

APPENDIX L

TRACT AND BLOCK GROUP VARIABLES

WHY ADD THESE VARIABLES

These variables were added to describe the characteristics of the areas where the NPTS survey respondents live and work. This allows the data analyst to look for patterns in travel behavior, not only by individual characteristics, but by neighborhood characteristics. The data user can examine how characteristics such as population density, mix of housing type and housing value, and characteristics of the population in the neighborhood such as age, income, and race/ethnicity may affect individual travel behavior.

TYPICAL NPTS HOUSEHOLD

For example, the respondents from our typical NPTS household, Keith and Terry, live in a townhouse and have a combined annual household income of \$35,000-\$40,000. The neighborhood that they live in (at the tract level) is a mix of single family homes and townhouses and apartments. Single family homes make up only 20% of the housing units in this census tract. Keith and Terry's income is above the median household income in that tract, which is \$ 27,000. Is their travel more like people who live in townhouses in other neighborhoods, or is their travel more like other people who live in single family detached houses in their neighborhood or other neighborhoods like it ? The tract and block group variables allow an examination of these similarities and differences.

SOURCE OF TRACT AND BLOCK GROUP DATA

The data contained in these variables was derived from 1990 Census data and estimated forward to 1995 by Claritas, Inc. An annual demographic update is developed by this company to serve as a source of estimates of population, household, and housing unit characteristics. These estimates are made at relatively small units of geography, such as census tracts and block groups, which make this update effective for use in supplementing the NPTS data. The update is a comprehensive process that relies on a number of data sources, including regional and city planning agencies, federal agencies (e.g., Bureau of Labor Statistics, Bureau of Census, Bureau of Economic Analysis) U.S. Postal Service, the direct mail industry, the real estate industry, and experts in the fields of geographic information systems and mapmaking.

WORKPLACE CHARACTERISTICS

In addition to the characteristics of the residential neighborhood, characteristics of the workplace location were also appended to the file. Because these workplace variables are only present if the respondent is a worker, they are found on the Person file along with the other personal characteristics.

WHY WORKPLACE

Previous studies have shown that mode choice is a function not just of residential density, but also of employment density, (Reference: work by Larry Frank and Gary Pivo), characteristics of the workplace are as important and residential characteristics. Different types of jobs and industries offer different opportunities and impedances in travel choices.

VARIABLE NAMING SCHEME

The variable names were designed so that:
- many of these variables would fall together in an alphabetic listing, and
- the variable name would help in describing the contents.

The naming scheme is:

First letter - H for household descriptor
W for workplace descriptor

Second letter - B for block group level data
T for tract level data

Third letter of Household variables - H for housing characteristic
P for population characteristic.

For example, HTHRES DN is a household descriptor, at the tract level, describing a housing characteristic, specifically, residential density (RES DN) .

The last 5 letters of the variable describe the data in the variable, e.g. LTPOV = below poverty. Note that letters 4 -5 or 4-6 may serve a grouping function as well. For example, the three variables listed below describe the type of housing, and HS is used as letters 4-5 in all three variables:

HBHHSMLT - percent multiple unit housing, block group

HBHHSOTH - percent other housing, block group
 HBHSSNG -percent single family housing, block group.

The variables, which can be identified in the codebook by the designation "CLAR" in the Section column, are:

**HOUSEHOLD
 DESCRIPTOR,
 BLOCK
 GROUP LEVEL**

HBHHSMLT - percent multiple unit housing
 HBHHSOTH - percent other housing
 HBHSSNG - percent single family housing
 HBHINCH - percent households, income \$60,000 or more
 HBHINCL - percent households, income less than \$15,000
 HBHINCM1 - percent households, income \$15,000-\$39,999
 HBMINCM2 - percent households, income \$40,000-\$59,999
 HBHINMED - median household income
 HBHMEDHS - median housing unit value
 HBHRECNT - percent housing units built in last 10 years
 HBHRESDN - housing units per square mile
 HBHTNOWN - percent owner-occupied housing
 HBHTNRNT - percent renter-occupied housing
 HBHUR - urban/rural code (see below)
 HBP65P - percent of population 65 and older
 HBPCOLGD - percent of population college grads
 HBPFORBN - percent of population foreign born
 HBPHISP - percent of population Hispanic
 HBPHSGD - percent high school grads of 25+ population
 HBPLTPOV - percent families below poverty
 HBPPOPDN - population density (persons per square mile)
 HBPOPNO - current population
 HBPRCAA - percent African-American
 HBPRCASN - percent Asian-American
 HBPRCCAU - percent white
 HBPRCOTH - percent other race

