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Dairy Industrialization in the First Place: Urbanization, Immigration, and Political Economy in Los Angeles County, 1920–1970*

Jess Gilbert
Department of Rural Sociology
University of Wisconsin, Madison

Kevin Wehr
Department of Sociology
California State University, Sacramento

ABSTRACT Rural sociologists are currently debating the pace and extent of industrialization in the dairy sector of the United States. We offer the perspective of historical sociology to this debate, arguing that time and place significantly determine the outcomes of processes such as industrialization. We present an historically-grounded explanation for the rise of industrial dairying, which first occurred in Los Angeles County. Beginning with the immigration of Dutch dairy farmers to Los Angeles (L.A.) in the 1920s, a contingent and sequential process—embedded within the local/California political economy—of exploding population growth, rapid urbanization, and skyrocketing land prices led to repeated geographical relocations and expansions of large-scale dairies during the next three decades. We conclude that agricultural industrialization is not inevitable but instead is the result of contingent factors (cultural and political-economic) as well as the particular sequencing of events and processes. In thus historicizing the industrialization debate, we seek limited, rather than universal, generalizations.

> An old world colony uses big business methods to build a modern dairy industry that may eventually be copied all over the world.
>
> —Joe Kugelmass 1949:10

Over the last decade or so, rural sociologists have substantially advanced our understanding of on-going restructuring in the dairy sector of the United States. Research has often treated farm structural changes in the leading milk producing states of California, Wisconsin, or New York (DuPuis 1993, 2002; Gilbert and Akor 1988; Hassanein 1999; Hassanein and Kloppenburg 1995; Hirschl and Long 1993; Jackson-Smith 1999; Jackson-Smith and Barham 2000). Lyson and

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Geisler (1992:254) generalize the discussion of dairy industrialization beyond these three states. They argue for a regional convergence of dairy farm structures in the rising Sunbelt and the traditional Dairybelt, maintaining that the industrial "form of dairying is viable under a range of social, political and environmental circumstances." Jackson-Smith and Buttel (1998:127) broaden the focus even more, to include the United States as a whole, and reach the opposite conclusion: There are "sound empirical and theoretical reasons to believe that the dairy production sector is not undergoing a pronounced 'industrialization' trend."

In this article, we add the perspective of contemporary historical sociology to this debate. Historical sociology is "the study of the past to find out how societies work and change" (Smith 1991:3), or as Calhoun (1998:849) says, a way to "pursue theory by pursuing history." Most sociologists have been too ready to generalize instead of providing historically grounded explanations. For the past twenty years, however, some sociologists have been engaged in historical analysis to address traditional problems of the discipline. Industrialization, for example, is best understood in terms of its historical specificities. The current debate over dairy industrialization can benefit, we believe, from a detailed explanation of its social origins (Moore 1966; Pfeffer 1983). When and where did dairies first industrialize—under what specific conditions? How were large-scale dairies able, or rather *enabled,* to arise and grow? What can be learned from such historical sociology? Unlike most rural sociologists, we seek to historicize rather than generalize the dairy industrialization debate.[1]

[1] We don't want to delve very deeply into debates in the philosophy of science, but we must address such key terms as "theory," "explanation," "generalization," and "causality." Our basic point is that the meanings of these terms are contested, and all social analysts must choose which definitions to follow. Social scientists claim variously to explain a phenomenon in at least five different ways: (1) identifying its causes, (2) predicting its occurrence, (3) interpreting its meaning, (4) specifying its function, or (5) understanding how it works. We focus here on causal analysis. Yet causality itself can mean either (a) stating abstract, universal "covering laws" that always result in the phenomenon, or (b) showing how a sequence of actions and events lead to the phenomenon. With most historical sociologists, we adopt the latter type, which can be called causal narrative or narrative explanation. It is based on contingency and sequentiality and results at most in "limited generalization." "Theory," then, is the statement of a causal structure or narrative explanation. In this way, historical sociologists try to integrate theory and history rather than separate them. In contrast, the "general laws" model is ahistorical (timeless, omnitemporal), isolates theory from data, requires replicability or recurrence, and purports to offer universal generalization (across time and space). Hence, this latter model has been a major object of critique by historical sociologists. In historical sociology, there is no accepted general theory, and causes themselves may be contingent and temporally heterogeneous. For more on this view, see Tilly (1981, 1984), Abbott (1991), Quadagno and Knapp (1992), Sewell (1996), and Calhoun (1996, 1998).

Historicizing Sociology and Industrializing Dairies

Historical sociologists argue that social processes must be situated theoretically in time and place. *When* and *where* an event or process happens is crucial to its meaning and explanation. Such temporal and spatial determinants deeply affect *how* something occurred. Historical sociologists then try "to find out *how* things happened in order to understand *why* they happened" (Aminzade 1992:459). They advocate historically grounded theory, working to get "the history right before generalizing in order to be able to generalize soundly" (Tilly 1984:79). Better history, these sociologists claim, makes for better theory. It causes us to rethink and revise prevailing explanations. History can clarify current research questions, raise better questions, offer new insights, refine analysis, illuminate meanings, increase understanding, adjudicate debates, and further specify causal mechanisms at work (e.g., actions, events). These contributions of history to sociology advance the theoretical enterprise (Abbott 1991; Calhoun 1998; Quadagno and Knapp 1992; Tilly 1981:12–52, 211–15; Tilly 1984:14, 60–79).

While most historical sociology has been at the macro level, the micro approach is also important. It can reveal "big structures and large processes" (e.g., the state and industrialization) embedded in and constituting local histories and geographies (Tilly 1984:61–65). Goldstone (1986:83) maintains that the "social organization of particular locales" is vital to historical sociology. A major exemplar here is Wells (1996), who studies strawberry production in two California counties. She shows the determining significance of both geographical locality and ethnic cultures in accounting for changes in forms of production. Like Pfeffer (1983), Wells also demonstrates the inseparability of politics and economics by detailing the political construction of California's agricultural economy. We later take up these themes.

