Historic Uses of Census Data in Transportation Planning and Future Needs

Alan E. Pisarski, *Consultant*

The history of the census journey-to-work statistics and the supporting statistical package is a history of growth in sophistication and efficiency in both the technical capabilities and the institutions that support those capabilities. From its beginnings with the 1960 census to the present, first the metropolitan planning process and then the state process have become increasingly dependent on these data, including all of the supporting socioeconomic data from the census that provided flexible small area population characteristics for input to trend analyses and forecasts.

When the census journey-to-work program is described, it is best to differentiate at least three product areas to aid understanding: (*a*) the census socioeconomic data presented at user-defined small area geography; (*b*) Bureau of the Census-provided journey-to-work statistical products; and (*c*) the package of standardized tabulations produced cooperatively with the U.S. Department of Transportation (DOT), which has had various names over the years but is presently called the CTPP—Census Transportation Planning Package.

Table 1 briefly summarizes the historical landmarks along the four-census history of the journey-to-work package.

A vast array of issues confront the planner-statistician considering the future of the program. The central issues from the transportation side tend to fall into two groups. The first concerns changes in the institutional mandates that define the ways in which the census data are used, and the second concerns changes in the travel behavior that these statistics seek to describe. A third area concerns changes in the census program itself and how they may affect the ability to provide effective journey-to-work products.

The changes in the institutional context have been dramatic since the last design of census products. Among the changes are the Intermodal Surface Transportation Efficiency Act transportation legislation and the Clean Air Act Amendments. Both of these legislative enactments place substantial new planning and analysis demands on states and metropolitan areas. Much of the required planning is focused on journey-to-work characteristics and how they affect air quality. A major case in point is the emphasis on construction of carpool lanes, rather than simple road expansion, in the new federal legislation—the census data are the only viable source of carpool numbers and characteristics. All of the planning activity is heavily dependent on census socioeconomic statistics. Many of the mandated planning requirements have stringent time schedules, placing additional demands on the data development process. Another issue of some significance is the current conflict between states and the federal government

TABLE 1 Highlights in History of Journey-to-Work Package

CENSUS DATE	TECHNICAL CHANGE	INSTITUTIONAL CHANGE
1960	First data	First step
	Broad geography	OMB stimulus
1970	First data detail	First package—"UTPP" 43 tabulations
	Block-level geography	112 buyers
	First ACG/DIME	First-come-first-served
	Local TAZs	Caveat emptor
		First DOT funding
1980	More data detail	JTW staff
	Better geographical quality	Better geographical QC
	Imputation of JTW	Better UTPP delivery—150 buyers
		Cost—$2 million
1990	More data	Wall-to-wall AASHTO funding
	First state package	Cost—$2.5 million
	First CD-ROM	

concerning unfunded mandates—that is, demands made by federal enactments that place financial burdens on states, without federal assistance to defray the costs. The census-related package stands out as an example of the federal government taking practical action to assist states and metropolitan areas in responding to the costs of mandated activities.

The behavioral context is changing as well. The parallel development of the Nationwide Personal Transportation Study (NPTS), with its great breadth of coverage of travel behavior, has permitted insights into important facets of work travel behavior that need to be considered in census plans for the future. Future NPTS approaches, especially the ability of states and metropolitan planning organizations (MPOs) to purchase additional observations, provide a great opportunity. As we look to the future we will see significant changes that will affect our data needs.

One characteristic of many of these trends is the increasing need to understand the periodicity surrounding aspects of work travel behavior. What is required is a mechanism to provide a "test of regularity" of many of these aspects of work travel. These aspects are summarized briefly in the following table:

Area of Concern	*Characteristics*
Regularity of location	Different work sites, occasional work at home
Regularity of time/frequency	Occasional work at home, variation in time of departure, variation in days worked
Regularity of mode use	Occasional mode use, weekly variations, incidental use
Regularity of purpose	Linked trips, work trip chains

In effect, the methods of data collection have masked the variation, the periodicity, of many of the characteristics of work travel. Whether using a definition oriented to "trips made yesterday" or "trips usually made," the data collection process does not permit identification of trends in the regularity of work travel. There is suspicion that the degree of variation, such as that related to occasional working at home and the chaining together of trips to and from work, is increasing. There is also some reason to believe that occasional use of transit by "usual" private vehicle users can cause significant swings in the level of transit use.

In certain respects these trends can modify or mask the role of work trips in overall travel. They appear to make work travel both less and more important. For example, with trip chains linked to work trips growing in frequency, the share of work trips in the peak hour will decline.

There will also be increasing pressures to better understand the social issues associated with work travel. Among these issues is the so-called reverse-commuting behavior of inner-city residents seeking to follow job opportunities that have moved to the suburbs. There will be a

greater focus on such social equity issues, including concerns about the work travel needs of women and the elderly.

When we look at the time frame in which our plans will operate, it is almost staggering. There are almost

- 6 years to the next census,
- 10 years to the availability of the next data set, and
- 20 years to a replacement of these data.

Thus, issues in 2014 will be treated with these data. An example of this is that we can be almost certain that by 2010 an important census question will be the type of fuel a vehicle uses, yet the question now appears to have limited value. We cannot assume that our census capabilities will automatically improve as computers advance. One only need recognize that the Bureau of Transportation Statistics today is trying to reestablish capabilities that existed at DOT in the 1970s to realize that movement is not always forward.

Given the span of time we will encompass with these data sets and the public investments and policies that will be affected by them, it is painfully clear that we cannot allow a casual approach to our data needs. We must think prospectively about our future program needs and the future data resources to meet those needs. The program of the Bureau of the Census that provides these valuable data every 10 years has become a trusted resource and a friend. We cannot squander the opportunity it provides. We cannot permit it to be lost.