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# IN THE NATIONAL INTEREST: DEFINING RURAL AND URBAN CORRECTLY IN RESEARCH AND PUBLIC POLICY

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*Researchers and policy makers depend on two federal systems when defining urban and rural. One, designed by the U.S. Census Bureau, separates the territory of the nation into urban and rural. Its intent is to differentiate urban and rural. The other, designed under the leadership of the Office of Management and Budget (OMB), focuses on the integration of urban and rural within metropolitan and micropolitan areas. Forgetting the distinction between separation and integration is dangerous, for example, when (mis)using the OMB system as if it differentiated between urban and rural. At stake is the misunderstanding of rural conditions, the misdirection of federal programs and funds, and a breakdown of communication that confuses people. This article presents two alternatives that can strengthen the foundations of research and policy and uses one of them to analyze rural distress and prosperity. Much can be gained by using these better rural definitions to replicate important research to see whether key findings hold true and to review eligibility requirements and funding procedures to determine whether government programs are reaching the rural people and places they are intended to serve.*

**Keywords:** *urban and rural definitions; rural distress and prosperity; poverty; federal funding*

The Grand Canyon is in metropolitan America and so are more than a million farmers. These situations come about because we define rural simultaneously from two contradictory perspectives, rural separation and rural integration, and then fail to distinguish between the two. Under the system of the U.S. Census Bureau, we define urban very carefully and precisely and designate as rural that which is not urban. This separation of territory into town *or* country, urban *or* rural, leads us to

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define rural simply as homogeneous with respect to not being urban. In contrast, integration of town *and* country, urban *and* rural, leads us to define metropolitan areas consisting of urban and rural areas that are functionally related to one another. Under the system of the Office of Management and Budget (OMB), we define metropolitan very carefully and precisely, beginning with an urban area at the core, but then we use the word rural indiscriminately as a widely adopted synonym for places, both urban and rural, that are not within metropolitan areas. In short, rural is used in two different overlapping and often contradictory ways, always defined by what it is not—not urban, not metropolitan.

Separation and integration are both important, but we presently have no satisfactory way to measure rural for the study of rural economies or the assessment of rural conditions. Key economic and demographic data are not available for urban and rural areas, and metropolitan and nonmetropolitan commingle urban and rural, leaving us unable to separate them. Yet getting rural right is in the national interest. When we get rural wrong, we reach incorrect research conclusions and fail to reach the people, places, and businesses our governmental programs are meant to serve.

This article reviews the two existing federal data systems and then describes an ideal way and a pragmatic way to measure rural within the federal statistical framework. The ideal way requires action by the Big Three data providers, the Census Bureau, the Bureau of Economic Analysis, and the Bureau of Labor Statistics.<sup>1</sup> The ideal was not technically feasible a decade or two ago, but it is now if the statistical agencies are given the mandate and necessary resources. The pragmatic way can be implemented immediately by anyone so inclined, as is demonstrated in this article. It combines elements of the two existing federal systems to create a rural-urban density typology that differentiates urban and rural on the county level. In its singular focus on separation and its unique emphasis on identifying all counties with rural character, not only nonmetropolitan ones, it differs from two widely used county typologies, the rural-urban continuum codes and the urban influence codes of the Economic Research Service (ERS) of the U.S. Department of Agriculture. It can be used with the OMB metropolitan system, the ERS codes, or other methods to consider both rural separation and rural integration on the county level.

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DEFINING URBAN AND RURAL<sup>2</sup>*SEPARATION, U.S. BUREAU OF THE CENSUS*

The U.S. Census Bureau defines urban areas on the basis of population thresholds and density. Urban areas vary greatly. Largest in size is the tristate New York–Newark urban area with 18 million residents and 3,400 square miles in 2000. Highest in density among the large urban areas is Los Angeles–Long Beach–Santa Ana, contrary to its image, with 7,100 people per square mile compared to 5,300 for New York–Newark. At the other extreme are the small urban areas of George West, Texas; Oakhurst, California; Stanton, Texas; and Wellsboro, Pennsylvania, each with 2,501 residents, less than three square miles, and densities between 850 and 2,800.

