

about 7 to 8 million tons per month, about 14%, but average daily shifts grew by one-third, from about 2,400 per day to at least 3,200 per day.

New mega-terminals have begun operation in the ports with on-dock rail facilities which employ additional numbers of longshore workers for loading and unloading the rail cars within the terminal. This study does not provide any information about the volume of this extra longshore labor, but if that volume is not sufficient to explain the

increases documented here, then some other explanation must be found for the growing numbers of additional employees being paid daily.

Growth in the Near Future

Concern has been voiced in the press in the past few weeks that the levels of tonnage growth in Los Angeles and Long Beach in the past several months relative to last year will continue unabated into the near future. The following discusses ton-

nage trends over the past thirteen years in this port area.

Monthly Tonnage Patterns

NOTE: Cargo tonnage and TEU counts are reported to PMA on a monthly basis, but these reports have a six-week "lag" period between the end of each reporting period and the availability of the data for analysis. For that reason, the tonnage data discussed here include activity only through the end of August 1997.

Monthly data are consistently volatile for individual port areas because of various timing issues, so using only monthly data for determining changes in patterns of cargo movement is much less satisfactory than using accumulated data for quarterly or annual periods.

The graph at the top of the next page shows the amount of weighted tonnage reported to PMA by month since January 1993 in the Ports of Los Angeles and Long Beach.

The larger, lightly shaded bars each represent the weighted tonnage reported in the month, and the smaller, darker bars within each monthly bar represents the portion of the weighted tonnage that was containerized.

The graph shows clearly that containerized tonnage comprises the preponderance of weighted tonnage in Los Angeles/Long Beach, and that it represents a relatively consistent percentage of the weighted tonnage. Thus, changes in numbers of container TEUs will be discussed here, and observations can be generalized to weighted tonnage.

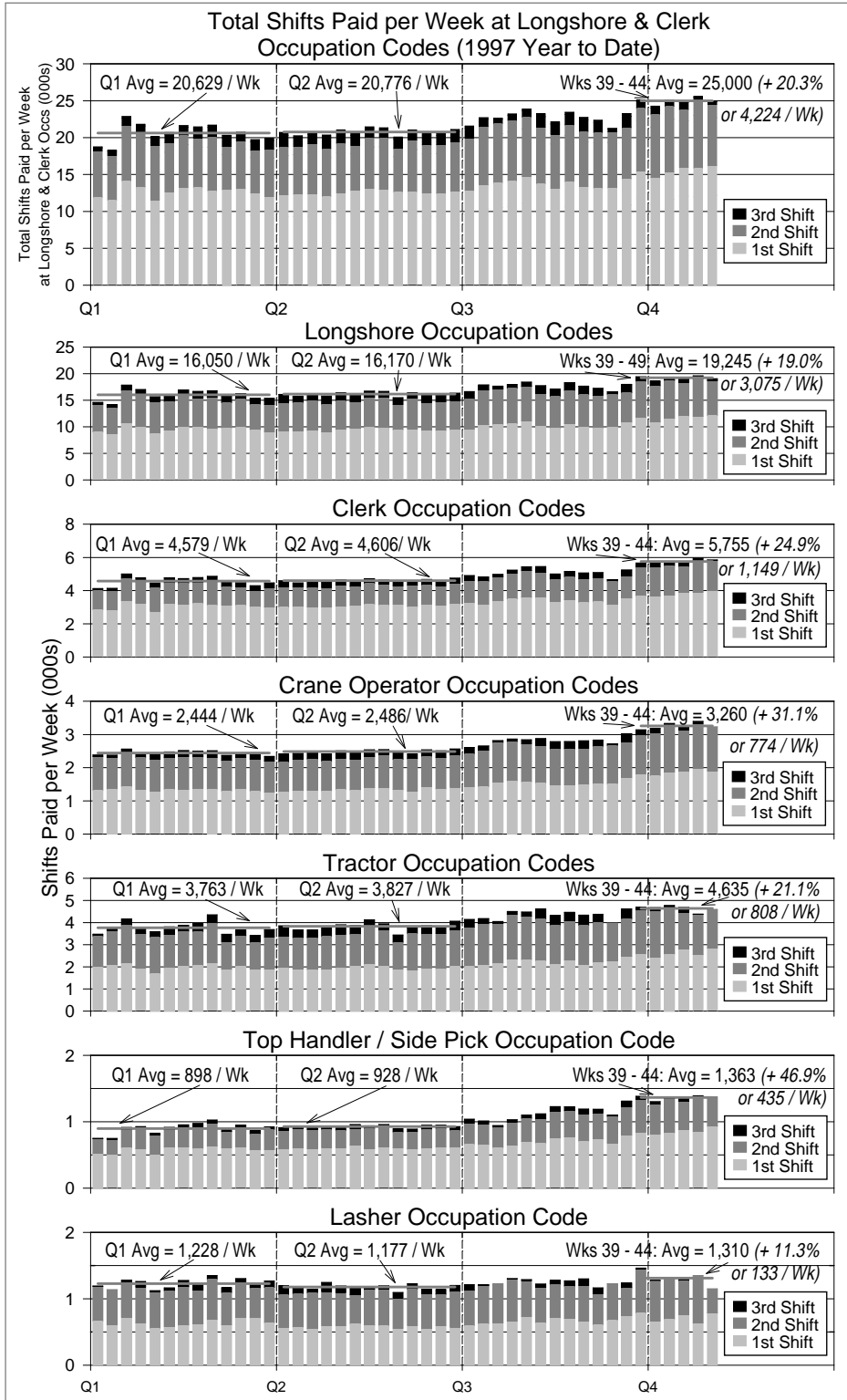
From the graph, the general upward trend of weighted tonnage and of containerized tonnage reported in the ports can be readily seen. The reports for the month of July 1997 were the highest for any month on record, but the reports for August were below those for June and July both.

