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CODING GEOGRAPHIC AREAS ACROSS
CENSUS YEARS: CREATING CONSISTENT
DEFINITIONS OF METROPOLITAN AREAS

David A. Jaeger
Susanna Loeb
Sarah E. Turner
John Bound

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Creating Consistent Definitions of Metropolitan Areas
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ABSTRACT

This paper presents suggested matches for the geographical coding (geocoding) of metropolitan areas in the 1970, 1980, and 1990 Censuses. The Census Bureau used different definitions and taxonomies to describe the geography of metropolitan areas in these three Census years. As a result, the *geographical areas* referred to by the standard Census Bureau definitions differ among the three Census data sets. The geographic matching scheme explained in this paper attempts to maximize consistency over time for metropolitan areas in the U.S.

David A. Jaeger
Department of Economics
Hunter College
695 Park Avenue
New York, NY 10021-5085
David.Jaeger@hunter.cuny.edu

Sarah E. Turner
School of Education and Dept. of Economics
University of Virginia
405 Emmet Street
Charlottesville, VA 22903
sturner@virginia.edu

Susanna Loeb
Department of Economics
University of California -- Davis
Davis, CA 95616
sloeb@ucdavis.edu

John Bound
Population Studies Center
University of Michigan
1225 South University Avenue
Ann Arbor, MI 48104
and NBER
jbound@umich.edu

I. Introduction

This paper presents suggested matches for the geographical coding (geocoding) of metropolitan areas for use with the public use microsamples (PUMS) of the 1970, 1980, and 1990 Censuses. The Census Bureau used different definitions and taxonomies to describe the geography of metropolitan areas in these three Census years. As a result, the *geographic areas* referred to by the standard Census Bureau definitions differ among the three Census data sets. The geographic matching scheme explained in this paper attempts to maximize consistency over time for metropolitan areas in the U.S.

These geocodings first appeared in two projects that used metropolitan areas as proxies for well-defined, independent labor markets. Building on the earlier work of Loeb described below, Jaeger (1995) constructed geographically consistent definitions of the 50 largest metropolitan areas between the 1980 and 1990 Censuses to examine the substitutability of immigrants and natives in different skill categories. He also examined the impact of immigration on the wages of native workers in those 50 metropolitan areas. Bound and Holzer (1996) examined the effect of labor demand shifts and population adjustments on economic outcomes of specific demographic groups during the 1980s. For this analysis, Loeb and Turner extended Jaeger's geocodings to cover the 132 metropolitan areas with 1990 populations in excess of 250,000. Prior to these studies, Loeb generated a 1970-80-90 match for an initial inquiry on local labor markets by Bound and Holzer.¹

¹ Loeb's work built on an earlier 1970-80 match of 52 metropolitan areas done by Marshall Cummings for work done by Bound and Holzer (1993) using the 1970 and 1980 Censuses.

The geographic coding available in the 1970 Census necessitates more limited, and less inclusive, definitions of the metropolitan areas. This results in a less-precise mapping than is possible between 1980 and 1990 alone. In this sense, the geographic coding of the PUMS data for the three Census years implies that the 1970/1980/1990 matching is cruder than the 1980/1990 matching. Since there are certainly many additional questions that might be addressed using these data, the purpose of this note is to provide a guide to how the metropolitan area mappings were made from which others may benefit.

Section II of the paper briefly summarizes the various terms and resources important in using data with metropolitan areas as the focal geographic unit. Section III provides a step-by-step explanation of the matching process between 1980 and 1990, with a summary of the imperfections in this process. Section IV discusses the matching of 1970, 1980 and 1990 metropolitan areas and explains why the changes in coding during that time inhibit the process of matching without the introduction of substantial mismatches across years.

II. Census Micro Data and the Classification of Metropolitan Areas

In 1990, the Census Bureau defines a Metropolitan Area (MA) as:

a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that nucleus...Each MA must contain either a place with a minimum population of 50,000 or a Census Bureau-defined urbanized area and a total MA population of at least 100,000 (75,000 in New England). An MA comprises one or more central counties (cities and towns in New England) that have close economic and social relationships with the central county. An outlying county must have a

specified level of commuting to the central counties and must meet certain standards regarding metropolitan character, such as population density, urban population, and population growth.

Using this concept as a starting point, our objective was to construct metropolitan areas that maximize geographic consistency across Census years. While this is a relatively straightforward task in principle, changes in federal definitions of metropolitan areas, as well as a change in the coding scheme to designate sub-areas comprising these metropolitan areas, complicate this process considerably.

One source of confusion and complication in many analyses discussing metropolitan areas is the distinction among a veritable “alphabet soup” of metropolitan designations. Various “types” of MAs, which are not necessarily mutually exclusive, and the Census years in which the terms applied include:

- **MSA (90)**: relatively freestanding and not closely associated with other MAs, typically surrounded by non-metropolitan areas; the title of an MSA contains the name of its largest city and up to two additional city names.
- **CMSA (90)**: a consolidated metropolitan area is an MA of more than 1 million people which may include one or more PMSAs (see below); this concept provides an umbrella classification for cities whose economies are closely tied.²
- **PMSA (90)**: a primary metropolitan statistical area defines a large urbanized county or cluster of counties that demonstrate very strong internal economic and social links within a CMSA
- **SMSA (80)**: An SMSA consists of one or more entire counties or county equivalents (in New England, towns and cities are the basic units).

² For example, in 1980 New York City, Jersey City, and Newark were considered to be separate metropolitan areas. In 1990, all three -- along with a substantial portion of New Jersey, and several counties in New York State and Connecticut -- are considered to be part of the New York--New Jersey--Long Island CMSA.

Although counties are the primary political units in most states, other designations are used in states like Louisiana where parishes are the primary geographical division and in New England areas where cities and towns are often more meaningful designations.

MA designations are managed by the Federal Office of Management and Budget, following uniform standards. Unfortunately, since the SMSA to PMSA/CMSA/MSA mappings are not one-to-one, it is not possible to simply map from one scheme to the other; rather, it is necessary to examine the component parts of these metropolitan classifications to put the pieces together as consistently as possible.

For the 1990 Census microdata, the building blocks in creating metropolitan areas are the Public Use Microdata Areas (or PUMAs). PUMAs comprise population groups of at least 100,000 persons and are designated by five-digit numbers that are unique within states. While the Census Bureau records data at the more disaggregate levels of the block, the block area and the tract, the PUMA is the most disaggregate unit of analysis available to the researcher with the microdata records.³ Depending on the population density of the specific area and the geographic range of the respective counties, PUMAs may define a subset (several Census tracts) of a single county (e.g., Westchester County in New York State comprises PUMAs 04401 through 04405 plus 04500) or, in less densely populated areas, the PUMA might consist of several counties, all with quite small populations (e.g., PUMA 03500 in New York State comprises Cortland, Tioga, and Tompkins Counties).

³ The Census Bureau does release aggregate or average data at more disaggregate units such as the tract.

For the 1980 Census microdata, the county group is the primary building block used in constructing the metropolitan area. While the county group serves the same functional purpose as the PUMA, the definitions are not entirely coincident with PUMAs. In general, county groups tend to comprise somewhat larger geographic areas than PUMAs, though this is not universally true. Thus, our objective is to “add up” county groups in 1980 and PUMAs in 1990 to produce consistent geographical definitions for each metropolitan area.

III. The Mechanics of the 1990 to 1980 match

The primary tools for matching 1980 and 1990 data are the geographical equivalency files for each year.⁴ For matching 1990 and 1980 data, we focus on CMSA definitions where applicable, because CMSAs are likely to be better approximations of local labor markets than PMSAs. In total, we matched county groups and PUMAs for 132 MSAs, representing all metropolitan areas with populations larger than 250,000.

The steps to the matching process include:

- 1. Match PUMAs to MSAs/CMSAs in the 1990 Census using the Geographical Equivalency file.*

⁴ The geographic equivalency file for the 5 percent PUMS can be found at <ftp://ftp.psc.lsa.umich.edu/pub/census/pums/1980/5pct/equiv/> and

As a first step, we are able to eliminate those PUMAs composed of entirely non-metropolitan areas. Next, when PUMAs reflect a geographical area entirely within a CMSA/MSA the PUMA is allocated to the MSA. Cases in which the PUMA is split between (possibly multiple) metropolitan areas and/or non-metropolitan areas present more difficulty. In cases where the PUMA encompasses multiple metropolitan areas, it is assigned to a single metropolitan area based on geography and the relative populations of the different metropolitan areas within the PUMA. In other words, the PUMA is assigned to the MSA with a greatest share of the PUMA's population. For PUMAs including both a metropolitan and non-metropolitan areas, we assigned the entire PUMA to the metropolitan area. Thus, our definition of CMSAs and MSAs is slightly different from those defined by the Bureau of the Census and includes some non-metropolitan areas.

2. Match 1980 County Groups to 1990 MSA/CMSA Definitions.

Having redefined the CMSAs/MSAs based on information available in the 1990 PUMS file, we then match the 1980 county groups to those definitions. In most cases, we were able to match the geographies exactly or nearly exactly.

Table 1, which gives extracts from the 1980 and 1990 geographic equivalency files for the area around Little Rock, Arkansas, helps to illustrate this process more clearly. Looking at the 1990 equivalency extract, we see that Little Rock (CMSA 4400) appears in PUMA 1500 and PUMA 1600. All of PUMA 1500 is in Little Rock so this is immediately

<ftp://ftp.psc.lsa.umich.edu/pub/census/pums/1990/5pct/equiv/>, for 1980 and 1990,

included in our definition of Little Rock. Only part of PUMA 1600 is in the CMSA definition of Little Rock. However, since the remainder of PUMA 1600 is not in any other metropolitan area, this PUMA is also included in our definition. We see from the extract that, while the Census definition included only Pulaski (119), Saline (125), Faulkner (045), and Lonoke (085) counties. Ours includes Monroe (095) and Prairie (117) counties as well.

Next look at the 1980 geographic equivalency file extract. We would like to select the county groups so as to match the counties in Little Rock between 1980 and 1990. County group 007 includes counties 045, 085, 095, and 117, all of which are in our definition of Little Rock. We therefore include county group 007 in our 1980 sample. Similarly county groups 008 and 009 include parts of county 119 so they are included as well. Finally, county group 010 has both county 125 and the balance of Pulaski County and so also is included in our 1980 definition. In this case we have a perfect match between the two years.

Table 2 presents the results of this matching process for the 132 MSAs with 1990 populations greater than 250,000. The first column gives the name of the metropolitan area and the second, the state number. Columns two and three give the 1980 county group numbers and the 1990 PUMA numbers that comprise our definition of the MA.