The logic of the Census system matches commonsense notions of urban and rural, or what airplane passengers looking downward would recognize as built-up area and countryside. The Census computer algorithm builds urban areas a few blocks at a time. All the territory of the nation is within a census block, the smallest geographical entity for which the Census Bureau tabulates decennial census data. A block may be small, compact, and bounded by city streets; or it may be many square miles, irregular in shape, and bounded by streams, railroad tracks, county lines, and city limits. Block groups are clusters of blocks and the smallest geographical entity for which the Census Bureau tabulates sample data from the decennial census long form, which asks about income, education, labor force status, occupation, and more. The algorithm begins with block groups, which generally contain between 300 and 3,000 people. They are part of census tracts, which are designed to be relatively homogeneous in population characteristics, economic status, and living conditions.

Identifying and defining urban areas entails ten distinct steps; key minima are 500 people per square mile and 2,500 residents:<sup>3</sup>

1. Start with one or more contiguous block groups or contiguous blocks with a population density of at least 1,000 people per square mile and a total land area of two square miles or less.
2. Add contiguous block groups no larger than two square miles and with at least 500 people per square mile.
3. Add contiguous blocks with at least 500 people per square mile.
4. Add enclaves, areas of fewer than five square miles with fewer than 500 people per square mile but surrounded by the densely settled blocks already included.
5. If the initial core defined thus far has more than 1,000 people, “hop” up to half a mile to include any noncontiguous block groups and/or blocks that meet the 500 density and two square mile area requirements. If the destination blocks contain fewer than 1,000 people, the connecting blocks and destination blocks together must have a density of 500 or more. Continue to hop outward from the expanding area until no more territory qualifies to be added through further hops.

6. If the core now has reached 1,500 people, “jump” to additional qualifying blocks within two and a half miles, but again the connecting and destination blocks together must have a density of 500 or more if the destination blocks have fewer than 1,000 residents. Then continue to hop outward up to half a mile, adding qualified blocks.
7. Make hyperjumps and hops over exempted territory, such as water, national parks and monuments, and military bases, where normal residential development is not possible. For example, jump two miles to a river plus the exempted distance of three miles to cross the river, and then jump another half mile to add the town on the other side. Then continue to jump or hop outward as permitted by the density and size requirements, but no more than one jump is allowed along any road.
8. If there is a major airport whose block is contiguous to one already within the core, add the block if the airport boundaries include at least half the block’s area. Major airports are those enplaning at least 10,000 people, according to 2000 Federal Aviation Administration statistics.
9. Add blocks in any enclaves or largely within indentations.
10. If the total population of the qualifying area reaches 2,500 after all possible jumps, hops, and other enclosures, it is an urban area. Urban areas with 50,000 or more people are called urbanized areas, and those with fewer are urban clusters.

This system identified 465 urbanized areas and 3,169 urban clusters based on the 2000 census. Most Americans live in urbanized areas—196 million people in 74,000 square miles at a population density of 2,700 in 2000. The urban clusters housed 30 million people in 21,000 square miles at a density of 1,500. Rural areas, defined officially as areas that are not urban, constituted 97 percent of the national land area. They housed 20 percent of the national population—55 million rural people, 3.4 million rural square miles, and a population density of 16 people per square mile or 40 acres per person.

More detail is shown in Table 1, with the urban areas grouped into categories by population size. Half the nation lives in urbanized areas of 500,000 or more, with fully 42 percent of the nation in the thirty-eight urbanized areas with more than a million people. Seen in another way, that 42 percent occupies a land area smaller than Indiana, and half the nation lives in an area smaller than Mississippi. Another 20 percent of the population lives in urban areas of 50,000 to 500,000. Rural and small town residents together account for 20 to 31 percent of the nation, depending on what one picks as the size limit for a small town. With a criterion of 10,000, for example, 24 percent of the nation is small town or rural. The 2,241 urban areas with fewer than 10,000 residents and rural areas together housed 66 million people in 2000.

