

The Nash Thesis revisited: An Economic Historian's View

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In a series of influential studies, Gerald Nash has explored the impact of the Second World War on the social and economic development of the West. He has argued that the war transformed the American West from a mordant, economic colony of the East into a dynamic, pacesetter society. The driving forces of this transformation were expanding employment in military-related activities; government-financed investments in military installations and manufacturing capacity, especially in the basic metal industries; and rapid population growth. According to his seminal work, the war effort condensed four decades of development into four short years.¹

This paper challenges Nash's thesis concerning the crucial role of the war in transforming the economy of California, the largest state in the West. In 1940, its income and population were as large, or larger, than the rest of the West combined. And much of the war activity, especially aircraft production and shipbuilding, was concentrated in the urban areas of the state. Thus, California's experience is central to Nash's interpretation of the impact of the war on the West.

Based on a long-term perspective on California's economic

1. See Gerald D. Nash, *World War II and the West: Reshaping the Economy* (Lincoln, 1990); *The American West Transformed: The Impact of the Second World War* (Bloomington, Ind., 1985); *American West in the Twentieth Century: A Short History of an Urban Oasis* (Albuquerque, 1973), chap. 4. For a recent work from a different viewpoint, see Roger W. Lotchin, *Fortress California, 1910-1961: From Warfare to Welfare* (New York, 1992), esp. chaps. 4 and 5.

development, I raise the following serious objections to the Nash thesis. First, this paper asserts that income, population, and employment in manufacturing were growing robustly over the 1900 to 1940 period and that by the eve of the war, urban California already possessed its own internal dynamic of development. Second, based on an examination of measures of economic and social performance circa 1940, I reject the notion that California was a “backward” region, part of an American “Third World.” Third, this paper argues that the wartime expansion was, in large part, the result of California’s existing dynamism and that the growth of the aircraft and shipbuilding industries was rooted in the state’s past economic achievements. Fourth, it notes the wartime boom was transitory and highly unbalanced and that the postwar conversion experience was potentially highly problematic. Growth during the immediate postwar years was similar in form to early expansions in the state. The construction boom, the growth of trade and services, and the inflow of branch manufacturing plants of national firms resembled the experience of the 1920s. Fifth, I argue that the new basic metals sector, created by the wartime investments, contributed less to the postwar expansion than many contemporaries had anticipated. The establishment of these new industries did not provide the essential foundation for the region’s subsequent manufacturing growth or, more particularly, for its emergence as an international leader in high technology. Sixth, the paper shows that the war led to increased specialization of California’s economic structure, not greater diversification as Nash asserts.

I do not deny, in any way, that the Second World War had a major impact on California, accelerating its growth. But a study of state’s economic history over the twentieth century leads me to reject the view that the war pushed California from the one stage of development, as part of a dependent colonial region, to another stage, as a dynamic pacesetter. My research suggests that the Nash thesis greatly overstates the discontinuity and understates the continuity in California’s development experience.

In this paper I will, first, summarize the Nash thesis and explore its relationship to two well-known approaches in economic history. A long view of the growth in California’s popula-

tion, income, and manufacturing is provided in the second section, and an evaluation of California's economic and social performance on the eve of World War II is offered in the third section. This paper then takes up directly the impact of the war on the state's growth in section four and its postwar conversion experience in section five. The final section analyzes the extent of diversification and structural change during the 1940s.

I. The Nash Thesis

In the preface of *World War II and the West*, Gerald Nash lays out his basic thesis:

In 1940 the western economy was still characterized by its colonial aspect as an exporter of raw materials to the industrialized Northeast and Middle West. But in 1945 the West emerged from the war with a burgeoning manufacturing complex, a bustling service economy, and a bevy of aerospace, electronics, and science-oriented industries that heralded a new phase of economic development with the rise of a post-industrial economy. In four years the war had transformed a backward colonial region into an economic pacesetter for the nation. And the pattern created by the war dominated the western economy for the next three decades.²

The key agents of change during the war were federal government officials and private entrepreneurs, most notably westerners such as Henry Kaiser. As a result of their efforts, the region overcame the constraints to prewar industrialization imposed by eastern-based interests—manufacturers, railroads, and Wall Street bankers—through the base point pricing system, discriminatory freight rates, credit restrictions, and similar practices. Federal wartime expenditures of \$40 billion in the West vastly increased job opportunities, inducing large population inflows. The wartime boom added an entirely new basic metals sector and, according to Nash, led to a much more diversified industrial structure. A new sense of western optimism and self-confidence replaced the prewar pessimism and feelings of colonial dependency. Finally, the war transformed the region's society and culture, turning it into a pacesetter for the nation.³

2. Nash, *World War II and the West*, xii.

3. Nash, *American West Transformed*, vii–ix, 17–36; Nash, *World War II and the West*, 1–8.

Nash's economic analysis is closely related to two approaches in economic history. The first is the well-known "Staples thesis."⁴ It argues that the pattern and pace of development in a region of recent settlement depends crucially on the nature and rate of growth of demand for its leading export products (or staples). Such a staples economy lacks its own internal dynamic of development, and its growth, characterized by booms and busts, is externally driven. The links with the Nash thesis are immediate. The West was a staples or resource-exporting region before World War II led to its transformation into a dynamic, internally driven economy.

The second approach focuses on the role of the "Big Push" generating industrialization or modern economic growth. This framework argues that for a given region there may exist two (or more) possible economic equilibria. One will be characterized by "underdevelopment" or a "low level" of economic activity; another by "development" or a "high level" of economic activity. Economics alone cannot tell us which equilibrium actually prevails. This is a matter of history. Specific historical events, such as a wartime boom or government-planned development drive, can act as a "Big Push," shifting an economy trapped at a "low level" of activity to the higher level.⁵ Again, the relationship between this line of thinking and Nash's thesis is close. The Second World War represented the "Big Push"—the period of fundamental discontinuity in the development process.

Gerald Nash has prominent company among western histo-

4. The classic treatment advocating this approach is Douglass North, "Locational Theory and Regional Economic Growth," *Journal of Political Economy*, CXIII (1955), 243–258. For applications to California's experience, see Forest G. Hill, "An Analysis of Regional Economic Development: The Case of California," *Land Economics*, XXXI (1955), 1–12 ; and Sterling Brubaker, *Significance of Military Installations for California's Economic Growth, 1930–1952* (San Francisco, 1955).

5. Typically, some form of increasing returns to scale or positive feedback relationship is necessary to generate the multiple equilibria. The transition from one equilibrium to the another actually may not require a large-scale boom. Under some circumstances, small events may be sufficient to cause the push. A useful introduction to recent work applying this set of ideas to regional economic growth is Paul Krugman, *Geography and Trade* (Cambridge, Mass., 1991). The classic statement of the "Big Push" theory is P. N. Rosenstein-Rodan, "Problems of Industrialization of Eastern and South-Eastern Europe," *Economic Journal*, LII (1943), 202–211.

rians in treating the Second World War as a watershed. James J. Rawls and Walton Bean argue in their standard text, *California: An Interpretative History*, that the impact of the wartime spending is “almost impossible to exaggerate.... Every previous element in the state’s economic history was dwarfed in comparison.” In *Elusive Eden: A New History of California*, Richard Rice, William Bullough, and Richard Orsi title the Second World War “an important watershed for California” and the “beginning of a new era.” While many others have sounded similar themes, Gerald Nash’s work on the role of the war on western development remains the most extensive and influential. It, therefore, receives the bulk of the critical attention in this paper.⁶

II. The Long View

Income and Population Growth

Nash asserts that the economic changes wrought by the war were greater than would have occurred in forty years of peacetime. In order to assess this claim for California, it is helpful to have a long-run perspective on the state’s growth relative to other regions and the country as a whole. Table 1 and Figure 1 provide useful vantage points for a long view of California’s growth.