Table 3 describes each C/MSA match by its 1990 population based on the geographic areas included in our 1990 definition, the ratio of our definition to the Census Bureau definition (as a measure of the similarity of the Census Bureau definition and our

respectively.

definition), the ratio of the 1990 population based on our definition to the 1990 population based on the county group definition (as a measure of how well the 1980 and 1990 definitions match), and the percent of the C/MSA that is considered a metropolitan area in our 1990 definition. The matches are generally quite close, if not exact. Our definition contains somewhat larger populations than the Census Bureau's for some metropolitan areas.

SAS code which implements these matches is available at <http://www.nber.org/census-geocodes>.

III. Matching 1970, 1980, and 1990

The process for matching 1970, 1980 and 1990 metropolitan areas was similar to the one described above for the later two years. However, the geographic (county group) codes available in the 1970 Census allow for far less precision than in the later years. In most cases, the metropolitan area, as defined in 1970, is composed of one county group. Trying to expand this definition to include surrounding areas often entails including most of the remainder of the state. Moreover, the 1970 definitions of the metropolitan areas tend to be substantially smaller than in 1980 or 1990. The choice then becomes between too small a definition, which may leave out a substantial part of the area labor market, or too large a definition, which may defeat the purpose of using metropolitan areas instead of states as the unit of analysis. The situation is not so dark for all areas.

Table 4 presents the 1970-80-90 matches for 125 metropolitan areas that are identifiable in the 1970 PUMS data. The third column of this table gives the names of the counties included in the 1970 definition of each metropolitan area. The fourth column gives the names of other counties that were included in either our 1980 or 1990 definition. It is important to note that the 1980 and 1990 definitions presented here are *not* the same as those for the 1980-90 match since they are based closely on the 1970 Census definition, not the 1990 Census definition. Columns five and six give the county numbers and 1980 county populations. The three remaining columns give the 1970 county group numbers, the 1980 county group numbers, and the 1990 PUMA numbers to be included in the match. In most cases all these numbers are in bold text and should be included in the new definitions. In a few cases, plain text numbers are included. We do not include these in our match. However, the matches including and not including these plain text county groups or PUMAs were close enough that we provide them in the table so that the reader may decide his/her own preference for including or excluding these areas. The final line in the table for each metropolitan area describes the precision of the fit.

To see how this matching was accomplished, again consider Little Rock, Arkansas. In 1970, this metropolitan area was defined as Saline and Pulaski Counties alone. For the 1980 these counties correspond precisely to county groups 008, 009 and 010, while in 1990 they are both included in PUMA 1500. As is the case for the 1980-90 mapping, this is a perfect match. However, it also is a substantially more limited definition of Little Rock. As a second example, consider Miami, Florida. The 1970 definition includes only Dade County. In 1990 we can match Dade County exactly with PUMAs 03601, 03602, 03700,

03800, and 03901-03909. In 1980, on the other hand, in order to get all of Dade County we have to use county group 053, which includes Monroe County as well. Based on the 1980 population figures, we then have a perfect match between 1970 and 1990 but have 3.89% more people in our 1980 definition. From the plain text PUMAs we can also see that in order to match 1980 and 1990 more precisely we would have to include PUMA 02400 which would give us Collier County, as well, taking us further from the 1970 definition. We chose not to do this for our match. Overall, 63 of the 125 metropolitan areas are perfectly matched across the three years. The precision of the other matches varies considerably. The table indicates for which areas the match is not precise; those areas without notes match exactly.

IV. Conclusion

Matching the geographies of metropolitan areas is complicated by a lack of consistent definitions in the underlying data. Using the constituent geographic units – county groups in 1970 and 1980, and PUMAs in 1990, we propose two matches for use with PUMS data from the 1970, 1980, and 1990 Censuses. In the first, we provide a match between the 1980 and 1990 geographies, while in the second, we provide a less-precise match between the geographies in all three Census years. In this match we have attempted to maximize the *geographic* consistency of our definitions across years to facilitate the analysis of economic and social outcomes with the Census.

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Table 1: Extracts from Geographical Equivalency File, 1980 and 1990, Little Rock, AR

1980 Equivalency File

 STATE: 05 COUNTY GROUP: 007 SMSA: 0000 TOTAL POPULATION: 104902
 TYPE OF AREA: NONMETROPOLITAN AREA

NAME	POPULATION	ST	COU	MCD	PL	SMSA
FAULKNER COUNTY	46192	05	045			
LONOKE COUNTY	34518	05	085			
MONROE COUNTY	14052	05	095			
PRAIRIE COUNTY	10140	05	117			

 STATE: 05 COUNTY GROUP: 008 SMSA: 4400 TOTAL POPULATION: 158461
 TYPE OF AREA: SMSA CENTRAL CITY

NAME	POPULATION	ST	COU	MCD	PL	SMSA
LITTLE ROCK CITY	158461	05	119	1195	4400	

 STATE: 05 COUNTY GROUP: 009 SMSA: 4400 TOTAL POPULATION: 102463
 TYPE OF AREA: SMSA, CENTRAL CITY/REMAINDER NOT SEPARATELY IDENTIFIED

NAME	POPULATION	ST	COU	MCD	PL	SMSA
JACKSONVILLE CITY	27589	05	119	1045	4400	
NORTH LITTLE ROCK CITY	64288	05	119	1475	4400	
SHERWOOD CITY	10586	05	119	1825	4400	

 STATE: 05 COUNTY GROUP: 010 SMSA: 4400 TOTAL POPULATION: 132850
 TYPE OF AREA: SMSA, EXCLUDING CENTRAL CITY

NAME	POPULATION	ST	COU	MCD	PL	SMSA
PULASKI COUNTY	79689 (BALANCE)	05	119		4400	
SALINE COUNTY	53161	05	125		4400	

Table 1, continued

1990 Equivalency File

STATE: 05 PUMA: 01500 MSA/PMSA: 4400
TYPE OF AREA: COUNTIES/INDEPENDENT CITIES (2 OR MORE)

NAME	POPULATION	ST	COU	MCD	PLACE	TRACT	MSA/PMSA
Pulaski County	349660	05	119		4400		
Saline County	64183	05	125		4400		

TOTAL POPULATION: 413843

STATE: 05 PUMA: 01600 MSA/PMSA: 9997
TYPE OF AREA: COUNTIES/INDEPENDENT CITIES (2 OR MORE)

NAME	POPULATION	ST	COU	MCD	PLACE	TRACT	MSA/PMSA
Faulkner County	60006	05	045		4400		
Lonoke County	39268	05	085		4400		
Monroe County	11333	05	095		9999		
Prairie County	9518	05	117		9999		

TOTAL POPULATION: 120125

**Table 2: 1980 -1990 Matches Based on
1990 MSA/CMSA Definitions**

MSA	C/MSA Name	1980		1990 PUMA
		State Num.	County Group	
0160	Albany-Schenectady-Troy, NY	36	5-9	800-1200
		36	33	3800
		35	4-5	201-204
0240	Allentown-Bethlehem, PA-NJ	42	51-54	2001-2102
0460	Appleton-Oshkosh-Neenah, WI	55	5-6	400-500
0520	Atlanta, GA	13	4-10	800
		13	12	1500-2103
		13	27	2300
		13		3000
0560	Atlantic City, NJ	34	38	100-200
0600	Augusta, GA-SC	13	25-26	500
		13		2200
		45	16	1800
0640	Austin, TX	48	44-45	4901-5200
		48	66	
0680	Bakersfield, CA	6	36-37	4900-5002
0720	Baltimore, MD	24	4-8	201-306
		24	12	500-600
		24		1000-1100
		24		1501-1504
0760	Baton Rouge, LA	22	14-17	1200-1500
0840	Beaumont-Port Arthur, TX	48	54-56	5900-6100
0960	Binghamton, NY	36	17	3500-3602
		36	29-30	
1000	Birmingham, AL	1	9-11	1700-1806
1123	Boston-Lawerence-Salem-Lowell-Brockton, MA	25	11-33	1400-3800
		33	3	501
		33		503
1240	Brownsville-Harlingen, TX	48	38	4201-4202

Table 2, continued

MSA	C/MSA Name	1980		1990 PUMA
		State Num.	County Group	
1282	Buffalo-Niagara Falls, NY (C)	36	23-25	2301-2302
		36		2500-3003
1320	Canton, OH	39	27-28	5001-5003
1440	Charleston, SC	45	19-21	1100-1202
1480	Charleston, WV	54	8-9	700
1520	Charlotte-Gastonia-Rock Hill NC-SC	37	36-40	801-1200
		45	6	500
1560	Chattanooga, TN-GA	13	1	300
		47	15-17	1000-1300
1602	Chicago-Gary-Lake County, IL-IN-WI (C)	17	32-38	3001-3502
		18	1-4	800-1000
		18		1200
		18		3700-3900
		55	21	2000
1642	Cincinnati-Hamilton, OH-KY-IN (C)	18	36	400
		21	1-2	1300-1400
		39	51-55	3000
		39		3300
		39		5301-5406
1692	Cleveland-Akron-Lorain, OH (C)	39	6-18	400
		39	23-25	800-900
		39		3700-4704
1720	Colorado Springs, CO	8	14	1000-1100
1760	Columbia, SC	45	13-15	1601-1700
1840	Columbus, OH	39	41-44	1700
		39	56	2300
		39		2700-2800
		39		5101-5107
1880	Corpus Christi, TX	48	35	4000
		48	39	4301-4302
		48		4800

Table 2, continued

MSA	C/MSA Name	1980		1990 PUMA
		State Num.	County Group	
1922	Dallas-Fort Worth, TX (C)	48	13-25	1500
		48		1800-2904
1960	Davenport-Rock Island-Moline, IA-IL	17	7	600
		17	10-11	1000
		19	16	1400
2000	Dayton-Springfield, OH	39	45-50	2100-2200
		39		2600
		39		5201-5205
2020	Daytona Beach, FL	12	14-15	900
2082	Denver-Boulder, CO (C)	8	6-12	101-702
2120	Des Moines, IA	19	8-11	700-1000
2162	Detroit-Ann Arbor, MI (C)	26	24	2200
		26	33-59	3000-4400
2320	El Paso, TX	48	32	3701-3705
2360	Erie, PA	42	1-2	101-102
2400	Eugene-Springfield, OR	41	9-10	700-800
2440	Evansville, IN-KY	18	31-33	500
		18		2400
2560	Fayetteville, NC	37	32-33	3000-3100
2640	Flint, MI	26	21-23	2000-2102
2700	Fort Myers-Cape Coral FL	12	31	3001-3003
2710	Fort Pierce, FL	12	30	2700-2800
2760	Fort Wayne, IN	18	9-12	1700-1800
		18		2600-2700
2840	Fresno, CA	6	27-28	4000-4100
3000	Grand Rapids MI	26	13-15	1300-1700
		26	17	
3120	Greensboro-Winston-Salem-High Point, NC	37	7-13	1300-1700
		37		2000-2200
3160	Greenville-Spartanburg, SC	45	2-5	100-302
3240	Harrisburg-Lebanon-Carlisle, PA	42	41-45	2200
		42		3601-3700