An analysis of the condition of the 55 million rural people or the 66 million rural and small town residents and the prosperity and competitiveness of the places in which they live should be straightforward, but it is not. We have very limited data on the economies of rural or urban areas. The county is the smallest geographical unit for which comprehensive, annual economic statistics exist. That is why we base much of our rural research and policy on the county-based system of the OMB.

**TABLE 1. U.S. Population: Urban and Rural Areas, 2000**

<i>Size</i>	<i>Population</i>	<i>Area</i>	<i>Density</i>	<i>Number of Areas</i>	<i>Percentage of U.S. Population</i>	<i>Percentage of U.S. Land</i>
Urbanized areas						
>1 million population	119,097,094	34,649	3,437	38	42	1.0
500,000 to 1 million	23,374,417	10,355	2,257	34	8	0.3
250,000 to 500,000	18,463,669	9,445	1,955	56	7	0.3
100,000 to 250,000	21,250,457	11,430	1,859	137	8	0.3
50,000 to 100,000	13,930,820	7,962	1,750	201	5	0.2
Urban clusters						
25,000 to 50,000	8,586,252	5,447	1,576	246	3	0.2
10,000 to 25,000	10,440,395	7,074	1,476	681	4	0.2
<10,000	11,168,878	8,084	1,382	2,241	4	0.2
Rural areas	55,109,924	3,441,833	16	—	20	97.3

*INTEGRATION, OFFICE OF MANAGEMENT AND BUDGET*

The OMB defines metropolitan and micropolitan statistical areas “to provide nationally consistent definitions for collecting, tabulating, and publishing Federal statistics” (OMB 2000b, 82228). The underlying concept of this system is integration of urban and rural, not separation into urban and rural: “The general concept of a Metropolitan Statistical Area or Micropolitan Statistical Area is that of an area containing a recognized population nucleus and adjacent communities that have a high degree of integration with that nucleus” (OMB 2000b, 82228). The metropolitan and micropolitan areas are called Core Based Statistical Areas (CBSA), and each CBSA consists of one or more counties. Counties not included in any CBSA are described officially as Outside Core Based Statistical Areas.<sup>4</sup> In practice, these categories are often shortened to metro/nonmetro (e.g., in the rural-urban continuum code) or metro/micro/noncore (e.g., in the USDA urban influence code).

The territory of the nation is systematically bifurcated into Core and Outside Core using counties as the building unit blocks, much like it is divided into urban and rural using census blocks. Whereas the start of an urban area is a densely settled group of census blocks, the urban area itself constitutes the required “population nucleus” of a CBSA. An urbanized area with 50,000 or more residents seeds a metropolitan area, and an urban cluster of 10,000 to 49,000 seeds a micropolitan area. The county (or counties) with the requisite qualifying urban area is the core county of the metropolitan or micropolitan area.

Additional counties are included on the basis of labor force commuting, the measure of “integration with that nucleus.” An adjacent, outlying county is added to the metropolitan or micropolitan area if (1) 25 percent or more of its employed residents work in the metropolitan or micropolitan area defined thus far or (2) 25 percent of the jobs in the outlying county are filled by people who commute there

from the metropolitan or micropolitan area. The 25 percent commuting threshold delineates integrated counties much like the 500 people per square mile threshold separates urban and rural census blocks. As when defining urban areas, the process moves outward, defining ever larger core based statistical areas until no more counties qualify for inclusion under the 25 percent standard.

#### *OVERLAP*

Counties can include both urban and rural areas, and most do. Therefore, rural people are included in metropolitan areas, and urban people in nonmetropolitan areas. This blending of urban and rural areas within counties explains why there are more than a million farmers in metropolitan America and why the Grand Canyon is in metropolitan America. In fact, 30 million people live in rural areas within metropolitan counties. Thus, the majority of rural residents are in metropolitan counties. Table 2 provides more detail on the allocation of urban and rural populations by county type. Rural folks are 13 percent of the metropolitan population, 48 percent of the micropolitan population, and 75 percent of the noncore-based area populations.

