



Project Summary

Time Spent in Activities, Locations, and Microenvironments: A California National Comparison

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This report reviews data on the methodological background and results from the 1987-88 California Air Resources Board (CARB) time activity study and from a similar 1985 national study of Americans' Use of Time, conducted at the University of Maryland, College Park. To facilitate comparisons, data from the national study were recoded to be as comparable as possible to the CARB code categories. For the same reason, these initial comparative analyses were restricted to the age 18-64 working population in the two samples.

As a result, the data on average distributions of time in activities compared favorably across the two samples. Californians tended to report more average time at work and commuting to work in the diaries than was true nationally. They also reported less average time doing housework and caring for children than was found nationally. Time spent shopping in the CARB study was slightly higher. In general, the differences in family care activities were greater among women than among men across the two samples. CARB respondents also reported more time sleeping and eating meals away from home, less time eating meals at home, less time grooming and less time on non-ascertained activities.

Californians reported more time spent at fairs and other entertainment events, and more time reading than was true in the national sample, and these differences were also more pronounced among women in the two samples. California women reported less time doing domestic craft activities and in conver-

sation. At the same time, Californians reported more time spent traveling, and these differences were found mainly among men.

Despite these differences, the two data sets showed a remarkable similarity in patterns of activity. That was less true for the location codes, however. Several sources of discrepancy were found in the comparison of these data, including time spent in automobiles vs. other modes of transit. A recoding of the location data from the national study provided some resolution of the differences that were found, but several differences remained—particularly the greater amounts of time spent at home and in the yard in the national sample.

The strong similarities of the average time for the activity data indicate that the California data could be used to generate a better set of location codings for the national data. This is particularly true for estimates of outdoor time spent doing paid work, which was not differentiated in the 1985 national data. It also means that the supplemental CARB data on specific exposure (e.g., passive cigarette smoke, gasoline and service station visitations) may have national implications. Nevertheless, a separate national study that could build and expand upon the developmental work initiated in the CARB study and oriented to exposure assessment is needed.

This Project Summary was developed by EPA's Environmental Monitoring Systems Laboratory, Las Vegas, NV, to announce key findings of the research



project that is fully documented in a separate report of the same title (see Project Report ordering information below).

Microenvironments

A major reason for analyzing time-diary data is to estimate time spent in various microenvironments. Microenvironments refer neither solely to activities nor solely to locations but to the combination of activities and locations that yield similar concentrations or potential exposures. For this report, 16 separate microenvironments (combinations of location and activity) were defined for the purpose of comparing the estimates from the U.S. national and CARB studies. These were based on a collapsing of the original 34 and 44 location codes to 10 and the activity codes from 90+ to 10. This revised list of locations includes residences (both indoor and outdoor), work locations, restaurants and bars, travel modes, and places automobiles are parked, serviced, and maintained. Similarly, activity distinctions include family care, shopping, work/study, recreation and travel. Known sources of carbon monoxide, benzene, and other VOC's also were reflected in our classifications.

In the final comparative analyses by microenvironments, total samples—including adolescents aged 12-17 and senior citizens aged 65 and over in both the CARB study and in the mailback portion of the national study—were used. The national sample was weighted to provide a ratio of 46.5 males to 53.5 females, in equal proportion for each day of the week, and for each quarter of the year. The time weights provided for the CARB study (which adjusts for strata as well as week-day and season) were used in weighting them. In these analyses, the average duration spent by "doers" (the population who reported spending time in the microenvironment) in the two studies and the proportion of "doers" are compared.

Notable differences were found in the estimates from the national and California data for the microenvironment codes created for this report. These resulted mainly from differences in the location coding schemes used in the two studies. Many of these gaps were closed by the recoding of selected location codes in the national study, but that exercise also produced some new divergences. Most notably, these recoded data suggest that Californians spend most of their outdoor time in away-from-home settings in contrast to the greater time spent in yards and other

at-home outdoor environments in the national study. Although this would be consistent with an image of more cramped outdoor living environments in California (or of more attractive outdoor environments away from home), this result needs confirmation from independent data sources.

Many of the location coding differences, therefore, seem to account for the differences in microenvironments. This includes the greater times reported in California inside garages (autoplaces), restaurants/bars, and motor vehicles. It also includes the longer time spent doing physical activities in outdoor locations and travel by other transit modes mainly done outdoor in the form of walking or waiting for buses. On the other hand, we find Californians reporting less time in such microenvironments as work/school locations, kitchens, and family care settings for house chores, child care and shopping activities.

Nonetheless, some of the differences in microenvironments that occur appear to be related to location coding differences in the two studies rather than to actual differences in activity patterns. Indeed, the relation of microenvironmental time and gender, age, and type of day were remarkably similar in the two data sets, indicating that they do tap the same basic elements of time expenditure.

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The complete report, entitled "Time Spent in Activities, Locations, and Microenvironments: A California National Comparison," (Order No. PB92-140789AS;

Cost: \$19.00, subject to change) will be available only from:

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