Milk from the Butterfly Spring: State and enterprise in China’s dairy industry

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Maker of the Butterfly Spring brand of milk powder, the Dengchuan Milk Products Factory embodies much of China’s long term commercial transformation. Founded in 1959 at state initiative, and under state ownership, the company grew prodigiously during the commercial reforms of the 1980s and 90s, and especially after 2003, when it was purchased by the Chinese feed conglomerate New Hope Group. On a national scale, Dengchuan is a mid-sized concern, far smaller than such giants as Yili and Mengniu, but still regionally important in China’s southwest, and a major exporter to Southeast Asia. It would be easy to see in Dengchuan yet another example of China’s seemingly inexorable march towards economic privatization. But closer examination reveals something more: an enduring and evolving relationship between companies, and the state-led development of particular industrial sectors.

This paper introduces the development of Dengchuan over five decades, and from two perspectives: as an individuated enterprise, and as an asset in the state-led development of the dairy industry in western Yunnan Province. The first is the story of SOE transition to managerial autonomy and private ownership, and the second, the continued and even increasing 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, and the difficulty of separating market from non-market 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 template for examining how local SOEs form networks, and introduces what dairy, an industry that relies on and adds value to local agriculture, can tell us about the interaction of state and enterprise interest. The next three parts examine Dengchuan’s history, highlighting the obvious moments of transition, but also taking the long view to appreciate the deeper continuities of production and personnel. We divide the development of Dengchuan into three stages: small but intensely promoted SOE from 1959 to 1989, marketized “dragonhead” SOE from 1989 to 2003, and since 2003, as a privately-owned dairy subsidiary. Alongside the disruptions of change and privatization, our focus will be on demonstrating the underlying continuity: the bridges that continue to link state and enterprise interest and initiative with Dengchuan’s productive and market growth.

Group networks and local SOEs in transition

To appreciate the range of motivations and arrangements behind the formation of enterprise alliances, we turn to first the large and growing literature on Chinese business groups. Business groups is a catchall conception, spanning the wide range of relationships that lie between short-term transactional ties and legal consolidation. The nature and value of BGs varies with each country’s legal and policy regime, and the literature on groups in China focuses largely on these national trends. Keister examines the early formation of Chinese BGs, when a combination of favorable state policies and
market inefficiencies favored the formation of horizontal alliances during the 1980s, although these same ties gradually became a liability as conditions changed over the subsequent decade. Lin and Milhaupt pick up the story after 2000, when strategic industries like telecoms, steel and real estate were organized into elaborate pyramidal corporate groups that combine SOEs with listed companies, research institutes, and mechanisms for internal finance, all linked by lateral transfer of personnel between units, and overseen by the direction of the State-Owned Assets Supervision and Administration Commission of the State Council (SASAC). Other work addresses such questions as the market and non-market factors that drive Chinese enterprises to form groups or diversify into subsidiaries. This as well emphasizes the different roles played by the state: the early policies that encouraged BGs as part of an industrial a catch-up strategy modeled on the perceived successes of Japanese *keiretsu* or Korean *chaebol*, the benefit of political alliances and capital in seeking finance or market access, and the concomitant pressures placed on politically-linked firms to diversify into firms in support of such non-market ends as local development, knowledge transfer or funneling resources to troubled industries.

Yet this focus on national-level policy and trends overlooks the experience of smaller, more local groups, as well as the details of how individual sectors actually operate. Compared to the national level, relations between state and enterprise at the provincial and lower levels of the government are in many ways distinct: industry was previously siloed within provinces, and investment remains discernibly shaped by a political imperative to remain within provincial borders. Further down, the intensity of political and business activity at sub-provincial (prefecture, county and township) levels is largely ignored. Also missing are sector-specific realities. Quantitative analysis of the extensive survey and corporate information contained in ZEPHYR, CSMAR (China Stock Market & Accounting Research), and other databases lumps all sorts of business together, with little eye for any sort of day-to-day detail. Lin and Milhaupt 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. Especially absent is the perspective of the individual firm, which in some cases show continuities that span the waves of policy transformation.

