

# HOW CAN THE CENSUS BETTER SERVE THE NEEDS OF METROPOLITAN AREAWIDE TRANSPORTATION PLANNING?

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One of my earliest connections with the Bureau of the Census was back in the 1940s when I was the Census Tract Key Person for the Flint, Michigan, metropolitan area. That was a good title, and I worked at developing local tracts for the 1950 census and also at fashioning uses of the 1940 tract statistics. I prepared tract maps and coding books. This work appealed to the census bureau people, I believe, for they came around to look into local usage; their readiness to gather and tabulate small-area data helped our metropolitan community.

In 1953, I went to Detroit to make a traffic study. The 1950 census was completed. We had an urgent need for an accurate and thorough universe of households from which to draw a sample for the origin-destination survey. We went to Washington to urge or cajole the census bureau into providing a sample of addresses for Detroit and its environs. "After all," we argued, "the census is part of the federal establishment, and our work is being financed in part by your sister agency in the Department of Commerce, the Bureau of Public Roads." I was unaware and naive. I did not know that an address involved disclosure and that the census bureau was very concerned that its reputation for statistical and scientific precision be maintained and protected. But with an assist from the governor and congressmen, we developed a very workable compromise. The census bureau would take the survey for us and would assign a director who was acceptable to our local policy group. Together we would hire the field personnel and carry them on our local payroll, but they would be sworn in as census enumerators without pay. In this way, the census bureau could prepare samples carefully drawn and designed for day and date of interviewing. The interviewers could indicate that they were working for the Bureau of the Census. To me it was a great success, and I learned a great deal from the census people. Wherever he may be, I am particularly indebted to them for assigning John Grant to direct that work.

In the process we "proved" or audited the 1950 census for Detroit. We found a few fictitious homes, but we also found the census to have been well taken and highly accurate.

My next encounter was in 1956 or 1957. At the Highway Re-

search Board, we had been talking about adding questions to the forthcoming 1960 census. During the January 1957 meeting we visited the director of the census and pleaded our case. After numerous objections and many arguments, we allowed as how car ownership—at least—would have to be counted. After all, radios, TVs, and refrigerators were. And we urged that the mode of travel to work for employed persons be obtained, for to do so would be easy and inexpensive. Although they countered by saying, "One question = x million dollars," they agreed to think it over, and I like to believe that we played an important part in getting these 2 items on the 1960 census.

One final item is the cooperative work toward developing coding guides in the 1960s. In this period the census bureau faced for the nation what we transportation planners had been facing in one urban area after another—the problems of coding street addresses. We knew it to be a dirty, inexact business. We also had experimented with machine matching, block-face coding, and conversion to coordinates. I believe the census people underestimated the difficulty of coding work addresses. But they did understand the difficulty and the effort involved in developing address coding guides. They did succeed, in large part through the friendly efforts of Jake Silver, to develop a cooperative program to generate local block coding guides for "metro" areas. Many of us in the metropolitan planning business pitched in. It was a good effort, but less than perfect. Again, we all learned, and we still are.

And now we have the 1970 census data. The items compare quite well with the 1960 car-ownership and journey-to-work data. There are the Urban Transportation Planning Package, a definite body of wider usage, and therefore greater working familiarity on the part of the census bureau with the metropolitan consumers. We want small-area data, and we are all willing to work to get it. We need it because home interview surveys are incredibly time-consuming and expensive.

In 1973, because of the effort to code work address to blocks or block faces, we all ran into the work address coding problem. How finely can we code? How do we develop a proper effort in coding unmatched addresses? How do we define a CBD?

One thing we think we learned in our area was a way to deal in small-area geography yet avoid the troublesome problem of disclosure. Through a conference among some of the Tri-State area users, the census people, and the U.S. Department of Transportation, we settled on a new device. It is a Worker File, which Boswell discussed in his paper earlier in this report—that is, for every worker one record that includes the socioeconomic characteristics of his or her household and other related data gathered on the 15 percent sample. This file is retained only by the census bureau, but we can order tabulations in various configurations. The bureau can exercise its judgment in suppressing any potential disclosure of an individual or establishment fact. In this way, tabulations can be thought out and ordered with access to the greatest detailed file but with no disclosure dangers.

All of us in metropolitan planning use census data extensively, but have we considered how best to use the great capability of the census bureau—the geography division, the statistical staff, the field division, the users' group, or the data processing and tabulating staff? We should do so selfishly, for I can assure you that the census people will respond and will help. They have shown a great willingness to assist us in the past.