Table 1 offers data on the growth of per capita personal income, population, and total personal income in California and the United States from 1880 to 1960. Annualized growth rates are given for three time periods: (1) long—about 20 years; (2) medium—about 10; and (3) short—about 5 years. California’s growth from 1940 to 1945 is highly impressive if viewed in the short run, but less so if considered as a part of a medium or long time period. The five-year period following 1945 essentially consolidated the gains achieved during the war, and the preceding decade was one of depression. Comparing growth across decades reveals that the 1920s were a more robust period than

6. James Rawls and Walton Bean, *California: An Interpretative History* (6th ed., New York, 1993), 334; Richard Rice, William Bullough, and Richard Orsi, *The Elusive Eden: A New History of California* (New York, 1988), 423, 442–458. Richard White’s recent book, *“It’s Your Misfortune and None of My Own”: A New History of the American West* (Norman, 1991), echoes Nash’s works, if in a somewhat muted tone. White’s chap. 18 carries the Nash-inspired title “World War II and Its Aftermath: Reshaping the West.”

Table 1: Annual Rates of Income and Population Growth in California and the United States

	<i>Real Per Capita Income</i>		<i>Population</i>		<i>Real Total Income</i>	
	<i>Calif.</i>	<i>U.S.</i>	<i>Calif.</i>	<i>U.S.</i>	<i>Calif.</i>	<i>U.S.</i>
Long Periods						
1880–1900	0.5	1.6	2.7	2.6	3.2	4.2
1900–1920	0.4	1.4	4.3	1.7	4.7	3.1
1920–1940	0.9	1.2	3.3	1.2	4.2	2.4
1929–1950	0.9	1.5	3.1	1.0	4.0	2.5
1940–1960	1.6	2.3	4.1	1.0	5.7	3.3
Medium Periods						
1920–1929	2.4	3.0	4.9	1.5	7.3	4.5
1929–1940	-0.2	-0.3	2.1	0.7	1.9	0.4
1940–1950	2.0	3.3	4.3	1.5	6.3	4.8
1950–1960	1.2	1.4	4.0	2.0	5.2	3.4
Short Periods						
1929–1933	-7.2	-8.0	1.9	0.8	-5.3	-7.2
1933–1940	3.9	4.3	2.1	0.6	6.0	4.9
1940–1945	5.4	7.4	6.0	1.1	11.4	8.5
1945–1950	-1.8	-1.3	2.5	1.6	0.7	0.3
1950–1955	2.2	2.2	4.1	1.8	6.3	4.0
1955–1960	1.0	1.2	3.8	1.8	4.8	3.0

Sources:

Income for 1880–1920 is from R. Easterlin, "Regional Growth in Income," in S. Kuznets, *Population Redistribution and Economic Growth: United States, 1870–1950* (3 vols., Philadelphia, 1957), III, 188.

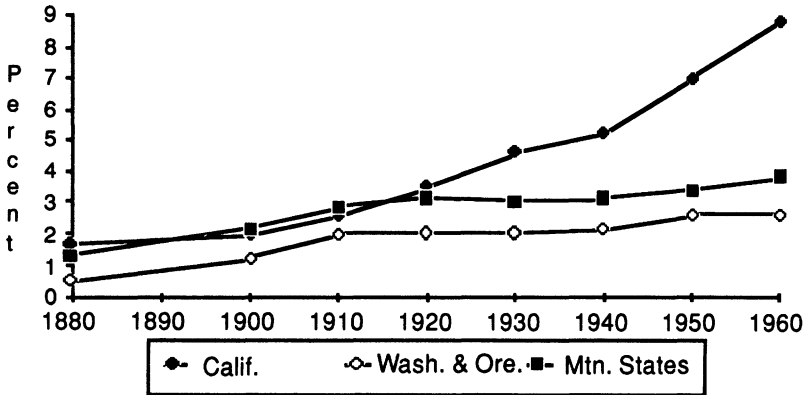
Income for 1929–1960 is from U.S. Department of Commerce, *State Personal Income, 1929–1982* (Washington, D.C., 1984).

Nominal figures have been deflated by the national personal income deflator reported in U.S. Department of Commerce, *Historical Statistics of the United States, Colonial Times to 1970* (Washington, D.C., 1975), 224. Population figures are from *Historical Statistics*, 25–27; and *California Statistical Abstract, 1961* (Sacramento, 1961), 11.

Figure 1.: California and the West

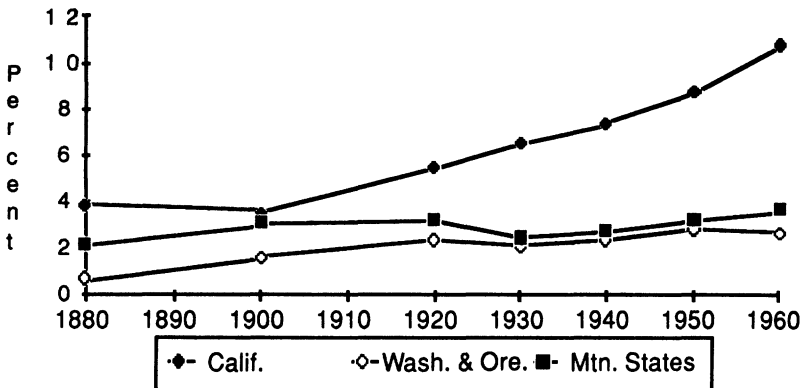
Panel 1

Population Shares



Panel 2

Income Shares



SOURCES: Population data are from U.S. Department of Commerce, *Historical Statistics of the United States, Colonial Times to 1970* (Washington, D.C., 1975), 25–37. Income data for 1880–1920 is from Richard Easterlin, “Regional Growth in Income,” in Simon Kuznets, *et al.*, *Population Redistribution and Economic Growth: United States, 1870–1950*. (3 vols., Philadelphia, 1957), III, 188, and similar data for 1929–1960 are from U. S. Department of Commerce, *State Personal Income, 1929–1982* (Washington, D.C., 1984).

the 1940s. The twenty-year time spans that include the war also appear far from exceptional. By 1940, California was already experiencing an accelerated per capita income growth, population expansion at rates two-to-three times the national averages, and significantly more rapid total income growth.⁷

This last point is well illustrated in Figure 1, a graph of California's share of total income and population in the United States between 1880 and 1960. California's share of the nation's personal income rose from less than four percent in 1880 to more than ten percent eighty years later. Its share in the nation's population increased from less than two percent in 1880 to almost nine percent by 1960. (The higher share of income than population, of course, implies that California was a high per capita income region. The trend in the difference between income and population indicates that relative per capita incomes converged, though not completely.) There is a break in the region's growth, but it did not happen around 1940. Rather, based on this limited evidence, it would appear the "discontinuity" in California's growth, if indeed there was one, occurred around the turn of the century. Before 1900, the state's income share was declining and its population share was growing only very slowly. Between 1900 and 1960, the shares were steadily climbing higher. Growth during the war decade does not dominate the expansion of the previous forty years.