Year to Date Tonnage

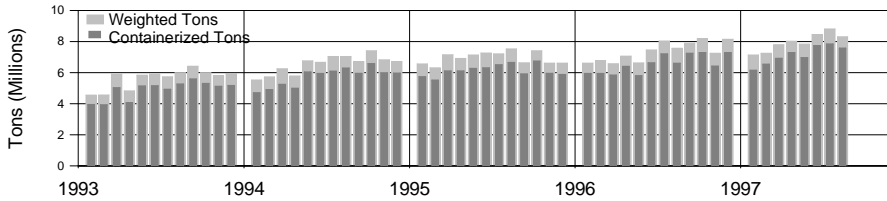
The table labeled *Accumulated Annual Container TEUs by Month* shows the year to date TEU counts by month in Los Angeles/Long Beach for the past five years. Also shown, as a percentage, is the change from the same year-to-date period in the previous year.

The chart below this table shows these data graphically. The distance of the abbreviated month name above the horizontal axis represents the accumulated TEUs reported in the ports from January through the month shown. Horizontal dotted lines have been drawn from the December value each year to the vertical axis on the left of the chart to show the annual total each year relative to the previous year.

Similarly, a dashed line has been drawn from each August year-to-date value to the vertical axis on the right of the chart to



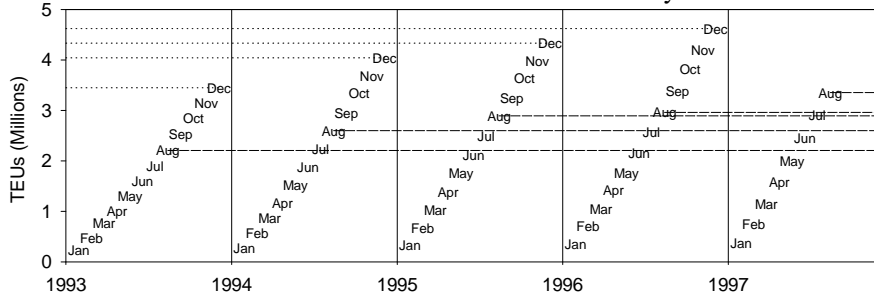
Weighted Tonnage and Containerized Tonnage by Month



Accumulated Annual Container TEUs by Month as a Percent of the Same Period in Previous Year

| | 1993 | 1994 | 1995 | 1996 | 1997 |
|------------|------------------|------------------|------------------|------------------|------------------|
| | TEUs | TEUs | TEUs | TEUs | TEUs |
| Jan | 232,017 | 276,925 | 337,819 | 349,410 | 361,773 |
| Feb | 463,562 | 565,854 | 662,166 | 699,177 | 746,380 |
| Mar | 759,644 | 874,597 | 1,021,562 | 1,043,080 | 1,153,495 |
| Apr | 999,150 | 1,168,434 | 1,380,765 | 1,420,064 | 1,582,806 |
| May | 1,301,501 | 1,524,088 | 1,749,725 | 1,761,302 | 1,993,041 |
| Jun | 1,604,480 | 1,873,589 | 2,120,904 | 2,151,167 | 2,448,898 |
| Jul | 1,894,528 | 2,231,912 | 2,503,543 | 2,575,090 | 2,910,379 |
| Aug | 2,204,806 | 2,601,815 | 2,894,990 | 2,963,912 | 3,356,279 |
| Sep | 2,534,177 | 2,952,320 | 3,242,957 | 3,390,105 | |
| Oct | 2,846,451 | 3,339,106 | 3,639,580 | 3,819,192 | |
| Nov | 3,147,847 | 3,691,497 | 3,990,149 | 4,196,799 | |
| Dec | 3,451,663 | 4,042,439 | 4,336,148 | 4,625,583 | |