Table 2, continued

MSA	C/MSA Name	1980		1990 PUMA
		State Num.	County Group	
3283	Hartford-New Britain-Middletown-Bristol CT	9	11	200-1000
		9	14-21	2500
3320	Honolulu, HI	15	1-2	301-307
3362	Houston-Galveston-Brazoria, TX (C)	48	50-51	5500-5600
		48	57-64	6200-6908
		48		7200
3400	Huntington-Ashland, WV-KY-OH	21	11	1100
		39	59	3500
		54	10-11	800
3480	Indianapolis, IN	18	21-24	101-107
		18		3300-3500
3560	Jackson, MS	28	8-10	800-1000
3600	Jacksonville, FL	12	7-9	200
		12		1000-1100
3660	Johnson City-Kingsport-Bristol, TN-VA	47	25-27	100-300
		51	9-10	200
		51		3200
3760	Kansas City MO-KS	20	9-11	901-1100
		29	7-12	700-1005
3810	Killeen-Temple, TX	48	46-47	5300-5400
3840	Knoxville, TN	47	21-24	600-900
3980	Lakeland-Winter Haven FL	12	20	4600
4000	Lancaster, PA	42	46-48	3501-3503
4040	Lansing-East Lansing MI	26	18	1700-1900
		26	20	
4120	Las Vegas NV	32	1-2	201-205
4280	Lexington-Fayette, KY	21	6-8	1600-1802
4400	Little Rock-North Little Rock, AR	5	7-10	1500-1600
4472	Los Angeles-Anaheim-Riverside, CA (C)	6	38-50	3700
		6		4200-4808
		6		5200-7207
4520	Louisville, KY-IN	18	34-35	200-300
		21	3-5	1900-2103
4680	Macon-Warner Robins, GA	13	13-14	400
		13		3100

Table 2, continued

MSA	C/MSA Name	1980		1990 PUMA
		State Num.	County Group	
4720	Madison, WI	55	17-18	1600-1700
4880	McAllen-Edinburg-Mission, TX	48	36-37	4101-4103
4900	Melbourne-Titusville-Palm Bay, FL	12	16	1200-1400
4920	Memphis, TN-AR-MS	5	5	600
		28	1	100
		47	1-3	1800-2000
4992	Miami-Fort Lauderdale, FL (C)	12	36-53	3200-3909
5082	Milwaukee-Racine, WI (C)	55	22-26	2100-2400
5122	Minneapolis-St.Cloud MN-WI (C)	27	14-25	900
		27		1100-2400
		55	12	1100
5160	Mobile, AL	1	19-21	700-800
5170	Modesto, CA	6	22-23	2400-2500
5240	Montgomery, AL	1	17	1300
		1		1500
5360	Nashville, TN	47	8-11	501-505
		47		2300-2500
5480	New Haven-Meriden CT	9	7-10	2000-2200
		9		2400
5520	New London-Norwich, CT-RI	9	12-13	2600-2700
5560	New Orleans LA	22	19	1700
		22	21-26	1901-2300
5602	N.Y.-North. N.J.-Long Island, NY-NJ-CT (C)	9	1-6	1100-1700
		9	24	2300
		34	1-37	400-4400
		34	51-52	
		36	34-44	2401-2412
		36		4000-5414
5720	Norfolk-Virginia Beach-Newport News VA	51	16-21	2300
		51	26	2500-3100
		51		3300
5880	Oklahoma City, OK	40	10-13	900-1100

Table 2, continued

MSA	C/MSA Name	1980		1990 PUMA
		State Num.	County Group	
5920	Omaha, NE-IA	19	19	1700
		31	6-7	900-1004
		12	17-19	1600-2300
5960	Orlando, FL	12	17-19	1600-2300
6080	Pensacola, FL	12	1	100
6120	Peoria, IL	17	8-9	700-900
6162	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD (C)	10	1	301-304
		34	39-50	300
		34		4500-5600
		42	55-72	2601-3003
6200	Phoenix, AZ	4	8-9	101-116
6282	Pittsburgh-Beaver Valley PA (C)	42	22-34	1301-1400
		42		3301-3303
		42		3800-3902
6442	Portland-Vancouver, OR-WA (C)	41	2-7	1000-1500
		53	10	1901-1902
6483	Providence-Pawtucket-Woonsocket, RI-MA	25	34-35	4000
		25		4200
		44	1-7	100-800
6520	Provo-Orem, UT	49	6	500
6640	Raleigh-Durham, NC	37	15-19	2301-2500
		37		2700
6680	Reading, PA	42	49-50	3101-3102
6720	Reno, NV	32	3-4	100
		32		300-400
6760	Richmond-Petersburg, VA	51	22-25	1800-2100
		51		2400
6840	Rochester, NY	36	19-22	1900-2200
6880	Rockford, IL	17	2-3	300-400
6920	Sacramento, CA	6	7-11	700
		6		1000-1200
		6		2801-2906
6960	Saginaw-Bay City-Midland, MI	26	8-9	800-900
		26	11	1100
7040	St. Louis, MO-IL	17	18-22	1700-2100
		29	22-26	1101-1500

Table 2, continued

MSA	C/MSA Name	1980		1990 PUMA
		State Num.	County Group	
7120	Salinas-Seaside-Monterey, CA	6	33	3800-3902
7160	Salt City-Ogden, UT	49	1-5	100-400
7240	San Antonio, TX	48	40-42	4401-4600
7320	San Diego CA	6	51-52	3301-3313
7362	San Francisco-Oakland-San Jose, CA (C)	6	12-19	900
		6	30-32	1300-2206
		6		3401-3411
		6		3600
7480	Santa Barbara-Santa Maria-Lompoc, CA	6	35	3201-3202
7510	Sarasota, FL	12	28	3101-3102
7560	Scranton-Wilkes-Barre, PA	42	7-8	500-700
		42	10-15	1800
		42		3200
7602	Seattle-Tacoma, WA (C)	53	13-14	1001-1004
		53	17-19	1301-1304
		53		1701-1808
7680	Shreveport, LA	22	1-2	100
7840	Spokane, WA	53	5	500-600
8000	Springfield, MA	25	2-6	200-700
8120	Stockton, CA	6	20-21	2301-2304
8160	Syracuse, NY	36	13-16	400
		36		1400-1700
8280	Tampa-St. Petersburg-Clearwater, FL	12	11	4000
		12	21-26	4200-4500
8400	Toledo, OH	39	1-4	100-200
		39		3601-3604
8520	Tucson, AZ	4	5-6	201-205
8560	Tulsa, OK	40	4-7	100
		40		600-700
8680	Utica-Rome, NY	36	10-12	501-600
8780	Visalia-Tulare-Porterville, CA	6	26	3500

Table 2, continued

MSA	C/MSA Name	1980		1990 PUMA
		State Num.	County Group	
8840	Washington, DC-MD-VA	11	1	101-105
		24	3	400
		24	9-11	700
		24		900
		24		1201-1307
		51	27-31	800-1100
		51		2200
8960	West Palm Beach-Boca Raton-Delray FL	12	33-35	2901-2906
9040	Wichita, KS	20	4-6	400-600
9240	Worcester, MA	25	7-9	800-1100
9280	York PA	42	38-40	2300
		42		2501-2503
9320	Youngstown-Warren, OH	39	19-22	4801-4802
		39		4901-4902

NOTES: (C) indicates 1990 CMSA.

Table 3: Population and Relative Population of Metropolitan Areas Using 1980 and 1990 Definitions

C/MSA	C/MSA Name	Population			1990 Metro. Share
		1990 Definition	90 Def./ Cen.Bur. Def.	90 Def./ 80 Def.	
0160	Albany-Schenectady-Troy, NY	885,305	1.01	1.00	0.93
0200	Albuquerque, NM	480,577	1.00	1.00	1.00
0240	Allentown-Bethlehem, PA-NJ	785,324	1.14	1.00	1.00
0460	Appleton-Oshkosh-Neenah, WI	315,121	1.00	1.00	1.00
0520	Atlanta, GA	2,908,797	1.03	1.00	0.91
0560	Atlantic City, NJ	224,327	0.70	1.00	1.00
0600	Augusta, GA-SC	505,820	1.28	1.00	0.78
0640	Austin, TX	902,122	1.15	1.00	0.87
0680	Bakersfield, CA	543,477	1.00	1.00	1.00
0720	Baltimore, MD	2,528,944	1.06	1.00	0.97
0760	Baton Rouge, LA	622,666	1.18	1.00	0.85
0840	Beaumont-Port Arthur, TX	361,226	1.00	1.00	1.00
0960	Binghamton, NY	407,557	1.54	1.00	0.65
1000	Birmingham, AL	800,892	0.88	1.00	1.00
1123	Boston-Lawrence-Salem-Lowell-Brockton, MA	3,966,688	0.95	0.97	0.99
1240	Brownsville-Harlingen, TX	260,120	1.00	1.00	1.00
1282	Buffalo-Niagara Falls, NY(C)	1,189,288	1.00	1.00	1.00
1320	Canton, OH	367,585	0.93	1.00	1.00
1440	Charleston, SC	506,875	1.00	1.00	1.00
1480	Charleston, WV	286,307	1.14	1.00	0.88
1520	Charlotte-Gastonia-Rock Hill NC-SC	1,306,789	1.13	1.00	0.89
1560	Chattanooga, TN-GA	502,261	1.16	1.00	0.86
1602	Chicago-Gary-Lake County, IL-IN-WI (C)	8,026,220	1.00	1.00	1.00
1642	Cincinnati-Hamilton, OH-KY-IN (C)	1,863,083	1.07	1.00	0.94
1692	Cleveland-Akron-Lorain, OH (C)	2,859,644	1.04	1.00	0.97
1720	Colorado Springs, CO	397,014	1.00	1.00	1.00
1760	Columbia, SC	453,331	1.00	1.00	1.00
1840	Columbus, OH	1,446,749	1.05	1.02	0.95
1880	Corpus Christi, TX	518,510	1.48	1.00	0.68
1922	Dallas-Fort Worth, TX (C)	3,949,073	1.02	1.00	0.98
1960	Davenport-Rock Island-Moline, IA-IL	373,881	1.07	0.95	0.86
2000	Dayton-Springfield, OH	1,045,002	1.10	0.98	0.91
2020	Daytona Beach, FL	370,712	1.00	1.00	1.00
2082	Denver-Boulder, CO (C)	1,787,928	0.97	1.00	1.00
2120	Des Moines, IA	569,645	1.45	1.00	0.69
2162	Detroit-Ann Arbor, MI (C)	4,735,006	1.02	1.00	0.99
2320	El Paso, TX	591,610	1.00	1.00	1.00

