 1989: 14, 17, 50, 56–57, 59, 75–77). Beyond this, Dengchuan would also lead the reform of the region’s food industries more broadly. As the largest of the prefecture’s 708 food companies, and one of only three that operated at the level of scale and integration needed to implement American and Japanese production methods and attention to quality and brand management, Dengchuan was encouraged to serve as a model for other enterprises to emulate (Li, 1995: 34–37; DN, 1990: 19). But it was also given ample support. Dengchuan was named a core industry 骨干企业 in 1991, and in 1995, it was proposed that the plant’s iconic Butterfly Spring milk powder be designated a flagship brand, thus ensuring that it would be given additional resources not only to thrive, but also to drive local producers to follow its example of success through growth (Li, 1995: 23, 34, 37).

But especially as new legislation such as the 1994 passage of China’s first Company Law 公

司法 created tangible consequences for poor enterprise performance, Dengchuan also began to turn ever greater attention to improving its own operations. It released new product lines such as ice cream, yoghurt, and pasteurized milk first into local markets, in part because refrigerated products could only ship on that limited scale. And it also continued to experiment with related income streams, breeding high quality dairy and beef calves, which it sold to farmers for a high profit (DN, 1996: 90–91). One of a series of efficiency measures intended to save money by preventing the contamination of larger deliveries, Dengchuan overhauled collection at its sixty-four milk stations in order to test for substandard milk at the point of sale. Adulteration across the supply chain was already a serious problem; in 1996, no fewer than 615 producers were caught watering down the raw milk they sold to independently operated collection stations (on contracting of milk stations, see DN, 1999: 154), many of which knowingly bought the tainted product. As both a safety and a cost-saving measure, the factory initiated a new policy in 1998 of contracting sales from known producers (DN, 1992: 240–41; 1997: 137; 1999: 154; EN, 1999: 225–26; 2000: 157).[11] Emulating Dengchuan, smaller enterprises such as the nearby Jianchuan Milk Products Factory 剑川乳品厂 sought to avoid the losses caused by poor milk collection by increasing integration with dairy commercialization bases (DN, 1993: 148).

The clearest expression of strategic coordination between state and enterprise was Dengchuan's drive to enter foreign markets. During the early 1980s, local traders were already shipping small batches of Dengchuan milk powder across the Salween River to be sold in Burma (DNZ, 1994: 117). In 1992, Dengchuan officially exported its first 100 tons of milk powder to

[11] It also extended 42 million yuan in loans to farmers at a rate of roughly 4 percent (EN, 2000: 157).

Vietnam, and sold 2,500 tons to Burma the following year. Despite official laments over the local increase in food prices, Dengchuan exported 80 percent of its 1995 output to Southeast Asia, primarily to Burma (DN, 1994: 128; 1996: 117; 1997: 26). Exports provided desperately needed foreign exchange, allowing the company to repay its initial RMB and dollar-denominated loans ahead of schedule (DN, 1994: 94; 2001: 166–67). The new market also vastly increased the production needs of the factory. While other areas were burdened with overinvestment in processing equipment (Snell, 2014: 55, 72),[12] Dengchuan was reportedly running machinery at 130 percent of capacity during the early 1990s (DN, 1994: 128). The sharp turn to exports represented two layers of state planning. The sales themselves were approved by the National Overseas Trade Bureau, which also set quotas for the amount of foreign exchange to be brought in. Moreover, even after Dengchuan was awarded the right to manage its own exports in 1996, various levels of trade representation continued to promote the product through trade fairs and product awards (DN, 1997: 137). As Dengchuan turned to export markets, new local companies such as the Dali Zhoucheng Milk Powder Factory 大理周成奶粉厂, which originated in a local township and village enterprise (TVE), emerged to serve the local market (DN, 1993: 124).[13]

Although the 1990s were in many ways marked by growing managerial freedom, Dengchuan was at every stage both a leader and a beneficiary of the growth of the regional dairy industry in

[12] Waldron, Brown, and Longworth (2010) see a comparable phenomenon in the attempt to fast-track the development of the beef industry.

[13] Named after a site just adjacent to the Butterfly Spring, Zhoucheng was clearly meant to echo the Butterfly Spring brand. On the phenomenon of evocative branding in the dairy industry, see DuBois, 2019b.

Dali. Far from privatization, the formation of interdependent production chains was at the core of enterprise reform.[14] Even as Dengchuan increasingly looked after its own interests, it still filled a role created by provincial, prefectural, and county-level planners, and remained dependent on the state to subsidize the development of raw milk production in its catchment area, to partner in the promotion of local products, and to facilitate the opening of lucrative Southeast Asian markets.

