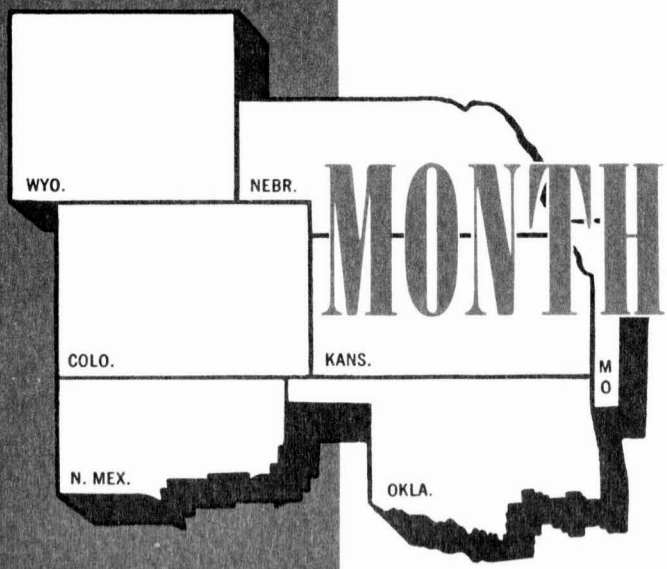
May-June 1966



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POPULATION GROWTH IN THE STATES OF THE TENTH FEDERAL RESERVE DISTRICT, 1940 TO 1964

By Glenn H. Miller, Jr.

POPULATION ESTIMATES

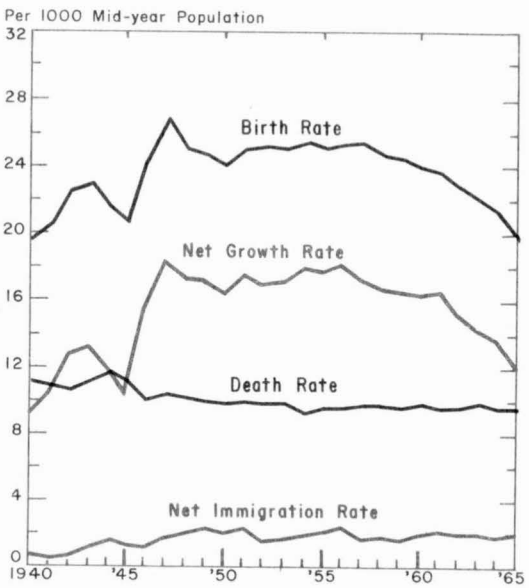
Total Population of the United States

THE TOTAL population of the United States (including members of the Armed Forces stationed abroad)[1] has grown from about 132 million at the beginning of 1940 to about 195.8 million at the beginning of 1966. This population increase, however, has not been at a constant rate. The annual net growth rate was generally increasing in the period 1940-47, generally stable for the years 1948-56, and clearly declining in the period 1957-65, as shown in Chart 1.

The components of national net population growth are natural increase and civilian immigration. Net civilian immigration has contributed only slightly to U. S. population growth since 1940. It was unusually high in 1956, however, primarily because of the admission of many displaced persons under the

Chart 1

ANNUAL RATES OF NET POPULATION GROWTH, BIRTHS, DEATHS, AND NET IMMIGRATION: UNITED STATES, 1940-65



SOURCE: U.S. Bureau of the Census, **Current Population Reports: Population Estimates,** Series P-25, No. 331, March 22, 1966, p. 1.

[1] Census Bureau estimates of population are presented according to three concepts: (1) total resident population, which includes residents of the 50 states, the District of Columbia, outlying areas under U. S. sovereignty or jurisdiction, and other U. S. citizens living abroad; (2) total population including Armed Forces abroad, which is the total resident population plus members of the Armed Forces stationed in foreign countries and the outlying areas; (3) civilian resident population, which is the total resident population less the Armed Forces stationed in the United States. Source of these definitions, as well as the data on total U. S. population is the U.S. Bureau of the Census, **Current Population Reports, Population Estimates,** Series P-25, No. 331, March 22, 1966.

Refugee Relief Act, and again in the early 1960's, largely because of a heavy influx of Cuban refugees. Much more important to the over-all net growth rate is the rate of natural population increase. After some small decline from the levels of the 1940's, the U. S. death rate since 1953 fluctuated with no apparent trend. In this latter period especially (and to only a slightly lesser extent in the earlier period), changes in the over-all net growth rate were, therefore, most dependent on changes in the birth rate. For example, the decreasing over-all rate of population growth since 1956 resulted primarily from the falling birth rate. (In 1957, the birth rate was 25.2 per 1,000 population; in 1965, it was 19.6 per 1,000 population.)

Civilian Resident Population of Tenth Federal Reserve District States

Estimates of the population of states include estimates of population change for periods shorter than the 10 years between censuses, as well as estimates of the major components of change—net natural increase, net civilian interstate migration, and net movement to and from the Armed Forces. Table 1 contains estimates of the civilian resident population of the United States and of the seven states that lie wholly or partly within the Tenth Federal Reserve District, for selected dates from 1940 to 1964. Per cent changes in civilian resident populations of these areas appear in Table 2.

The dates used were selected in the following manner: census counts taken every 10 years give the population as of April 1 of the census years, although annual population estimates are made as of July 1 of each year between censuses. In presenting population data for the 1940's, the Bureau of the Census divided the decade into a prewar period (April 1, 1940, to July 1, 1942); a war period (July 1, 1942, to July 1, 1945); and a postwar period (July 1, 1945, to April 1, 1950). These periods are used in this article. The April 1, 1960, to July 1, 1964, period also is the result of a Census Bureau choice. The Bureau estimated the components of state population change for this period and, since the ultimate purpose of this article is to discuss the relationship between economic activity and the components of population change, this period also is accepted here.

For the 1950's, the components-of-change data are available on an annual basis, thus giving some flexibility in the choice of periods. Since July 1953 and July 1957 were business cycle peak months, the decade was divided into the following three periods: April 1, 1950, to July 1, 1953, which includes most of the Korean war period; July 1, 1953, to July 1, 1957, a peak-to-peak business cycle; and July 1, 1957, to April 1, 1960, which very

Table 1

CIVILIAN RESIDENT POPULATION, IN THOUSANDS: UNITED STATES AND STATES OF THE TENTH DISTRICT, TOTAL FOR SELECTED DATES, 1940-64

Unit	April 1, 1940	July 1, 1942	July 1, 1945	April 1, 1950	July 1, 1953	July 1, 1957	April 1, 1960	July 1, 1964
United States	131,391	130,942	127,573	150,219	156,595	169,110	177,472	189,371
Tenth District States	11,124	10,683	9,962	11,636	11,797	12,619	13,095	13,725
Missouri	3,784	3,744	3,440	3,952	3,980	4,151	4,286	4,441
Nebraska	1,314	1,234	1,168	1,322	1,313	1,381	1,396	1,451
Kansas	1,797	1,729	1,646	1,887	1,950	2,086	2,141	2,189
Oklahoma	2,331	2,166	1,934	2,218	2,149	2,246	2,295	2,424
Wyoming	246	231	227	282	278	308	327	333
Colorado	1,120	1,089	1,055	1,307	1,399	1,625	1,723	1,896
New Mexico	532	490	492	668	728	822	927	991

SOURCE: U. S. Bureau of the Census, **Current Population Reports,** Series P-25.