Table 3, continued

C/MSA	C/MSA Name	Population			1990 Metro. Share
		1990 Definition	90 Def./ Cen.Bur. Def.	90 Def./ 80 Def.	
2360	Erie, PA	275,572	1.00	1.00	1.00
2400	Eugene-Springfield, OR	282,912	1.00	1.00	1.00
2440	Evansville, IN-KY	355,581	1.28	1.00	0.66
2560	Fayetteville, NC	274,566	1.00	1.00	1.00
2640	Flint, MI	430,459	1.00	1.00	1.00
2700	Fort Myers-Cape Coral FL	335,113	1.00	1.00	1.00
2710	Fort Pierce, FL	370,906	1.48	0.92	1.00
2760	Fort Wayne, IN	551,081	1.52	1.00	0.66
2840	Fresno, CA	667,490	1.00	1.00	1.00
3000	Grand Rapids MI	688,399	1.00	1.00	1.00
3120	Greensboro-Winston-Salem-High Point, NC	1,112,008	1.06	1.00	0.95
3160	Greenville-Spartanburg, SC	698,355	1.09	1.00	0.92
3240	Harrisburg-Lebanon-Carlisle, PA	587,986	1.00	1.00	1.00
3283	Hartford-New Britain-Middletown-Bristol CT	1,226,203	1.13	0.97	0.88
3320	Honolulu, HI	836,231	1.00	1.00	1.00
3362	Houston-Galveston-Brazoria, TX (C)	4,050,816	1.06	1.01	0.95
3400	Huntington-Ashland, WV-KY-OH	517,497	1.66	0.94	0.60
3480	Indianapolis, IN	1,249,822	1.00	1.00	1.00
3560	Jackson, MS	520,327	1.32	1.00	0.76
3600	Jacksonville, FL	1,018,984	1.12	1.00	0.89
3660	Johnson City-Kingsport-Bristol, TN-VA	712,233	1.63	1.00	0.61
3760	Kansas City MO-KS	1,722,403	1.10	1.00	0.90
3810	Killeen-Temple, TX	382,142	1.50	1.00	0.67
3840	Knoxville, TN	604,816	1.00	1.10	1.00
3980	Lakeland-Winter Haven FL	405,382	1.00	1.00	1.00
4000	Lancaster, PA	422,822	1.00	1.00	1.00
4040	Lansing-East Lansing MI	432,674	1.00	1.00	1.00
4120	Las Vegas NV	741,459	1.00	1.00	1.00
4280	Lexington-Fayette, KY	460,587	1.32	1.00	0.76
4400	Little Rock-North Little Rock, AR	533,968	1.04	1.00	0.96
4472	Los Angeles-Anaheim-Riverside, CA (C)	14,640,832	1.01	1.00	0.99
4520	Louisville, KY-IN	1,051,407	1.10	0.97	0.91
4680	Macon-Warner Robins, GA	317,013	1.13	1.00	0.89
4720	Madison, WI	367,085	1.00	1.00	1.00
4880	McAllen-Edinburg-Mission, TX	383,545	1.00	1.00	1.00
4900	Melbourne-Titusville-Palm Bay, FL	398,978	1.00	1.00	1.00
4920	Memphis, TN-AR-MS	1,224,716	1.25	1.00	0.80
4992	Miami-Fort Lauderdale, FL (C)	3,192,582	1.00	1.02	1.00
5082	Milwaukee-Racine, WI (C)	1,607,183	1.00	1.00	1.00

Table 3, continued

C/MSA	C/MSA Name	Population			1990 Metro. Share
		1990 Definition	90 Def./ Cen.Bur. Def.	90 Def./ 80 Def.	
5122	Minneapolis-St.Cloud MN-WI	2,679,333	1.09	1.00	0.95
5160	Mobile, AL	512,441	1.07	1.00	0.93
5170	Modesto, CA	370,522	1.00	1.00	1.00
5240	Montgomery, AL	324,975	1.11	0.90	0.90
5360	Nashville, TN	985,026	1.00	1.00	1.00
5480	New Haven-Meriden CT	586,826	1.11	1.00	1.00
5520	New London-Norwich, CT-RI	254,957	0.96	1.00	0.96
5560	New Orleans LA	1,308,023	1.06	1.00	0.95
5602	N.Y.-North. N.J.-Long Island, NY-NJ-CT (C)	18,306,094	1.00	1.00	1.00
5720	Norfolk-Virginia Beach-Newport News VA	1,578,403	1.13	0.97	0.89
5880	Oklahoma City, OK	877,284	0.92	1.06	1.00
5920	Omaha, NE-IA	711,724	1.15	1.00	0.87
5960	Orlando, FL	1,072,748	1.00	1.00	1.00
6080	Pensacola, FL	344,406	1.00	1.00	1.00
6120	Peoria, IL	306,519	0.90	1.00	0.82
6162	Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD	5,923,087	1.00	1.00	1.00
6200	Phoenix, AZ	2,122,101	1.00	1.00	1.00
6282	Pittsburgh-Beaver Valley PA (C)	2,378,594	1.06	1.00	0.94
6442	Portland-Vancouver, OR-WA (C)	1,755,919	1.00	1.00	1.00
6483	Providence-Pawtucket-Woonsocket, RI	1,237,795	1.08	1.03	0.94
6520	Provo-Orem, UT	263,590	1.00	1.00	1.00
6640	Raleigh-Durham, NC	898,921	1.22	1.00	0.82
6680	Reading, PA	336,523	1.00	1.00	1.00
6720	Reno, NV	345,274	1.36	1.00	0.55
6760	Richmond-Petersburg, VA	896,192	1.04	0.97	0.97
6840	Rochester, NY	1,104,977	1.10	1.02	0.91
6880	Rockford, IL	283,719	1.00	0.89	1.00
6920	Sacramento, CA	1,582,669	1.07	0.99	0.94
6960	Saginaw-Bay City-Midland, MI	529,096	1.33	0.86	0.76
7040	St. Louis, MO-IL	2,598,584	1.06	1.01	0.93
7120	Salinas-Seaside-Monterey, CA	355,660	1.00	1.00	1.00
7160	Salt City-Ogden, UT	1,212,749	1.13	1.00	0.88
7240	San Antonio, TX	1,337,204	1.03	1.00	0.97
7320	San Diego CA	2,498,016	1.00	1.00	1.00
7362	San Francisco-Oakland-San Jose, CA	6,253,311	1.00	1.00	1.00
7480	Santa Barbara-Santa Maria-Lompoc, CA	369,608	1.00	1.00	1.00
7510	Sarasota, FL	277,776	1.00	1.00	1.00
7560	Scranton-Wilkes-Barre, PA	1,122,014	1.53	1.00	0.71
7602	Seattle-Tacoma, WA (C)	2,559,164	1.00	1.00	1.00

Table 3, continued

C/MSA	C/MSA Name	Population			1990 Metro. Share
		1990 Definition	90 Def./ Cen.Bur. Def.	90 Def./ 80 Def.	
7680	Shreveport, LA	334,341	1.00	1.00	1.00
7840	Spokane, WA	361,364	1.00	1.00	1.00
8000	Springfield, MA	672,970	1.27	1.00	0.79
8120	Stockton, CA	480,628	1.00	1.00	1.00
8160	Syracuse, NY	711,632	1.08	1.00	0.93
8280	Tampa-St. Petersburg-Clearwater, FL	2,218,974	1.07	1.00	0.93
8400	Toledo, OH	680,192	1.11	1.09	0.90
8520	Tucson, AZ	666,874	1.00	1.00	1.00
8560	Tulsa, OK	811,126	1.14	1.04	0.80
8680	Utica-Rome, NY	370,824	1.17	1.00	0.85
8780	Visalia-Tulare-Porterville, CA	311,921	1.00	1.00	1.00
8840	Washington, DC-MD-VA	4,108,722	1.05	1.00	0.96
8960	West Palm Beach-Boca Raton-Delray FL	863,518	1.00	1.00	1.00
9040	Wichita, KS	684,188	1.41	1.00	0.71
9240	Worcester, MA	482,436	1.10	1.00	0.92
9280	York, PA	538,930	1.29	1.00	0.78
9320	Youngstown-Warren, OH	492,619	1.00	1.00	1.00

NOTES: See text for description of column headings.

