

2004 Redefinition of the BEA Economic Areas

By Kenneth P. Johnson and John R. Kort

ON November 17, 2004, the Bureau of Economic Analysis (BEA) released updated definitions of BEA economic areas that reflect changes in economic growth and population in the U.S. regions and that now include the newly recognized micropolitan areas. As a result, BEA's estimates of personal income for these economic areas continue to support statistical analyses that reflect current regional economic activity.

This release marks an advance in the timeliness of the redefinition of BEA economic areas by a full quarter. BEA's estimates of personal income for these areas are now consistent with the new standards for statistical areas that were released by the U.S. Office of Management and Budget (OMB) in February 2004 and with population data from the 2000 decennial census. The accelerated redefinition of BEA economic areas meets BEA's Strategic Plan goals of continually improving methodologies and of improving the consistency among accounts in the Federal statistical system.

BEA's economic areas define the relevant regional markets surrounding metropolitan or micropolitan statistical areas. They consist of one or more economic nodes—metropolitan or micropolitan statistical areas that serve as regional centers of economic activity—and the surrounding counties that are economically related to the nodes. These economic areas represent the relevant regional markets for labor, products, and information. They are mainly determined by labor commuting patterns that delineate local labor markets and that also serve as proxies for local markets where businesses in the areas sell their products. In less popu-

lated parts of the country, newspaper readership data are also used to measure the relevant regional markets.¹

The redefinitions of the BEA economic areas are based on commuting data from the 2000 decennial population census, on redefined statistical areas from OMB (February 2004), and on newspaper circulation data from the Audit Bureau of Circulations for 2001.² This article describes the procedures that are used to disaggregate the Nation into economic areas, and it presents a sample of local area personal income estimates for the 179 new BEA economic areas.

The major highlights of the 2004 redefinition of the BEA economic areas are as follows:

- The number of BEA economic areas has increased from 172 to 179.
- The number of BEA component economic areas (CEAs) has decreased from 348 to 344.
- The redefinitions incorporate OMB's 2004 revised standards for metropolitan statistical areas (MSAs) and new standards that recognize, for the first time, micropolitan statistical areas.

1. County-to-county commuting data come from the most recent decennial population census, and statistical area definitions are from the U.S. Office of Management and Budget (OMB). First defined in 1969, major redefinitions of the BEA economic areas occurred in 1974, 1977, 1983, and 1995. For a complete discussion of the procedures used to define the 1995 economic areas, see Kenneth P. Johnson, "Redefinition of the BEA Economic Areas," *SURVEY OF CURRENT BUSINESS* 75 (February 1995): 75–81.

2. See the box on OMB's standards in this article and "Standards for Defining Metropolitan and Micropolitan Statistical Areas," *Federal Register* 65 (December 27, 2000): 82, 228–238.

OMB's Standards for Statistical Areas

The U.S. Office of Management and Budget's (OMB's) standardized definitions of urbanization-based statistical areas provide the foundation for BEA's economic area definitions. After each decennial census, OMB publishes the official standards for these areas, and according to these standards, the area definitions are reviewed and updated annually by the Census Bureau. The new standards published by OMB in 2000 recognize core based statistical areas (CBSAs)—a generic term for statistical areas that are based on urban cores with a population of 10,000 or more. CBSAs that have at least one urban core

that exceeds 50,000 people are designated as metropolitan statistical areas (MSAs), and smaller CBSAs are designated as micropolitan statistical areas. In the current standards, neighboring (contiguous) CBSAs that meet OMB criteria for interdependence are grouped into larger areas that are designated as combined statistical areas (CSAs). The redefined BEA economic areas are based on the CSAs, MSAs, and micropolitan areas that were recognized in the February 18, 2004, OMB Bulletin No. 040–03, "Update of Statistical Area Definitions and Additional Guidance on Their Uses."