We all want to use census data to avoid updating our old surveys. This subject could take us deeply into technique. I will merely note that in my opinion the present questions on the 1970 census provide an untapped source for economical updating, so I will refrain from trying to suggest more questions until we in the field have made the most of what is currently available.

## CODING

We immediately face the prospect of better coding machinery. The software programs being developed to edit coding guides, the techniques for going from written addresses to blocks or block faces or tracts by machine, and the development of better areal measures and coordinate coding being tackled by a skilled organization with a national program promise much wider user groups for geographic coding and much more

meaningful use of existing records. For example, utility meters, tax records, housing permits, and health records could be available on a more frequent and finer geographic base than ever before if the coding machinery were working. Such usage will, in turn, sharpen the coding device and improve currency and accuracy. (Realize that 100 percent coding is still a dream.)

## MAPPING

Not only do we look to the census bureau to advance this capability but also we look to the bureau to develop improved data mapping programs where topological surfaces can be direct outputs from geographically detailed records. Much remains to be done here, but the technology is crying to be tested and developed. Better techniques of areal measurement go hand in hand with improved visual output. Data maps are crucial to small-area use of census coverage.

## SMALL-AREA BITS

I hope we can fix on a useful, national coordinate coding framework. I believe the day of the tract is partly over and, for many items, minor civil divisions are of limited use. For transportation planning we do need more flexible geographic coding options. The block is a valuable building element, and the possibility of gathering blocks into various sized units for convenient analysis is both attractive and compelling.

## USE OF CPS TO PROVIDE UPDATE

How can the field division and the sampling skills of the census bureau be used? Special surveys are one way, but these are expensive and require a lot of coordination. Another way is to use a vehicle such as the Current Population Survey (CPS). Could we piggyback some questions on this small sample to keep current on car ownership or even trip-making? Could we explore the use of this carefully designed "panel" so that a special sampling of citizen opinions could be obtained? Increasingly we are required by federal regulations, guidelines, instructional memoranda or other hortatory devices to "be responsive to all citizen groups." It would be most helpful to have a device other than elections or referenda to sample true cross sections of the public on critical issues.

This may open a whole new hard-to-measure territory—fraught with political sand traps—but the census bureau could, by using the device of data control, prevent disclosure or careless interpretations.

## NONHOME DATA

Another improvement we would like to see in census data is the provision of more information on the nonhome parts of the metropolitan area. We need good proxy measures to identify the nonhome end of daily journeys. For trucks, the trip end is seldom at home; and, even for residents, nearly 4 out of 5 trips leaving homes go to some non-residential land use. One limited goal would involve a full coding of worker locations, but problems in defining workplace make this very difficult. What can the census bureau provide as a measure of nonresidential land use? Is there a market for this other than transportation planning agencies? Could there be a committee to explore the use of the censuses of retail and wholesale trade and business and other federal records?

## CENSUS OF TRANSPORTATION

With regard to the census of transportation, we would like to know more about the

flows of goods. The ICC once made a 1 percent sample of waybills, but that involved only long-haul major carriers. Is it possible to sample goods on their way from mine and field to factory to warehouse to retail outlet and to home? Remember, more than 20 percent of the cost of a delivered product is transportation.

Another item missing is intercity travel. Is it rising or falling? Is it mainly business oriented or recreational? Are airlines providing more of this service, or is it by passenger car? None of us in metropolitan areas can easily assemble the picture of interregional travel.

Could the national transportation census record vehicle usage so as to answer the question as to whether annual vehicle mileage is growing, remaining constant, or declining? (The experience gained in the old motor vehicle use surveys may prove this to be difficult or unmanageable, but there may be useful, alternative ways to answer this question.)

#### BITS AND PIECES

What is the value of a limited quinquennial census as opposed to a slightly enlarged CPS? We expect that income distribution, housing stock changes, car ownership, and nature of mode of travel to work change enough so that 5-year estimates are wanted to keep survey estimates of urban travel up to date.

Finally, would it be possible to record elapsed time of journey to work as an add-on item? This question was successfully used back in the 1930s on real property inventory surveys, and it is a measure that reflects somewhat on the livability of an urban area.

#### CONCLUSION

These are somewhat random thoughts to initiate discussion. We need to devise a list of critical data items that collectively would allow an update of a metropolitan region's travel estimates and to consider the level of geographic detail that would suffice for each measure. Experience has been that the census bureau can find ways to satisfy such demands once it is convinced of the need.

I suggest that, as an outcome of this conference, the Transportation Research Board, in cooperation with appropriate federal agencies, establish a working committee to further explicit uses of census data and to meet with and advise the census bureau on area-wide urban planning needs. Such formal machinery will eliminate some lost time, consolidate experience, and provide a useful working record for this important subject.