It might be argued that the Nash thesis applies to the West as a whole and that California is only one part of the region. A comparison of California with the Pacific Northwest (Washington and Oregon) and the Mountain states highlights the Golden State's predominant role in the region and points out key differences in the growth experience. Figure 1 also depicts the share of national income and population of the Pacific Northwest and the Mountain states. By 1940, California's share

7. For the period 1880 to 1920, see Richard Easterlin, "Regional Growth in Income," in Simon Kuznets, *et al.*, *Population Redistribution and Economic Growth: United States, 1870-1950* (3 vols., Philadelphia, 1957), III, 188; for 1929 to 1960, see U.S. Department of Commerce, *State Personal Income, 1929-1982* (Washington, D.C., 1984); U.S. Department of Commerce, *Historical Statistics of the United States, Colonial Times to 1970* (Washington, D.C., 1975), 24-37, 243-245. The nominal figures are adjusted into real figures using the national personal income deflator reported in *ibid.*, 224. This obviously creates some minor difficulties because national and California price levels and rates of changes differed.

of national income exceeded that of the other two areas combined, and it was, by far, the most rapidly expanding. While California's growth in the late nineteenth century compared unfavorably to the newer regions of the West, the state after 1900 began to outstrip its neighbors. In particular, it was the only region in the West to increase its share of total national income significantly between 1920 and 1960.⁸ California's share doubled from 5.4 percent in 1920 to 10.8 percent in 1960, while the share of the Pacific Northwest edged up from 2.4 to 2.7 percent and that of the Mountain states grew from 3.2 to 3.6 percent. It is tempting to point to the pre-1940 experiences of the western states outside of California as evidence of effects of "colonial dependency." But this would not strengthen Nash's argument because these states did not grow significantly more rapidly (relative to the nation as a whole) after World War II. Urban California was driving the West's postwar expansion.

Manufacturing Growth

Taking a long-run perspective also reveals the substantial growth of California's manufacturing sector over the twentieth century. Information on the growth of manufacturing employment in the state and nation is shown in Table 2. Again, growth

Table 2: Manufacturing Employment in California and the United States, 1899–1958

	<i>California</i>	<i>United States</i>	<i>Share</i>
1899	72,000	4,299,000	1.67%
1909	102,000	5,921,000	1.73%
1919	217,000	7,907,000	2.74%
1929	264,000	7,929,000	3.33%
1939	271,000	7,808,000	3.47%
1947	530,000	11,918,000	4.45%
1958	839,000	11,644,000	7.21%

Source: U.S. Bureau of the Census, *Census of Manufactures: 1958*, vol. 3: *Area Statistics*, (Washington, D.C., 1961), 3, 4/5. The figures have been adjusted as described in text.

8. Most western states experienced rates of population growth higher than the national average between 1940 and 1960, and many, especially states in the

during the war period was impressive; the number of production workers in the state's manufacturing sector doubled between 1939 and 1947. Yet it is a gross exaggeration to claim that the 1940s expansion dominated growth over the previous forty-year period because manufacturing employment in the state had increased nearly fourfold since 1899. Of course, growth was slow during the 1930s, but it was still positive in contrast to national trends. Between 1929 and 1939, manufacturing employment actually increased in California whereas it declined nationwide. Considering the 1899–1939 period as a whole, California's share of total production workers in the United States doubled.⁹

By the late 1930s, California's cities, with Los Angeles in the lead, was already emerging as the nation's second industrial core. The southland metropolis could boast it was the nation's leading producer of aircraft and the second leading producer of automobiles and rubber tires. For the region's aircraft industry, the real breakthrough occurred in the early 1930s. The Pacific Coast firms were in the vanguard of the "airframe revolution," designing and producing streamlined, all-metal, cantilevered monoplanes—the first modern airliners. The key aircraft embodying the new technologies were Boeing's 247 and Douglas's DC-2 and DC-3. Each of these planes incorporated the revolutionary aerodynamic ideas of California-based John Northrop, the nation's most prominent design innovator.¹⁰ Douglas came to dominate the entire commercial market by the mid-1930s. But

Mountain regions, enjoyed above average rates of growth of per capita income over this period. Nonetheless, California dominated economic growth in the West, accounting for almost three-quarters of the increase in the region's share in national income over the 1940–1960 period.

9. See my paper, "California's Emergence as the Second Industrial Belt: Patterns and Processes of Manufacturing Growth, 1900–1958" (University of North Carolina Economics Dept. mimeo., 1991). The figures reported here differ from those reported in the census because my data series are based on a consistent set of industries across time. For example, my data excludes the operations of the railroad repair shops and manufactured gas industry, among others in the period before 1939. The inconsistent treatment of these industries in the census figures results in misleading movements, such as the illusory reported decline of U.S. employment in the 1920s and of California employment in the 1930s.

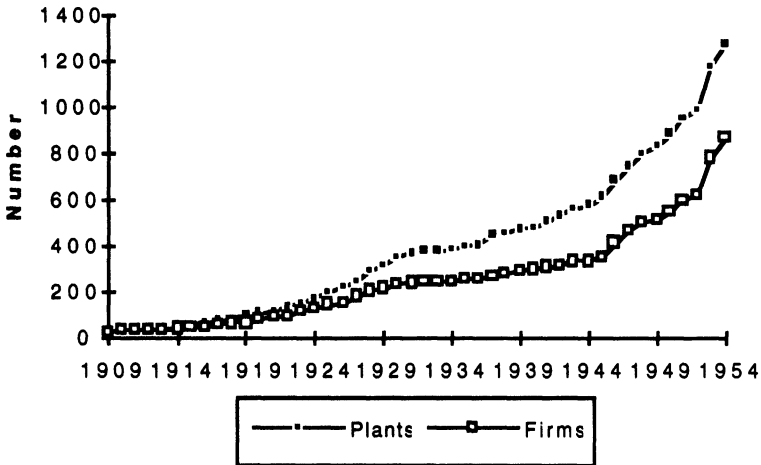
10. See "Success in Santa Monica," *Fortune*, XI (May 1935), 79–84, 172–190, *passim*; John B. Rae, *Climb to Greatness: The American Aircraft Industry, 1920–1960* (Cambridge, Mass., 1968); Lotchin, *Fortress California*, chap. 4; and my paper, "The Aircraft Industry in California" (University of North Carolina Economics Dept. mimeo., 1990).

Douglas was not alone; its traditional rivals, Lockheed and Boeing, also grew in the late 1930s. In addition, North American and Consolidated moved to the West in order to be closer to the new technologies and pools of engineering talent and venture capital. By 1939, the Pacific Coast was the center of airframe production with the California industry employing roughly half of the workers nationally. This provided the foundation for the Pacific Coast aircraft industry's major role during the Second World War.

Aircraft is normally considered a military-oriented industry. It is worth noting, however, that the Pacific Coast industry achieved its aircraft leadership based on its success with planes designed and built to serve the western, commercial market. And this success was itself based on technological innovations of the small cluster of aviation engineers and entrepreneurs. On its way to global leadership, the Pacific Coast industry had to overcome the locational inertia caused by agglomeration economies in eastern input markets. Ironically, the boom and bust cycle characterizing aircraft demand probably contributed to the industry's eventual concentration in southern California by preventing the eastern centers of production from solidifying the advantages of their earlier start.

Urban California's emergence as a center of automobile and tire production was a part of a larger process—the spread of branch plants. From the 1910s on, national firms often found it advantageous to establish western factories in order to save on transportation costs and to serve better the growing local market. Among the hundreds of firms setting up California plants were Ford, Chevrolet, Goodyear, and Proctor & Gamble. This form of expansion, as Figure 2 shows, tended to occur in waves. There was an intense upswing in the second half of the 1920s and a smaller boom in the late 1930s. According to Homer Trice, over twenty percent of California manufacturing employment in 1939 was employed in branch plants.¹¹ By end of the

11. See Andrew Homer Trice, "California Manufacturing Branches of National Firms, 1899–1948: Their Place in the Economic Development of the State" (Ph.D. dissertation, Department of Economics, University of California, Berkeley, 1955). The data in Figure 2 from 1909 to 1947 are from Trice; from 1947 to 1954 the data are from a study I performed using the California Manufacturers' *Annual Register* (Los Angeles).