How is dairy industrialization best explained? Sometimes, Tilly (1984:145) argues, "what we need most is a clear understanding of the singularities of a particular historical experience." Thus we return to the first place where dairies industrialized: Los Angeles County between 1930 and 1960. We argue that a contingent and sequential process, embedded within the local/California political economy, led to the initial industrialization of dairying. It began with Dutch immigration in the 1920s (offering essential cultural and technological resources) and was repeatedly enabled and expanded by rapid urbanization and consequent rising land values that capitalized the entire process. Our main operational concepts are contingency and sequentiality. Contingency here means locating a process in time and place. Sequentiality emphasizes that the timing of events matters a great deal,

eventuating in a "model of complex conjunctures" (Abbott 1991:227; Quadagno and Knapp 1992:501–502; Sewell 1996:264–72; Tilly 1984:14). Our "dominant routes" approach is one of the major explanatory strategies in historical sociology, "identifying the origins and distinctive characteristics of a social configuration" (cf. Moore, 1966; Smith, 1991:168).

Some sociologists have taken steps in this direction, both historically and theoretically. Gilbert and Akor (1988:64–65) present a regionalized summary of dairying after 1950, and Lyson and Geisler (1992) specify key features of such industrialization. Jackson-Smith and Buttel (1998:119–23) distinguish on-farm from sectoral-level conceptualizations. Industrialization of farm units—our focus—includes four dimensions: large-scale (e.g., over 500 milk cows); specialization; advanced technology; and the separation of ownership, management, and labor. Jackson-Smith and Buttel (1998:123) add that U.S. dairy production is neither "temporally [nor] spatially even." Yet in denying the industrial transformation of Midwestern dairying, they make several *generalized* claims about the prerequisites for dairy industrialization (e.g., Jackson-Smith and Buttel 1998:134, 139, 145) that are contradicted by the history of dairying in Los Angeles County. They highlight the spatial or geographical aspect (in their regional treatment of dairying) but slight the temporal or historical dimension. Our more nuanced historical analysis turns out to support Jackson-Smith and Buttel's (1998) argument that dairy industrialization is not inevitable, but rather is a quite contingent process. We extend their point about temporality by specifying what led to the industrialization of dairying in the first place.

The *first place*—a temporal and geographical phrase—is important because Los Angeles (L.A.) County provided the model for later, even greater dairy industrialization. Understanding the completed process in the original instance sheds light on subsequent occurrences in the Sunbelt and beyond. A detailed explanation of the rise of L.A. dairying also reveals how contextualized industrialization actually is. By highlighting the contingency and sequentiality of the process, we warn against any general-theoretical claims about inevitability or historical necessity (e.g., technological or geographical determinism). We suggest, in conclusion, that its historical specificity holds important lessons for theoretical discussions of agricultural industrialization.

A recent analysis of California dairying provides some of the historical background to L.A. County dairying. Butler and Wolf (2000) are concerned to show that California's rapid expansion in milk production is not due to the state's unique dairy policies, as critics claim, but rather

to its "natural advantages": climate, complementary crops, geographical isolation, population growth, and timing of technology adoption. They also summarize the history of California's "dairy industry dynamics," concluding: "[I]t is precisely this historical movement of dairying that led to the tremendous growth in milk production and explains the structure of the current dairy industry" (2000:158–59). Butler and Wolf's narrative, however, ignores the *political* in political economy. They fail to mention, for example, the "Milk Wars" of the 1930s, when the state stepped in to address problems caused by economic crisis. They misrepresent the actual development of industrial dairying, claiming that not until the sixties and seventies did the drylot system become an "established and recognized technique" (Butler and Wolf 2000:159). They assert (2000:153–54), without evidence, that government-subsidized water does not materially benefit California dairies. Others have argued the contrary (e.g., Jackson-Smith and Buttel 1998). Generally, Butler and Wolf separate the state's essential role in agriculture from the economics of farm markets, productivity, and efficiency. In addition to historicizing the debate, then, we also "sociologize" it by stressing the ethnic-cultural features (e.g., Dutch immigration) as well as political-economic elements that Butler and Wolf downplay or ignore.

Milking L.A. for All It's Worth: A Demographic and Political-Economic Overview of Los Angeles, 1900–1970

From 1925 until 1965, L.A. County was the leading dairy county in the United States. It housed more milk cows and produced more milk, as well as more dairy income, than any other county. For most of that time, it was also one of the country's most populated and fastest-growing metropolises. Every two decades or so (sometimes less), L.A. County doubled both its number of people and dairy cows. As the nation's top *agricultural* county in sales until mid-century, L.A.'s single most valuable farm commodity was milk. After World War II, when its population exceeded four million people, L.A. County claimed the largest hay market and one of the largest cow markets in the world. Such urban dairying is certainly remarkable enough, yet its social-structural character is even more noteworthy. Farmers in L.A. County developed a new kind of dairying, a style that would eventually be copied elsewhere in the Sunbelt and beyond. Introduced to L.A. by European immigrants, "drylot dairying" concentrated cows on very small acreages, raised no crops but purchased all feed, which was brought to the cows rather than let them graze. The L.A. version of drylots quickly became industrialized, with extremely large herds, cutting-edge technology, and heavy reliance on hired labor—all of which

Table 1. Population and Milk Cow Growth, Los Angeles City and County, 1900–1990

	City		County			
Year	Population	% Change	Population	% Change	Milk Cows	% Change
1900	102,479	—	170,298	—	16,545	—
1910	319,198	211.5	504,131	196.0	16,155	-2.4
1920	576,593	80.6	936,455	85.8	24,211	49.9
1930	1,238,048	114.7	2,208,492	135.8	52,505	116.8
1940	1,504,277	21.5	2,785,643	26.1	75,788	44.3
1950	1,970,358	31.0	4,151,687	49.0	91,902	21.3
1960	2,497,015	26.7	6,038,771	45.5	89,609	-2.5
1970	2,816,061	12.8	7,041,980	16.6	39,958	-55.4
1980*	2,966,850	5.4	7,477,503	6.2	9,586	-76.0
1990*	3,485,398	17.5	8,863,164	18.5	3,419	-64.3

*Milk cow numbers for 1980 and 1990 are interpolated from 1978–1982 and 1987–1992 data, respectively.