The two statistical systems are very useful when each is used with an understanding and appreciation of its properties. They are complementary and together provide noteworthy facts. An informative way of reading the cross-tabulated numbers in Table 2 is to observe that half the rural population lives in territory that is economically and socially integrated with cities (literally with urbanized areas ranging from 50,000 to 18 million population).<sup>5</sup> Another quarter of the rural population lives in territory integrated with cities or towns as small as 10,000, and the final quarter lives in rural areas not integrated with towns of that size (at least not when measured by the 25 percent commuting integration criterion). The integration of urban and rural within metropolitan and micropolitan areas involves not only jobs, the actual measure, but might entail, depending on the place, conflicts over land use, environment, education, public services, taxation, farming, logging, mining practices, and other matters where rural and urban economic interests and cultures might differ.

#### THE COUNTY TRAP

The problem begins when we, as researchers and policy makers, knowingly fall into the county trap by referring to metropolitan counties as urban and all other counties as rural. Doing so ignores the blending of urban and rural populations within counties, the presence of rural people and places in metropolitan areas and urban people and places in nonmetropolitan counties, and the intent of the metropolitan system to measure urban-rural integration, not urban-rural differentiation. The practice of equating nonmetropolitan with rural may date from 1950 when standard metropolitan areas were first defined for statistical purposes.<sup>6</sup> It

**TABLE 2. U.S. Population: Metropolitan, Urban, and Rural Areas, 2000**

Type	Number of Counties	Population	Percentage of U.S. Population		Percentage of U.S. Urban		Percentage of U.S. Rural	
			Urban	Rural	Urban	Rural	Urban	Rural
Metropolitan	1,089	232,579,940	83	202,389,839	91	30,190,101	51	13
Micropolitan	690	29,412,298	10	15,192,606	7	14,219,692	24	48
Noncore	1,362	19,429,668	7	4,778,094	2	14,651,574	25	75

persists today not only in the private sector and academia but also in the highest level of government. For example, recent reports of the ERS of the U.S. Department of Agriculture (USDA), long the premier organization studying rural economies, state, “The terms ‘rural’ and ‘urban’ are used synonymously with ‘nonmetropolitan’ and ‘metropolitan’ ” (Jolliffe 2004) and “We use the terms ‘rural’ and ‘nonmetro’ interchangeably . . . as an editorial convention” (Kandel and Cromartie 2004). The former analyzes rural poverty by comparing metropolitan and nonmetropolitan poverty rates, and the latter examines Hispanic settlement patterns in rural America by studying nonmetropolitan counties. Similarly, the Federal Reserve Bank of Kansas City routinely reports nonmetropolitan employment growth as rural growth (e.g., Henderson and Novack 2005). This practice persists because no one has identified a better alternative for studying rural conditions within the federal statistical system.

Most scholarly research, even by knowledgeable experts, likewise treats nonmetropolitan as rural (e.g., Isserman 2001; Johnson 2001; Kilkenny and Huffman 2003; Renkow 2003; Swaminathan and Findeis 2004), thereby ignoring the majority of rural residents living in metropolitan areas and even the 1.8 million rural residents of the ninety-five metropolitan counties that have no urban population whatsoever. Another look at Table 2 reveals how many rural people are misclassified as “urban” and how many urban people are misclassified as “rural” when nonmetropolitan becomes another way of defining rural. Micropolitan counties are a new concept first implemented in 2003, and USDA practice is to consider them nonmetropolitan and rural, too. Anyone making noncore synonymous with rural ignores three-quarters of the rural population. We should not be content to use such “contaminated” and incomplete data.

The unofficial but widespread use of nonmetropolitan as rural misleads the public and policy makers. The Census system based on densely settled areas very likely fits the notions that the words urban and rural conjure up in people’s minds. Rural is countryside, with few homes or other structures visible. Urban is a city, town, and possibly even a village. Whether the official standard of 2,500 is lower than most people’s notion of urban and what the cutoff should be might be the only debated issue. Treating metropolitan as urban and nonmetropolitan as rural definitely contradicts popular notions of urban and rural landscapes. The Grand Canyon is not an



urban landscape, although it is within a metropolitan county. Likewise, there are 49,500 square miles within metropolitan areas composed of entire counties without a single settlement of even 2,500 people. Those town-less metropolitan rural counties together are larger in area than the entire states of New York or North Carolina, and they are not urban in any popularly understood sense.