Figure 2.: Branch Plants and Firms in California, 1909–1954

SOURCES: The 1909–1947 figures are from Andrew Homer Trice, “California Manufacturing Branches of National Firms, 1899-1948: Their Place in the Economic Development of the State.” Unpublished Ph.D. Dissertation, Economics, University of California, Berkeley, 1955. The 1947–1954 figures are based on a sample from California Manufacturers Association’s *Annual Register* for this period.

1930s, the pattern was already set for the influx of branch plants of the late 1940s and early 1950s.

III. California on the Eve of the Second World War

Nash characterizes the West on the eve of the Second World War as America’s “Third World.” It would, perhaps, be hard to find a less apt description of California.¹² By almost any relevant measure, California in 1940 was among the more “advanced” regions of the most “advanced” economy in the world. Table 3 compares California’s performance in selected economic and social measures circa 1940. It shows the relative per capita income, the shares of the labor force and earnings in the

12. Nash himself refers to the state as being a generation ahead of the rest of the country in “Stages of California’s Economic Growth, 1870-1970,” *California Historical Review*, CI (1972), 315-330.

Table 3: Measures of California's Social and Economic Performance, circa 1940

	Relative Per Capita Income ¹	Extractive Sector Share		Urban Population Share ⁴	1939–1941 Patents per Million ⁵	Median Years of School ⁶
		Labor Force ²	Earnings ³			
U.S.	100	21.2%	11.0%	56.6%	320	8.4
New England	121	5.6%	3.2%	76.1%	466	8.8
Mid-Atlantic	124	7.3%	4.3%	76.8%	564	8.4
East North Central	112	14.9%	7.6%	65.5%	474	8.5
West North Central	84	33.6%	22.5%	44.3%	160	8.5
South Atlantic	69	28.4%	14.3%	38.8%	114	7.8
East South Central	55	44.8%	23.4%	29.4%	51	7.5
West South Central	70	37.4%	25.2%	39.8%	103	8.1
Mountain	92	33.1%	26.1%	42.7%	124	8.9
Pacific	138	14.9%	10.6%	65.4%	344	9.7
California	141	12.8%	10.5%	71.0%	423	9.9

^{1,3}U.S. Department of Commerce, *State Personal Income, 1929–1982* (Washington, D.C., 1984).

²U.S. Department of Commerce, *Regional Employment by Industry, 1940–1970* (Washington, D.C., 1974).

⁴U.S. Department of Commerce, *Historical Statistics of the United States, Colonial Times to 1970* (Washington, D.C., 1975), 24–37.

⁵U.S. Department of Commerce, *Annual Report of the Secretary of Commerce, 1946* (Washington, D.C., 1946), 162–165.

⁶U.S. Bureau of the Census, *Sixteenth Census of the United States: 1940 Population*, vol. 2: *Characteristics of the Population* (Washington, D.C., 1943), part 1, p. 83.

The regions correspond to the standard census categories. New England includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont; the Mid-Atlantic New Jersey, New York, and Pennsylvania; the East North Central Illinois, Indiana, Michigan, Ohio, and Wisconsin; the West North Central includes Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota; the South Atlantic Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia; the East South Central Alabama, Kentucky, Mississippi, and Tennessee; the West South Central Arkansas, Louisiana, Oklahoma, and Texas; the Mountain region Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming; and the Pacific California, Oregon, and Washington.

extractive sector (agriculture, forestry and fisheries, and mining), the percentage of the population in urban areas, the level of educational attainment, and the average number of patents per million inhabitants.

In 1940, per capita income in California stood more than forty percent above the national average. Only Delaware, Connecticut, and Nevada ranked higher. The state was among the most urbanized in the nation, with over seventy percent of its population living in towns and cities. The extractive or primary sector, far from dominating the state's economy, was less important than it was nationally. Only about thirteen percent of California's labor force was employed in extractive activities compared with twenty-one percent nationally. In terms of the importance of the extractive sector, California ranked in the same class as Illinois, Ohio, Pennsylvania, and Michigan. The extractive sector's share of California's earnings was close to the U.S. average of around eleven percent, but this should be taken as a sign of progress, rather than of backwardness. California's extractive workers generated much higher earnings than did such workers in the country as a whole. Extraction was not a low-income sector in California as it was elsewhere. A similar picture emerges if we examine educational attainment or the degree of innovativeness (as measured by the number of patents per person). The state stood significantly above the national average. Long before World War II, California had ceased to be a "backward" region.

IV. The Impact of the War

What, then, was the impact of the Second World War? There is no question that the war led to an intense boom in the state, ending a decade of slower growth during the worldwide depression. The federal government called on urban California's production capabilities in aircraft, shipbuilding, and other military activities, stimulating rapid expansion in industrial output and employment. Between June 1940 and September 1945, the federal government spent \$16.4 billion on major war supply contracts in California. With nine percent of the national total, the state ranked third, behind only New York and Michigan. Within the state, the metropolitan areas received all but

a negligible share of the contracts; Los Angeles County itself accounted for almost 58 percent of the total. The San Francisco Bay area received about 24 percent, and San Diego 12 percent. Most of this money went to purchase aircraft (about 54 percent) and ships (about 30 percent); ordinance, communication equipment, and other goods accounted for far less.¹³

In addition to purchasing war supplies, the federal government also invested heavily in military and industrial projects in California. Between June 1940 and September 1945, it spent about \$1.5 billion on military installations and over one billion on manufacturing facilities in the state.¹⁴ The sum invested in industrial capacity was about six percent of the national total, placing California behind New York, Texas, Ohio, Michigan, Pennsylvania, and Illinois. The state's private sector invested about \$475 million in industrial expansion over this period. Table 4 provides a breakdown of the expenditures by sector and type of financing from July 1, 1940, to June 30, 1944. The bulk of the federal money, more than \$400 million, went to the shipbuilding sector. Aircraft, chemicals, and iron and steel received smaller, but still hefty sums. Private sector investments were concentrated in chemicals and aircraft.

The wartime boom led to a forty percent increase in employment in the state between 1940 and 1944. This expansion of job opportunities resulted in dramatic reductions in unemployment, substantial increases in labor force participation, especially of women, and significant inflows of population. The California jobless rate, which stood at over twelve percent in 1940, fell to a less than one percent in 1944. Migration surged as job seekers, who had been unwelcome in the late 1930s, were now actively recruited.¹⁵

Table 5 offers statistical evidence on the expansion of the population and real per capita income of California during the decade of the 1940s. The rate of population growth was

13. Of this total, \$14.3 billion was for combat equipment. U.S. Bureau of Census, *County Data Book, 1947* (Washington, D.C., 1947), 7, 77; "Industry's Leaders Outline West's Industrial Prospects," *Pacific Factory* (Jan. 1946), 48.

14. "Industry's Leaders Outline West's Industrial Prospects," 48; California State Chamber of Commerce, "Postwar Industrial Growth in California, 1945-1948," *Report No. 41, 1948-1949* (San Francisco, 1949).