Close examination of an industry like dairy brings clarity to each of these issues. Dairy exists within an ecosystem that includes both agriculture and local government. It benefits from scale, driving competitive enterprises to upscale their own production, and to seek out partners within related industries. Processors like Dengchuan are symbiotically bound to the larger dairy catchment base, and to publicly funded infrastructural investments such as cattle veterinary stations and refrigerated milk collection. This relationship works both ways: since a region’s raw milk production feeds into and depends upon processing, vertical linkage to an enterprise like Dengchuan is a strategic asset for rural development, employment and taxation. Even as waves of reform freed Dengchuan’s management and privatized its asset ownership, the enterprise remains inseparable from a network of formal and informal collaborators, which include other companies, farming cooperatives, and the local government.

Stage 1: 1959-1989, Growing autonomy in a planned sector
The Dengchuan Milk Powder Factory began as a state-directed effort to build industry and food security for mountainous Yunnan Province. Blessed with lush, grass covered hillsides, the region already had deeply-established traditions of cattle raising, and unusual for China, of consuming dairy. Visiting the region in 1954, the vice head of the National Veterinary Bureau advised the Yunnan Provincial Light Industry Bureau to invest 15 thousand yuan to import Holstein cattle to improve the dairy productivity of the local Dengchuan breed, and to build a small condensery to process about 20% of the region’s current milk production, roughly 150-200 thousand kilograms of raw milk per year.

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 of 1959. The milk powder factory was significantly larger than the condensery. At full capacity, it could annually produce 300 tons of Butterfly Spring Milk Powder. In addition to the 600 thousand yuan cost of construction, the factory relied on a national network of state resources, especially the Shanghai Light Industry Bureau, which designed the plant, provided the machinery, and trained key workers. Due in part to extensive reclamation of fodder growing area, the local dairy herd more than doubled in size, from 3837 head in 1961 to 7600 in 1966. By 1975, seven communes, 20 production brigades and 24 production teams were producing milk for sale to the factory.

During the first few decades, the factory remained a small concern, with a relatively low level of technical specialization. Primary dairy production was primitive, and dispersed across a vast area. Without refrigerated transportation, early milk deliveries often went to waste. During periods of political agitation, machinery and workers at the factory often sat idle, and absenteeism was rife. The technical simplicity of the plant could also be an asset. When faced with milk shortages, the factory easily repurposed existing equipment to produce such ancillary foods as soybean and wheat milk (mairu), confections and tinned fruit. When the powder production line broke down in 1964, the factory simply switched back to making condensed milk.

Market reforms of the late 1970s led raw milk production to recovery. Modeled on national agricultural reforms, these policies returned cattle to household ownership, and gave producers freedom to sell milk at prices that were allowed to rise in response to market demand. The Dali prefectural government supported veterinary and breeding programs, new milk collection stations, and loans to farming households to breed cattle. The region’s dairy herd quadrupled in size in just nine years. Milk collection quickly improved, with daily deliveries to the factory doubling between 1981 and 1983.

As the only significant end processor of raw milk, Dengchuan responded by growing its core dairy business. In 1981, it invested 800 thousand yuan to refurbish old machinery and purchase new equipment that would increase daily milk processing capacity to 60 tons. Reflecting the ideal of “integrated self-contained small enterprise” (xiao er quan) under state planning, the factory continued to divert resources to new products, using part of a 200 thousand yuan loan from the Yunnan provincial government to add new lines producing tinned beef, bull serum and cow bone fertilizers. Gradually over the course of the decade, the factory abandoned these ancillary activities, and began seeking out new markets for its expanding core dairy business. By 1985 private sales would account for 40% of output. Between 1986 and 1987 it invested a further 2.2 million yuan, the largest sum thus far, on new refrigeration and processing equipment. In 1983, it earned
1.33 million yuan profit, greater than its first 19 years combined. By 1988, that number had risen to 1.65 million yuan.\textsuperscript{16}

It nevertheless remains difficult to separate the interests of the factory from those of the government. Even as Dengchuan enjoyed ever greater managerial autonomy to face new market opportunities, its expansion remained closely tied to the state. During the early years of reform, high production might earn the factory official accolades or a cash bonus, but enterprise profits reverted to the central government, which then reallocated the funds back to the factory based on proportions from the previous year’s budget.\textsuperscript{17} In 1985, only eight percent of the year’s profit was spent on equipment repair and product development. Despite realization of the unified receipt and allocation finance system, less than a third of the 1.65 million profit from 1988 remained for investment.\textsuperscript{18}