Table 2

ESTIMATED PER CENT CHANGE IN CIVILIAN RESIDENT POPULATION: UNITED STATES, TENTH DISTRICT STATES, AND TENTH DISTRICT TOTAL, FOR SELECTED PERIODS, 1940-64

Unit	Apr. 1, '40 to July 1, '42	July 1, '42 to July 1, '45	July 1, '45 to Apr. 1, '50	Apr. 1, '50 to July 1, '53	July 1, '53 to July 1, '57	July 1, '57 to Apr. 1, '60	Apr. 1, '60 to July 1, '64
United States	−0.3	−2.6	+17.3	+4.2	+8.0	+4.9	+6.7
Tenth District States	−4.0	−6.7	+16.8	+1.4	+7.0	+3.8	+4.8
Missouri	−1.1	−8.1	+14.9	+0.7	+4.3	+3.2	+3.6
Nebraska	−6.2	−5.3	+13.2	−0.7	+5.2	+1.1	+4.0
Kansas	−3.8	−4.8	+14.6	+3.3	+7.0	+2.6	+2.2
Oklahoma	−7.1	−10.7	+14.7	−3.1	+4.5	+2.2	+5.6
Wyoming	−6.1	−1.7	+24.2	−1.4	+10.4	+6.5	+1.8
Colorado	−2.8	−3.1	+24.0	+7.0	+16.2	+6.0	+10.0
New Mexico	−7.9	+0.4	+35.8	+9.0	+12.9	+12.8	+6.9

SOURCE: U. S. Bureau of the Census, **Current Population Reports,** Series P-25.

nearly coincides with another peak-to-peak business cycle. (The actual second peak month was May 1960.)

COMPONENTS OF POPULATION CHANGE

April 1, 1940, to April 1, 1950

Estimates of the civilian resident population and of changes therein for the decade of the 1940's are influenced especially by movement into and out of the Armed Forces, as well as by the mobility of the civilian population and net natural population increase (Table 3). In the first half of the decade, net movement into the Armed Forces was large enough for the United States as a whole to more than offset the net natural increase and the net immigration, thus reducing the Nation's civilian resident population. During the same period, each of the states of the Tenth District except New Mexico lost more population to the Armed Forces and through net emigration than it gained through net natural increase, with the result that those states had net reductions in their civilian resident populations. (Only the Pacific Coast States and a few South Atlantic and Mountain States gained enough population through interstate migration in those years to offset their losses to the Armed Forces and produce a net increase in their civilian resident populations.) Furthermore, with the exception of Wyoming and New Mexico from 1942 to 1945, the decline in civilian resident population in Tenth District states was relatively greater than the U. S. rate of decline (Table 2).

In the later years of the 1940's, which included the end of World War II and preceded the beginning of hostilities in Korea, the flow of men from the Armed Forces to civilian life was the most important factor in the net change in civilian resident population of the United States and of the states of the Tenth District. During this time, four District states—Missouri and the three Mountain States of Wyoming, Colorado, and New Mexico—experienced positive net civilian migration while the three Plains States—Nebraska, Kansas, and Oklahoma—continued to have net emigration of civilian population. However, even in those instances, the return of servicemen and the net natural increase of population provided an offsetting influence, so that all District states had net increases in their civilian resident populations in the period July 1, 1945, to April 1, 1950. In addition, the percentage increase in civilian population in the three Mountain States was above that for the United States in this period.

April 1, 1950, to April 1, 1960

U. S. ground forces entered the Korean war at the end of June 1950, and the armistice ending the fighting was agreed upon near the

Table 3

ESTIMATES OF COMPONENTS OF CHANGE IN CIVILIAN RESIDENT POPULATION, IN THOUSANDS: UNITED STATES AND STATES OF THE TENTH DISTRICT, FOR SELECTED PERIODS, 1940-64

	April 1, 1940—July 1, 1942				July 1, 1942—July 1, 1945				July 1, 1945—April 1, 1950				
	Net Population Change	Net Natural Inc.	Net Civilian Migration	Net Movement Armed Forces*	Net Population Change	Net Natural Inc.	Net Civilian Migration	Net Movement Armed Forces*	Net Population Change	Net Natural Inc.	Net Civilian Migration	Net Movement Armed Forces*	
United States	−449	+2,878	+150	−3,477	−3,369	+4,808	+557	−8,735	+22,061	+10,050	+1,268	+10,743	United States
Tenth District States													Tenth District States
Missouri	−40	+62	−9	−92	−304	+97	−162	−238	+512	+203	+22	+288	Missouri
Nebraska	−81	+23	−74	−30	−66	+38	−29	−75	+154	+84	−21	+91	Nebraska
Kansas	−68	+29	−52	−45	−83	+54	−24	−113	+241	+113	−10	+137	Kansas
Oklahoma	−166	+71	−180	−57	−231	+99	−187	−143	+284	+162	−47	+168	Oklahoma
Wyoming	−15	+8	−16	−7	−4	+11	−2	−14	+55	+22	+11	+22	Wyoming
Colorado	−31	+26	−29	−29	−34	+40	−4	−71	+253	+96	+72	+85	Colorado
New Mexico	−42	+24	−51	−15	+2	+35	+6	−39	+176	+74	+57	+44	New Mexico

*Minus sign indicates net movement **into** the Armed Forces; plus sign, net movement **out of** the Armed Forces.
SOURCE: U. S. Bureau of the Census, **Current Population Reports,** Series P-25.

end of July 1953. Therefore, the period April 1, 1950, to July 1, 1953, encompasses the Korean war mobilization and most of the time of active military operations, but none of the demobilization following the end of hostilities. The period's end also approximately coincides with a business cycle peak.

Because of the Korean war, this period was again one of net movement into the Armed Forces for the United States and for all of the Tenth District states. In three of those states —Nebraska, Oklahoma, and Wyoming—the net movement into the Armed Forces combined with large enough net civilian emigration to give reductions in net civilian resident population for the period. Although Missouri and Kansas also experienced net civilian emigration, net natural population increase in those states was sufficient to result in net increases in their civilian resident populations, although at less than the national rate. On the other hand, the rate of civilian population increase in Colorado and New Mexico in the early 1950's was above that for the United States.