15. California Division of Labor Statistics and Research, *Labor in California, 1945-1946* (San Francisco, 1947).

Table 4: Cost of Expansion of Facilities in California by Sector and Type of Financing, July 1, 1940, to June 30, 1944

	<i>Federal</i>	<i>Non-Federal</i>	<i>Total</i>
Aircraft	150	79	229
Shipbuilding	409	24	433
Combat Vehicles	2	3	5
Guns and Ammunition	38	4	42
Explosives	0	1	1
Iron and Steel	117	33	150
Non-Ferrous Metals	85	12	97
Machine Tools	1	3	4
Machinery	7	15	22
Chemicals	139	162	301
Food and Other	4	73	77
Total Manufacturing	950	409	1,359
War Department	563		563
Navy Department	696		696
Total Military	1,259		1,259

Source: "Industry's Leaders Outline West's Industrial Prospects," *Pacific Factory* (Jan. 1946), 48.

extremely rapid during the war period. (It tended to slow following 1945, but was still positive after the war ended. The widely expected exodus did not occur.) Most of the population growth was a result of immigration. A majority of these migrants left the interior regions of the country where expansion of job opportunities had failed to keep pace with the opportunities in California. The central farm belt had long been California's chief sending region. As the *Monthly Labor Review* concluded, the "wartime population movements...followed the pattern of prewar migration."¹⁶

California's per capita income rose over the war period.

16. U.S. Bureau of Labor Statistics, *Monthly Labor Review* (1947), 566. It would be wrong to assert that there were no significant demographic changes during the war and its immediate aftermath. For example, migration of blacks, principally from the South, increased considerably, drawn to jobs in the shipyard and other military facilities. Another important change was the rise of the birthrate in the state. Previously California had one of the lowest fertility rates in the nation, but during the 1940s, the state's birthrates converged to the national average. Natural

Table 5: Population Growth and Per Capita Income, 1940–1950

	Civilian Population (July 1)	Net Change	Net Migration	Natural Increase	Loss to Military	Real Per Capital Income (1940 Dollars)	
						California	United States
1940	6,899,000	150,000	195,000	39,000	-84,000	\$ 831	\$589
1941	7,040,000	248,000	324,000	57,000	-133,000	\$ 950	\$679
1942	7,297,000	273,000	521,000	86,000	-334,000	\$1,091	\$776
1943	7,570,000	513,000	582,000	88,000	-157,000	\$1,237	\$889
1944	8,083,000	440,000	365,000	97,000	-22,000	\$1,245	\$945
1945	8,523,000	775,000	99,000	93,000	583,000	\$1,214	\$954
1946	9,298,000	374,000	123,000	160,000	91,000	\$1,180	\$895
1947	9,672,000	223,000	82,000	145,000	-4,000	\$1,046	\$823
1948	9,895,000	266,000	131,000	147,000	-12,000	\$1,012	\$822
1949	10,161,000	311,000	155,000	146,000	10,000	\$1,013	\$810
1950	10,472,000					\$1,076	\$869

Sources: *California Statistical Abstract, 1961* (Sacramento, 1961), 11; U.S. Department of Commerce, *State Personal Income, 1929–1982* (Washington, D.C., 1984).

Between 1940 and 1943, the rate of growth in the state paralleled the national increase and its relative income remained constant at 140 percent of the national average. After 1943, California's relative income began to fall, reaching about 125 percent of the national average by 1950. In other words, during the war decade, per capita income growth in California was slower than in the nation as a whole. The state's hourly manufacturing wage did increase slightly relative to the national average during the war. It rose from 116 percent of the national average over the 1939–1941 period to 121 percent over the 1943–1945 period, falling back to the prewar levels in the 1947–1949 period. Nonetheless, the leading attraction of California was probably not the rising relative wages, but the expanding number of jobs in an economy long characterized by high wages.¹⁷

A picture of the trends in employment and the changes in composition of the labor force over the 1940s is offered in Tables 6 and 7. Data on California's civilian labor force by major

increase, for the first time in the American period, contributed significantly to the state's population growth.

17. California Division of Labor Statistics and Research, *Handbook of California Labor Statistics, 1951–1952* (San Francisco, 1953), 81.

Table 6: California's Civilian Labor Force, by Major Industrial Category, 1940–1950

	<i>Labor Force</i>	<i>Agriculture</i>	<i>Mining</i>	<i>Construction</i>	<i>Manufacture</i>	<i>Transportation</i>	<i>Trade</i>	<i>FIRE¹</i>	<i>Services</i>	<i>Government</i>	<i>Unemployed</i>
1940	3,083,000	317,000	46,000	128,000	461,000	199,000	650,000	124,000	503,000	266,000	380,000
1941	3,316,000	320,000	46,000	175,000	614,000	221,000	701,000	127,000	507,000	308,000	297,000
1942	3,566,000	333,000	38,000	188,000	897,000	242,000	705,000	119,000	498,000	384,000	162,000
1943	3,794,000	332,000	31,000	166,000	1,186,000	258,000	710,000	115,000	507,000	465,000	25,000
1944	3,886,000	365,000	32,000	162,000	1,130,000	276,000	736,000	115,000	529,000	511,000	31,000
1945	3,880,000	396,000	33,000	168,000	881,000	289,000	789,000	121,000	550,000	534,000	119,000
1946	4,219,000	400,000	36,000	216,000	731,000	307,000	898,000	145,000	615,000	500,000	370,000
1947	4,345,000	418,000	37,000	252,000	754,000	325,000	956,000	157,000	644,000	483,000	319,000
1948	4,450,000	413,000	38,000	284,000	771,000	331,000	980,000	166,000	653,000	501,000	313,000
1949	4,529,000	430,000	37,000	257,000	739,000	319,000	957,000	168,000	653,000	525,000	444,000
1950	4,552,000	423,000	35,000	289,000	797,000	320,000	974,000	174,000	656,000	533,000	350,000

Source: *California Statistical Abstract, 1961* (Sacramento, 1961), 61.

¹FIRE means Financial, Insurance, and Real Estate.

Table 7: California's Manufacturing Employment, by Standard Industrial Classification Categories, 1940–1948

<i>SIC Categories</i>	1940	1943	1944	1945	1946	1947	1948
20 Food	73.4	80.9	86.4	86.7	88.5	89.3	91.7
Canning	28.5	27.9	32.3	31.3	32.8	29.1	30.7
21 Tobacco	0.9	1.0	1.0	0.9	0.8	1.0	1.0
22 Textiles	4.1	4.9	4.4	3.9	4.9	5.0	5.4
23 Apparel	22.9	26.4	26.4	26.6	30.8	32.4	36.2
24 Lumber	23.5	22.8	21.4	20.0	18.5	24.8	29.7
25 Furniture	13.1	17.1	17.5	16.9	18.0	20.8	19.8
26 Paper	5.5	7.1	7.1	7.4	8.3	8.4	8.6
27 Printing	16.4	14.6	14.5	15.0	18.1	20.0	21.3
28 Chemicals	10.2	15.3	17.2	16.8	16.6	17.5	17.1
29 Petroleum	9.2	11.0	13.7	14.6	14.9	15.4	14.3
30 Rubber Products	5.1	14.3	15.7	12.7	11.3	11.1	10.0
31 Leather	2.4	3.4	3.5	3.7	4.6	4.1	4.0
32 Stone/Clay/Glass	13.2	17.4	17.0	17.2	21.6	26.8	28.9
33 Primary Metals	13.0	22.2	21.0	18.9	19.6	21.3	22.4
34 Fabricated Metals	24.7	50.9	51.7	41.5	36.6	40.2	40.0
35 Non-Electrical Machinery	16.4	46.2	47.9	39.6	33.8	36.1	34.0
36 Electrical Machinery	4.2	14.3	16.4	13.3	9.9	12.8	13.0
37 Transportation Equipment	58.0	518.0	439.5	255.3	96.5	89.7	83.8
Aircraft and parts	41.2	237.4	190.3	116.4	55.7	56.9	55.7
Shipbuilding	7.3	274.3	242.1	131.5	27.6	17.9	12.1
Automobiles	8.0	5.0	5.7	5.8	11.1	12.8	14.4
39 Miscellaneous	3.9	8.6	9.4	8.7	7.7	7.6	7.8
All	320.1	896.4	831.7	619.7	461.0	484.4	489.0