State influence remained strong as Dengchuan switched from investing profits to taking on productive debt. Even before 1985, the factory was routinely taking out low interest bank loans to cover shortfalls in rotating capital for purchase raw milk and packaging supplies. (See Table 1) By mid-decade, it was discussing expansion loans with state-linked lenders: the Yunnan provincial Agricultural Bank, and the Foreign Trade Bureau. In 1988, the plant received permission from the Yunnan provincial Light Industry Bureau to borrow 3.03 million USD worth of mixed loans to buy an all new Dutch-made production line with a daily processing capacity of 100 tons of fresh milk. Matching contributions from local government, including the purchase by the provincial electricity company of a new power generating plant from Shanghai, brought total price to the equivalent to 20 million yuan.\textsuperscript{19}

**Stage 2: 1989-2000, Dengchuan as industry leader**

The next decade of accelerated growth continued to intermingle development of the region, the local dairy industry, and Dengchuan specifically. A 1989 strategic economic plan for Dali prefecture pointed out two key goals: creating flagship (\textit{juantou}) industries for the region, and finding markets for local exports.\textsuperscript{20} Both would be realized in an ambitious expansion of the dairy industry. Eryuan and Dali counties were instructed to improve milk production by dispatching trained village cadres to oversee cattle breeding programs, reform feed production, encourage households to specialize in dairy, and to vastly expand hay planting and harvesting. In 1996, Eryuan initiated a four year, 8.26 million yuan dairy commercialization project, with much of the investment going to skills training, and development of new areas for growing feed and silage.\textsuperscript{21} Prefecturally-funded experiments with new crops like pea shoots led to improved feeding regimes, while collaboration with the provincial feed research station formulated the “Golden Bell” (\textit{Jindan}) brand specifically for dairy cattle.\textsuperscript{22} The success of these policies, plus the rising market price for raw milk, was best reflected in the rapid growth of the dairy herd, and the amount of milk sold to Dengchuan, which was still the only significant processor. (Figure 1)

Already enjoying more market demand than they could satisfy, Dengchuan would lead the consumer expansion of dairy, while also taking initiatives for its own interests. By the 1990s, Dengchuan was clearly one of the region’s most important and recognizable industries, earning it the designation of “dragon head” enterprise, which would lead the way for other companies, and industrial development more broadly. While supporting government programs by co-paying for the construction of cattle breeding
stations, Dengchuan also placed new attention on improving its own operations. It expanded into new product lines, such as ice cream, yoghurt, and pasteurized milk, which were released in local markets, presumably because refrigerated products could only ship on that limited scale. It continued to experiment with related income streams, in this case profitable ones such as breeding high quality dairy and beef calves, which also improved the quality of milk production locally. To prevent contamination of larger deliveries, Dengchuan overhauled collection at its 64 milk stations to test for substandard milk at the point of sale. Adulteration across the supply chain was already a consistent problem at the independently-run collection stations, many of which bought knowingly bought tainted product. In the interest of securing safe supply of milk, the factory in 1998 initiated a new policy of contract relationships with known producers. Emulating Dengchuan, the smaller Jianchuan milk products factory overcame losses caused by poor milk collection by increasing its integration with the county dairy commercialization base.

The clearest illustration of state and enterprise strategic coordination was the drive to enter foreign markets. In 1992, Dengchuan exported its first 100 tons of milk powder to Vietnam, and the following year sold 2,500 tons to Burma, which would thereafter become its primary export market. Despite official laments over the increase in food prices, Dengchuan exported 80% of its 1995 output to Southeast Asia. Exports provided desperately needed foreign exchange, allowing the company to retain enough profit to repay its initial RMB and dollar-denominated loans ahead of schedule. The new market also vastly increased the production needs of the factory, which during the early 1990s, was reportedly running machinery at 130% of capacity. 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 brought in. Even after Dengchuan was awarded the right to manage its own exports in 1996, various levels of official trade representation continued to promote the product through trade fairs and product awards. Dengchuan was to be the flagship brand overseas; whereas new companies like Jianchuan and the Dali milk powder factory would serve the local market.