Sources: Spencer, 1931; U.S. Department of Commerce, Bureau of the Census, 1900–1990.

resulted in specialized "milk factories" (L.A. Chamber of Commerce 1953; L.A. County Regional Planning Commission 1951).

Population growth was crucial to the development of industrialized dairying. L.A. was founded in 1781, but at statehood in 1849 remained a hamlet of only 1,600. In the next fifty years, however, L.A. grew by leaps and bounds to 100,000 (Hundley 1992). In the first two-thirds of the twentieth century, L.A. County population exploded, increasing by seven million people, far more than other cities on the rapidly expanding West Coast (see Table 1). This process was in part due to the efforts of boosters and city planners who monopolized water rights in the area and supported agricultural pursuits by emigrants. This farm population on the frontier became a center of commerce. Local boosters, the state, and federal policies further pushed rapid growth.

Turn-of-the-century L.A. was a city of emigrants. Most hailed from rural and small communities in the U.S. South and Midwest. To accommodate these new arrivals, and to encourage further growth, L.A. city officials embarked upon an aggressive annexation program. The city expanded into its hinterland at an alarming rate, consuming nearby towns and open land alike. In 1910 the city's boundaries held 85 square miles; ten years later, 362 square miles. Commerce and municipal government were centered on a downtown core, with an industrial zone immediately to the south. Housing spread out to the north, east, and south, with densities that remained low, in part due to the multiple centers of city government engulfed during annexation. Yet many parts of the large county (about the size of Connecticut) remained quite rural (Thernstrom 1970).

The migrants to L.A. labored in many different industries, from agriculture to the entertainment industry to military-industrial sectors. The economy coalesced around these three poles as early as 1920, with agriculture attracting masses of laborers later in the Great Depression. In the story made familiar by novelist John Steinbeck's *The Grapes of Wrath* (1939), when these "exodusters" arrived, they rarely found the farm work proclaimed by boosters. Instead, they soon formed the "reserve army" put to work in the shipyards, airplane hangers, and oil wells that supplied World War II (Thernstrom 1970).

The rapid population growth of L.A. in the early twentieth century influenced the dairy industry in multiple ways. Perhaps the most obvious was the spur to production. The average consumption of milk in L.A. in 1930 was about half a pint per person per day. The more than two million people formed a huge market. Interestingly, the dairy farmers and cows of L.A. not only were up to the challenge, they outproduced what Los Angelenos could consume until World War II. This expanding population guaranteed a market for fresh milk. Urbanization had several other effects on livestock operations. Residential development near the dairies brought complaints about typical farm byproducts such as animal odors and flies. Ensuing conflicts between farm and non-farm neighbors limited the expansion of dairies to certain areas. A second common problem was the rapid rise of property taxes. Farm owners paid urban real estate taxes, although they still used the land for agricultural purposes. A third concomitant of urbanization was higher wages, which were important to the larger dairies. A final factor gave the dairy owners less to complain about: super-profits reaped by selling out in the urbanized land market (Fielding 1961:71, 99, 112; Fletcher and McCorkle 1962:3–5, 70–77; Gregor 1963; Spencer 1931). We examine all of these factors below, showing how they fed into the social origins of industrial dairying in L. A. County.

Economic Instability and the Rise of Drylot Dairying, 1920–1940

Dutch Immigration and Technological Innovation in the Twenties

Before 1920, milk for L.A. usually came from general (mixed crop and livestock) farms scattered around the large county. Dairying was often a sideline activity on small operations. In 1900, for example, the mean herd size in the county was 4.4 milk cows, considerably less than the average for dairies in California as a whole. As Table 1 shows, the number of dairy cows decreased slightly in early twentieth-century L.A. County, even with a 200 percent population growth (Adams 1923:94; Frey 1927; Spencer 1931).

This all changed after World War I, prompted largely by the spread of technology and L.A.'s phenomenal population growth, including immigration. With scientific advances (e.g., in breeding and pasteurization) and the greatly increased demand for milk, dairying suddenly became very profitable. Between 1921 and 1926, the amount of milk sold in the county more than doubled, to over 41 million gallons. Dairy farms proliferated, encouraged by local boosters, especially real estate salespeople. A remarkable growth spurt occurred between 1927 and 1930, when the number of milk cows increased by 49 percent. Concomitantly, the average herd size jumped from 29 to 51 cows—extremely large by traditional dairy standards. The dairy cow growth rate for the entire decade was 117 percent (see Table 1). By 1925, L.A. County had become the leading milk producer in the state—and in the nation (Fielding 1961:24–31; Frey 1927:11; Jessup 1952; Joralmon 1925; L.A. County Regional Planning Commission 1951:5; Spencer 1931:22).

Productivity as well as government regulation rose dramatically. During the1920s, milk output per cow in the county jumped from well below to far above the state average. Efficiency increased due to better breeding stock, cow testing, improved feeding, and other advanced management practices. Further, state health regulations effectively displaced small, mixed dairy farms. In particular, a tuberculosis prevention campaign of the late twenties closed many of the smaller operations. Several factors, then, converged to enable the growth of larger and more specialized dairies. Indeed, specialization in milk production itself led to larger dairies (Fielding 1961:23–32; Goehring 1974:371–73; Voorhies 1927:42).