Source: California Department of Industrial Relations, *Labor in California: 1947–1948* (San Francisco, 1949), 23–24.

industrial categories between 1940 and 1950 are displayed in Table 6. Growth during the war was concentrated in manufacturing and government. The government sector's share increased from ten percent in 1940 to fourteen percent by 1944. The share of manufacturing in the labor force climbed from fifteen percent in 1940 to thirty-one percent in 1943. Focusing on manufacturing, Table 7 provides information on production workers by major Standard Industrial Classification (SIC) category for selected years in the 1940s. Between 1940 and the peak in 1943, manufacturing employment rose from 320,000 to 896,000. Gains

in aircraft and shipbuilding accounted for four-fifths of this increase. The number of aircraft workers increased from 41,000 to 237,000, while shipbuilding workers increased from 7,000 to 274,000 over this period. By way of contrast, many nondefense industries experienced little growth. Indeed, several sectors, including printing, lumber, and automobile manufacturing, actually suffered employment declines during the war. Given the great importance of aircraft and shipbuilding, it is useful to explore in greater detail the wartime experiences of these industries in California.

Aircraft

Urban California contributed significantly to the nation's air buildup. The state's airframe plants delivered about one-fifth by number and one-third by weight of the military planes built during the war. The difference resulted from the state's concentration on heavier transports and bombers such as the B-17 Flying Fortress and B-24 Liberator. In California, virtually all of the aircraft production was located in the southern part of the state.

A strong case can be made that the expansion was the result of California's prewar leadership position, not of wartime military favoritism towards the state. In fact, the military production authorities actively attempted to locate the new aircraft plants outside the Far West for national security and congestion reasons. In the initial planning sessions to meet President Franklin Roosevelt's call for 50,000 planes per year, there were proposals for a major relocation of production facilities to the nation's interior. But as Donald Douglas replied, the authorities could either have the planes or the new plants, not both.¹⁸

As the war progressed, production was relocated and the state's share of airframe activity declined. The proportion of airframe workers in the state fell from over fifty percent in 1941 to only twenty-five percent in early 1945. Although the wartime authorities pushed production to the nation's interior, they still found it desirable to utilize the managerial and technical expertise of the California aircraft firms. Douglas operated the

18. See William G. Cunningham, *The Aircraft Industry: A Study in Industrial Location* (Los Angeles, 1951), esp. 75-97; and my paper, "The Aircraft Industry in California."

plant at Tulsa, Oklahoma, North American ran the Fort Worth, Texas, facility and Consolidated helped operate the Willow Run, Michigan, plant. If we focus on the location of the headquarters of the management firm, rather than the location of actual production, we find that the California firms managed about half of the employees throughout the war. This continued reliance on the California-based firms illustrates the importance of their prewar leadership position.¹⁹

After the wartime peak in 1943–1944, employment rapidly fell. During the 1946–1948 period, there were about 56,000 manufacturing workers in California’s aircraft and parts industry. This was less than a quarter of the peak level and only 15,000 more than the 1940 level. Accompanying this absolute decline was a relative rise in California’s share of national aircraft employment as the locational trends reversed and production activity reconcentrated in the state. The reemergence of the prewar pattern further leads me to emphasize the preexisting advantages of operating in the state and to deemphasize the role of wartime expansion.

Shipbuilding

Growth of employment in shipbuilding closely paralleled the expansion in the aircraft industry. But while almost all of the state’s aircraft employment was in the southland, the San Francisco Bay area dominated the shipbuilding business. Two-thirds of employment was in the Bay area at the peak. Just as the state’s aircraft firms concentrated on transports/bombers as opposed to fighter planes, its shipyards specialized in transports rather than fighting ships. The yards of Bechtel’s Marinship and Kaiser worked exclusively for the U.S. Maritime Commission, building no ships for the U.S. Navy. The state’s overall share of wartime shipbuilding expenditures was about twenty percent. While it accounted for thirty-four percent of the Maritime Commission’s spending, California’s share of navy purchases was only seven percent.²⁰

19. U.S. Bureau of Labor Statistics, “Wartime Expansion in the California Airframe Industry,” *Monthly Labor Review* (1945), 721–727.

20. See Table H-7 in Gerald J. Fisher, “A Statistical Summary of Shipbuilding under the U.S. Maritime Commission during World War II,” *War Administration, U.S. Maritime Commission, Historical Report No. 2* (Washington, D.C., 1949). A majority of the military ships were constructed on the Atlantic seaboard.

And as in the case of aircraft, the growth of California's wartime shipbuilding industry was rooted in its economic history. Some of the firms such as Bethlehem and Moore dated back to the World War I period and before. Others, including the great innovators (Kaiser and Bechtel), acquired their managerial and technical expertise in the region's large-scale construction projects of the 1920s and 1930s. These firms had long histories of building public roads and highways, giant dams such as Hoover and Grand Coulee, and great bridges such as those spanning the San Francisco Bay. As Nash himself notes, Kaiser and Bechtel, in their war efforts, transferred the resources, skills, organization, and managerial personnel gained in these large-scale construction projects to building Liberty ships with remarkable success.²¹ This, I would argue, points to elements of continuity in the state's growth experience. The wartime success of the California shipbuilding industry did not occur overnight, out of thin air, but rather as the result of many years of pouring concrete.

As with aircraft, shipbuilding employment declined quickly after 1944. Indeed, the contraction was even more dramatic with the number of production workers reaching just 20,000 in 1947. Unlike aircraft, the shipyards did not substantially recover during the Korean War boom. The direct effects of the World War II expansion appear to be very temporary. Again, the employment experience suggests continuity. Shipbuilding was a minor industry both before 1940 and after 1945.

V. The Postwar Conversion Period and "Basic Metals Thinking"

The wartime boom was intense, yet it did not result in a complete or balanced transformation of the economy. There were serious problems during the war with overcrowded housing and schools and serious questions after the war concerning

21. See Nash, *World War Two and the West*, chap. 3, esp. pp. 44–45. For the history of the activities of Bechtel and Kaiser, see Mark S. Foster, *Henry J. Kaiser: Builder of the Modern American West* (Austin, 1989); Albert P. Heiner, *Henry J. Kaiser, American Empire Builder: An Insider's View* (New York, 1989); Latin McCartney, *Friends in High Places, the Bechtel Story: The Most Secret Corporation and How It Engineered the World* (New York, 1988); Joseph E. Stevens, *Hoover Dam: An American Adventure* (Norman, 1988); and Peter Wiley and Robert Gottlieb, *Empires in the Sun: The Rise of the New American West* (New York, 1982), esp. chap. 1.

whether the region would retain the industries and residents that it had gained. Without question, World War II generated powerful forces of change, but by focusing on its “four short years,” Nash’s treatment neglects the crucial challenges of solidifying the region’s growth in the immediate postwar period.