Overview of the redefinition procedures

The BEA economic areas were redefined in three major phases: The identification of economic nodes, the assignment of counties to CEAs, and the aggregation of the CEAs to the BEA economic areas (chart 1). First, statistical areas from among those recently defined by OMB were identified to serve as nodes for the CEAs. As a result, 344 nodes were formed; these nodes consist of 1,311 counties from among the 3,141 counties and independent cities in the 2000 census of population. Second, the remaining 1,830 counties were assigned to 344 CEAs. Third, these CEAs were then aggregated to form 179 BEA economic areas. Throughout the three phases, linkages among counties, CEAs, and economic areas were developed in an iterative fashion, and assignments for all of the counties were “in play” until convergence was established.³

Identification of nodes

Economic nodes are metropolitan areas or micropolitan areas that serve as the main centers of economic activity. The regional economic nodes were identified in four steps. First, 107 of the 120 combined statistical areas (CSAs) that were identified by OMB include at least one metropolitan statistical area (MSA), and each of the 107 MSA-based CSAs was designated as a regional node.⁴ Second, an additional 198 MSAs that were identified by OMB and that are not part of any CSA were designated as regional nodes. Together, the 305 MSA-based regional nodes consist of 1,233 counties.

Third, selected micropolitan statistical areas were provisionally identified as regional nodes if they were located in counties that were not in any of the MSA nodes and if they had one or more of the following characteristics:

- The selected area has a population of at least 50,000 in the 2000 census,
- The selected area consists of at least 3 counties, or
- The selected area consists of at least one county that serves as the primary source of newspaper readership for 5 or more counties.

A provisional micropolitan-statistical-area-based node was designated as a regional node only if it formed a preliminary area of at least 5 counties. Thirty-seven micropolitan-based nodes that consist of 76 counties were designated.

3. Convergence in this case refers to a steady state in the assignments of counties to CEAs and of CEAs to economic areas, where no further assignments were possible that would further minimize cross-boundary commuting.

4. See the box “OMB’s Standards for Statistical Areas.” In order to maintain the historical orientation of the economic areas to OMB’s metropolitan areas (to the extent possible), the 13 CSAs that consist of only micropolitan areas are never recognized as nodes.

Finally, two economically isolated, but geographically large, single-county micropolitan areas were designated as nodes—Juneau in the Alaskan panhandle and Alpena in northern Michigan.⁵ Altogether, 344 nodes were identified, and these nodes consist of 1,311 counties.

Assignment of counties to CEAs

In the next major phase, each of the 1,830 remaining counties was analyzed to determine the economic node to which it is most closely related. These counties were linked to the nodal counties to form CEAs in four steps. In each step, the counties assigned to a provisional CEA must be contiguous either to the CEA’s node or to the counties that have already been assigned to its node.

First, about 70 percent of the 1,830 counties were provisionally assigned to nodes on the basis of their largest county-to-county commuting flows from the 2000 decennial census. A total of 1,295 counties were assigned provisional CEA links on the basis of this use of the census commuting data, and 535 counties lacked any CEA link at the end of this step.

Second, about 20 percent of the 1,830 counties were provisionally assigned to nodes based on the locations of the most widely read newspapers in these counties, using 2001 newspaper circulation data from the Audit Bureau of Circulations. The evaluation of potential

5. Juneau, Alaska, and Alpena, Michigan, are economic centers for two unique groups of remote counties. Each group is substantial in land area and relative economic size, but neither group can be linked to any of the more conventionally defined nodes.