But the main contributor to the rise of industrialized dairying was immigration. Drylot dairying, or "corral feeding," was introduced to L.A. by European immigrants. The Dutch in particular soon came to predominate milk production in southern California (as they still do). The Netherlands, a small country, lacked the open land necessary for free-grazing dairies, so developed drylot methods. Most of the immigrants who became California "dairymen"[2] were from the Friesland area of Holland, which already had a thriving dairy industry. Just after World War I, though, the Frisian economy declined, with mounting unemployment. Several drought years were particularly bad on the hay crop—the essential diet for milk cows. The children of dairy farmers found it difficult to make a living at what they knew best: milking cows (Selleck 1995:44–56).

[2] The gendered term "dairymen" is used here following historical usage by farmers and writers.

In contrast, southern California was booming in the 1920s. Dairies here were trying to keep up with the demand for milk engendered by the rapid population growth, and agriculture was very profitable. A 1923 booklet, *Dairying in California*, announced: "Here is what California offers to the dairyman: More reward for his labor, a friendly environment, and glorious California, 'where life is better . . .'" (Jones 1923:8–9). Skilled, experienced milkers were in demand and drew high wages; young men from Europe immigrated to take these jobs. Statewide, wages for milkers peaked in 1921 at $100 a month, plus "board and keep," and their real wages continued to increase until decade's end.[3] Professional milkers in L.A. earned considerably more. In addition to the economic pull, they were attracted by the area's mild climate and familiar landscape: "low, flat, and close to the ocean" (Selleck 1995:69, 7–8, 44–56; see also Joralmon 1925).

The Dutch immigrant milkers brought with them two cultural "knowledges" that led to the rise of industrialized dairying: modern dairy techniques and corral feeding. Frisian dairies had already modernized earlier in the century; they were not peasant farms, but rather, mechanized businesses. The children of Dutch dairy farmers, of course, possessed specialized knowledge about operating such enterprises. Once they arrived in L.A., with its high wages for skillful milkers, many of them worked hard and managed to save enough money to invest in a few milk cows of their own. This shift from hired hand to small dairyman often took only three to five years in L.A.'s booming twenties. In contrast to the U.S. generally, southern California's farm real estate market continued to rise significantly. The immigrants did not make enough to purchase pastureland in L.A.'s urbanizing land market. So they drew upon another cultural tradition from the "old country," corral feeding. Instead of needing sufficient land for cows to graze at their economically-wasteful leisure, as was commonly practiced on other dairies in the county (and the country), the immigrants concentrated their few cows on small acreages and brought feed to them (Joralmon 1925; Kugelmass 1949; Selleck 1995:7–8, 44–66; Voorhies 1927:120).

Corral feeding proved to be a profitable innovation indeed. The results of such "zero grazing" were surprising: Drylot cows dramatically out-produced cows that grazed. With the concentrated production of sugar beets, citrus fruits, and coconuts in southern California, by-products from these commodities offered a ready supplement to the

[3] The average wage earner in the manufacturing industries in California for 1920 also earned about $100 a month, but this wage was without "board and keep" (U.S. Department of Commerce 1924:96).

Table 2. Dairying in Los Angeles County, 1930 and 1950

	1930	1950	
	County	County	Artesia
Milk cows	52,505	92,722	40,292
Dairies	1,039	603	260
Cows per dairy	51	153	155
Total milk production*	17,303,000	40,670,760	18,463,849
Production per dairy*	16,654	67,447	71,015
Production per cow*	330	439	458
Dairy acreage	n/a	11,284	3,833
Acres per dairy	n/a	19	15

*Pounds of milk fat.
Source: L.A. County Regional Planning Commission, 1951.

alfalfa also grown in the area. It turned out to be cheaper to buy than grow feed. Moreover, as land prices and residential pressures escalated, larger dairy operators adopted the method of corral feeding, too. By 1935, the practice had spread throughout L.A. County. The innovation of California dairying, then, was not corral feeding per se, for it was used in Europe. Rather, what L.A. dairymen added was the large numbers of milk cows so confined (Fielding 1961:66–69, 181; Gregor 1963; Kugelmass 1949).

The Dutch immigrants tended to settle southeast of the City of Los Angeles, around Hynes and Clearwater (which later merged to form Paramount). In 1921 there were only twelve Dutch families in the area, but by 1952, 12,000 Dutch-Americans lived there. They established not just drylot dairying, but other cultural practices as well, especially educational and religious. The first Dutch Reformed Church was founded in the region in 1923, another at Hynes ("Little Netherlands") in 1927, and a third next door in Artesia in 1932. Two Christian Reformed Churches were established in nearby Bellflower and Chino in 1927. Private schools for the Dutch children were also set up in these areas. Most impressively, the immigrants soon built and maintained an ice-skating rink in the middle of Paramount in order to teach their children a significant aspect of being Dutch! Numerous writers testify to the persistence of Dutch culture in the southeastern part of L.A. County, especially the desire for dairying as a "way of life" (Gregor 1963; Jessup 1952; Kugelmass 1949; L.A. County Regional Planning Commission 1951:5; Selleck 1995:8, 58–71, 132).

Table 2 presents aggregate data on milk production in L.A. County for 1930 and 1950. The number of dairy cows had more than doubled in the 1920s. The county by 1930 was home to more than 52,000 milk cows on over a thousand dairy farms, an average of 51 cows per dairy.