Using nonmetropolitan as rural means forgetting the purpose of defining core-based areas. It was not to separate urban and rural but to define socially and economically integrated areas. Part of that integration is among people and commerce located in urban and rural places. Metropolitan by design intentionally includes rural areas integrated with urban areas. Subsequently redefining those integrated rural areas as nonrural or urban dismisses the entire point of the core-based definitions.

Astute observers in academia, industry, and government are aware of the county trap and the mismatch problems caused by equating nonmetropolitan and rural. Being forced to understand rural economies or rural conditions on the basis of county statistics is a serious problem, and there is no alternative when statistics are not available for the actual object of study, urban or rural areas. We make do, this author included, and continue to use nonmetropolitan counties as a proxy for rural.

#### AVOIDING THE COUNTY TRAP IN RESEARCH AND POLICY

Two suggestions follow to avoid the county trap. The ideal solution is for the federal government to make available the same data for urban and rural areas that are available for counties. The pragmatic alternative, on hand immediately, is to use existing county data in a different way that recognizes that most counties are combinations of urban and rural areas. The new rural-urban density county typology seeks to separate urban and rural to the extent possible within a county framework.

#### *THE IDEAL: GOOD RURAL STATISTICS*

Without good urban and rural statistics, we shall continue to be forced to make private sector and public policy decisions blind to the realities of actual urban and rural change and conditions. At best, or maybe worse, we shall continue to drive our decisions and policies looking through glasses whose thick metro and nonmetro lenses badly distort our vision of urban and rural realities. A simple innovation in the federal statistical framework can create good urban and rural statistics. It is both feasible and desirable. Innovations in geographical information systems and other computing technologies make possible now what might have been impossible a decade ago.

Taking three federal statistical series available for counties and making them available for urban and rural portions of counties is an excellent start. *County Business Patterns* is an annual product of the U.S. Census Bureau. For every county, it

provides employment by industry down to the full six-digit level of industrial detail. The data can be downloaded by state free or purchased on CD for the whole nation for \$50. The data are derived from social security quarterly reports made by firms. Using the same address information now used to assign the establishment to the county, a straightforward computational step would assign it to the county's urban or rural portion. This simple step would produce better urban and rural economic data than the nation has ever had. We could learn, for example, which industries gravitated toward the sparsely settled rural parts of the county and whether they drew urbanization towards them. The costs in disseminating the new data would be negligible—just adding some megabytes of downloadable data to the Web site and putting the county, its urban portion, and its rural portion on the CD. The usual suppression problems and difficulties in linking data into time series would carry over from *County Business Patterns* to the proposed *Urban and Rural County Business Patterns*, but no other data source provides a better, more detailed annual employment picture. The Census Bureau already makes available *Zip Business Patterns*, which provides detailed information for thirty thousand zip codes nationwide, so no new issues of dissemination and disclosure would be raised by urban and rural areas.

The U.S. Census Bureau already has demonstrated its willingness to make special tabulations of *County Business Patterns*. The State of the Cities Data Systems (SOCDS) contains a special extract from *County Business Patterns* that separates central cities from suburbs for the 101 metropolitan areas. Maintained by the U.S. Department of Housing and Urban Development (HUD), SOCDS (<http://socds.huduser.org/index.html>) contains these CBP Special Extracts Data for every year from 1991 onward. The entire set can be downloaded. The existence of SOCDS and its sponsorship by HUD could serve as a useful precedent and starting point for a similar system focusing on rural America and sponsored by the U.S. Department of Agriculture or even a joint USDA/HUD venture focusing on urban, suburban, and rural America.<sup>7</sup>