In contrast to his observation that the West emerged from the war with a new self-confidence, the actual picture was far more mixed. As the contemporary press noted, the prevailing opinion varied from deep pessimism that the depressed conditions would soon return to optimism that the “West was on its way.” The California State Reconstruction and Reemployment Commission regularly included in its reports a range of estimates about future conditions. For example, the population predictions in the report *Population Growth in California* included a low estimate of 8.3 million for 1947, below the 1945 level, and a high estimate of 9.2 million people.²²

As we now know, the predictions of moderate optimists proved true and conversion was easier than many, or most, anticipated. But this was itself largely due to the incomplete nature of the wartime boom. The boom had increased population, but wartime conditions had slowed economic adjustments needed to meet the enlarged civilian demands. Civilian construction during the war virtually stopped. As a result of the increased population and pent-up demand generated during the war, the state enjoyed a vigorous residential construction boom in the late 1940s. The number of building jobs increased by over 100,000, or by nearly sixty-five percent, between 1945 and 1948. Even larger and more immediate changes occurred in the trade and service sectors, which had grown little during the war. Almost 400,000 new jobs were created in these sectors during the same period, picking up much of the slack from the decline in the war industries.²³

In addition, there was a significant expansion of nonmilitary manufacturing in the postwar period as firms, led by branches

22. California State Reconstruction and Reemployment Commission, *Estimates of Population Growth in California, 1940–1950* (Sacramento, 1944), 31. Also see Margaret S. Gordon, *Employment Expansion and Population Growth: The California Experience, 1900–1950* (Berkeley, 1954), esp. 1–3, 60–62, 107–111.

23. California Division of Labor Statistics and Research, *Handbook of California Labor Statistics*, 18–20.

of eastern-based corporations, established new plants in the West or expanded existing facilities in order to supply the greatly enlarged local market. A glance back at Figure 2 shows the upsurge of branching activity after 1945. New branches, local start-up firms, and expanding existing enterprises all kept California's industrial investment boom going after the war. The California State Chamber of Commerce, which tracked new factory start-ups and plant expansions, estimated that in the four years from 1945 to 1948, \$1,069,000,000 of private capital was invested in California manufacturing facilities. This was divided fairly evenly between some 3,270 new factories (\$487 million was invested) and 3,160 plant expansions (\$582 million invested).²⁴

These figures are not directly comparable to the investments during the war period. The price level was higher in the postwar period. For example, the national implicit price deflator for nonresidential fixed investment increased about twenty-seven percent between 1941-1944 and 1945-1948. As a consequence, the real value of the later investment was lower. But several countervailing factors suggest that the postwar investments contributed more to the civilian economy. The wartime investments were concentrated in activities such as shipbuilding with limited peacetime economic value. The projects were often located in areas based on national security as opposed to economic reasons, and they were frequently constructed on a stepped-up time schedule at higher cost. These considerations are reflected in the sales prices that the federal government received after the war for its surplus plants. The War Assets Administration sold off the plants for, on average, less than half of the estimated cost of construction.²⁵

According to many contemporary observers, the most important wartime addition to the region's industrial capacity was the new basic metals sector. Prevailing opinion during the immediate postwar period embraced what might be termed "basic metals thinking," the idea that steel and other basic metals were the strategic building blocks of full industrialization. As Robert Elliott, a prominent Pacific Coast business observer put

24. California State Chamber of Commerce, "Postwar Industrial Growth in California."

25. Joseph B. Epstein, "War Surplus," *Survey of Current Business* (1947), 14.

it, steel was the “mother of industry.” In this view, the West’s key “war winnings” were the new integrated steel plants at Fontana, California, and Geneva, Utah, operated by Kaiser and U.S. Steel, respectively. And the crucial question of the postwar period, as Fortune magazine’s 1945 survey of the Pacific Coast noted, was “whether the mills would continue to operate?” Government and business leaders devoted considerable energy and attention to this question.²⁶ Both mills stayed open, run by the firms that served as wartime managers, but they made a much smaller direct contribution to the region’s industrialization than contemporaries anticipated.

California never developed into a center of production of either primary or fabricated metals. In 1958, the fraction of the state’s production workers in manufacturing employed in the Standard Industrial Classification (SIC) 33 category, primary metals industries, was only 4.2 percent, down from 4.7 percent in 1939, and the share in the SIC 34 category, fabricated metals, was only 7.4 percent, up from 7 percent in 1939. In sum, there was little overall change. Even the growth of machinery (excluding electrical equipment) was relatively small. The share of the SIC 35 category, nonelectrical machinery, increased only by about two percentage points from 4.7 percent in 1939 to 6.6 percent in 1958.²⁷ The key changes were in electrical and transportation equipment, particularly aircraft. The driving forces behind growth in these sectors were technological innovation and military demand, not improved access to metals.

The new steel industry failed to live up to the expectations of the “basic metals thinking” for a number of reasons. First, the mills were initially designed for a product mix concentrating on heavy steel plate suitable for building ships, but not for many industrial applications. Much of the output in the early postwar years went to construction projects such as oil pipelines. In contrast to the national picture, construction demand in the West greatly exceeded industrial demand for iron and steel.

26. See California State Reconstruction and Reemployment Commission, *The Steel and Steel-Using Industries of California*, by E. T. Grether, et al. (Sacramento, 1946); “Steel to Break Colonial Status of the West,” *Pacific Factory* (Aug. 1945); “Steel in the West,” *Fortune*, XXXI (Feb. 1945), 130–133.

27. These comparisons should be qualified because 1958 was a recession year.

Second, the establishment of the western mills did not lead to a significantly lower price structure until Kaiser's 1962 move to equalize prices. In 1947, Kaiser had deviated from the eastern structure by *raising* his prices during a gray-market period of steel shortages. Third, by the early 1960s, imported steel from Europe and Japan began to compete seriously with the western mills. Finally and probably most importantly, the contemporary observers were simply wrong about the direction the economy was taking. The "basic metals thinking" may have been appropriate for a U.S. region industrializing fifty years earlier, but it was anachronistic by 1947.²⁸

VI. Wartime Growth, Diversification, and Structural Change

Although World War II vastly increased employment and fostered a new metals sector, it did not lead to measurable diversification or rapid structural change in the California economy. Most of the wartime employment increases were in aircraft and shipbuilding. In fact, the manufacturing sector and the entire labor force became more specialized, not more diversified. This is illustrated in Table 8 which shows the movements in two commonly used measures of regional diversification, the Herfindahl-Hirschman index and the Ogive index.²⁹ For both indices, higher values imply greater specialization or industrial concentration. Diversification, of course, has many dimensions and cannot be completely summarized in any single statistic. These statistics can, at best, give a sense of the general

28. Kenneth Warren, *The American Steel Industry, 1850-1970: A Geographic Interpretation* (Pittsburgh, 1973), 244-248, 263-277.

29. The Herfindahl-Hirschman index is calculated as the sum of the squares of the employment shares. As a result, it places relatively heavy weight on large shares. With n categories, the HH index ranges between $1/n$ —if all n categories have equal shares—and unity—if there is complete specialization in a single activity.

The Ogive measure is related to the Gini index and is calculated as the sum of the category's employment share multiplied by its rank, from smallest to largest category, and then divided by the total number of categories. With n categories, the OG index ranges between $(n+1)/(2*n^2)$ —if all n categories have equal shares—and unity—if there is complete specialization in a single activity.

For surveys of the diversification measures, see Roy W. Bahl, Robert Firestone, and Donald Phares, "Industrial Diversity in Urban Areas: Alternative Measures and Intermetropolitan Comparisons," *Economic Geography*, XCVII (1971), 414-425; and Michael E. Conroy, *Regional Economic Growth: Diversification and Control* (New York, 1975), 8-14.