Additional Information

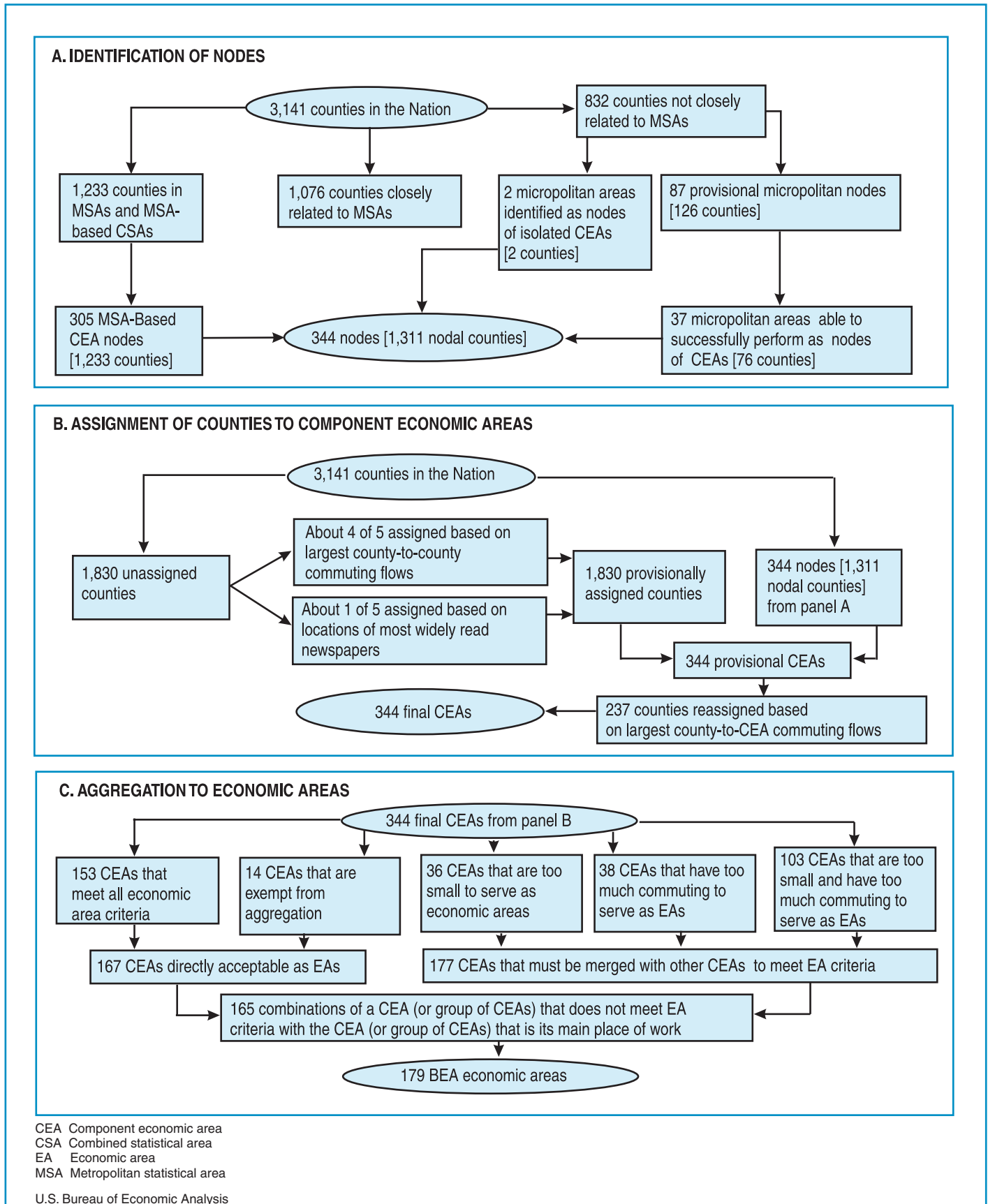
A complete discussion of the regional hierarchy that is associated with the economic areas is too voluminous to be presented in this article. The general order of the five levels of this hierarchy is

- Counties,
- Core based statistical areas, both metropolitan statistical areas (MSAs) and micropolitan statistical areas,
- Combined statistical areas,
- Component economic areas, and
- BEA economic areas.

At each level, coding and naming conventions are employed to ensure unique data processing and identification characteristics. Comprehensive code files with these five codes, five names, and an identifier for each MSA are available under the regional section at <www.bea.gov>.

A large-scale map and all of BEA’s local area personal income series for these new BEA economic area definitions are also available on BEA’s Web site.

Chart 1. Redefinition Procedures



news readership links for all counties without a CEA link continued through numerous iterations until no additional provisional CEA assignments were possible. A total of 381 counties were given provisional CEA links on the basis of this use of newspaper readership data, and 154 counties (8 percent) lacked any CEA link at the end of this step.