Stage 3: 2000–2017—Privatization and Integration

The new century ushered in a radical transformation of China's entire dairy industry. Consumption skyrocketed as the Chinese government initiated a series of "milk for students" 学生饮用奶 campaigns and Premier Wen Jiabao spoke fondly of his "dream" for each of the country's children to drink one cup of milk a day (EN, 2001: 149–50; 2002: 152; 2007: 140). Tastes also changed along with advances in food retail (Tessari and Godley, 2014; Collantes, 2016). In dairy, UHT (ultra-high temperature) packaged liquid milk (Snell, 2014: 48) and higher value products such as bottled yoghurt displaced milk powder as the primary product, prompting investment in new production lines and increasing the volume of raw milk that the processors would need to purchase. Ever-higher cost barriers prompted industry consolidation, making household names of emerging giants such as Yili, Guangming 光明, and Sanlu 三鹿.

Simultaneously, China's late-2001 accession to the WTO opened China's market to milk products from the European Union, Australia, and especially New Zealand. Hardest hit were processed products, especially milk powder and infant formula. WTO membership also furthered the process of industry consolidation by opening a vast infusion of foreign investment in Chinese

[14] For a list of relevant policy documents, see DN, 1990: 162.

domestic producers. In 2002, Morgan Stanley and a group of Chinese investors spent 20 million USD for 32 percent of the then relatively small Mengniu (Li, 2005: 273–92), and in 2005, the New Zealand–based Fonterra dairy cooperative bought a 43 percent stake in Sanlu for 864 million RMB (Snyder, 2016: 28–30). New investors in the Dali industry would be domestic, but their effect was no less transformative.

This influx of foreign and Chinese capital coincided with the widespread divestment of state interests from nonessential SOEs. Continuing a process that had begun soon after the 1998 financial crisis, the Ninth Five Year Plan (1996–2000) had aimed to unburden itself of direct ownership of most SOEs through "reorganization, bankruptcy, debt write-offs, merger into partnerships, leasing, contractual operation or sale" (Broadman, 2000: 5; Jin, 2017; EN, 2001: 163). This change was portrayed not as the abdication of state management, but rather as a new policy of "state-enterprise cooperation" 政企合作.[15] It coincided with a new embrace of the business community, as political stakeholders, enshrined officially in Jiang Zemin's theory of the "three representatives," and the high-profile elevation of entrepreneurs (including Mengniu's celebrity CEO Niu Gensheng) to elite bodies such as the National People's Congress.[16]

In the dairy industry, the result of these changes, all of which were clearly visible on the horizon from the vantage of the late 1990s, was the concentration of investment into a small number of officially favored companies, just as the industry as a whole was vastly increasing in value. The policy of concentrating resources in dragon head enterprises, as well as the flood of private capital from foreign and Chinese investors, raised the investment threshold in processing equipment,

[15] This phrase starts appearing regularly in 2005 (see EN, 2005: 110).

[16] On the political clout of top managers in Chinese enterprises, see Arnoldi and Muratova, 2018.

networks, and raw materials, particularly the high volume of raw milk purchase. These trends marginalized smaller producers and accelerated the consolidation of the industry, both of smaller producers into larger ones, and in terms of increasing coordination across the production chain under the aegis of the largest companies. By 2008, 68 percent of the domestic market was dominated by three companies (Snell, 2014: 72).

For Dengchuan, radical change was just on the horizon. The 1998 financial crisis had decimated dairy exports to Southeast Asia, encouraging the region's planners to shift their exposure to the quickly growing domestic market (DN, 1998, 136–37; EN, 1999, 226).[17] At the same time, a national campaign of "grasping the big and letting go of the small" 抓大放小 (Huang, 2017a) transformed nonstrategic SOEs into stock companies. In January 2000, the Dengchuan Milk Products Factory was reborn as the Eryuan County Dengchuan Milk Powder Factory 洱源县奶粉厂. The new company's value was calculated at 44.8 million yuan, or 9,760 shares of stock at 5,000 yuan each. The Eryuan county government would hold 91.8 percent of the shares, and the factory's workers another 5 percent (EN, 2001: 163). The new company continued its expansion that had begun the preceding decade, investing 32.2 million yuan in June of that same year in a 40 ton-per-day UHT liquid milk production line (DN, 2001: 157–58; 2003: 138). By 2001, the company's annual transaction turnover exceeded 100 million RMB, with reinvigorated sales across Southeast Asia bringing in an additional 3.12 million USD in overseas sales (166–67).