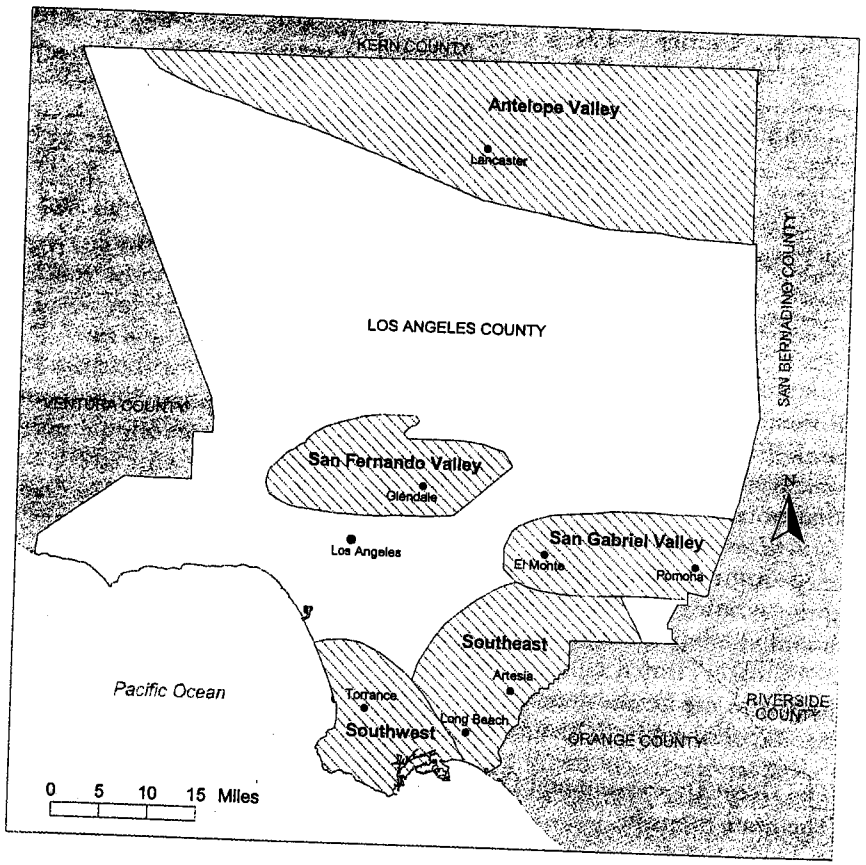

Figure 1. Major Dairy Areas of L.A. County, 1930–1950 (Adapted from Fletcher and McCorkle 1962:27)

The L.A. dairymen enjoyed a production level per cow that was much higher than the national average. This was primarily due to the rationalized (in the Weberian sense) feeding and management techniques. The milk industry periodicals promoted such practices, along with the latest scientific improvements in cleanliness, breeding, and record keeping.

Figure 1 shows the five major dairy areas of L.A. County. Paramount is between Artesia and Long Beach. Table 3 indicates that in 1930 over half of the dairies and cows were concentrated in the southeastern corner (and became increasingly so through 1950). About one-fourth resided in the adjoining area of the San Gabriel Valley, the rest scattered around the other three areas. The contiguous areas of Orange,

Table 3. Dairies and Milk Cows in the Major Milk-Producing Areas of L.A. County, 1930 and 1950

Area	1930		1950	
	Dairies	Milk Cows	Dairies	Milk Cows
Southeast	542	27,405	445	69,319
San Gabriel Valley	284	14,300	77	11,075
Southwest	112	5,700	50	5,605
San Fernando Valley	87	4,400	24	5,948
Antelope Valley	14	700	7	775
Total	1,039	52,505	603	92,722

Source: L.A. County Regional Planning Commission, 1951.

Riverside, and San Bernardino counties together supplied 30 percent of the fluid milk to the L.A. market in 1930. A 1932 promotional periodical boasted that L.A. was "the only large city in the United States that obtains its milk supply from cows in its own back lots" (*The California Dairyman* 1932:1; Fletcher and McCorkle 1962:21).

As outlined above, the initial features of dairy industrialization were quite contingent: World War I, a local demographic and economic boom, the immigration of innovative and entrepreneurial milkers, and a "clannish" Dutch culture. These aspects of L.A. County in the 1920s joined to create the "complex conjuncture" that eventuated in social and farm structural change.

The Great Depression and Overproduction in the Thirties: The State Steps In

The Great Depression almost struck a death blow to L.A.'s nascent fluid milk market. In the late 1920s, retail sales were about 12 cents per quart, with a wholesale price of 9½ cents (Kuhrt 1965). Both farms and processing firms were quite profitable. Early in 1930, however, the effects of the Great Depression were felt in southern California. As workers were laid off—or at least lost income—many consumer products suffered from low sales. Fluid milk was no exception. Processors tried several tactics to prevent a crisis in the milk industry. They reduced prices to farmers and cut costs to consumers in an effort to increase sales. The largely self-regulated wholesale milk market had two prices: a normal bulk rate and a lower surplus rate. Processors attempted to lower costs by increasing the amount of milk purchased at the surplus rate, while simultaneously lowering the price paid for the bulk rate. This reduction in prices to farmers sparked what were called the Milk Wars of the early 1930s, which eventually led to larger dairy farms (Kuhrt 1965; Tinley 1938).

Farmers fought hard against the price cuts. They had found 9½ cents a quart to be profitable, but as processors cut that rate in 1931–1932, farmers got squeezed. At 5 or 6 cents per quart, many could not survive. As an emergency strategy, some farmers began to mix milk levels and ship sub-standard milk. Others simply folded, surrendering their cows and land to the banks that had financed expansion in the late 1920s. Some ambitious dairymen sought to take advantage of their neighbors' misfortune and bought these cows at auction, thinking that they could successfully produce at the going price. Thus, production levels stayed relatively constant, continuing to exceed demand.

With supply consistently higher than demand and cutthroat strategies practiced by all sides, a milk price war ensued as farmers, processors, and retailers attempted to protect their interests. The Milk Wars drove prices down to the incredible price of 1 cent per quart in 1932. Farmers entered into direct sales, retailers slashed prices to lure shoppers into their stores, and processors squeezed farmers. Tempers flared and violence was feared. In the end, all groups were hurt by the downward-spiraling prices, and in mid-1932 it was clear that binding action was needed. Dairymen and distributors appealed to the Governor for help. The Governor gave the task to the state Department of Agriculture (Kuhrt 1965; Tinley 1938).