Accumulated Annual Container TEUs by Month

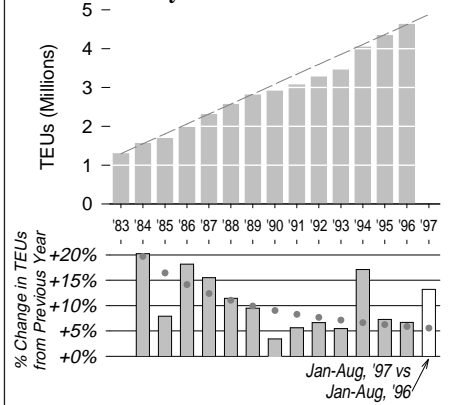


show the accumulated January through August totals each year relative to the previous year.

August Year-to-Date as Predictor

From the tabular data provided, it is readily apparent that August-year to date increases over the previous year are not very good indicators of the total annual increases over the previous year. Thus, the

Container TEUs Reported in Los Angeles / Long Beach By Year: 1983 - 1996



13.2% increase in Jan-Aug 1997 TEU counts over the first eight months of 1996 does not in itself imply an equivalent increase in the next four months.

Further, the accumulated year-to-date TEU counts so far in 1997 have exceeded those of 1996 by more than 10% since March, but these increases must be considered in light of the fact that most monthly year-to-date values in 1996 were only slightly above those reported in 1995.

Annual Growth Since 1983

The upper chart to the left shows annual TEU counts in Los Angeles/Long Beach since 1983, and the chart below it shows the percentage by which it changed from the previous year. The 13.2% increase in year-to-date TEU counts as of August 1997 above August 1996 is shown as an unshaded bar on the lower chart.

The dashed line superimposed on the annual TEU count chart shows straight-line growth between 1983 and 1996, and the small gray circles on the percentage change chart shows the percentage of growth each year that would produce the straight line projection.

The TEU count in Los Angeles/Long Beach has grown each year above the previous, and it follows quite well the straight-line projection. The pattern of percentage change from year to year, however, is very irregular: one or more years of high growth relative to the previous year, followed by two or more years of much slower growth.

Although some years show increases far above the theoretical curve for straight-line growth, a constant level of, say, 10% per year which would produce exponential tonnage growth, has not been seen in the ports. Instead, the annual growth values have varied from about 3% to a maximum of nearly 20% producing nearly straight-line growth.

This strongly implies that the increases seen in the current year-to-date figures do not necessarily presage double digit growth in the coming year.

Future Work Force Size

This study has shown evidence that much of the present traffic backlog is probably because of a short-term ground transportation problem, that gross productivity in the ports has declined since early 1996, and that growth in the ports is not steady and exponential in nature.

These factors should be considered carefully as decisions are made in the near future on additional growth of the registered work forces. The industry should take into account the long term prospects for work opportunity and adjust future work force levels accordingly.

CONSUMER PRICE INDEX U.S. CITY AVERAGE - ALL ITEMS (1982-84 = 100)

| Month | 1995 | 1996 | 1997 | 12 Mo. |
|-------|-------|-------|-------|--------|
| JAN | 147.8 | 151.7 | 156.3 | 3.03% |
| FEB | 148.3 | 152.2 | 156.8 | 3.02 |
| MAR | 148.7 | 152.9 | 157.0 | 2.68 |
| APR | 149.3 | 153.6 | 157.2 | 2.34 |
| MAY | 149.6 | 154.0 | 157.2 | 2.08 |
| JUN | 149.9 | 154.1 | 157.4 | 2.14 |
| JUL | 149.9 | 154.3 | 157.5 | 2.07 |
| AUG | 150.2 | 154.5 | 157.8 | 2.14 |
| SEP | 150.6 | 155.1 | 158.3 | 2.06 |
| OCT | 151.0 | 155.5 | | 2.98 |
| NOV | 150.9 | 155.9 | | 3.31 |
| DEC | 150.9 | 155.9 | | 3.31 |