The peak-to-peak business cycle of July 1953 to July 1957 corresponds with the period from July 1, 1953, to July 1, 1957. Since the close of the Korean war and the associated demobilization fell in these years, it was a period in which there was again a net movement out of the armed services in the United States and in the District states. Although there was civilian migration out of Missouri and the three Plains States, net natural population increases were sufficient to give these states, as well as the three Mountain States, net increases in civilian resident population for the period. Only the Mountain States, however, surpassed the United States in percentage increase in civilian population in the middle 1950's.

The remaining portion of this decade, from July 1, 1957, to April 1, 1960—which approximates the peak-to-peak business cycle of July 1957 to May 1960—was similar to the period immediately preceding in the behavior of the components of population change both for the United States and for the District states. Again there was net movement out of the Armed Forces for all District states, net civilian migration out of Missouri and the three Plains States, and a net increase in civilian resident population for every District state. And again only the three Mountain States had percentage increases in civilian population greater than that of the United States.

April 1, 1960, to July 1, 1964

Mounting pressures of the cold war and a modification of the U. S. military posture made the early 1960's a period in which there was again net movement of population from

Table 3 (Continued)

ESTIMATES OF COMPONENTS OF CHANGE IN CIVILIAN RESIDENT POPULATION, IN THOUSANDS: UNITED STATES AND STATES OF THE TENTH DISTRICT, FOR SELECTED PERIODS, 1940-64

April 1, 1950—July 1, 1953				July 1, 1953—July 1, 1957				July 1, 1957—April 1, 1960				April 1, 1960—July 1, 1964			
Net Population Change	Net Natural Inc.	Net Civilian Migration	Net Movement Armed Forces*	Net Population Change	Net Natural Inc.	Net Civilian Migration	Net Movement Armed Forces*	Net Population Change	Net Natural Inc.	Net Civilian Migration	Net Movement Armed Forces*	Net Population Change	Net Natural Inc.	Net Civilian Migration	Net Movement Armed Forces*
+6,375	+7,590	+908	−2,123	+12,516	+10,523	+1,306	+687	+8,362	+7,280	+758	+324	+11,899	+10,531	+1,595	−226
+28	+148	−56	−64	+171	+207	−64	+28	+135	+144	−19	+9	+155	+197	−37	−5
−9	+66	−51	−23	+68	+83	−26	+10	+15	+54	−44	+5	+56	+81	−25	−1
+63	+93	−1	−29	+136	+136	−10	+9	+54	+89	−40	+7	+48	+114	−63	−3
−69	+104	−143	−31	+97	+128	−38	+7	+49	+83	−40	+7	+128	+117	+14	−2
−4	+19	−19	−4	+29	+24	+4	+1	+20	+16	+4	0	+6	+23	−18	0
+91	+79	+31	−18	+226	+110	+113	+2	+98	+77	+20	+2	+173	+119	+56	−2
+60	+63	+6	−9	+94	+88	+5	+1	+105	+68	+38	0	+64	+101	−36	−2

civilian life into the armed services. Such was the case for the Tenth District states, as well as for the United States. In each District state, net natural population increase was large enough to assure a net increase in civilian resident population. However, there was net emigration of civilian population from Missouri, Nebraska, Kansas, Wyoming, and New Mexico, and the only District states with higher rates of increase in civilian population than the United States were Colorado and New Mexico.

ECONOMIC CHANGE AND POPULATION GROWTH

Employment Opportunities and Population Migration

The economist's concern with the labor input to the productive process leads to a concern with concepts and aggregates such as the civilian labor force and civilian employment, which are related closely to the civilian resident population—the population measure emphasized in this article. The over-all size of the Armed Forces (in number of personnel) and changes therein are determined by the extent of the Nation's military needs and commitments. The primary economic influence (on the supply side) of net movements of men into and out of the Armed Forces is their impact on the size of the civilian population and the civilian labor force. This is true both for the United States and for the individual states. Interstate shifts of military personnel also apparently have a slight influence on the interstate migration of civilian population, since movements of civilian dependents tend to coincide with military personnel movements,[2] and since employment in industries serving local markets is likely to be affected by such movements.

Interstate differences in population growth rates are not primarily dependent on interstate differences in the rate of net natural population increase, since the variations between states in birth rates and death rates are relatively slight. Temporary accelerations and retardations in birth rates as business conditions improve and deteriorate may result in some short-run variations in the rate of net natural population increase. But natural population growth, and changes in its rate, more often are thought to be related to long-run patterns of social and economic change. Thus, when consideration is focused on the short-run response of population change to short-run economic change at the state level, it is the third component of population change

[2] Cicely Blanco, "The Determinants of Interstate Population Movements," **Journal of Regional Science,** Vol. 5, No. 1 (Summer 1963), p. 78.

Table 4

ESTIMATED ANNUAL AVERAGE NET CIVILIAN MIGRATION, IN THOUSANDS; AND ANNUAL AVERAGE RATE OF NET CIVILIAN MIGRATION (NUMBER OF EMIGRANTS PER THOUSAND POPULATION AT BEGINNING OF PERIOD): STATES OF THE TENTH DISTRICT, FOR SELECTED PERIODS, 1940-64

	Apr. 1, '40 to July 1, '42		July 1, '42 to July 1, '45		July 1, '45 to Apr. 1, '50		Apr. 1, '50 to July 1, '53		July 1, '53 to July 1, '57		July 1, '57 to Apr. 1, '60		Apr. 1, '60 to July 1, '64		Apr. 1, '40 to July 1, '64	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Missouri	−4.0	−1.1	−54.0	−14.4	+4.6	+1.3	−17.2	−4.4	−16.0	−4.0	−6.9	−1.7	−8.7	−2.0	−13.4	−3.5
Nebraska	−32.9	−25.0	−9.7	−7.9	−4.4	−3.8	−15.7	−11.9	−6.5	−5.0	−16.0	−11.6	−5.9	−4.2	−11.1	−8.4
Kansas	−23.1	−12.8	−8.0	−4.6	−2.1	−1.3	−0.3	−0.2	−2.5	−1.3	−14.5	−7.0	−14.8	−6.9	−8.2	−4.6
Oklahoma	−80.0	−34.3	−62.3	−28.8	−9.9	−5.1	−44.0	−19.8	−9.5	−4.4	−14.5	−6.5	+3.3	+1.4	−25.6	−11.0
Wyoming	−7.1	−28.9	−0.7	−3.0	+2.3	+10.1	−5.8	−20.6	+1.0	+3.6	+1.5	+4.9	−4.2	−12.8	−1.5	−6.1
Colorado	−12.9	−11.5	−1.3	−1.2	+15.2	+14.4	+9.5	+7.3	+28.2	+20.2	+7.3	+4.5	+13.2	+7.7	+10.7	+9.6
New Mexico	−22.7	−42.7	+2.0	+4.1	+12.0	+24.4	+1.8	+2.7	+1.2	+1.6	+13.8	+16.8	−8.5	−9.2	+1.0	+1.9

SOURCE: U. S. Bureau of the Census, **Current Population Reports,** Series P-25.