Ending the Milk Wars and establishing normalcy in pricing appeared to be fairly simple. The state established a joint commission, with both producers and distributors as members. Regional boards were set up throughout California. The L.A. Milk Arbitration Board worked out a scheme to pay a standard wholesale price for milk and set resale prices back at their pre-Depression level. This agreement, however, did not have any provision for enforcement. There were widespread rumors of secret discounts and price-cutting through 1933. With the passage of the Agricultural Adjustment Act by Congress that year, the state thought it had the basis for a federal milk marketing order that could be enforced (Kuhrt 1965).

Local distributors disagreed. When the federal Agricultural Adjustment Administration (AAA) and California Department of Agriculture filed a licensing agreement, several distributors refused to sign and filed an injunction against enforcement on the grounds that the issue was solely local and, therefore, not of federal concern. The lawyers for the AAA reluctantly agreed. California was thus kept out of the federal milk marketing system. By mid-1934, the California Farm Bureau Federation and other producer groups pushed for state legislation. The Young Act was passed in 1935, and represented the efforts of a coalition of farmers and distributors (Sumner and Wilson 2000).

The Young Act, following the structure of the federal Agricultural Adjustment Act, established price floors for wholesale fluid milk, and institutionalized a review board that recommended changes as producers' costs altered. This stabilized the milk market and provided farmers with a profitable return. Recent economic analysis suggests that the state thus increased milk prices paid to farmers for thirty years (Sumner and Wilson 2000:203). The success of the Young Act prompted distributors to seek their own protection. They found solace in the Desmond Act of 1937, which established minimum prices to distributors for retail milk. The main goal of this Act was to curtail the secret deals and price-cutting that occurred in the industry in the wake of the Milk Wars of the early 1930s. By establishing minimum prices for wholesale and retail markets through cooperation between producers, distributors, and the state, these acts succeeded in stabilizing the dairy industry while protecting profits for all involved (Kuhrt 1965).

As the state became an active partner in the dairy industry, farmers adopted new technologies. With a shift to a price premium on the highest quality milk, farmers pursued production facilities that improved their product. This included refitting milking parlors in stainless steel and tile. By the mid-thirties, rationalized feeding and management techniques were being adopted that took advantage of new technologies. Stainless steel and tile walls in the milking parlors were geared toward cleanliness and efficiency. Most importantly, cows were milked by machine. A vacuum pump was attached to the udder, and milk was sucked out into a cooler, where it was processed automatically. Using these new rationalized techniques, a small number of workers could milk a large herd in a few hours. Milking machines were perfected during World War II, and they improved labor efficiency fourfold. Thus, the machines helped solve "labor problems" that had retarded dairy expansion. In the late 1930s and early 1940s, producers adopted new technologies that enabled vast improvements in size and quality of production (Fielding 1961:40; Los Angeles *Times* 1932).

The dairy industry in California stabilized in the late 1930s, largely due to the active involvement of the state. The milk industry continued expanding to meet population growth (the city reached 1.5 million people and the county 2.8 million in 1940). War industries grew tremendously, and agriculture picked up pace to feed the new workers. World War II and state support thus spurred greater profits for dairying and led to ever-greater expansion of the industry (Goehring 1974:379; Jessup 1952). These processes of dairy industrialization were sequential as well as contingent. Overexpansion in the twenties led to political-economic crisis in the thirties. The state stepped in to stabilize

the economics of milk production, paving the way for resumed growth. New facilities and technologies increased efficiency and productivity. The result was a great expansion of herd sizes, culminating in the full industrialization of L.A. County dairies.

Political-Economic Stability and the First Cycle of Urbanization, Relocation, and Concentration, 1940–1955

A fervor of rationalization swept over the L.A. dairy farmers in the forties. They reformed their operations, from their way of buying cows to their method for culling herds. Farmers remodeled their milking parlors to look more like sanitary hospital rooms than old milking barns, monitored feeding mixtures carefully, and kept detailed records to track production levels. This dramatic shift in management techniques was predicated on an expanding wage labor market. Productivity rose accordingly. The average production per cow (in pounds of milk fat) in the U.S. after World War II was 200; in California, 280; in L.A. County, 400; and in Artesia (the dairy core of the county), 480 (L.A. County Regional Planning Commission 1951:2). Dairy farmers, in short, expanded their herds while improving business management, thus revolutionizing the dairy industry.

In addition, there were also remarkable geographical and environmental aspects to the growth of industrialized dairying in the 1940s. Expanding dairy herds implied a shift in location within L.A. County. In the rapidly changing political-economic context of the thirties and forties, an increased number of cows required new buildings more than additional land. In particular, larger facilities for the introduction of milking machines were needed. Dairymen throughout the county, then, faced the decision of whether to remodel old barns or move their operations. Given the increasingly problematic nature of urban dairying (e.g., high taxes, complaints from neighbors), most chose to relocate. They sold their old farms at incredibly high prices and reinvested in larger herds, expensive homes, and new facilities in the southeastern corner of L.A. County, around Artesia, Paramount, and Norwalk (Fielding 1961:40–43). Why did they move there? For three kinds of reasons: cultural, political-economic, and environmental.

First of all, the Dutch immigrant milkers-turned-owners were concentrated southeast of the City of L.A. There were churches and private schools that attracted other Dutch dairymen to the area—not to mention the ice-skating rink. Second, there were regional economies of scale offered by one of the largest concentrations of dairy cows in the world: bulk delivery of hay and grain, faster milk collection, and numerous veterinarians, feed companies, cattle brokers, supply stores,

and specialized financial institutions. The invention of the tanker truck for milk transport was especially important; such bulk shipment could develop only in concentrated areas of production. Moreover, this corner of the county, because of the large number of producers, offered the best resistance against urban complaints aimed at the dairies (DuPuis 2002; Fielding 1961:40–43).