The *Regional Economic Information System* of the Bureau of Economic Analysis (BEA) provides annual data on county income, earnings, and employment. It is the most comprehensive single source of employment and earnings data, providing not only private nonfarm employment as *County Business Patterns* does but also farming; proprietors; and federal, state, and local government. Its industrial detail stops at the two-digit level, but the time series from 1969 through the present are unmatched anywhere (despite the break caused by the changeover to the North American Industrial Classification System). The employment and earnings data are derived from employment security administrative records sent by states to the Bureau of Labor Statistics (BLS). The BEA assigns the employment to counties by location of the establishment (not the headquarters or payroll center of the firm) and compiles the data into metropolitan and nonmetropolitan portions of states and the nation. Better urban and rural economic data than have ever existed would be possible if BLS were to add the step of geocoding the establishment's address to its

location in a county's urban or rural portion. Changing urban and rural boundaries would require caution when interpreting the time series, however.

Perhaps the easiest system to make urban-rural is the decennial census. Summary files 3 and 4, which contain the data from the long form, can be queried and downloaded from the Web. The geography within geography function permits creating files that cover all counties in the nation and all urban areas in the nation. Since statistics are already compiled for urban areas, some straightforward (but not trivial) programming changes would enable the compilation and downloading of data for the urban and rural portions of each county. The result again would be more information than we have ever had on local rural conditions. Labor force status, occupation, education, commuting, housing conditions, and much more would be readily available for the first time for rural people by county.<sup>8</sup>

Good rural statistics, made possible and feasible by recent technology change, would be an immense breakthrough. They would permit studying rural separate from urban, the integration of urban and rural, and dynamics of spatial change. We would learn what rural America is. We have done such research in the past but with flawed data—either contaminated by mixing urban and rural into county boxes, which are often mislabeled, or aggregated into national and regional rural totals, which are divorced from real places.

This data dream should go a step farther. Geocoded data, which link addresses to spatial coordinates, are necessary to create statistics for urban and rural areas. Once the geocoded data exist, their usefulness is unbounded. Urban and rural research can be conducted over continuous space instead of in discrete space with its boxes of counties, zip codes, and rural areas. Such research ought to be possible at the eight Census Bureau Research Data Centers that give researchers access to confidential demographic and economic microdata (<http://www.ces.census.gov/ces.php/home>).

#### *THE PRAGMATIC: BETTER USE OF COUNTY STATISTICS*

Let us start with reality, with what we can implement today with county data to study rural conditions. There are better compromises than metropolitan = urban and nonmetropolitan = rural. The core-based county system was designed to capture the integration of social and economic activities over space. That an entirely rural county is integrated economically with nearby cities is an important fact, but it cannot negate another important fact: the county is rural.

Imagine a county system designed from the outset to separate rural from urban to the extent possible. It is county based because counties are the fundamental unit for economic data. It recognizes that counties can contain urban and rural areas and that some counties are predominantly urban, others are predominately rural, and many are mixed. It begins with the Census urban-rural system and adopts or adapts official thresholds whenever possible. It includes the urban population nucleus requirements of 50,000 and 10,000 from the OMB metro-micro system and the den-

sity standard of 500 people per square mile from the Census urban-rural system. Counties are classified rural, urban, mixed rural, and mixed urban using these criteria:

- *Rural county*: (1) The county's population density is less than 500 people per square mile, and (2) 90 percent of the county population is in rural areas or the county has no urban area with a population of 10,000 or more. The density requirement is the same used to distinguish urban and rural census blocks, and the urban area threshold mimics the urban cluster requirement that defines micropolitan core areas. The 90 percent requirement screens out low-density counties with substantial urban populations, but it has no official precedent or standing.
- *Urban county*: (1) The county's population density is at least 500 people per square mile, (2) 90 percent of the county population lives in urban areas, and (3) the county's population in urbanized areas is at least 50,000 or 90 percent of the county population. The density and the 90 percent requirement serve as above, and 50,000 is the urbanized area threshold for the nucleus of a metropolitan county. The second part of the third criterion is only necessary because independent Virginia cities are treated as counties statistically; it designates as urban counties some independent cities that have fewer than 50,000 residents but are entirely or almost entirely within larger urbanized areas that spill over their borders.
- *Mixed rural county*: (1) The county meets neither the urban nor the rural county criteria, and (2) its population density is less than 320 people per square mile. That density is two acres per person; it has no official standing but seems reasonable.
- *Mixed urban county*: (1) The county meets neither the urban nor the rural county criteria, and (2) its population density is at least 320 people per square mile. Thus, mixed urban counties are almost two-thirds of the way from no population to the urban density threshold of 500 people per square mile.