—net interstate civilian migration—that claims the analyst's attention.

In a recent publication of the National Planning Association, it is asserted that "the spectacular mobility of the U. S. population reflects to a large extent the search for improved economic opportunity," a search that is "primarily related to the search for employment . . . ." As a result, "extremely close relationships are found between unemployment, population, and labor force changes."[3] A more direct and explicit statement about these relationships is the following:

> There seems to be fairly general agreement among economists who have investigated population movements in the United States that the availability of jobs is the principal factor which determines the amount and the direction of interstate migration.[4]

For example, by far the largest share of the variation in the rate of civilian migration between states in the period 1950-57 may be explained by changes in regional unemployment. Where increases in job opportunities did not match the natural population increase, net outward migration occurred.[5]

An appreciation of the relationship between employment opportunities and interstate migration may be enhanced by looking at the experience of a region that has benefited from the migration process—one with net inward migration. During the last 25 years, the Pacific Coast area, and especially the state of California, has been such a region. The following three sets of conclusions may be drawn from a study of the California experience made by Margaret S. Gordon.[6]

1. Although population growth is not necessarily the same thing as labor force growth, recent rapid population growth in the Pacific Coast region has been accompanied by "almost equally rapid growth of the labor force," indicating that population migration includes a sufficient number of individuals actively seeking work so that it is representative of labor force migration. The Pacific Coast experience also supports the hypothesized relationship between employment opportunity and interstate migration.

> Marked fluctuations in population growth and in net immigration have been associated with pronounced variations in the rate of employment expansion.[7]

Furthermore, as the rate of immigration began to surpass the rate of expansion of employment, thus making job prospects less

[3] National Planning Association, **Looking Ahead,** Vol. 13, No. 10 (January 1966), p. 2.
[4] Blanco, p. 77.
[5] **Ibid.,** pp. 78-79.
[6] Margaret S. Gordon, "Immigration and Its Effect on Labor Force Characteristics," **Monthly Labor Review,** Vol. 82, No. 5 (May 1959), pp. 492-501.
[7] **Ibid.,** p. 495.

favorable, the net immigration rate slowed down. Above-average rates of employment opportunity and geographical wage differentials favoring the region with rapid employment expansion are complementary factors, rather than factors that occur separately. As such, they are complementary rather than alternative sources of "pull" for migrants.

2. Periods of rapid employment expansion in a region are almost necessarily also periods of rapid expansion of general economic activity. Therefore:

> The periods of heaviest immigration have been associated with periods of unusually rapid economic development, when the rate of economic expansion in the State [California] has exceeded that of the Nation.[8]

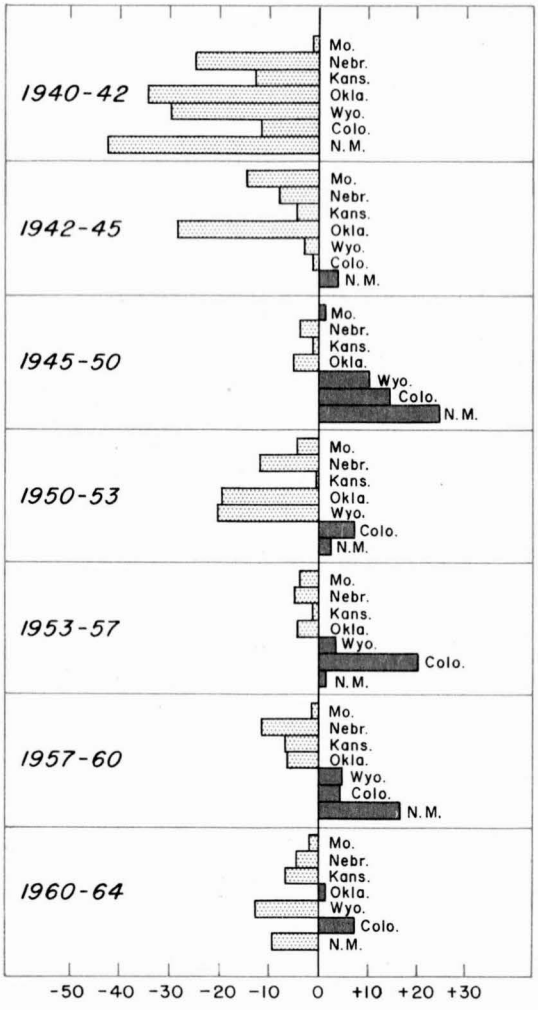
Economic growth depends heavily on the results of investment decisions, including decisions on where to locate new plants and whether to expand existing capacity. Thus, it is not surprising to find that "the periods of unusually rapid economic development have been associated with the exploitation of unusually favorable investment opportunities in California."[9]

Many of those investment opportunities were due to the region's specific locational advantages, especially in war-related activities. Expansion of industries having specific locational advantages, in turn, stimulates a growth of employment in footloose industries and in industries serving local markets, such as trade and service activities and residential construction. The exploitation of favorable investment opportunities in a growing region also tends to bring certain associated consequences, including substantial changes in the industrial distribution of employment.

3. Within the state of California, most employment opportunities and, hence, most of the population growth were found in the urban centers. Since California had a relatively small rural population, it had to draw population and labor force from outside the state to man its urban-located new industry. Similar

Chart 2

ANNUAL AVERAGE RATE OF NET CIVILIAN MIGRATION (NUMBER OF EMIGRANTS PER THOUSAND POPULATION AT BEGINNING OF PERIOD), BY STATES OF TENTH DISTRICT, FOR SELECTED PERIODS, 1940-64



SOURCE: U. S. Bureau of the Census, **Current Population Reports,** Series P-25.

[8] **Ibid.,** p. 500.
[9] **Ibid.**

urban-based economic growth in predominantly agricultural states probably would lead to more intrastate migration from farm to city, as apparently was true in the Pacific Coast States of Washington and Oregon.