Although the 1990s are often portrayed as an era of enterprise individuation, Dengchuan was at every stage both a leader and a beneficiary of the growth of the regional dairy industry in Dali. This was very much in the spirit of the early decade, which emphasized the formation of interdependent production chains as the core of enterprise reform. Dengchuan grew in size, and gained more autonomy over its operations, but still filled a role intended for it 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.

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” campaigns, and Premier Wen Jiabao spoke fondly of his “dream” for each of the country’s children to drink one cup of milk per day. Wealthier consumers abandoned milk powder for higher value products like UHT packaged liquid milk and bottled yoghurt. These changes prompted investment in new production lines, and increased the
volume of raw milk that the processors would need to purchase, raising the price both of milk and of dairy cattle. As milk production became more expensive, smaller players moved to consolidate, making household names of producers such as Yili, Guangming and Sanlu.

Simultaneously, China’s late 2001 accession to the WTO immediately opened China’s market to milk products from the European Union, New Zealand and Australia. Hardest hit were the value-added, processed products, especially milk powder and infant formula. WTO membership also encouraged a vast infusion of foreign investment in Chinese domestic producers: in 2002 Morgan Stanley and a group of Chinese investors spent 20 million USD for 32% of the then relatively small Mengniu. In 2005, the New Zealand-based Fonterra dairy cooperative bought a 43% stake in Sanlu for 864 million RMB. 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 in non-essential SOEs. Especially after the 1998 Financial Crisis, China’s 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.” This change was portrayed as not abdication of state management, but rather as a new policy of “state-enterprise cooperation” (zheng qi hezuo). 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 like the National People’s Congress.

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 favored enterprises designated as “dragon heads,” as well as the flood of private capital from foreign and Chinese investors raised the investment threshold in processing equipment, networks and raw materials, particularly the high volume of 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.

Although Dengchuan itself apparently entered the new century on a strong footing, radical change was just on the horizon. The 1998 financial crisis decimated Dengchuan’s exports to Southeast Asia, encouraging the region’s planners to shift their exposure to the quickly growing domestic market. At the same time, a three year national campaign of enterprise reform finally clarified the vexing problem of ownership by transforming state companies into stock companies. In 2000, Dengchuan was reborn as the Yunnan Dengchuan Diequan Dairy Products LLC (rupin youxian gongsi). 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% of the shares, and the factory’s workers another 5%. The new company continued its expansion of the previous decade, in June of that same year investing 32.2 million yuan in a 40 ton-per-day UHT production line. By 2001, its annual transaction turnover exceeded 100 million RMB, with
reinvigorated sales across Southeast Asia bringing in an additional 3.12 million USD in overseas sales.\textsuperscript{40}

But even with these successes, the transformation of the industry through upscaling and consolidation was clearly beyond the ability of the new company to handle alone. In December of 2002, the Eryuan county government announced that it had agreed with the New Hope Group (\textit{Xin xiwang jituan}), a Sichuan-based agribusiness consortium with holdings of 3 billion yuan, to sell its entire stake in Dengchuan for 55 million yuan. For New Hope, the purchase of Dengchuan was part of a nationwide strategy of acquiring local milk producers, including Anhui Baidi, Sichuan Huaxi, Hangzhou Shuangfeng, Hebei Tianxiang, Qingdao Qinpai in 2003 alone, in order to capture the growing fresh milk market using local brands and local producers, while leveraging the group name and national-scale resources.\textsuperscript{41}

Conditions attached to the sale (and further formalized in a July agreement with the prefectural government) show how New Hope was intended to energize the local industry. In addition to the promise to retain 95\% 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 200 tons to 500 tons, and annual output was to reach 100 thousand tons within the year, and three hundred thousand tons within five years.\textsuperscript{42} The new company, now named the Yunnan New Hope Dengchuan Butterfly Spring Dairy Company, Ltd. immediately initiated a 120 million yuan investment in its “thousand tons of milk” project, 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, this plan also included an 8 million yuan investment in new production bases, marking the emergence of a new industry-wide shift from processing to integrated primary production.\textsuperscript{43}