Table 4: 1970-1980-1990 Matches Based on 1970 MSA Definitions

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>Alabama</i>						
1 Birmingham	Jefferson	01:073	617,324	4101	009, 010	01801-01806
	Walker	01:127	68,660	4101	008	00200
	Shelby	01:117	66,298	4101	011	01700
	St Clair	01:115	41,205		011	01700
	Blount	01:009	36,459		008	
	Franklin*	01:059	28,350			00200
	Winston*	01:133	21,953			00200
	*these two counties are included with 3 other counties in 1980					
	No Match: 1980 has 10.32% more than 1970 and 1990 has 12.16% more than 1970					
2 Mobile	Mobile	01:097	364,980	12201	019, 020	00700
	Baldwin	01:003	78,556	12201	021	00800
	Escambia	01:053	38,440		021	00800
	1980 and 1990 match with 8.67% more than 1970					
<i>Arkansas</i>						
3 Little Rock	Saline	05:125	53,161	10401	010	01500
N. Little Rock	Pulaski	05:119	340,613	10401	008, 009, 010	01500
<i>Arizona</i>						
4 Phoenix	Maricopa	04:013	1,509,052	14101	008, 009	00101-00116
5 Tuscon	Pima	04:019	513,443	14102	005, 006	00201-00205
<i>California</i>						
6 Anaheim	Orange	06:059	1,932,709	14302	043, 044, 045, 046	04200, 04300, 04400, 04500, 04600, 04700, 04801-04808
Santa Ana						
Garden Grove						
7 Bakersfield	Kern	06:029	403,089	14303	036, 037	04900, 05001-05002
8 Fresno	Fresno	06:019	514,621	14304	027, 028	04000,04100
9 Los Angeles	Los Angeles	06:037	7,477,503	14301	040, 041, 042	05200, 05300, 05400, 05500,05600, 05700, 05800, 05900, 06000, 06100 06200, 06300, 06401-06424, 06501-06521, 06600
Long Beach						
10 Oxnard	Ventura	06:111	529,174	14305	038, 039	06701-06705
Ventura						
11 Sacramento	Yolo	06:113	113,374	14501	011	01000
	Sacramento	06:067	783,381	14501	008, 009	02801, 02802, 02803 02901-02906
	Placer	06:061	117,247	14501	010	01100

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>California, continued</i>						
12 Salinas Monterey	Monterey	06:053	290,444	14701	033	03800, 03901-03902
13 San Bernardino Riverside Ontario	Riverside San Bernardino Imperial	06:065 06:071	663,166 895,016 92,110	14306 14307	049, 050* 047, 048 050	06800, 06901-06905 07000, 07100 07201-07207
*492,290 of Riverside is in county group 050. 1970 and 1990 match, 1980 has 5.91% more						
14 San Diego	San Diego	06:073	1,861,846	14201	051, 052	03301-03313
15 San Francisco Oakland	San Francisco Alameda Contra Costa Marin San Mateo	06:075 06:001 06:013 06:041 06:081	678,974 1,105,379 656,380 222,568 587,329	14704 14702 14703 14703 14705	014 016, 017 018 019 015	01901-01906 02000, 02101-02109 01700, 01801-01805 01501-01502 02201-02206
16 San Jose	Santa Clara	06:085	1,295,071	14706	030, 031	03401-03411
17 Santa Barbara	Santa Barbara	06:083	298,694	14308	035	03201-03202
18 Stockton	San Joaquin	06:077	347,342	14401	020, 021	02301-02304
<i>Colorado</i>						
19 Denver	Adams Arapahoe Boulder Jefferson Denver	08:001 08:005 08:013 08:059 08:031	245,944 293,621 189,625 371,753 492,365	13101 13101 13102 13102 13103	007 008, 009 010 011, 012 006	00201, 00301-00302 00201-00202, 00400 00701-00702 00500, 00601-00602 00101-00104
<i>Connecticut</i>						
20 Bridgeport	Fairfield New Haven (part) Litchfield (part)	09:001 09:009 09:005	702,578 44,819 1,654	1311	001, 002, 003, 004, 005, 006 006	01100, 01200, 01300, 01400, 01500, 01600, 01700 01200
No match, 1980 has 6.38% more than 1970, 1990 has 0.24% more than 1970						
21 Hartford	Hartford Tolland (part) Tolland (part) Litchfield (part)	09:003 09:013 09:013 09:005	806,350 27,974* 39,426* 10,732*	501	015, 016, 017, 018, 019, 020, 021 018 019 021	00200, 00300, 00400, 00500 00600, 00700, 00800
*county group 018 has 119,522 of county 003, county group 019 has 80,693 of county 003, and county group 021 has 99,909 of county 003 1970 and 1990 match, 1980 has 9.69% more						
22 New Haven	New Haven Fairfield	09:009 09:001	559,232 81,855	503	006*, 007, 008, 009, 010 006	01800, 01900, 02000, 02100, 02200, 02300, 02400
*44,819 of county 009 is in county group 006. 1970 and 1990 match, 1980 has 8.01% less						

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA	
<i>Delaware</i>							
23	Wilmington	Cecil, MD	24:015	60,430	1411	24:012	24:00500
		New Castle, DE	10:003	398,115	1411	10:001	10:00301-00304
		Salem, NJ	34:033	64,676	1411	34:039	34:00300
		Caroline, MD	24:011	23,143		24:012	24:00500
		Kent	24:029	16,695		24:012	24:00500
		Queen Anne's	24:035	25,508		24:012	24:00500
		Talbot	24:041	25,604		24:012	24:00500
		Cape May, NJ	34:009	82,266		34:039	34:00300
1980 and 1990 match with 23.91% less than 1970							
<i>District of Columbia</i>							
24	Washington, DC	DC	11:001	638,333	1604	11:001	00101-00105
		Montgomery, MD	24:031	579,053	1605	24:009	01201-01206
		Prince George,s, MD	24:033	665,071	1606	24:010	01301-01307
		Alexandria City, VA	51:510	103,217	1607	51:030	01000
		Arlington, VA	51:013	152,599	1607	51:029	00800
		Fairfax City, VA	51:600	19,390	1608	51:031	01100
		Falls Church City, VA	51:610	9,515	1608	51:031	01100
		Fairfax, VA	51:059	596,901	1608	51:031	01100
		Laudon, VA	51:107	57,427	1608	51:028	00900
		Prince William, VA	51:153	144,703	1608	51:028	00900
		Manassas City, VA	51:683	15,438	*	51:028	00900
		Manasses Park City, VA	51:685	6,524	*	51:028	00900
*these two counties may be included in the 1970 county groups here. they do not appear individually on the 1970 map.							
<i>Florida</i>							
25	Fort Lauderdale Hollywood	Broward	12:011	1,018,200	3301	036, 037, 038, 039, 040, 041, 042	03200, 03300, 03400 03501-03506
26	Jacksonville	Duval	12:031	571,003	3101	007	01000
27	Miami	Dade	12:025	1,625,802	3302	043, 044, 045, 046, 047, 048, 049, 050, 051, 052, 053*	03601-03602, 370003800 03901-03909
		Monroe	12:087	63,188		053*	02400
		Collier	12:021	85,971			02400
*county group 053 contains 149,677 of county 025. 1970 and 1990 match. 1980 has 3.89% more							
28	Orlando	Seminole	12:117	179,752	3201	019	02200, 02300
		Orange	12:095	471,016	3201	017, 018	01600, 01700, 01800 01900, 02000
		Osceola	12:097	49,287	3202	019	02100
		Brevard	12:009	272,959	3202		
1970 and 1990 match. 1980 has 7.57% more							
29	Tampa St. Petersburg	Hillsborough	12:057	646,960	3303	022, 023	04500
		Pinellas	12:103	728,531	3304	024, 025, 026	04400
30	West Palm Beach	Palm Beach	12:099	576,863	3305	033, 034, 035	02901-02906

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA	
<i>Georgia</i>							
31 Atlanta	Dekalb	13:089	483,024	4001	004, 006	01901-01904	
	Fulton	13:121	589,904	4002	004, 005	02001-02005	
	Clayton	13:063	150,357	4003	009	01700	
	Cobb	13:067	297,718	4003	007	01801-01803	
	Gwinnett	13:135	166,903	4003	008	02101-02103	
	Douglas	13:097	54,573		007	01500	
	Rockdale	13:247	36,747		008	01600	
	Henry	13:151	36,309			01600	
	Fayette	13:113	29,043			01500	
1970 and 1990 match. 1980 has 5.41% more							
32 Augusta	Aiken, SC	45:003	105,625	2901	45:016	45:01800	
	Richmond, GA	13:245	181,629	2901	13:026	13:00500	
	Columbia, GA	13:073	40,114			13:00500	
	McDuffie, GA	13:189	18,546			1300500	
1970 and 1980 match. 1990 has 20.42% more							
<i>Hawaii</i>							
33 Honolulu	Honolulu	15:003	762,565	14901 14902	001, 002	00301-00307	
	Kauai	15:007	39,082	14902	003	00200	
	Maui	15:009	70,847	14902	003	00200	
	Hawaii	15:001	92,053	14902	003	00100	
	Kalawao	15:005	144		003	00200	
1980 and 1990 match with 0.01% more than 1970							
<i>Iowa</i>							
34 Davenport, IA Rock Island, Ill Moline, Ill	Henry, IL	17:073	57,968	7401	17:010	00600	
	Rock Island, IL	17:161	165,968	7401	17:011	01000	
	Scott, IA	19:163	160,022	7401	19:016	01400	
	Knox, IL	17:095	61,607		17:010		
	Mercer, IL	17:131	19,286			17:00600	
	Putnam, IL	17:155	6,085			17:00600	
	Bureau, IL	17:011	39,114			17:00600	
	1980 and 1990 match with 15.10% less than 1970						
35 Des Moines	Polk	19:153	303,170	9301	008, 009	00700, 00800	
<i>Illinois</i>							
36 Chicago	Cook	17:031	5,253,655	7201	032, 033	03001-03019, 03101-03114	
	Du Page	17:043	658,835	7202	034	03201-03206	
	Kane	17:089	278,405	7203	035	03501-03502	
	Lake	17:097	440,372	7204	036	03401-03404	
	McHenry	17:111	147,897	7205	037	03300	
	Will	17:197	324,460	7205	038	03700, 03800, 03900	
	37 Peoria	Woodford	17:203	33,320	7301	007	00700
		Peoria	17:143	200,466	7301	008	00800
		Tazewell	17:179	132,078	7301	009	00900
		Bureau	17:011	39,114		007	
Fulton		17:057	43,687		007	00700	
Stark		17:175	7,389		007	00700	
Putnam		17:155	6,085		007		
Marshall	17:123	14,479		007	00700		
Mason	17:125	19,492			00700		
1980 and 1990 match with 9.11% less than 1970							

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>Illinois, continued</i>						
38 Rockford	Winnebago	17:201	250,884	7601	002, 003	00300, 00400
	Boone	17:007	28,630	7601	004	00400
	De Kalb	17:037	74,624		004	
1970 and 1990 match. 1980 has 10.24% less.						
<i>Indiana</i>						
39 Fort Wayne	Allen	18:003	294,335	7001	010, 011	01700, 01800
40 Gary	Lake	18:089	522,965	7206	001, 002, 003	00800, 00900, 01000
	Hammond East Chicago	Porter	18:127	119,816	7206	004
41 Indianapolis	Marion	18:097	765,233	5601	021	00101-00107
	Boone	18:011	36,446	5602	022	03300
	Hamilton	18:057	82,027	5602	022	03500
	Hendricks	18:063	69,804	5602	023	03300
	Morgan	18:109	51,999	5602	023	03400
	Hancock	18:059	43,939	5602	024	03500
	Johnson	18:081	77,240	5602	024	03400
Shelby	18:145	39,887	5602	024	03500	
42 South Bend	St Joseph	18:141	241,617	7101	006, 007	01500, 01600
	Marshall	18:099	39,155	7101	013	02800
	Kosciusko	18:085	59,555		013	02800
	Jasper	18:073	26,138		013	
	Newton	18:111	14,844		013	
	Pulaski	18:131	13,258		013	
	Starke	18:149	21,997		013	
1980 and 1990 match with 13.95% less than 1970						
<i>Kansas</i>						
43 Wichita	Butler	20:015	44,782	9701	006	00600
	Sedgwick	20:173	366,531	9701	005	00500
	Wabaunsee	20:197	6,867		006	00600
	Lyon	20:111	35,108		006	00600
	Morris	20:127	6,419		006	00600
	Dickenson	20:041	20,175		006	00600
	Greenwood	20:073	8,764		006	00600
	Coffey	20:031	9,370		006	00600
	Marion	20:115	13,522		006	00600
	Chase	20:017	3,309		006	00600
1980 and 1990 match with 10.89% less than 1970						
<i>Kentucky</i>						
44 Louisville	Floyd, IN	18:043	61,169	5001	18:034	00300
	Clark, IN	18:019	88,838	5001	18:035	00300
	Jefferson, KY	21:111	685,004	5001	21:003 21:004	02001-02002, 02101-02103
	Harrison, IN	18:061	27,276		18:034	
	Washington, IN	18:175	21,932		18:034	
	Scott, IN	18:143	20,422		18:035	
1970 and 1990 match. 1980 has 8.34% more						