Third, commuting information for the remaining 154 counties was again examined to determine if the counties assigned in the second step provided any indirect commuting links to a provisional CEA for any of these unassigned counties. An additional 57 counties (3 percent) were given provisional CEA links on the basis of such indirect commuting links, but 97 counties (5 percent) lacked any CEA link at the end of this step. These remaining counties generally are economically small and geographically remote from urban settlements, and the main commuting link for each is to another county in the group of 97 counties.

Fourth, in order to extend the application of the commuting data, these 97 counties were first grouped to form contiguous geographic units (pseudocounties), and a main county place of work was identified for each unit. All of these pseudocounties were contiguous with the provisional CEA that included their main place of work, and the CEA link for each county in each geographic unit was set equal to that of the main place of work for the unit as a whole.

The county-to-county relationships that were used to define provisional CEAs do not guarantee the prime objective that each county is assigned to the CEA to which it has the most commuting. The final assignment of counties to CEAs was based on an analysis of county-to-CEA commuting to identify and, if possible, to modify cases where this objective was not achieved. In a few cases, a desired reassignment could not be accomplished, because the required contiguity did not exist or because the reassignment would have created a break in contiguity in the CEA from which the county would have been moved.

During the finalization process, the CEA boundaries were continuously changing, so it was necessary to iteratively repeat the analysis and to reevaluate all 1,830 counties until no further reassignments were possible. This analysis resulted in changes for 237 counties. The resulting set of 344 final CEAs minimizes, to the extent possible, the amount of commuting across the boundaries of the CEAs.

Final economic areas

In the third major phase, the 344 CEAs were used as building blocks to form the new 179 BEA economic areas. The two major factors that were used in the aggregation process were commuting patterns and economic and geographic size. Specifically, the CEAs

were aggregated to form economic areas so that, to the extent possible, each economic area is a region of sufficient size to support regional statistical analyses and each economic area is a labor market that is independent of other labor markets.

To limit labor market interdependence, the maximum rate of total outcommuting for an economic area was set at 8 percent, and the maximum rate of commuting from one economic area to any other economic area was set at 4 percent.⁶

On the basis of the criteria established in the 1995 redefinition, a CEA generally was considered to be too small economically or geographically to form an independent economic area if it had one of the following characteristics:

- The CEA has fewer than 50,000 employed residents, or
- The CEA consists of fewer than 10 counties and has fewer than 100,000 employed residents, or
- The CEA consists of fewer than five counties and has fewer than 250,000 employed residents, or
- The CEA consists of fewer than three counties and has fewer than 500,000 employed residents.

Economic areas generally were required to satisfy these criteria, but selected exceptions were allowed. CEAs (or groups of CEAs) that have at least 500,000 employed residents or that consist of at least 10 counties were not merged if the net commuting for the area was less than 1 percent. In addition, a CEA (or a group of CEAs) that exceeded 10,000 square miles in area in the coterminous United States was not merged with others unless it had a total outcommuting rate of more than 12 percent or a commuting rate to another alternative economic area of more than 6 percent.