Migration Experience of the Tenth District States

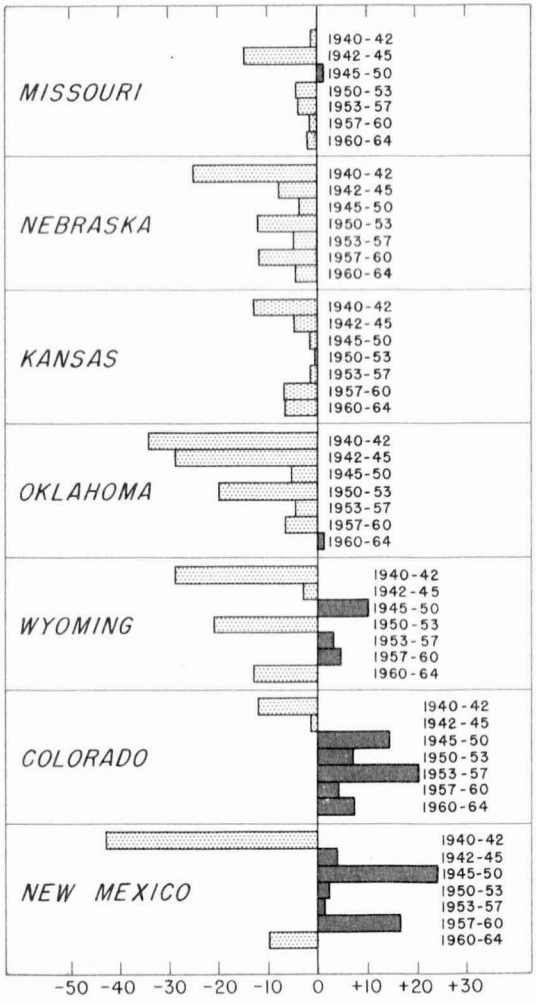
In the early years of the 1940's, which saw the depression's end merge into a mobilization economy, all seven states of the Tenth Federal Reserve District had negative net migration of civilian population, though in varying amounts and at varying rates. (See Table 4 and Chart 2 for numbers of migrants and migration rates.) Net emigration continued during the war years, except from New Mexico where a small immigration occurred. The only District state with a higher emigration rate during the war than immediately preceding was Missouri. In the remaining years of the 1940's, the three Mountain States all had substantial rates of net immigration of civilian population and Missouri had a smaller positive rate, while the rates of net outflow from the three Plains States were considerably below those of the first half of the decade.

Between 1950 and 1960, 20 states grew faster than the U. S. average, while 30 grew more slowly. Most of the interstate variation in population growth rates was due to substantial differences in net interstate migration, and the predominant population movement was toward the Western States. The Tenth District states of Colorado, New Mexico, and—except for the 1950 to 1953 period—Wyoming reflect this westward movement in their positive rates of interstate migration for the decade (Table 4 and Chart 2). Net emigration of civilian population was the lot of the other four District states during the 1950's.

Increased production of military hard goods during the Korean war and related industrial expansion attracted population from less industrialized areas to leading manufacturing centers. This pattern apparently is reflected in the migration rates of all the District states in the period from 1950 to 1953, when com-

Chart 3

ANNUAL AVERAGE RATE OF NET CIVILIAN MIGRATION (NUMBER OF EMIGRANTS PER THOUSAND POPULATION AT BEGINNING OF PERIOD), BY SELECTED PERIODS, 1940-64, FOR STATES OF TENTH DISTRICT



SOURCE: U. S. Bureau of the Census, **Current Population Reports,** Series P-25.

pared with the 1945 to 1950 period. For all states but Kansas, the migration rate either turned from positive to negative, fell from a higher to a lower positive rate, or moved from a lower to a higher negative rate. The rate for Kansas, however, changed from a higher to a lower negative rate, probably because of the importance of military aircraft production in that state.

The remainder of the 1950's included two recessions and two weak expansion periods, which combined to make it a time of relatively slow national economic growth. Although the Western States of the United States (and especially California, Nevada, Arizona, and Colorado) showed sizable net immigration rates throughout the decade, there was an over-all slowing down of net interstate migration. The reduced intensity of over-all migration was composed of lower rates of immigration for those states earlier experiencing positive net migration, and lower rates of emigration from those states with prior negative net migration. This behavior is best depicted for the District states by the period 1953 to 1957, for which the indicators of population migration on Chart 2 cluster around the line of zero net migration—except, of course, for Colorado's relatively high rate of net immigration.

The period April 1, 1960, to July 1, 1964, includes the brief, mild recession of May 1960 to February 1961 and the first 40 months of the Nation's longest peacetime expansion. The western part of the United States continued to grow rapidly, with Colorado and six other Western States growing more rapidly in population than the Nation. Thirty states—five of them Tenth District states—experienced net loss of population through migration. Colorado and Oklahoma were the only District states with net inflows of civilian population during the period.

Summary

Higher wages and better opportunities for employment in regions with comparatively more rapid growth in economic activity tend to attract labor force and population. As a result, there is an outflow of population from states experiencing slower economic growth, and, consequently, a slower increase in job opportunities.

The over-all westward movement of U. S. population during the last quarter century is represented among the states of the Tenth Federal Reserve District by the preponderance of periods of net civilian immigration into Colorado and New Mexico, and, to a lesser extent, into Wyoming. During the same period, the search for employment led to net emigration of civilian population from the Plains States of Nebraska, Kansas, and Oklahoma, as well as from Missouri, although the rate of flow of migrants to and from Missouri was nearly in balance for most of the era (Chart 3).

The District Economy in Perspective

By Richard F. Young

From May 1960 to February 1961, the Nation experienced a downturn in economic activity, while conditions in the Tenth Federal Reserve District remained relatively favorable. In the expansion since February 1961, however, the District has not matched national rates of economic advance. The observation that the employment of factor inputs registers greater declines in the Nation than in the District during recessionary periods, coupled with the fact that the District has not shared to the full extent in the current national expansion, serve as the basis for characterizing the District economy as relatively stable.

It should be emphasized that stability is related to fluctuations in economic activity, rather than to rates of increase. The District economy has not been dormant. It has grown considerably, but has not matched the tempo of the more rapidly advancing national economy. For example, from 1964 to 1965 the rate of growth in the District labor force was only .4 per cent, as opposed to 1.9 per cent for the Nation, and the rate of growth in District personal income was almost 2 per cent less than that of the Nation. On the other hand, the District unemployment rate continues to remain below that of the Nation. In 1965, District unemployment averaged 3.7 per cent of the labor force, as compared to 4.6 per cent for the Nation. This lower District rate is explained in part, however, by the fact that the labor force has been growing more slowly in the District and, therefore, fewer new jobs are needed to reduce the rate of unemployment.

In attempting to bring the issue of relative stability into clearer perspective, this article focuses attention on District and national manufacturing activity—both in the aggregate and for selected durable and nondurable goods manufacturing industries—from 1959 through 1965. In addition, the article examines the composition of employment in an effort to determine the relative importance of different kinds of economic activity to the District and the Nation, as well as the role which the employment mix may play in the matter of relative District stability.

Economic growth often is measured in terms of increases in output. In the case of the national economy, the most familiar aggregate indicator of over-all economic activity is gross national product. The Federal Reserve Board's index of industrial production, on the other hand, is used to measure the physical output of the industrial component of the economy. The District, however, has no counterpart for measuring output and must rely on indicators of measurable inputs. Employment data have been accumulated and seasonally adjusted at both District and national levels. An electric power consumption series also has been collected and seasonally adjusted for District manufacturing. Employment data long have been used by economists in appraising District economic conditions, and an earlier article in the *Monthly Review* suggested that an analysis of electric power

consumption might shed some light on patterns of growth and development peculiar to District industry.[1]

Some care must be exercised in using seasonally adjusted employment and power consumption data as proxies for two crucial factors of production—labor and capital machinery. Given trends toward automation—the replacement of men by machines—electric power consumption data would tend to represent an upper limit to increased activity. By the same token, employment data do not reflect the total increase in activity, thereby posing a lower limit. Even in industries where actual labor replacement is not an issue, an expanding scale of operations often is marked by an increasing utilization of capital equipment. Under these conditions, even though labor utilization may be increased in an absolute sense, it declines relative to the employment of capital machinery and the electrical power necessary to drive the new machines.