A final reason for relocation was natural-environmental: Southeastern L.A. County had more subsurface water and cooler summer temperatures than did alternative locations. Huge quantities of water were necessary for cleaning and waste disposal on dairies. The mild coastal environs, with the cooling afternoon sea breezes, boasted summer temperatures of less than 90°F, compared to 10° hotter in the inland river valleys. Milk cows produced better in the more moderate climes. Further, this part of the county was low and flat, with poor drainage and occasionally subject to flooding. Therefore, it was the cheapest land in the county (except for distant Antelope Valley). Southeastern L.A. County was also largely semi-rural and unincorporated, yet very close to feed sources and to the ocean ports of Long Beach and San Pedro (Fielding 1961:32–43; Goehring 1974:380; L.A. County Regional Planning Commission 1951:4).

With the political-economic stability and risk reduction provided by the California Bureau of Milk Stabilization, the dairy industry increasingly centralized and concentrated in the 1940s. Milk consumption in the county rose from 54 million to 130 million gallons. More dairy cows were needed but less land was available. The major trend, then, was more cows on fewer acres, due to L.A.'s unparalleled population growth and urbanization. During *each* of two four-year periods, first in the late thirties and again in the mid-forties, the county cow population grew by nearly 50 percent. Rapid urbanization forced many dairy farmers out of both southwestern L.A. County and the San Gabriel Valley. As related above, they sought and found not only refuge but additional prosperity in the specialized dairy areas around Artesia. Southeastern L.A. County soon contained the largest concentration of milk cows—and the richest dairy farmers—in the world (Fielding 1961:34–39; Jessup 1952; Kugelmass 1949; L.A. County Regional Planning Commission 1951:2).

All measures point toward a significant rise in intensity and geographical concentration of production. As shown in Table 2, between 1930 and 1950, the number of dairy farms declined by 42 percent while the number of milk cows climbed 77 percent. The average herd size went from 51 to 154, a 204 percent increase that reflected the largest herds by far in the U.S. Table 3 shows the county's geographical

distribution of dairies and cows during these years. Three of the major milk producing areas decreased or kept nearly the same cow numbers; only in the Southeast did they grow dramatically, by 153 percent. Most other sub-regions around the county lost milk cows between 1930 and 1950. The Artesia region gained massively from this redistribution, concentrating the most cows on the fewest acres (L.A. County Regional Planning Commission 1951:21).

In the post-World War II period, L.A.'s Regional Planning Commission estimated that 11,000 people in the county earned their living in the dairy industry, including 2,300 milkers and other laborers who generated an annual payroll of $10 million. Over 300 additional firms serviced the dairies. In 1950 the value of milk production in L.A. County was $63 million, with an investment in the farms of over $90 million. The Regional Planning Commission understandably concluded that dairy farming was more than "just cows" (L.A. County Regional Planning Commission 1951:21).

One major consequence of urbanization was the forced relocation of dairies away from the residential populations of L.A. Another consequence, though, was less irksome to the farmers: the ability (through no fault of their own) to reap super-profits by selling out. In a capitalist society with fee simple ownership, few controls on property use, and a "free market" in land, rapid urbanization creates real estate booms. So in L.A. around World War II, farm owners could sell at high urban prices, thus accumulating undreamed of capital. Most of the dairymen chose to invest in more milk cows and new, even lavish, facilities, typically in southeastern L.A. County. The effect of concentration and consolidation here was increased specialization in milk production (Anderson and Boersma 1962; Fielding 1961:40, 71, 99, 112; Fletcher and McCorkle 1962:5, 70, 77; Gilbert and Akor 1988; Gregor 1963). These sequential, contingent factors of urbanization, relocation, and expansion caused the industrialization of dairying in this first place.

Two More Cycles of Urbanization, Relocation, and Expansion: "Dairy Cities" and the Chino Valley, 1955–1970

Previously isolated southeastern L.A. County was not exempt from the growing forces of post-war prosperity and the California Dream. Dairy operators faced increasing pressures from urban population growth. In the fifties, the county added almost two million people to its total. In order to preserve their operations, dairy owners mounted a counteroffensive, a unique effort to stay the tide of urbanization. They created three "dairy cities" in southeastern L.A. and adjacent areas of Orange County. The largest was Dairy Valley, whose nearly nine square

Table 4. Population and Milk Cows, San Bernardino County, 1900–1990

Year	People	% Change	Milk Cows	% Change
1900	27,929	—	3,744	—
1910	56,706	103.0	2,517	−32.8
1920	73,401	29.4	4,714	87.3
1930	133,900	82.4	11,562	145.3
1940	161,108	20.3	12,122	4.8
1950	281,642	74.8	15,884	31.0
1960	503,591	78.8	42,874	169.9
1970	682,233	35.5	82,654	92.8
1980*	895,016	31.2	154,572	87.0
1990*	1,418,380	58.5	179,200	15.9

*Milk cow numbers for 1980 and 1990 are interpolated from 1978–1982 and 1987–1992 data, respectively.

Source: U.S. Department of Commerce, Bureau of the Census, 1900–1990.

a pleasant semi-urban environment. Neighboring Riverside County, the northwest corner of which is also part of the Chino Valley dairy area, was initially less interested in attracting L.A. dairies. A final factor destining the move to Chino was the actions of milk processors and distributors. During the fifties and early sixties, they favored producers closest to the city (Anderson and Boersma 1962; Fielding 1961:107, 146, 154, 170, 184; Fielding 1964; Fletcher and McCorkle 1962:77–78; Van Kampen 1977).

Because of this corporate policy in conjunction with environmental and political-economic factors, most L.A. dairy owners migrated to the Chino Valley, beginning in the mid-fifties. In 1955 alone, 33 new dairies were built there, compared to nineteen during the previous five years. Through the rest of the decade, ten to twenty new dairies were constructed every year. Between 1950 and 1960, the number of dairies in Chino rose from 99 to 225 (Fielding 1961:102).