The arrival of New Hope did not prevent the emergence of new regional rivals. While older competitors like the Jianchuan or Dali milk products factories had evolved out of smaller local industries, this new wave of companies was from the outset oriented to large scale investment in integrated production. The East Asia (\textit{Dong-Ya}) Dairy was founded in June of 2003 with a 100 million yuan investment from the Fujian Hua-Gang group. In 2004, East Asia opened a 150 ton-per-day liquid milk line, and by 2005 had a daily capacity of 320 tons, and a market catchment in provinces throughout southern China. Like Dengchuan, East Asia invested in both processing and primary production: although it did not own the cows, it invested in infrastructural improvements such as milking stations, an arrangement that recognized certain areas as its exclusive milk “base.” From 2003-2009, the dairy herd in East Asia’s catchment had grown from 15 to 40 thousand. The smaller Lesson (\textit{Laisier}) was formed in 2001, and by 2005 had a daily liquid milk capacity of 150 tons. In 2005, the company imported 2,105 Australian dairy cows, and invested 12 million yuan in 58 milk stations, 12 refrigerated trucks, 46 imported milking machines. In order to distinguish itself from its larger competitors, Lesson developed unique product lines in water buffalo milk and yoghurt.\textsuperscript{44}

The influx of private investment did not 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, a long-standing priority for the entire food industry.
Although the 83.2 thousand head prefectural dairy herd had already surpassed the aspirational 80 thousand benchmark set for 2005, that number was deemed too small for supporting a path breaking “dragon head” industry. Beyond growing the total herd size, primary milk production was to shift from small households to large farms. In fact, this transition had already begun. In 2002, Dali Prefecture initiated the pilot program to “raise dairy cattle in great fields of hay” (datian zhongcao yang nainiu), in which nine model villages of one hundred households each together raised two hundred dairy cattle, which they fed on grass grown and cut locally. Outside of this program, there was a general push to increase farm size: in 2002, only one farm in the prefecture had more than 50 dairy cows, in 2003 that number rose to 24 farms. Some of this growth was the work of farming households who took on debt to buy livestock, but most was carried out jointly by the new dairy giants in conjunction and local government. In 2004, Dengchuan agreed to work with Heqing county to establish a dairy base, and in 2005 collaborated with Eryuan to install new automated milking systems. Dengchuan and East Asia were also independently planning three new facilities, each with 2000 head, as well as 40 new dairy cooperatives.

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 adulterating milk with the industrial chemical melamine to mimic high protein counts, was officially blamed on the Hebei-based Sanlu company, but the practice was in fact rife through the industry, a product of dispersed and loosely monitored production lines. Nationally, this event provoked consumer outrage that has yet to abide. Financial losses within the industry prompted a further wave of consolidations, including the 2009 purchase by a subsidiary of the state grain giant COFCO of a major stake in Mengniu. The long term effects accelerated the move towards 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. Both by regulation and the role of state companies in cross-investment, it also reasserted aggressive government oversight of an industry that until that point had been largely content to allow the large processors to self-police.

Although not directly implicated, the Dali industry was transformed by the scandal. Dengchuan’s foreign sales fell from 11.12 to 7.3 million USD, as neighboring countries moved to ban Chinese milk imports. During the recovery, each of the three largest companies increased its investment in model dairy villages, shared dairy infrastructure and large scale farms, to satisfy both government initiatives, and the demands of newly safety conscious consumers. Just as government inspections closed old or unsanitary milk stations (70 out of 189 total), Dengchuan and East Asia were each investing in new, large-scale milking and collection facilities. Dengchuan spent 12 million on new milking stations, while East Asia invested 20 million in new equipment, and broke ground on new a dairy farm in nearby Xiangyun county. In 2011, Dengchuan established a 1,000 head organic farm, while East Asia started construction of a similar facility. Clearly these moves were made in direct response to government initiatives that aimed to at once ensure scale, and prevent quality breaches by bottlenecking the industry among a small number of top players: in 2010, government inspectors cut the number of legal producers from ten to five, of which the three top companies were designated “dragon heads.”
2012, Dali released the “Plan for Dairy Bases,” a blueprint for these few companies to continue shaping the future of the industry.53

**Conclusion: Dengchuan and the evolving state-enterprise alliance**

Across the range of ties that bind Chinese enterprises into business groups, the state clearly looms large. This is most evident in Lin and Milhaupt’s depiction of sectorally-dominant corporate groups that link political and corporate structures around equity ownership and a dense network of “institutional bridg(es).”54 This highly structured sort of grouping differs substantially from the image of informal dependence, for example of private rural entrepreneurs who rely on local government for finance and market access.55

Viewing Dengchuan within its local political and industrial ecosystem reveals that formal networks also link state and enterprise at the local level. On the one hand, the dairy was clearly an individuated entity. Even in 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 90s made the enterprise increasingly responsible for its own fate, although for many reasons, it is debatable if failure ever really loomed as a possibility. After 2003, the controlling ownership of enterprise assets was in private hands.