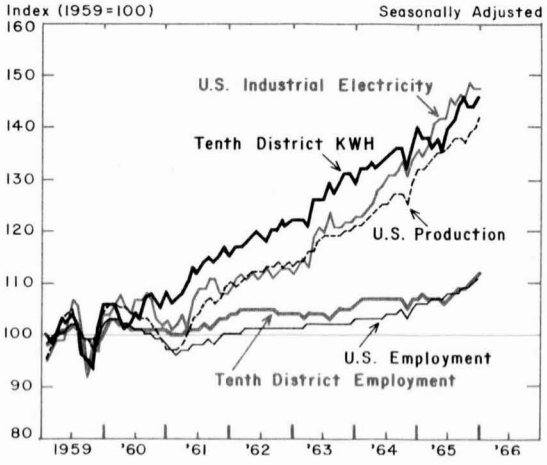
Further, caution should be exercised in using electric power consumption data—the kilowatt-hour series—to interpret levels and changes in economic activity. Of the major employers of labor—manufacturing, services, trade, and government—only manufacturing utilizes substantial quantities of capital in relation to the amount of labor employed. Therefore, while electric power consumption may be used as a proxy for capital machinery, its use as an economic indicator is relatively accurate only for economies that are dominated by the use of large amounts of such machinery.

MANUFACTURING ACTIVITY

Comparing District and national data for manufacturing employment and electric power consumption over the 7-year period 1959-65,

Chart 1

U.S.-DISTRICT MEASURES OF MANUFACTURING ACTIVITY



one finds similar average yearly rates of change. Chart 1, however, indicates that this correspondence was not quite so pronounced when viewed either month-to-month or year-to-year. Yet the similarities appear much more pronounced than the differences. The correspondence between District and national power consumption and U. S. manufacturing production is especially noteworthy. Again, this suggests that in manufacturing, where the utilization of capital machinery—and, therefore, electric power—is very high, electric power consumption serves as a reasonably good first approximation of output. Having noted this correlation between District and U. S. power consumption curves and the U. S. production curve, it seems important to reiterate that this relationship may be valid only for the manufacturing sector. Also worth mentioning is the fact that both District and national power consumption curves lie just above the production curve, thereby reinforcing the notion of an upper limit. One also may observe the movement of the respective employment curves which tends to corroborate their use as a lower limit in estimating activity levels.

[1] "A New Regional Indicator: Electric Power Consumption," **Monthly Review,** Federal Reserve Bank of Kansas City, September-October 1965, pp. 14-20.

Table 1

COMPARISON OF U.S.-DISTRICT GROWTH IN SELECTED DURABLE GOODS MANUFACTURING INDUSTRIES

	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	Average Yearly Change 1959-65
				(In per cent)			
Machinery (Electrical and Nonelectrical)							
Employment							
U. S.	3.4	—2.0	6.0	8.5	2.4	7.1	4.2
District	6.6	4.5	23.7	3.8	6.1	5.6	8.4
KWH Consumption							
District	14.0	5.3	22.5	7.2	7.8	15.8	12.1
Index of Industrial Production							
U. S.	3.5	—0.5	11.9	4.6	9.3	13.2	7.0
Primary Metals							
Employment							
U. S.	4.1	—7.7	2.0	0.4	4.8	5.3	1.5
District	5.1	—1.6	—3.1	—0.6	3.1	3.8	1.1
KWH Consumption							
District	13.6	17.0	4.3	15.4	11.4	9.5	11.9
Index of Industrial Production							
U. S.	1.3	—1.7	5.0	8.6	13.4	6.2	5.5
Transportation Equipment							
Employment							
U. S.	—4.8	—8.8	5.8	4.3	0.8	7.1	0.7
District	—8.9	—12.7	9.6	—6.4	7.9	4.5	—1.0
KWH Consumption							
District	0.6	—11.2	5.5	6.3	7.9	5.5	2.4
Index of Industrial Production							
U. S.	3.7	—4.2	14.1	7.3	3.1	13.9	6.3
Fabricated Metals							
Employment							
U. S.	1.2	—4.7	4.0	2.2	3.8	5.3	2.0
District	—2.5	—0.5	4.8	2.8	9.3	6.8	3.5
KWH Consumption							
District	—2.6	6.0	5.1	3.7	14.8	10.3	6.2
Index of Industrial Production							
U. S.	2.1	—1.1	10.0	5.4	7.5	11.5	5.9

SOURCE: Employment figures are from the U. S. Department of Labor, Bureau of Labor Statistics, and individual state employment security agencies. District power consumption data are collected monthly by the Federal Reserve Bank of Kansas City, and the U. S. power consumption and industrial production data are from the Federal Reserve Board's index of industrial production.

Table 1 depicts District-national comparisons of growth in selected durable goods manufacturing industries for the period 1959-65. It can be seen that the District made sizable gains in machinery manufacturing, both in terms of employment and power consumption. The 1961-62 period witnessed an extraordinarily large increase in both kilowatt-hour consumption and employment for the District. The gains for this period, however, are attributable largely to the installation of a major electrical machinery and parts plant in western Missouri.

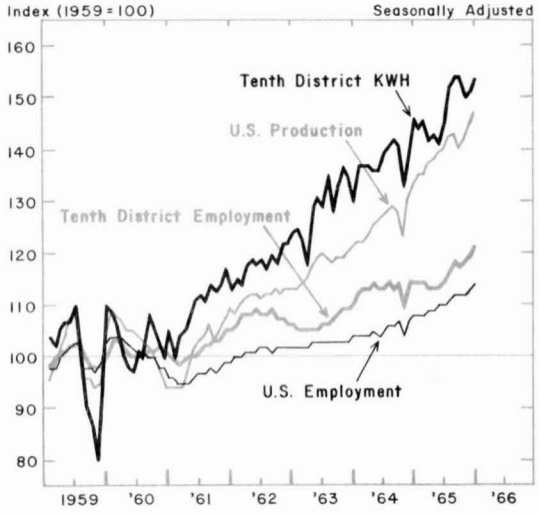
District data indicate mixed gains and losses in primary metals, increases in fabricated metals—with the exception of 1959-60—and a mixed pattern of sizable losses and gains in transportation equipment. At this point, one should note the importance of transportation equipment manufacturing to District and national manufacturing, as is evidenced by the effect of the 1964 auto strike. This is indicated readily by the data in Charts 1 and 2. It is not, however, reflected in Table 1, since the table is based on yearly averages and the charts are based on monthly data.