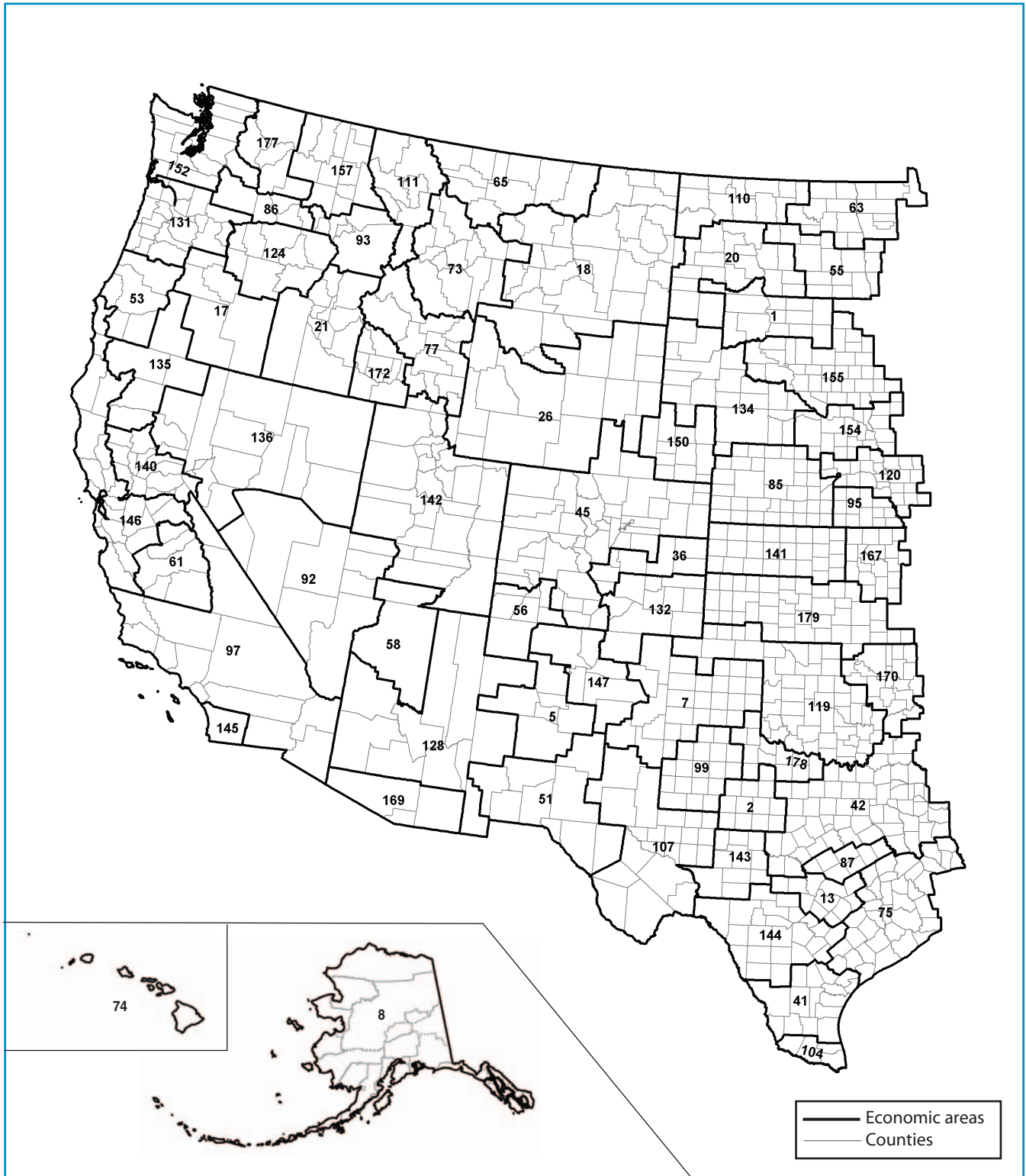
Of the 344 final CEAs, 153 satisfied all of the size and commuting criteria and were qualified to be designated as economic areas, and an additional 14 CEAs were deemed to be either large enough in area or in number of counties, so that they were also qualified to be designated as economic areas. Each of the remaining 177 CEAs was then merged with the CEA to which it had the strongest commuting link.

This merging process continued iteratively until all of the remaining CEAs or groups of CEAs met the above criteria. The set of 179 newly redefined BEA economic areas are shown in charts 2 and 3, and the names, economic area codes, and personal income data for all of the BEA economic areas are shown in table 1. BEA's local area personal income estimates for these redefined BEA economic areas are available on BEA's Web site at <www.bea.gov>.

6. Outcommuting is the number (or percent) of workers living in an economic area whose place of work is located outside that economic area.

Charts 2 and 3 and table 1 follow.

Chart 2. BEA Economic Areas, Western United States, November 2004



Note. For economic area codes and names, see table 1.

U.S. Bureau of Economic Analysis

Chart 3. BEA Economic Areas, Eastern United States, November 2004



NOTE. For economic area codes and names, see table 1.
U.S. Bureau of Economic Analysis