Eryuan immediately began seeking a buyer. The county was required to sell off its share by 2003, and moreover, the transformation of the industry was clearly beyond the ability of the new

[17] In addition to retail sales, Dengchuan also signed contracts to supply other domestic dairies, such as Shanghai's Guangming (EN, 2000: 157).

company to handle alone. Despite high sales, the pressures of expansion had left the company holding about 60 million yuan in debt. A new partner would bring additional investment as well as established marketing and distribution networks. The obvious choice was Nestlé, the world's largest food company, and one that had a long history of cooperation in reform-era China, going back to its 1987 joint venture in Shuangcheng 双城 (now part of Harbin). Over the preceding years Nestlé had aggressively expanded its operations by buying up controlling shares of a variety of Chinese food producers, earning the unflattering reputation of "acquisitions madman" 收购狂人.[18] In December of 2001, Nestlé invited representatives of the Eryuan government and Dengchuan general manager Li Linxing 李林星 to the company's China headquarters in Beijing and brokered a deal to purchase an 80 percent share for 40 million yuan. Opposition was immediate. Critics said that the offer vastly underestimated the intangible value of the company's brand and retail networks. Moreover, it shifted responsibility to the county government for both the company's debt and its legacy payments to pensioned workers. In June of the next year, eighty retired workers petitioned the government to block the sale, highlighting in a very public way the looming sense of precarity surrounding the erosion of enterprise responsibility to workers (Huang, 2017a, 2017b). In July, Li Linxing was fired (Li, 2005: 290–91).[19]

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[18] At the time, these acquisitions included condiments producer Totole 太太乐, Wuyang 五羊 Ice Cream, and the Guangzhou Frozen Foods Company 广州冷冻食品公司.

[19] My interviews confirm the basic narrative offered in the business press. Typical accounts include "雀巢云南并购遇到狙击:蝶泉内部'兵变'" (Nestlé's Yunnan acquisition encounters hidden threat: mutiny from within Diequan), http://business.sohu.com/13/55/article202105513.shtml; "雀巢并购

In December of 2003, the Eryuan county government announced that it had agreed with the New Hope Group, a Sichuan-based agribusiness consortium with holdings of 3 billion yuan, to sell its entire stake in Dengchuan for 55 million yuan. Like Nestlé, New Hope was at the time engaged in a nationwide strategy of acquiring local milk producers, including Anhui Baidi 白帝, Sichuan Huaxi 华西, Hangzhou Shuangfeng 双峰, Hebei Tianxiang 天香, and Qingdao Qinpai 琴牌 in that year alone.[20] Although the price offered by New Hope reflected a roughly comparable valuation of Dengchuan itself, the conditions attached to the sale (and further formalized in a July agreement with the prefectural government) directly addressed the problems with the Nestlé offer and showed how the purchase was intended to energize the local industry. In addition to the promise to retain 95 percent of the company's 388 employees for at least three years, the sale came with strict investment and performance benchmarks. Daily milk production capacity was required to grow from two hundred tons to five hundred tons, and annual output was to reach a hundred thousand tons within the year and three hundred thousand tons within five years (DN, 2003, 150; 2004; EN, 2003: 213–4; EN, 2004: 125). The new company, now called the Yunnan New Hope Dengchuan Butterfly Spring Dairy Company, Ltd., immediately initiated a 120 million yuan investment in its "thousand tons of milk" project 千吨鲜奶工程, beginning with a 15 million yuan liquid milk production line and a 2006 plan to invest 60 million in a ten-thousand-ton-per-year milk powder facility. Significantly, it also included an 8 million yuan investment in new production bases, marking the beginning of an

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触动乳业神经" (Nestlé acquisition unnerves the dairy industry), http://finance.sina.com.cn/b/20020711/231345.html. Discussion of the incidents is notably absent from publications like the *Dali Yearbook.*

[20] Information is available on each of these companies' websites.

industry-wide shift from processing to integrated primary production, and also sparking the sharp rise in dairy productivity pictured in Figure 2 (DN, 2004: 137; EN, 2004: 126; 2005: 110; 2007: 107–8).