Table 1 shows that during the sixties, the milk cow population of L.A. County decreased from 90,000 to 40,000. The number of dairies also fell dramatically, from 290 in 1966 to only 75 by 1972 (Bishop and Oliver 1971; Goehring 1974:418). San Bernardino County, on the other hand, almost doubled its dairy cow numbers to become the nation's leading milk producer, as Table 4 details. Practically all of the increase was in the Chino Valley; the rest of the county is desert.

The sequential cycles thus repeated themselves on an ever-growing scale, twice within L.A. County itself, then across the county line into Chino (cf. Butler and Ekboir 1997). It was through these developmental sequences of urbanization, relocation, and expansion that industrialized dairying was born. An individual case (from Ortmann 1979:170) exemplifies the process:

> One farmer . . . bought his first dairy farm in Artesia in 1950—12 acres for $12,000. He sold the land for subdivision for $300,000 and bought 30 acres in Dairy Valley, now Cerritos. In 1970 he again sold to subdividers for $1.3 million and moved to Chino.

This contingent and sequential process of urbanization in L.A. County largely accounts for the first industrialization of dairying.

Conclusion: Toward an Historical-Sociological Theory of Agricultural Industrialization

Why L.A.? Why did industrialized dairying first grow and develop in southern California? To answer this agricultural question, several distinctly non-rural factors are essential. Primary among these is the tremendous population boom of the region, including the immigration of skilled Dutch milkers and dairy entrepreneurs, with their "old world" techno-cultural practices. State, county, and local governments also played significant roles, as did milk processing companies. These elements substantially explain the rise of industrial dairying. The punch-line of this story is that the world's first industrialized dairies trace their origins to the urbanization of L.A. County. The urbanized land market there, while periodically forcing farmers to relocate, paid them more than handsomely for their acreages, which capitalized the dairy expansions. Industrialized dairies arose in L.A. County because of its particular processes of population boom, cultural knowledge, technological innovation, and political-economic support for the growth of agricultural capital.

We have presented an analysis of social origins that is simultaneously historical and sociological (Calhoun 1996:310; Quadagno and Knapp 1992:500). Our narrative explanation is sequential and contingent. We have traced the changes introduced by Dutch immigrant milkers who were part of a larger population boom that fueled subsequent dairy industrialization. A new social structure of dairying resulted from this sequence of actions and events, which constitute a "model of complex conjunctures" (Abbott 1991:227; Quadagno and Knapp 1992:501–502; Sewell 1996:264–72; Tilly 1984:14).

Given different histories and geographies, there could be other causes of dairy industrialization. Jackson-Smith and Buttel (1998) address a number of possibilities, but within a generalizing rather than an historicizing framework. We would recast their conclusion as a limited generalization pertaining to a particular time and place (Tilly 1984:60–65): Large-scale industrialization is not currently overtaking Midwest dairying. In other words, they are correct in their explanation as long as it is historically and regionally specific. It becomes untrue only if presented as a generalized explanation (e.g., that industrialization does not occur because of hired workers' difficulties in caring for large numbers of cows [Jackson-Smith and Buttel 1998:134]). Such a claim must be specified in time and place: It may be so in the contemporary Midwest but does not hold for Los Angeles County around World War II. In sum, historically and geographically specific analysis is necessary to explain the (non-) industrialization of Midwest dairying. This is how better history leads to better theory.

Agricultural industrialization, in other words, is not a static, uniform, or single phenomenon, following universal laws abstracted from history. Rather, we have shown it to be profoundly historical: The *when* and *where* of industrialization deeply affect the nature and outcome of the process (Tilly 1981:14–44). Industrialization itself changes over time, with causes that are varied, contingent, and sequential. By highlighting such "complex conjunctures" in L.A. dairying, we show the problems with general theoretical claims about inevitability or historical necessity such as technological or geographical determinism. Social processes are time- and place-bound (Abbott 1991; Calhoun 1996, 1998; Quadagno and Knapp 1992; Sewell 1996). There is no "single path" to industrialization (Tilly 1984:146).

In a recent comment on "explanation in historical sociology," Calhoun (1998:868) argues that historically specific theory is one among several ways to do sociology. In this article, we are responding to the recent generalizing trend in the sociology of agriculture and instead emphasize historicity. We conclude that several elements would contribute to a theory of agricultural industrialization. To politics, economics, and culture, we add space and time. Our analysis of the rise of dairy industrialization in the first place has been historical-geographical-cultural-political-economy. Although ponderously phrased, a theory of agricultural industrialization must include all of these elements. We do not claim that this is the only approach to industrialization. Rather, a continuing dialog is needed between universalizing and historicizing sociologists of agriculture.

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TANF Participation Rates: Do Community Conditions Matter?*

Domenico Parisi
Department of Sociology, Anthropology, and Social Work and Social Science Research Center
Mississippi State University

Diane K. McLaughlin
Department of Agricultural Economics and Rural Sociology
The Pennsylvania State University

Steven Michael Grice
Michael Taquino
Duane A. Gill
Department of Sociology, Anthropology, and Social Work and Social Science Research Center
Mississippi State University

ABSTRACT A general criticism of the 1996 Welfare Reform Act is that it is primarily the result of an urban political agenda, and it may hurt rather than help the rural poor. Under the new welfare system, the rural poor that are most likely to be affected are those who live in socially, economically, and spatially disadvantaged communities. More residents in these communities are likely to need TANF, clients in these communities are least likely to leave TANF by finding employment, and community organizations are likely to have more limited resources to help TANF recipients. The objective of this study is to examine the extent to which variations in community conditions account for differences in TANF participation rates. Using 1997 TANF data from the Mississippi Department of Human Services, we estimated OLS regression models of local TANF participation rates across 100 communities in nonmetro counties. The results indicate that TANF participation rates tend to be higher in communities with high concentrations of African Americans, less faith-based activeness, more employment in retail trade, spatial concentration of the poor, and located in the Delta.

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