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA	
<i>Louisiana</i>							
45	Baton Rouge	East Baton Rouge	22:033	366,191	12301	015, 016	01301-01302, 01400
46	New Orleans	Orleans Parish	22:071	557,515	12302	021	01901-01904
		Jefferson Parish	22:051	454,592	12303	022, 023, 024, 024, 025	02000, 02100, 02200
		St. Bernard Parish	22:087	64,097	12303	025	02300
		St. Tammany Parish	22:103	110,869	12303	026	02300
		Plaquemines Parish	22:075	26,049		025	02300
1980 and 1990 match. 1970 has 2.19% less							
47	Shreveport	Caddo	22:015	80,721	11601	001, 002	00100
		Bossier	22:017	252,358	11601	001, 002	00100
		Webster Parish	22:119	43,631		002	
1970 and 1990 match. 1980 has 13.10% more							
<i>Maryland</i>							
48	Baltimore	Baltimore City	24:510	786,775	1601	006	01501-01504
		Baltimore	24:005	655,615	1602	004	00301-00306
		Ann Arundel	24:003	370,775	1603	008	00201-00204
		Carroll	24:013	96,356	1603	004	00600
		Harford	24:025	145,930	1603	005	01000
		Howard	24:027	118,572	1603	007	01100
<i>Massachusetts</i>							
49	Boston	Suffolk	25:025	650,142	406	019, 021, 022	02001-02005, 02100
		Essex	25:009	633,632	402	013, 014, 015, 016, 018, 019	01600, 01700, 01800, 01900, 02700
		Middlesex	25:017	1,367,034	403	011, 012, 017, 018 020, 021, 023-027 010	01400, 01500, 02100, 02200, 02300, 02400, 02500, 02800, 02900, 03000, 03100, 03200
		Norfolk	25:021	606,587	404	023, 026, 027, 028, 029 030, 031, 032, 34	02500, 02600, 03100, 03300, 03400, 03500, 03600, 03800
		Plymouth	25:023	405,437	405	031, 032, 033 036, 037	03600, 03700, 03800, 04100, 04300
		Worcester	25:027 (part)	*		010 026	
Bristol	25:005 (part)	**		032 034, 036, 037	03800*** 04100***, 04200***, 04300***		

* in county group, 010, county 027 has 161,208 while 017 has 27,783, in 026 027 has 29,583 while others have 178,072
 ** in county group 032, county 005 has 16,623 of 136,697, in county group 034 it has 101,273 of 107,130, in county group 036 it has 153,965 of 169,425, and in county group 037 it has 56,817 of 103,845
 *** in PUMA 03800, county 005 has 19,807 of 149,515, in PUMA 04100 it has 83,832 of 1,094,84, in PUMA 04200 it has 101,691 of 108,562, and in PUMA 04300 it has 59,172 of 103,261

No match. 1980 is missing 2.62% of 1970 and has additions of 1.26%. 1990 is missing 2.09% of 1970 and has additional 0.54%.

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>Massachusetts, continued</i>						
50 Springfield	Hampden	25:013	443,018	505	003, 004, 005, 006	00200, 00300, 00400, 00700
Chicopee Holyoke	Hampshire	25:015	138,813		002* 003, 006	00600 00700
	Franklin	25:011	64,317		002* 002*	00500, 00600 00500, 00600
*in county group 002, county 011 has 64,317 of 127,730, county 013 has 10,891. In county group 003, county 103 has 70,118 of 122,166. In county group 006, county 013 has 82,858 of 117,101 in PUMA 00600, county 013 has 6,512 of 106,403. In PUMA 00700, county 013 has 91,580 of 102,159.						
No match. 1980 has 2.45% less than 1970 in one area and 19.48% more in another. 1990 has 1.39% less and 2.39% more.						
51 Worcester	Worcester	25:027	614,239	407	007, 008, 009, 010	00800, 00900, 01000 01100, 01200, 01300
	Middlesex (part)	25:017 (part)	*		010	01300
*in county group 010, county 017 has 27,783 of 188,991 In PUMA01300, county 017 has 31,713 of 105,881. Probably different parts of county 017 so no match.						
No match. 1980 has 4.52% more than 1970 in one area and 1990 has about 5.16% more (maybe in another area).						
<i>Michigan</i>						
52 Detroit	Wayne	26:163	2,337,891	6601	036-044	03301-03308, 03401-03405, 03500, 03600, 03700
	Macomb	26:099	694,600	6602	045-049	03800, 03901-03903, 04000
	Oakland	26:125	1,011,793	6603	050-057	04101-04107, 04200
53 Flint	Genesee	26:049	450,449	6604	021, 022, 023	02000, 02101-02102
	Lapeer	26:087	70,038	6604	024	02200
	Shiawassee	26:155	71,140		024	02200
1980 and 1990 match with 13.46% less than 1970 (or they can have 13.67% more)						
54 Grand Rapids	Ottawa	26:139	157,174	6801	017	01500
	Kent	26:081	444,506	6801	013, 014,	01300, 01401-01402
55 Lansing	Clinton	26:037	55,893	6901	020	01900
	Eaton	26:045	88,337	6901	020	01900
	Ingham	26:065	275,520	6901	018, 019	01700, 01800
<i>Minnesota</i>						
56 Duluth, MN	St Louis, MN	27:137	222,229	8001	27:003 27:004	00300
Superior, WI	Douglas, WI	55:031	44,421	8001	55:001	00100
	Ashland, WI	55:003	16,783		55:001	00100
	Bayfield	55:007	13,822		55:001	00100
	Burnett	55:013	12,340		55:001	00100
	Iron	55:051	6,730		55:001	00100
	Price	55:099	15,788		55:001	00100
	Rusk	55:107	15,589		55:001	00100
	Sawyer	55:113	12,843		55:001	00100
	Taylor	55:119	18,817		55:001	00100
	Wahburn	55:129	13,174		55:001	00100
1980 and 1990 match with 16.66% less than 1970						

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>Minnesota, continued</i>						
57 Minneapolis St. Paul	Anoka	27:003	195,998	8203	024	01200, 01300
	Dakota	27:037	194,279	8203	022	02300, 02400
	Hennepin	27:053	941,411	8201	014, 015	01500, 01600, 01700 01800, 01900, 02000
	Ramsey	27:123	459,784	8202	019, 020	02100, 02200
	Washington	27:163	113,571	8203	023	01400
<i>Mississippi</i>						
58 Jackson	Hinds	28:049	250,998	12001	009	00900
	Rankin	28:121	69,427	12001	010	01000
	Copiah	28:029	26,503		010	01000
	Simpson	28:127	23,441		010	01000
1980 and 1990 match with 15.59% more than 1970						
<i>Missouri</i>						
59 Kansas City	Jackson, MO	29:095	629,266	9803	29:008, 29:009, 29:010, 29:012	01001-01005
	Johnson, KS	20:091	270,269	9801	20:009	00901-00903
	Cass, MO	29:037	51,029	9801	29:012	00900
	Wyandotte, KS	20:209	172,335	9802	20:010	01000
	Clay, MO	29:047	136,488	9802	29:008	00800
	Platte, MO	29:165	46,341	9802	29:011 29:008 29:011	00800
	Ray, MO	29:177	21,378		29:012	00900
	Lafayette, MO	29:107				00900
	1980 has 1.64% more than 1970. 1990 has about 2% more than 1980					
60 St. Louis	Madison, IL	17:119	247,691	10101	17:019 17:020	01800, 01900
	St. Clair, IL	17:163	267,531	10102	17:021 17:022	02000, 02100
	St Louis	29:510	453,085	10103	29:023	01201-01203
	St Louis County	29:189	973,896	10104	29:025	01101-01104
	Franklin	29:071	71,233	10105	*	01400
	Jefferson	29:099	146,183	10105	29:026	01400
	St Charles	29:183	144,107	10105	29:024	01300
	* in 1980 Franklin is with 6 other counties. 1970 and 1990 match. 1980 has 3.19% less.					
<i>Nebraska</i>						
61 Omaha	Douglas, NE	31:055	397,038	9401	006	01001-01004
	Sarpy, NE	31:153	86,015	9401	007	00900
	Pottawattamie, IA	19:155	86,561	9401	019	01700
	Cass, IA	19:029	*		019	01700
	Fremont, IA	19:071	*		019	01700
	Harrison, IA	19:085	*		019	01700
	Mills, IA	19:129	*		019	01700
	Montgomery, IA	19:137	*		019	01700
	Page, IA	19:145	*		019	01700
	Shelby, IA	19:165	*		019	01700
	Washington, NE	31:177	15,508		007	00900
	*together these counties total 103,606 in 1980 population. 1980 and 1990 match with 2.72% more than 1970 in one area and 15.20% less in another.					
<i>Nevada</i>						
62 Las Vegas	Clark	32:003	463,087	14001	001,002	00201-00205