Since durable goods manufacturing is highly capital intensive, an indirect comparison of District-U. S. activity levels in this sector of the economy may be made by examining data on District electric power consumption and U. S. industrial production. There is considerable variance between the performance of individual District and national durable goods manufacturing industries. However, the course of employment growth in durable goods industries, traced in Chart 2, indicates a degree of correspondence between U. S. and District measures in the aggregate.

The manufacturing sector contributes only one half as much to total employment in the District as in the Nation—a point which will be considered at greater length later in this analysis. This disparity in the importance of manufacturing suggests that the use of District-national comparisons of manufacturing activity through the use of such proxy indicators as kilowatt-hours may, at best, be inconclusive, or even misleading. Yet the distribution of manufacturing employment between the durables and nondurables components shows a striking degree of parallelism for the District and the Nation as a whole. For example, durable goods manfacturing employment—as a per cent of total manufacturing employment—has averaged more than 56 per cent for the United States in the period

Chart 2

DURABLE GOODS MANUFACTURING ACTIVITY UNITED STATES-DISTRICT



1959-65, and approximately 53 per cent for the District during this same period. As a reciprocal, the nondurables component of manufacturing employment also displays a close correspondence at District and national levels. This suggests that, in spite of the disparity in importance of over-all manufacturing between the Nation and the District, the District's manufacturing component may be expected to behave, in the aggregate, much like its national counterpart. This view is borne out, to some extent, by the data illustrated in Chart 1, which traces the course of manufacturing employment and electric power consumption at both District and national levels, and also indicates the movement in U. S. manufacturing production during the period under consideration. It is of interest to note the close correspondence between District and national manufacturing employment, as well as between U. S. and District electric power consumption. The further correspondence between movements in manufacturing production for the United States and U. S. consumption of industrial electricity indicates that there may be, in fact, a reasonable analytical basis for using District electric power consumption as a proxy indicator of industrial activity for purposes of comparison with industrial developments at the national level. This is not to say that this relationship is more than approximate. Existing data only allow an indirect comparison, even for total manufacturing activity. Nonetheless, the preceding analysis provides some justification

Table 2

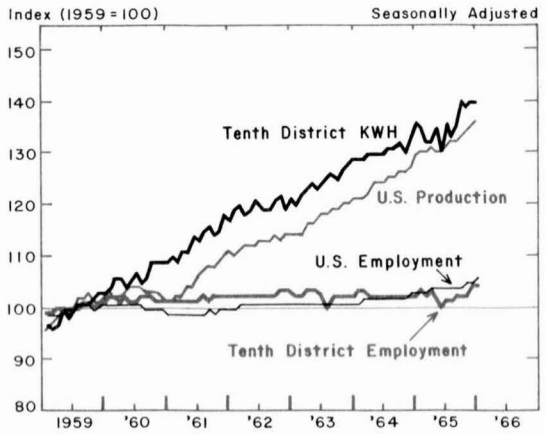
COMPARISON OF U.S.-DISTRICT GROWTH IN SELECTED NONDURABLE GOODS MANUFACTURING INDUSTRIES

	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	Average Yearly Change 1959-65
				(In per cent)			
Food and Kindred Products							
Employment							
U. S.	....	—0.8	—0.7	—1.0	—0.8	0.4	—0.5
District	1.2	....	—1.8	—0.4	—0.7	—3.4	—0.9
KWH Consumption							
District	3.7	2.1	4.5	3.3	5.1	2.2	3.5
Index of Industrial Production							
U. S.	2.8	3.4	2.9	3.1	3.4	2.1	3.0
Petroleum Refining							
Employment							
U. S.	—1.9	—5.0	—3.1	—3.2	—1.6	—5.1	—3.3
District	—2.4	—2.4	—0.7	—2.1	0.4	—0.9	—1.4
KWH Consumption							
District	8.2	4.2	4.9	6.2	3.2	0.8	4.6
Index of Industrial Production							
U. S.	2.4	2.1	3.9	3.6	3.3	2.1	2.9
Printing and Publishing							
Employment							
U. S.	2.6	0.5	1.0	0.5	2.3	2.6	1.6
District	4.5	1.1	2.3	—0.2	1.3	2.8	2.0
KWH Consumption							
District	8.0	10.8	9.5	9.1	7.1	7.6	8.7
Index of Industrial Production							
U. S.	5.6	1.3	2.9	1.5	6.0	5.6	3.8
Textiles and Apparel							
Employment							
U. S.	—0.6	—2.4	2.8	0.4	1.6	2.8	0.8
District	0.3	1.1	5.0	6.6	1.4	3.4	3.0
KWH Consumption							
District	6.9	4.3	19.4	10.4	5.9	7.8	9.1
Index of Industrial Production							
U. S.	—0.3	1.1	6.8	3.5	6.0	8.5	4.3

SOURCE: Employment figures are from the U. S. Department of Labor, Bureau of Labor Statistics, and individual state employment security agencies. District power consumption data are collected monthly by the Federal Reserve Bank of Kansas City, and the U. S. power consumption and industrial production data are from the Federal Reserve Board's index of industrial production.

Chart 3

NONDURABLE GOODS MANUFACTURING ACTIVITY UNITED STATES-DISTRICT



for comparing District-U. S. developments in durables and nondurables manufacturing activity through the use of employment and kilowatt-hour proxy indicators.

The main points of the analysis of durable goods manufacturing are summarized in Chart 2. As has been pointed out, there is a degree of correspondence between District electric power consumption, U. S. production, and U. S. and District employment. District electric power consumption, U. S. production, and District and U. S. employment in durable goods manufacturing all reflect the upward growth in demand for durables during the course of the current expansion. Also of interest is the fact that District employment—1959 base—exceeded national levels over most of the period. As will be seen later, however, the economic impetus generated by a given segment of the District's economy—such as durables manufacturing—is a function of the relative importance of that segment in the over-all composition of the District economy.

Nondurable goods manufacturing also displays trends that are perceived readily. Table 2 indicates considerable gains in U. S. production and District electric power consumption, in the face of declining employment in such nondurables components as food and kindred products processing and petroleum refining. Printing and publishing and textiles and apparel manufacturing, on the other hand, made moderate gains in employment, in relation to more sizable increases in U. S. production and District power consumption.

Chart 3 shows the correspondence between U. S. production and District electric power consumption and U. S. and District employment in nondurable goods manufacturing. An interesting feature of Chart 3 is the relatively steady growth shown for production and power consumption, and the comparatively stable performance of employment in nondurable goods manufacturing. This is in sharp contrast with the very volatile performance of durable goods industries illustrated in Chart 2. The continuous divergence between the employment information and the other data would indicate that increases in production are being made with a relatively constant amount of labor and growing amounts of capital machinery.

In examining manufacturing activity for 1959-65, one finds similar patterns in the level and rates of activity for major aggregates—total manufacturing, and durable and nondurable goods manufacturing—for the Nation and the District. In spite of these similarities, however, the performance of the Tenth District economy has not mirrored the pace of the national economy in a number of respects—a point cited earlier in this analysis. The reasons behind this may be seen by examining the employment mix for the District and the Nation.