**HOUSEHOLD
 DESCRIPTOR,
 TRACT LEVEL**

These are the same as the Block Group variables, but a "T" (tract) replaces the "B" (block group) in the second letter of the variable name. There are 2 additional household descriptor variables at the tract level that are related to the amount of employment in the residence census tract:

HTEEMPDN - jobs per square mile
 HTINDRET - percent of the workplace population in retail trade.

Both of these were added to give a picture of the degree of business activity at the residence end. The second variable, retail trade employment, provides a measure of the accessibility to goods and services. This is useful in determining if there is a chance for mode substitution, such as walking instead of driving.

**WORKPLACE
DESCRIPTOR**

All of the workplace descriptors are at the census tract level.

- WEMPLDN - jobs per square mile
- WTINDAG - percent of workers in agriculture, mining, or construction
- WTINDFIN - percent of workers in finance, insurance or real estate
- WTINDMAN - percent of workers in manufacturing industries
- WTINDRET - percent of workers in retail trade industries
- WTINDSVC - percent of workers in service industries
- WTINDTRN - percent of workers in transportation, communication or public utilities
- WTINDWHL - percent of workers in wholesale trade industries.

**URBAN-
RURAL
CONTINUUM**

The remainder of the Appendix describes the urban/rural continuum developed by Claritas, Inc. These variables:
 HTHUR: Urban/rural code, census tract
 HTBUR: Urban/rural code, block group
 should not be confused with the variable URBAN, which is the urbanized area status of the sample household. The categories of the Urban/Rural Continuum, and the distribution of NPTS households within these categories, are:

	Households in NPTS block group level	Percent of households block	Households in NPTS tract level	Percent of households tract level
Urban	5,960	14.18	6,006	14.29
Second City	8,811	20.96	8,549	20.34
Suburb	10,017	23.83	10,179	24.22
Town	10,243	24.37	10,139	24.12
Rural	6,669	15.87	6,827	16.24

Subtotal	41,700	99.21	41,700	99.21
Not Ascertained	333	0.79	333	0.79
Total	42,033	100.0%	42,033	100.0%

**BACK-
GROUND OF
URBAN-
RURAL**

Claritas, Inc. developed an urban-rural dimension to incorporate into their lifestyle cluster system, which is used primarily for research and marketing applications. The goal was to establish objective classifications that were less boundary-dependent than previous topologies.

**URBAN-
RURAL
VARIABLE**

The classification that is reflected in the Urban/Rural variable is based on population density, but not just the density of a specific geography, but the density in context of its surrounding area, or "contextual density". To establish this classification, the United States was divided into a grid to reduce the impact of variation in size (land area) of census tracts and block groups. Density was converted into centiles, that is, the raw numbers (persons per square mile) were translated into a scale from 0 to 99.

"Rural" (centiles 19 and less) and "small town" (centiles 20 to 39) definitions are based solely on the density. Population centers were defined if a route through the 8 neighboring cells could be constructed in which the density of successive cells was decreasing or equal. Population centers with centiles greater than 79 were designated "urban." Other centers were classified as "second cities." Finally, "suburban" areas of the population centers were defined, using both the cell density and the cell's density relative to the population center's density.

Reference: David R. Miller and Ken Hodges, "A Population Density Approach to Incorporating an Urban-Rural Dimension into Small Area Lifestyle Clusters." Paper presented at the Annual Meeting of the Population Association of America, Miami, Florida, May 1994.