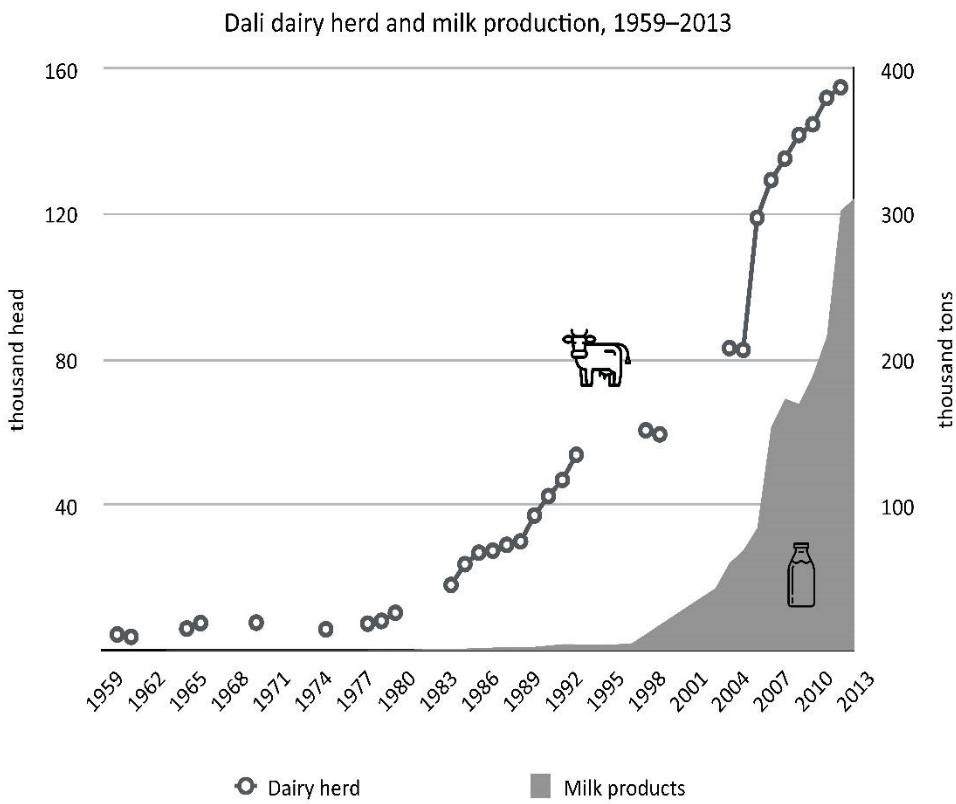

Figure 2. Dali dairy herd and milk production, 1959–2013.

Source: DNZ, 1994: 2–6, 39, 51–53; DN, various years; Qiu, 1989: 50, 76.

The arrival of New Hope did not prevent the emergence of new rivals. While smaller local producers such as Zhoucheng Milk Products had evolved out of local industries, this new wave of companies was from the outset oriented to large-scale investment and production. Just as New Hope was doing for Dengchuan, these new competitors likewise combined investments in processing with development of the milk production base. The East Asia Dairy Company 大理东亚乳业公司 was founded in June 2003 with a 100 million yuan investment from the Fujian Hua-Gang Group 福建华港集团. In 2004, East Asia opened a 150-ton-per-day liquid milk line, and by 2005 had a daily processing capacity of 320 tons and a market catchment in provinces across southern China. In 2007, the company invested 12 million yuan to import 2,105 Australian dairy cows as breeding stock for nineteen large farms, as well as buying fifty-eight refrigerated milk holding stations, twelve refrigerated trucks, six milking stations, and forty-six imported milking machines, as well as training for the rural operators (DN, 2007: 163). An ad from 2007 mentioned that the company had milk bases in six counties. From 2003 to 2009, the dairy herd in this catchment had grown from fifteen to forty thousand head. The smaller Lesson 来思尔乳业公司 was formed in 2001, and by 2005 had a daily liquid milk capacity of 150 tons. Lesson also developed unique product lines in water buffalo milk and yoghurt (DN, 2005: 158; 2006: 164–65; 2007: 163–64). In expanding their territory, these new companies increasingly looked beyond Eryuan, suggesting a degree of interjurisdictional competition even within a single sector.