On the other, as the engine that would develop a larger dairy infrastructure and a generator of tax revenue and foreign exchange, the factory was a local strategic priority. It was thus able to rely on significant political assistance: a rural development strategy that would free up and develop dairy households as raw milk producer, to invest in the collection and veterinary infrastructure that would make the milk industry profitable, and as a source of rotating capital for operating expenses. The explosive expansion of the dairy market, weakening of restrictions on foreign exports and influx of outside capital reversed the poles on this relationship. More than simply giving the enterprise more freedom from local government, it established a new pattern of cooperation by which Dengchuan (now as a subsidiary of New Hope) would take the lead in funding and building infrastructural improvements like dairy bases, and responding to new state demands to integrate large-scale across the entire production chain. Within this large umbrella, Dengchuan and its new competitors were able to branch into new techniques and markets, becoming a laboratory for best practices within the industry.

Both before and after its sale to New Hope, Dengchuan relied on the willing and predictable partnership of local government, both directly and through linked companies and institutions. In return, local 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 informally to local government—is quite a different structure than the corporate group, the substance of the relationship in terms of a stable, mutually beneficial (sometimes formal, sometimes contractual) relationship between the company and the local government, nevertheless resembles it.
I wrote this paper as a visiting research fellow at Fudan University in Shanghai. Most of the research was conducted in Dali and Eryuan. I would like especially to thank the Dali Prefectural Library, Ma Jianxiong for introducing me to the dairy and some of its early managerial personnel, and to my many friends in the region, who took the time to explain the history of the enterprise, and walk me through the transformation of the dairy industry.


11 *Dengchuan naifen changzhi*, 20.


13 These reforms were enacted locally, and at different speeds. For an example from Inner Mongolia, see Hulunbeier meng zhi, 1999: 794-795.

14 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.

15 Dengchuan naifen changzhi 109, 115, 117. This was also the year that the number of TVEs increased tenfold. *Dali nianjian 1990*, 16.

16 *Dengchuan naifen changzhi* 130-132

17 *Dengchuan naifen changzhi* 128-142


19 Dengchuan naifen changzhi 140. At the 1989 conversion rate of 3.73 CNY to USD, the government contribution would exceed 11 million yuan. *Dali nianjian 1991*, 226.

20 *Dalizhou jingji fazhan zhanlüe, 1986-2000*. Juantou literally means “fist,” but here has more the meaning of cutting edge. 59.

The veterinary network was already established in Weishan in 1988, and expanded after an outbreak of schistosoma. *Dali nianjian* 1991, 197; 1999, 128.


27 *Dali nianjian* 1994, 128.

28 *Dali nianjian* 1997, 137.

29 The head of the Dali milk powder factory was a representative to the Provincial TVE association. *Dali nianjian* 1993, 124.

30 For a list of relevant policy documents, see *Dali nianjian* 1990, 162.

31 *Renmin ribao*, December 6, 2005.


33 This phrase starts appearing regularly in 2005, see *Eryuan nianjian* 2005, 110.

34 For the political clout of top managers, see Arnoldi, J., & Muratova 2018.

35 On the transformation of ownership rights, see Lee and Jin 2009.


37 On the transformation of ownership rights, see Lee and Jin 2009.

38 *Eryuan nianjian* 2001, 163.


40 *Dali nianjian* 2001, 166-167.

41 Xinxiwang ruye jieshao. (http://www.newhopedairy.cn/about.php?id=27)


45 Here the term denotes a pathbreaking sector, rather than a particular enterprise.

46 *Eryuan nianjian* 2003, 199-200.


50 *Eryuan nianjian* 2009, 141.


52 *Dali nianjian* 2011, 184-185, 202