COMPARATIVE ECONOMIC COMPOSITION

As seen in Table 3, agriculture, manufacturing, services, trade, and government account for almost three fourths of both Dis-

trict and national employment. Contract construction; mining; finance, insurance, and real estate; and transportation, communication, and public utilities employment – not shown in Table 3–comprise another 15 per cent. Although this latter group does account–in the aggregate–for approximately one out of every six jobs at District and national levels, the individual categories represent only small percentages of total employment. In addition, they are so similar in proportion for the United States and the District that their impact on differences in District and national economic performance are almost negligible.[2] Attention, therefore, will be directed at the employment categories shown in Table 3.

Agricultural employment, in 1959-65, has followed a steadily declining course, both in absolute and relative terms for the District and the Nation. In 1959, agriculture accounted for nearly one out of every five jobs in the District–a proportion which was equaled by the trade sector, as well. By 1965, agriculture accounted for less than one out of eight jobs in the District. This decline in agriculture's position as a prime source of employment was reflected in an allied employment category in the nondurable goods manufacturing sector–food and kindred products processing. In 1959, food and kindred products processing accounted for nearly one out of four jobs in total District manufacturing employment–a reflection of the strongly agricultural flavor of the District. By 1965, this proportion had dropped to one out of five jobs. This shift–both in terms of declining agricultural employment and a decreasing proportion of food and kindred products processing employment in the District–undoubtedly is related to the accelerated process of technological change and increased capitalization which has characterized agriculture and its allied employment sectors during much of the postwar period.

Table 3

MEASURES OF RELATIVE IMPORTANCE FOR MAJOR EMPLOYERS OF LABOR

	1959	1960	1961	1962	1963	1964	1965	Average 1959-65
Agricultural Employment as a % of Total Employment								
United States	8.9	8.6	8.2	7.6	7.2	6.8	6.4	7.7
District	17.2	16.7	16.2	15.6	14.2	13.3	12.3	15.1
Manufacturing Employment as a % of Total Employment								
United States	25.4	25.2	24.4	24.8	24.7	24.3	24.9	24.8
District	13.1	13.2	12.9	13.2	13.1	13.4	13.5	13.2
Durable Goods Manufacturing Employment as a % of Total Employment								
United States	14.3	14.2	13.6	14.0	14.0	13.9	14.4	14.1
District	6.8	6.8	6.7	7.0	6.9	7.2	7.4	7.0
Nondurable Goods Manufacturing Employment as a % of Total Employment								
United States	11.1	11.0	10.8	10.8	10.7	10.4	10.5	10.7
District	6.3	6.4	6.2	6.2	6.2	6.2	6.1	6.2
Services Employment as a % of Total Employment								
United States	10.8	11.1	11.4	11.7	12.0	12.2	12.3	11.6
District	9.8	10.1	10.4	10.9	11.3	11.6	11.9	10.9
Trade Employment as a % of Total Employment								
United States	17.0	17.1	17.0	17.0	17.1	17.2	17.4	17.1
District	17.5	17.7	17.8	17.8	18.0	18.2	18.6	17.9
Government Employment as a % of Total Employment								
United States	12.3	12.5	12.9	13.1	13.4	13.6	13.9	13.1
District	14.8	15.3	15.6	15.9	16.3	16.7	17.5	16.0

SOURCE: Employment data are from the U. S. Department of Labor, Bureau of Labor Statistics, and individual state employment security agencies.

Manufacturing employment in the Tenth District has shown little change, in terms of its relative importance as a source of employment, between 1959 and 1965. In both the initial and the terminal years of the period, it accounted for approximately 13 per cent of District employment. It should be noted, however, that the cyclical influence of the current expansion may be seen in terms of the upward shift in the durables component of manufacturing employment since 1961, in

[2] In 1965, for instance—all measured as a per cent of total employment—finance, insurance, and real estate amounted to 4.1 per cent for the District and 4.2 per cent for the United States; transportation, communications, and public utilities measured 6.5 per cent for the District and 5.9 per cent for the United States; contract construction measured 4.6 per cent for the District and 4.5 per cent for the United States; and mining amounted to less than 1 per cent for both the United States and the District.

contrast with the relative stability of the nondurables component. In any event, the relative changes are quite small and do not alter significantly the notion that the manufacturing sector has been, and remains, decidedly less important as an employment source for the District than for the Nation.

In contrast with the declining performance of agriculture and the relative stability in the manufacturing sector; services, trade, and government have become increasingly important employment sources during 1959-65. The three sectors, taken in the aggregate, accounted for slightly more than 40 per cent of total District employment in 1959. With continual gains in the relative importance of each of these three sectors, by 1965 they accounted for nearly half of the over-all employment in the District. Taken individually, services employment showed the largest relative gain and government employment the next largest, while gains in the trade sector were more modest for the 1959-65 period. Although the trade sector remains the single most important employer in the District, the government sector shows signs of challenging this position, especially if the trends observable during the past 7 years continue.

SUMMARY AND CONCLUSIONS

By using proxy indicators, such as employment and electric power consumption, an attempt has been made to estimate District manufacturing activity for 1959 through 1965. These data, in conjunction with similar data and information on industrial production at the national level, served as the basis for comparisons of growth patterns in the manufacturing sectors of the District and the United States. The fact that the composition of manufacturing employment between the durables and nondurables components is approximately the same both at District and national levels suggested that District manufacturing activity might be expected to move in a manner similar to the Nation. The analysis of aggregate manufacturing activity at the District level, through the proxy indicators cited here, served to corroborate the notion of District-national similarities.

However, an analysis of the District-national employment mix does provide significant evidence which is helpful in explaining the different performance patterns for the District and the Nation during the period under consideration. The District was marked by a decline in agriculture as a prime source of employment, as well as a decline in agriculturally-oriented components of nondurable goods manufacturing. In addition, District manufacturing's share of total employment approached stability. The rising levels of manufacturing activity for the District, discerned earlier in this analysis, point up the increasing utilization of capital in District manufacturing, as does the increased agricultural output in the face of declining agricultural employment in the District.

The relative stability in manufacturing employment and the shift away from agriculture should be placed within the perspective of the growing importance of the trade, services, and government sectors as major areas of employment opportunity in the District. Thus, the relatively minor role played by manufacturing as a source of employment in the District, as compared to the Nation, has tended to afford the District a degree of insulation from cyclical swings in economic activity at the national level. This insulation has been reinforced further by the growing role of trade, services, and government employment—areas which traditionally exhibit little cyclical sensitivity. If the trends observable in the District during the past 7 years persist, then the relative stability exhibited by the District may be carried further into the future.


FEDERAL RESERVE BANK OF KANSAS CITY
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INCORPORATED MAY 18, 1914