Table 8: Measures of Regional Diversification of the California Economy

<i>Labor Force Herfindahl- Hirschman</i>			<i>Manufacturing Herfindahl- Hirschman</i>		
	<i>Ogive</i>			<i>Ogive</i>	
Annual			Annual		
1940	0.157	0.735	1940	0.093	0.791
1941	0.156	0.734	1941		
1942	0.165	0.750	1942		
1943	0.183	0.771	1943	0.309	0.884
1944	0.176	0.764	1944	0.271	0.870
1945	0.161	0.745	1945	0.181	0.837
1946	0.154	0.734	1946	0.100	0.778
1947	0.154	0.732	1947	0.091	0.770
1948	0.153	0.739	1948	0.089	0.769
1949	0.153	0.730	1949		
1950	0.153	0.729	1950		
Census					
1930	0.124	0.739	1929	0.107	0.737
1940	0.134	0.760	1939	0.112	0.748
1950	0.131	0.747	1947	0.094	0.734
1960	0.145	0.783	1958	0.113	0.757

See text for derivation of indices. For data, see Tables 9 and 10 and California Division of Labor Statistics and Research, *Handbook of California Labor Statistics, 1951-1952* (San Francisco, 1953), 21-23.

direction of movement. Yet, I would argue, it is much better to examine imperfect statistics than to make qualitative statements about fundamentally empirical questions without exploring the quantitative evidence.

Let us turn to the data, first considering the annual figures. These cover civilian employment by major industrial category and employment of manufacturing production workers by SIC category for 1940 and 1943 to 1948. All series clearly indicate that the California economy became more specialized during the war, contrary to Nash's frequent assertions about the experience of the West. As war production wound down after 1943, diversification did increase, but the economy was only marginally less specialized at the end of the 1940s than it was at the beginning. The longer-term census data indicate that the trend

over the 1930 to 1960 period was toward greater specialization. Thus, arguments linking the war with diversification seem far off the mark for California.

The war's long-run impact on the structure of the California economy also appears limited. In order to examine this issue, it is useful to analyze changes in the employment shares in manufacturing and the labor force as a whole. Table 9 shows the shares of employment in manufacturing by major SIC

Table 9: California Manufacturing Employment Shares by Standard Industrial Classification Categories, 1929–1958

<i>SIC Categories</i>	<i>1929</i>	<i>1939</i>	<i>1947</i>	<i>1958</i>
20 Food	25.0	26.0	17.9	13.2
22 Textiles	2.1	1.7	0.9	0.6
23 Apparel	7.1	8.2	7.3	6.3
24 Lumber	12.0	8.9	6.7	6.5
25 Furniture	3.7	3.6	3.1	2.4
26 Paper	1.6	2.0	1.9	2.2
27 Printing	6.2	5.9	4.6	4.0
28 Chemicals	2.5	3.6	3.6	2.7
29 Petroleum	3.1	3.5	3.2	1.9
30 Rubber Products	2.4	1.8	2.2	1.7
31 Leather	0.8	0.9	0.9	0.7
32 Stone/Clay/Glass	5.2	4.1	4.5	3.5
33 Primary Metals	5.0	4.7	4.9	4.2
34 Fabricated Metals	4.6	7.0	8.6	7.4
35 Non-Electrical Machinery	6.8	4.7	7.6	6.6
36 Electrical Machinery	2.2	1.4	2.7	4.9
37 Transportation Equipment	5.3	9.7	16.3	25.6
39 Miscellaneous	1.8	1.5	2.1	4.4
All Other	2.7	0.8	1.2	1.3

Sources: U.S. Bureau of the Census, *Census of Manufacturers: 1958*, vol. 3: *Area Statistics* (Washington, D.C., 1961), 4/9–12; *Census of Manufacturers: 1947*, vol. 3: *Statistics by States* (Washington, D.C., 1950), 92; *Fifteenth Census of the United States, Manufactures: 1929*, vol. 3: *Reports by States* (Washington, D.C., 1933), 66–68. The 1929 data are allocated among SIC categories as described in my paper, “California’s Emergence as the Second Industrial Belt: Patterns and Processes of Manufacturing Growth” (Oct. 1991).

Natural Resource-based industries are grouped in SIC categories 20, 24, 29, 31–33. Categories 24, 25, 32–39 include durable good industries.

category for 1929, 1939, 1947, and 1958. Between 1939 and 1947, natural resource-based industries declined in importance from about fifty percent of employment to about forty percent and the durable goods share in employment rose from forty-five percent to about fifty-five percent.³⁰ Equally significant shifts occurred in the 1950s, so this did not represent a one-time change resulting from the war. We can quantify the extent of the structural change using a shift-in-shares index, which measures the fraction of the labor force that would have to be reallocated at the end of the period to replicate the structure at the beginning of the period.³¹ The same proportion of the manufacturing labor force (fourteen percent) was reallocated over the 1947–1958 period as during the 1939–1947 period.

Changes in the overall structure of the economy during the 1940s were not as dramatic as a reading of *World War II and the West* or the *American West Transformed* would lead one to believe. Table 10 shows the distribution of the California labor force by major industrial category from 1930 to 1960. The distribution in 1950 is remarkably close to that in 1940. In no case is the shift more than 3.5 percent of the total. Based on the shift-in-shares measure, the reallocation in the 1940s (9 percent in California) was smaller than that experienced in the nation as a whole for that decade (9.4 percent) or by the state itself over the 1950s (10.8 percent). The recognition that the war did not fundamentally alter the region's economic structure is not new. As the San Francisco Federal Reserve Bank noted in 1949, "the distribution of workers among major industry groups is now not markedly different than before the war. Little trace remains of the wartime pattern of employment..."³² In summary, an evaluation of the quantitative evidence on diversification and structural change simply does not jibe with sweeping assertions about the region's transformation.

30. As some contemporary observers noted, the change did not imply the economy became more stable as a result of diversification. The durable goods sector was generally more cyclically volatile, so these changes may have contributed to instability in the short run. Some of the major durable goods industries, such as military aircraft, were not highly cyclical, but suffered from secular volatility due to policy shifts, the outbreak of war, and so forth.

31. The shift-in-shares measure is calculated as the sum of positive changes in labor force shares across sectors between two dates.

32. The Federal Reserve was analyzing the Twelfth District as a whole, and it did note that although the manufacturing share of employment was roughly the same as before the war, durable production had become increasingly important.

Table 10: Distribution of the California Labor Force by Major Industrial Category, 1930–1960

<i>Shares</i>	<i>1930</i>	<i>1940</i>	<i>1950</i>	<i>1960</i>
Agriculture	13.8	11.0	7.5	4.7
Forestry & Fishing	0.6	0.3	0.3	0.2
Mining	2.1	1.8	0.8	0.4
Construction	6.5	6.1	7.4	6.3
Manufacturing	17.0	16.7	18.9	24.0
Transportation	8.1	8.0	8.1	6.8
Trade	17.4	22.1	21.7	18.8
FIRE ¹	5.2	4.8	4.4	5.0
Public Administration	3.1	4.0	6.1	6.0
Professional Service	8.2	8.7	9.7	12.4
Other Service	15.6	14.9	11.2	10.7
Not Reported (Incl. Military)	2.5	3.2	5.4	9.4

Source: U.S. Department of Commerce, *Regional Employment by Industry, 1940–1970* (Washington, D.C., 1974).

¹FIRE means Financial, Insurance, and Real Estate.

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The Second World War changed urban California. It would be hard to find a region anywhere in the world that did not feel the war's effects. Assessing the impact of the war is especially difficult because it came on the heels of the Great Depression. The more rapid than normal growth of the early 1940s appears extraordinarily dramatic in comparison with the slower growth of the 1930s. Based on a study of the region's economic history over the twentieth century, this paper rejects the view that the Second World War single-handedly pushed California from one stage of development, as a mordant, dependent region, to another stage, as a pacesetter, developed economy. It argues, instead, that by 1940 the state possessed an internal dynamic of development and that the wartime expansion was the result of this economic dynamism, not its cause. The Second World War did not make urban California an advanced, pacesetter region. It already was one.

See "The West Grows," *Pacific Factory* (Jan. 1949), 40. At the same time, a writer in *Western Industry* (Jan. 1949), 29, observed that "the Western movement of population was not war-made, but merely an acceleration of a long-time trend."