Nor did the influx of new investment end government guidance of the sector; if anything, it intensified it. At a July 2003 meeting to set strategy for dairy growth in Dali, scholars invited from a number of central economic and agrarian research institutions encouraged industry and government officials to lead the shift to scale and consolidation across the whole value chain, which had been a long-standing priority for the entire food industry. Although the 83,200-head prefectural dairy herd had already surpassed the aspirational 80,000 benchmark set for 2005, that number was now deemed too small for supporting a pathbreaking dragon head industry.[21] Beyond growing the total herd size, primary milk production was also to shift from small households to large farms. But in fact, this transition had already begun. In 2002, Dali prefecture initiated a pilot program to "raise dairy cattle in great fields of hay" 大田种草养奶牛, in which nine model villages of one hundred households each raised two hundred dairy cattle, which they fed on grass grown locally (EN, 2003: 199–200). The result was a sustained growth in farm size. In 2002, only one farm in the prefecture had more than fifty dairy cows, and in 2003 that number rose to twenty-four farms. The result was an increase in farm size. Some of this growth was due to farming households taking on debt in order to buy livestock (aided by the earlier program of low interest loans—DN, 2003: 124), but most was carried out jointly by the new dairy giants in conjunction with county governments. In 2004, Dengchuan agreed to work with neighboring Heqing 鹤庆 county in order to establish a dairy base, and in 2005, it collaborated with Eryuan to install new automated milking systems (EN, 2005: 110; 2006: 100, 108). Dengchuan and East Asia were also independently planning three new facilities with two thousand head each, as well as forty new dairy cooperatives (DN, 2004: 120–21; EN, 2004: 119).

The revelation in 2008 of widespread abuses in the Chinese milk industry greatly intensified this shift to scale and consolidation. This scandal, in which producers were caught adding the industrial chemical melamine to milk in order to mimic high protein counts, was officially blamed on the Hebei-based Sanlu company, but the practice was in fact rife throughout the industry, a product of dispersed and loosely monitored production lines (Xiu and Klein, 2010; Yang et al., 2009; Snell, 2014; Snyder, 2016). Nationally, this event provoked consumer outrage that has yet to subside. Financial losses within the industry prompted a further wave of consolidations, including

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[21] Here the term "dragon head" denotes a pathbreaking sector, rather than a particular enterprise.

the 2009 purchase of a major stake in Mengniu by a subsidiary of the state grain giant COFCO and subsidies for larger farms, but mostly to processors (Cheng, 2009; Flaherty and Kwok, 2009; Tucker, 2009). The long-term effects aimed to accelerate the move toward the integration of resources, knowledge, and financing across the entire dairy production chain, linking everything from animal feed and raising to milk collection and processing into clusters of linked companies, creating new size-based barriers to industry entry.[22] Both through regulation and the role of state companies in cross-investment, the scandal also prompted aggressive government oversight of an industry that until that point had been moving toward self-policing by its large processors. Sabrina Snell outlined the perverse incentives that emerged from this response; forced to show quick results, cadres broke ground on large-scale projects that were then left unfinished, operated at partial capacity, or delivered impossibly sunny statistics, while those by investor managers often worked against farmers' interests and were in any case far more expensive than the farmer-led model (Snell, 2014: 100–147). Nevertheless, a 2018 document by the State Council (General Office, 2018) affirmed continued support for upscaling, setting benchmarks for larger and more integrated farms in an industry in which 55 percent of sales were already concentrated within the twenty largest enterprises (a group known as the "D20" 中国奶业 20 强).

Although not officially implicated in the scandal, the Dali industry was transformed by its effects. Dengchuan's foreign sales fell from 11.12 to 7.3 million USD as neighboring countries

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[22] Known as "the three -izations" 三化: i.e., upscaling, standardization, and integration 规模化, 标准化，一体化 (Snell, 2014: 82–83). The 2008 melamine crisis accelerated promotion of these ideas, but it did not invent them. Similar language appears in Dali sources as early as 2003 (DN, 2004: 120). On food safety regulation before the crisis, see Tam and Yang, 2005.

moved to ban Chinese milk imports (EN, 2009: 141). Regionally, the effect was to finally get serious about upscaling and integration. Despite years of encouragement and investment, the industry remained overwhelmingly dominated by small shareholders. In 2007, the herd of 119,000 dairy cattle was spread among 42,000 operators, an average of just over two head each (DN, 2008: 189). Three years later, the ratio had changed very little, with 50,000 operators for a dairy herd of 138,000 (DN, 2011: 184). Hastened by the industry scandal, change would come from two directions. One was in the form of regulatory action designed to weed out small operators and to prevent quality breaches by bottlenecking the industry among a small number of top players. During the recovery, government inspections closed 70 out of 189 total milk stations, and in 2010, government inspectors cut the number of legal producers from ten to five, of which the three top companies were designated “dragon heads,” and clearly the only competitive players in the field (See Table 3) (DN, 2010: 181; 2011: 184–85, 202)

Table 3. Top Five Dairy Companies in Dali, 2012 (million yuan)

	Industrial output	Sales	Profit
East Asia Dairy Industry LLC	656.6	637.6	80.98
Yunnan New Hope Dengchuan Butterfly Spring Dairy Industry LLC	508.8	493.4	16.88

Yunnan Huangshi 皇氏 Lesson Dairy Industry LLC	270.2	418.9	21.51
Dali Milky Way 银河 Dairy Industry LLC	0.3	24.0	-.93
Dali Golden Flower 金花 Dairy Industry LLC	0.2	26.2	-3.51
TOTAL	1,488.8	1059.7	114.93

Source: DN, 2013: 251.