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA	
<i>New Jersey</i>							
63	Jersey City	Hudson	34:017	556,972	1312	010,011,012	01301-01302
64	Newark	Essex	34:013	851,116	1315	013,014, 015,016, 017	03601-03602
		Morris	34:027	407,630	1316	018,019, 020,021	02800,03700,03800, 03900
		Union	34:039	504,094	1317	022,023, 024,025	04100,04200,04300, 04400
65	Paterson Clifton	Bergen	34:003	845,385	1313	004,005, 006,007, 008,009	00400,00500,00600, 00700,00800,00900
		Passaic	34:031	447,585	1314	001,002, 003	01000,01100,01200
66	Trenton	Mercer	34:021	307,863	1401	049,050	05400,05500
<i>New Mexico</i>							
67	Albuquerque	Bernalillo	35:001	419,700	12901	004,005	00201-00204
		Sandoval	35:043	34,799		005	00300
		Torance	35:057	7,491			00300
		Valencia	35:061	61,115			00300
1970 and 1990 match. 1980 has 8.29% more							
<i>New York</i>							
68	Albany Schenectady Troy	Albany	36:001	285,909	601	005,006	01100,01200
		Rensselaer	36:083	151,966	602	007	00900
		Saratoga	36:091	153,759	602	008	00800
		Schenectady	36:093	149,946	602	009	01000
69	Binghamton	Susquehanna, PA	42:115	37,876	1101	42:007	00500
		Tioga, NY	36:107	49,812	1101	36:017	03500
		Broome, NY	36:007	213,648	1101	36:029 36:030	03601-03602
		Bradford, PA	42:015	62,919		42:007	00500
		Tioga, PA	42:117	40,973		42:007	00500
		Sullivan, PA	42:115	6,349		42:007	00500
		Wyoming, PA	42:131	26,433		42:007	00500
		Cortland, NY	36:023	48,820		36:017	03500
		Tompkins, NY	36:109	87,085		36:017	03500
		1980 and 1990 match with 29.10% less than 1970					
70	Buffalo	Erie	36:029	1,015,472	801	023,024	02500,02600,02700, 02800,02900, 03001-03003
		Niagra	36:063	227,354	801	025	02301-02302
71	New York	Kings	36:047	2,230,936	1301	037	05301- 05318
		New York	36:061	1,428,285	1302	038	05101-05110
		Queens	36:081	1,891,325	1303	039	05401-05414
		Richmond	36:085	352,121	1304	040	05201-05203
		Bronx	36:005	1,168,972	1305	036	05001-05010
		Nassau	36:059	1,321,582	1306	043	04601-04609, 04700, 480004900
		Suffolk	36:103	1,284,231	1307	044	02401-02412
		Rockland	36:087	259,530	1308	042	04301-04302
Westchester	36:119	866,599	1308	041	04401-04405, 04500		

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>New York, continued</i>						
72 Rochester	Orleans	36:073	38,496	701	022	02200
	Monroe	36:055	702,238	701	019,020	02000,02100
	Livingston	36:051	57,006	701	021	01900
	Wayne	36:117	84,581	701	021	01900
	Ontario	36:069	88,909		021	01900
	Yates	36:123	21,459		021	03300
	Genesee	36:037	59,400		022	02200
	Wyoming	36:121	39,895		022	02200
	Steuben	36:101	99,217			03300
No match. 1980 and 1990 have 4.36% less than 1970 in one area. 1980 has 12.51% and 1990 has 10.08% more in another area.						
73 Syracuse	Oswego	36:075	113,901	702	015	00400
	Onondaga	36:067	463,920	702	013,014	01500,01600,01700
	Madison	36:053	65,150	702	016	01400
	Chenango	36:017	49,344		016	01400
1980 and 1990 match with 7.67% more than 1970.						
74 Utica Rome	Oneida	36:065	253,466	703	011,012	00501-00502
	Herkimer	36:043	66,714	703	010	00600
	Fulton	36:035	55,153		010	00600
	Montgomery	36:057	53,439		010	
1980 and 1990 match with 20.84% less than 1970.						
<i>North Carolina</i>						
75 Charlotte	Mecklenburg	37:119	404,270	2401	036,037	00801-00804
	Union	37:179	70,380	2401	037	01200
	Stanely	37:167	48,517			01200
1970 and 1980 match. 1990 has 10.22% more.						
76 Greensboro Winston Salem High Point	Guilford	37:081	317,154	2301	010,011	01300,01400
	Forsyth	37:067	243,683	2302	008,009	02000,02100
	Randolph	37:151	91,728	2302	013	01600
	Yadkin	37:197	28,439	2302	007	02200
	Alamance	37:001	99,319		013	01700
	Surry	37:171	59,449		007	02200
	Stokes	37:169	33,086		007	02200
	Davie	37:059	24,599		007	02200
	No match. 1980 has 17.65% less than 1970. 1990 has 4.18% less.					
<i>Ohio</i>						
77 Akron	Summit	39:153	524,472	6301	023,024	04701-04704
	Portage	39:133	135,856	6301	025	00900
78 Canton	Stark	39:151	378,823	6302	027,028	05001-05003

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>Ohio, continued</i>						
79 Cincinnati	Hamilton	39:061	873,224	5801	052,053, 054	05401-05406
	Clermont	39:025	128,483	5802	055	03300
	Warren	39:165	99,276	5802	055	03000
	Dearborn, IN	18:029	34,291	5802	*	*
	Boone, KY	21:015	45,842	5802	21:002	01400
	Campbell, KY	21:037	83,317	5802	21:002	01400
	Kenton, KY	21:117	137,058	5802	21:001	01300
	Carrol, KY	21:041	9,270		21:002	01400
	Gallatin, KY	21:077	4,842		21:002	01400
	Grant, KY	21:081	13,308		21:002	01400
	Owen, KY	21:187	8,924		21:002	01400
	Pendleton, KY	21:191	10,989		21:002	01400
	* with other counties that together have more people. 1980 and 1990 match with 2.45% less than 1970 in one area and 3.38% more in another.					
80 Cleveland	Cuyahoga	39:035	1,498,410	6304	008,009, 010,011, 012,013, 014,015	03901-03905, 04000, 04100, 04200,04300,04400, 04500
	Geauga	39:055	74,474	6305	017	00400
	Lake	39:085	212,801	6305	017	04600
	Medina	39:103	113,150	6305	016	00800
	Ashtabula	39:007	104,215		018	00400
	1970 and 1980 match. 1990 has 3.92% less.					
81 Columbus	Franklin	39:049	869,132	6001	42043	05101-05107
	Delaware	39:041	53,840	6001	044	01700
	Pickaway	39:129	43,662	6001	044	02700
	Fairfield	39:045	93,678		044	
	Madison	39:097	33,004		044	01700
	Union	39:159	29,536			01700
	Ross	39:141	65,004			02700
	1980 and 1990 match with 10.09% less than 1970					
82 Dayton	Miami	39:109	90,381	5901	050	02100
	Preble	39:135	38,223	5901	050	02100
	Montgomery	39:113	571,697	5901	046,047, 048	05201-05205
	Greene	39:057	129,769	5901	049	02600
	Darke	39:037	55,096			02100
	1970 and 1980 match. 1990 has 9.66% more.					
83 Lorain Elyria	Lorain	39:093	274,909	6306	006,007	03700,03800
84 Toledo	Monroe, MI	26:115	134,659	6501	26:033	26:03000
	Lucas, OH	39:095	471,741	6501	39:002, 39:003	39:03601-39:03604
	Wood, OH	39:173	107,372	6501	004	00200
85 Youngstown Warren	Trumbull	39:155	241,863	902	019,020	04801-04802
	Mahoning	39:099	289,487	902	021,022	04901-04902

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
Oklahoma						
86 Oklahoma City	Canadian	40:017	56,452	10701	010 013	00900
	Cleveland	40:027	133,173	10701	010,012	01100
	Oklahoma	40:109	568,933	10701	010,011	01000
	McClain	40:087	*		010 013	
	Pttawatomie	40:125	*		010 013	
	Logan	40:083	26,881			00900
*123 of county 087 is in county group 010, 20,168 is in county group 013. 51 of county 125 is in county group 010 and 55,188 is in county group 013. 47,711 of county 017 is in county group 013.						
No match. 1980 has 6.29% less than 1970 and 1990 has 3.54% more than 1970.						
87 Tulsa	Osage	40:113	39,327	10601	004,005	00600
	Tulsa	40:143	470,593	10601	004,005	00700
	Creek	40:037	59,016	10601	005	00600
Oregon						
88 Portland	Multnomah, OR	41:051	562,640	13701	002,003	01300,01400
	Clackamas, OR	41:005	241,919	13702	005	01300,01500
	Washington, OR	41:067	245,808	13702	004	01200,01300
	Clark, WA	53:011	192,227	13702	010	01901-01902
Pennsylvania						
89 Allentown	Lehigh, PA	42:077	272,349	1413	051,052, 053,054	02001-02002
	Bethlehem	Northampton, PA	42:095	1414	052,053, 054	02101-02102
	Easton	Warren, NJ	34:041	1414	34:051	34:04000
		Hunterdon, NJ	34:019		34:051	
		Sussex, NJ	34:037		34:052	34:04000
1980 and 1990 match with 14.50% less than 1970.						
90 Erie	Erie	42:049	279,780	901	001,002	00101-00102
91 Harrisburg	Dauphin	42:043	232,317	1501	041,042	03601-03602
	Cumberland	42:041	178,541	1501	043,044	03700
	Perry	42:099	35,718	1501	044	03700
92 Johnstown	Cambria	42:021	183,263	6201	035	03400
	Somerset	42:111	81,243	6201	037	03400
	Bedford	42:009	46,784		037	02400
	Fulton	42:057	12,842		037	02400
	Huntingdon	42:061	42,253		037	02400
1970 and 1990 match. 1980 has 30.71% less. (1980 and 1990 can also match)						
93 Lancaster	Lancaster	42:071	362,346	1502	046-048	03501-03503
94 Philadelphia	Philadelphia	42:101	1,688,210	1406	42:055	02601-02611
	Bucks	42:017	479,211	1407	42:061-064	02701-02703
	Montgomery	42:091	643,621	1408	42:056-060	02801-02805
	Chester	42:029	316,660	1409	42:065-067	02901-02903
	Delaware	42:045	555,007	1410	42:068-072	03001-03003
	Burlington, NJ	34:005	362,542	1404	34:045-047	04500, 04600, 04700
	Camden, NJ	34:007	471,650	1405	34:041-044	04800,04900,05000, 05100
	Gloucester, NJ	34:015	199,917	1405	34:048	05200,05300