Note: The totals are taken from the original source.

The second form of regulatory action was to accelerate investment in integrated production by the major companies. While upscaling was largely a matter of government policy, this change was equally driven by consumers who demanded assurances of the provenance and safety of dairy products. During the 2010s, the three major companies each increased their investment in model dairy villages, shared dairy infrastructure, and large-scale farms. Dengchuan spent 12 million yuan on milking and collection infrastructure, while East Asia invested 20 million in new equipment. In 2011, Dengchuan established a 1,000-head organic farm, while East Asia broke ground on new a dairy farm in Xiangyun 祥云 county (DN, 2008: 183; 2009: 180; 2010: 180–81, 199; 2011: 184–85; 2012: 195; 2013: 227). They were recompensed by exclusive access. While areas such as Hohhot had earlier restricted milk stations to sell to only one company 一村一企 as early as 2003

(Snell, 2014: 124), in Dali this policy was instituted in direct support of the post-melamine drive to company-driven upscaling. The 2012 “Notice Concerning the Division of Dairy Bases” 关于奶源基地划分的通知 formally banned companies from sourcing milk from outside their designated base, and also provided a blueprint for these few companies to continue shaping the future of the industry by deepening their local investments (DN, 2013: 229, 251; 2014: 220–21, 229).

Conclusion: Local Food Industry and the Evolving State-Enterprise Alliance

Across the range of ties that bind Chinese enterprises into business groups, the state clearly looms large, and indeed the literature on Chinese business groups tends to emphasize the state alliance as the unique feature. From the perspective of a single enterprise, having a political ally can provide or ease access to any number of resources, including materials and financing, market access, and coordination with allied industries. The result, as seen in Lin and Milhaupt’s 2013 depiction of the sectoral dominance by Chinese business groups, can be highly effective at transforming key industries under close state guidance (also Downs and Meidan, 2011). Bound by a dense network of “institutional bridg(es),” including career paths, this highly structured sort of grouping of political and corporate structures differs substantially from the image of informal dependence—for example, private rural entrepreneurs who rely on local government for finance and market access (Sato, 2003; Jin, 2017).

In contrast, Dengchuan shows state-enterprise interaction within an industry that was hardly strategic on the national stage, but still a vital economic engine locally. Seen over the long term, the picture that emerges is one of a changing and shifting alliance between various levels of local government, as well as the dairy as an individuated entity. During its first two decades, the factory was minimally held to standards—not of profit, but of production quotas. Successive waves of reform in the 1980s and 1990s made the enterprise increasingly responsible for its own fate, and after 2003, the controlling ownership of enterprise assets was in private hands. Yet as the engine for developing the region's dairy industry, as well as an increasingly important generator of tax revenue and foreign exchange, Dengchuan (first the factory, and later the enterprise) was a consistent local strategic priority. It could, and did, rely on significant political assistance in the form of complementary development strategies, infrastructural investments, and operational financing. The expansion of the consumer dairy market, the weakening of restrictions on foreign exports, and the influx of outside capital reversed the poles on this relationship. Rather than giving the enterprise more freedom from local government, these changes actually established a new pattern of cooperation by which Dengchuan (now as a privately held subsidiary) took the lead in terms of funding and building infrastructural improvements such as dairy bases as well as responding to new state demands to upscale and integrate production. And the new wave of well-capitalized competitors has followed a similar pattern by investing in dairy bases and improvements in and around Eryuan county.

Across this entire period, Dengchuan relied on the willing and predictable partnership of different layers of local government, both directly and through linked companies and institutions. In return, the government was able to weigh in on personnel decisions, the rate of investment and expansion, and the division of milk-producing areas between rival companies. While the current state of this arrangement—a group of privately owned companies linked by tradition rather than asset ownership to local government—differs from the corporate group described by Lin and Milhaupt, the substance of the relationship, in terms of being stable and mutually beneficial between the company and the local government, nevertheless resembles it.

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