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>Pennsylvania, continued</i>						
95 Pittsburgh	Allegheny	42:003	1,450,085	6202	025-031	01301-01312
	Westmoreland	42:129	392,294	6203	032,033	03301-03303
	Beaver	42:007	204,441	6204	023	03800
	Washington	42:125	217,074	6204	024	03901-03902
	Lawrence*	42:073	107,150		022	03800
	* in 1970 Lawrence is with 5 other counties in county group 9003.					
	1970 and 1980 match. 1990 has 4.7% more. (1980 and 1990 can also match)					
96 Reading	Berks	42:011	312,509	1412	049,050	03101-03102
97 Wilkes Barre Hazelton	Luzerne	42:079	343,079	1201	012,013, 014	00700
98 York	Adams	42:001	68,292	1503	040	02300
	York	42:133	312,963	1503	039,040	02501-02503
	Franklin	42:055	113,629		038	02300
	1970 and 1980 match. 1990 has 29.80% more. (1980 and 1990 can also match)					
<i>Rhode Island</i>						
99 Providence (this is the whole state of Rhode Island)	Bristol	44:001	46,942	409	004	00500
	Kent	44:003	154,163	409	003, 005*	00400
	Providence	44:007	571,349	409	001, 002, 003, 004**, 006	00100,00200,00300 00700,00800
	Newport	44:005	81,383	410	004	00500
	Washington	44:009	93,317	410	005*	00600
	*29,803 of county 003 is in county group 005 with county 009.					
	**46,942 of county 001 and 50,980 of county 007 are with county 005 in county group 004.					
	Can match all if use whole state. (not MSA as defined in 1970)					
<i>South Carolina</i>						
100 Charleston	Charleston	45:019	276,974	2902	019,020	01201-01202
	Berkeley	45:015	94,727	2902	021	01100
	Dorchester	45:035	58,761		021	01100
	1980 and 1990 match with 15.81% more than 1970.					
101 Columbia	Richland	45:079	269,735	2701	013,014	01601-01602
	Lexington	45:063	140,353	2701	015	01700
102 Greenville	Pickens	45:077	79,292	2601	002	00100
	Greenville	45:045	287,913	2601	003,004	00201-00202
	Oconee	45:073	48,611		002	00100
	1980 and 1990 match with 13.24% more than 1970.					
<i>Tennessee</i>						
103 Chattanooga	Hamilton, TN	47:065	287,740	4401	47:015, 47:016	01200,01300
	Walker, GA	13:295	56,470	4401	13:001	00300
	Catoosa, GA	13:047	36,991		13:001	13:00300
	Dade, GA	13:083	12,318		13:001	13:00300
	1980 and 1990 match with 14.33% more than 1970.					

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>Tennessee, continued</i>						
104 Knoxville	Blount	47:009	77,770	4601	024	00600
	Knox	47:093	319,694	4601	022,023	00800,00900
	Anderson	47:001	67,346	4601	024	00700
	Union	47:173	11,707		024	00700
	Granger	47:057	16,751			00700
	Jefferson	47:089	31,284			00700
	Sevier	47:155	41,418			00600
No match. 1980 has 2.52% more than 1970 and 1990 has 21.76% more than 1970.						
105 Memphis	Shelby	47:157	777,113	4201	47:001, 47:002	01900,02000
	Crittenden, AR	05:035	49,499	4201		
1980 and 1990 match with 5.99% less than 1970.						
106 Nashville	Wilson	47:189	56,064	4501	011	02300
Davidson	Sumner	47:165	85,790	4501	010	02400
	Davidson	47:037	477,811	4501	009	00501-00505
	Robertson	47:147	37,021		010	02300
	Rutherford	47:149	84,058		011	02500
	Wilson	47:189	56,064			02300
	Dickson	47:043	30,037		008	02300
	Williamson	47:187	58,108		008	02300
	Cheatham	47:021	21,616		008	02300
No match. 1990 has 9.05% less than 1970. 1980 is missing this 9.05% but also has and additional 5.97% of 1970.						
<i>Texas</i>						
107 Austin	Travis	48:453	419,573	11501	044	04901-04904, 05000
108 Beaumont	Orange	48:361	83,838	12501	056	06100
Port Arthur	Jefferson	48:245	250,938	12501	055,054	05900,06000
	Hardin	48:199	40,721		056	06100
1980 and 1990 match with 12.16% more than 1970						
109 Corpus Christi	San Patricio	48:409	58,013	12702	035	04800
	Nueces	48:355	268,215	12702	039	04301-04302
	Aransas	48:007	14,260		035	04800
	Bee	48:025	26,030		035	04800
	Brooks	48:047	8,428		035	04800
	Duval	48:131	12,517		035	04800
	Jim Wells	48:249	36,498		035	04800
	Kenedy	48:261	543		035	04800
	Kleberg	48:273	33,358		035	04800
	Live Oak	48:297	9,606		035	04800
	McMullen	48:311	789		035	04800
	Refugio	48:391	9,289		035	04800
	Willacy	48:489	17,495		035	04800
1980 and 1990 match with 17.78% less than 1970.						

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>Texas, continued</i>						
110 Dallas	Collin	48:085	144,576	11301	022	02300,02400
	Denton	48:121	143,126	11301	023	02201-02202
	Rockwall	48:397	14,528	11301	024	01500
	Kaufman	48:257	39,015	11301	024	01500
	Dallas	48:113	1,556,390	11301	013 - 018	02501-02509 , 02600, 02700 02800, 02901-02904
	Tarrant*	48:439	860,880	11302	019,020, 021	01901-01904, 02001-02002, 02101-02104
	Johnson Ellis	48:251 48:139	67,649 59,743	11302 11301	024	01500
*Fort Worth is also in Tarrant County 1980 and 1990 match with 2.4% more in 1970.						
111 El Paso	El Paso	48:141	479,889	12801	032	03701-03705
112 Fort Worth	Tarrant	48:439	860,880	11302	019,020, 021	01901-01904, 02001-02002 02101-02104
	Johnson	48:251	67,649	11302	025	01800
	Hood	48:221	17,714		025	01800
	Parker	48:367	44,609		025	01800
	Wise	48:497	26,575		025	01800
1980 and 1990 match with 7.29% less than 1970.						
113 Houston	Brazoria	48:039	169,587	12502	062	06400
	Fort Bend	48:157	130,846	12502	063	06501-06502
	Montgomery	48:339	128,487	12502	064	06200
	Liberty	48:291	47,088	12502	064	
	Harris	48:201	2,409,547	12502	058 - 061	06601-06615, 06700, 06800,06901-06908
	Waller Chambers	48:473 48:071	19,798 18,538		063 064	
1970 and 1990 match. 1980 has 1.33% more.						
114 San Antonio	Bexar	48:029	988,800	12601	040,041	04401-04408, 04501-04502
	Guadalupe	48:187	46,708	12601	042	04600
	Comal	48:091	36,446		042	04600
	Karnes	48:255	13,593		042	04600
	Wilson	48:493	16,756		042	04600
1980 and 1990 match with 4.51% less than 1970.						
<i>Utah</i>						
115 Salt Lake City	Salt Lake	49:035	619,066	13202	002,003	00400
	Davis	49:011	146,540	13202	004	00300
	Tooele	49:045	26,033			00300
1970 and 1980 match. 1990 has 3.40% more.						

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
Virginia						
116 Newport News Hampton	York	51:199	35,463	2001	021	
	Hampton	51:650	122,617	2001	020	03000
	Newport News	51:700	144,903	2001	021	03100
	Gloucester	51:073	20,107		021	
	James City	51:095	22,763		021	
	Poquoson	51:735	8,726		021	
	Williamsburg	51:830	9,870		021	
	York	51:199	35,463			
No match. 1980 has 31.99% more than 1970 and 1990 has 11.70% less than 1970.						
117 Norfolk Portsmouth	Portsmouth	51:740	104,577	2003	016	02600
	Virginia Beach	51:810	262,199	2003	019	02900
	Chesapeake	51:550	114,486	2003	017	02500
	Norfolk	51:710	266,979	2002	018	02700
	Suffolk	51:800	47,621		016	
1970 and 1990 match. 1980 has 6.36% more.						
118 Richmond	Hanover	51:085	50,398	1901	025	02000
	Henrico	51:087	180,735	1901	025	01900
	Richmond	51:760	219,214	1901	023	02100
	Chesterfield	51:041	141,372	1901	024	01800
	Charles City	51:036	6,692		025	02000
	Goochland	51:075	11,761		025	02000
	New Kent	51:127	8,781		025	02000
	Powhatan	51:145	13,062		025	02000
1980 and 1990 match with 6.81% more than 1970.						
Washington						
119 Seattle Everett	King County	53:033	1,269,749	13501	017,018	01701-01703 01801-01808
	Snohomish	53:061	337,720	13502	019	01001-01004
120 Spokane	Spokane	53:063	341,835	13401	005,006	00500,00600
121 Tacoma	Pierce	53:053	485,643	13403	013,014	01301-01304
West Virginia						
122 Huntington Asland	Lawrence, OH	39:087	63,849	4801	39:059	03500
	Cabel, WV	54:011	106,835	4801	54:010	00800
	Wayne, WV	54:099	46,021	4801	54:011	00800
	Boyd, KY	21:019	55,513	4801	21:011	01100
	Gallia, OH	39:053	30,098		39:059	03500
	Vinton, OH	39:163	11,584		39:059	
	Jackson, OH	39:079	30,592			03500
	Carter, KY	21:043	25,060		21:011	01100
	Elliot, KY	21:063	6,908		21:011	01100
	Greenup, KY	21:089	39,132		21:011	01100
	Lawrence, KY	21:127	14,121		21:011	01100
	Lincoln, WV	54:043	23,675		54:011	00800
	Logan, WV	54:045	50,679		54:011	00800
	Mason, WV	54:053	27,045		54:011	00800
	Mingo, WV	54:059	37,336		54:011	00800

No Match. 1980 has 15.31% more than 1970 in one area and 37.3% less in another area. 1990 has 73.26% more than 1970 in one area and 20.39% less in another.

Table 4, continued

MSA	1970 Counties/ Other Counties	Cnty Num	1980 Pop.	1970 County Group	1980 County Group	1990 PUMA
<i>Wisconsin</i>						
123 Appleton	Outagamie	55:087	128,799	7801	005	00400
Oshkosh	Winnebago	55:139	131,703	7801	006	00500
	Calumet	55:015	30,867	7801	006	00400
124 Madison	Dane	55:025	323,545	7702	017,018	01600,01700
125 Milwaukee	Milwaukee	55:079	964,988	7703	023,024	02201-02206
	Ozaukee	55:089	66,981	7704	026	02400
	Washington	55:131	84,848	7704	026	02400
	Waukesha	55:133	280,326	7704	025	02300

NOTES: County group or PUMA numbers in bold are included in the match. Plain text numbers are not. Unless otherwise indicated, the 1970, 1980, and 1990 definitions match exactly.