This urban-rural density typology succeeds in its goal of distinguishing between urban and rural within the constraint of counties that blend urban and rural. Urban counties have only 5 percent of the rural population; 85 percent is in rural or mixed rural counties. Almost half the rural population lives in mixed rural counties, where they constitute a third of the population there. Another third lives in rural counties, making up three-quarters of the population. Moving up the continuum, rural people are a small minority; they are 15 percent of the mixed urban and 2 percent of the urban county populations. Table 3 presents more details.

Combining this typology with the metropolitan-nonmetropolitan system illustrates again the problems caused by separating rural from urban by (mis)using a system created to capture their integration. The first two rows of Table 4 make the case. The 1,790 rural counties of the new approach consist of 1,486 nonmetropolitan counties and 304 metropolitan counties. The latter are integrated with urban counties through commuting, but their populations are 78 percent rural and their population density is only 36 people per square mile. To consider these 304 counties as urban makes little sense. Among them are the 95 metropolitan counties that

TABLE 3. U.S. Population, Urban-Mixed-Rural Counties, 2000

Type	Number of Counties	Population	Percentage of U.S. Population	Density	Percentage of U.S. Land	Percentage in Urbanized Areas	Percentage in Urban Clusters	Percentage in Rural	Rural Population	Percentage of U.S. Rural
Rural	1,790	27,964,452	10	13	62	1	23	76	21,267,242	36
Mixed rural	1,022	86,424,633	31	73	34	42	25	33	28,675,527	49
Mixed urban	158	41,106,320	15	446	3	82	4	15	6,117,981	10
Urban	171	125,926,501	45	1,560	2	97	1	2	3,000,617	5

TABLE 4. Cross-Tabulation of Urban-Rural and Metro-Nonmetro Systems, 2000

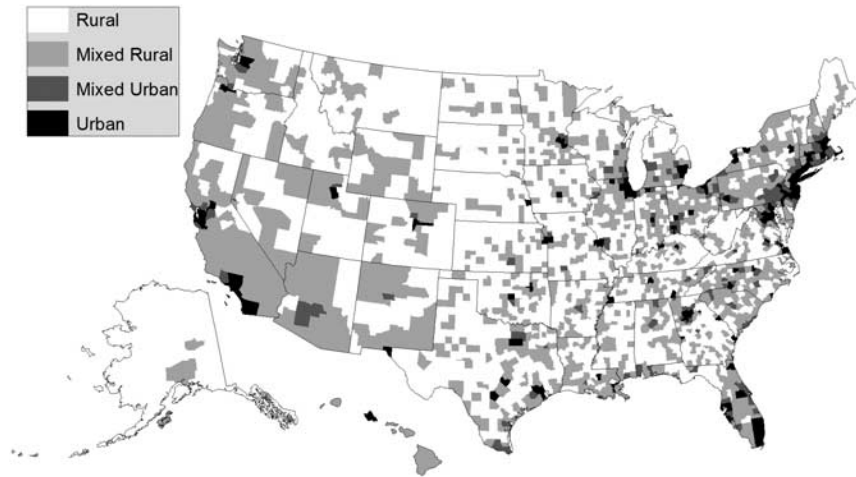
Type	Number of Counties	Population	Percentage in Urbanized Areas	Percentage in Urban Clusters	Density	Percentage in Rural	Rural Population	Percentage of U.S. Rural
Rural nonmetro	1,486	21,375,266	0	24	11	75	16,134,287	27
Rural metro	304	6,589,186	2	20	36	78	5,132,955	9
Mixed rural nonmetro	555	27,291,697	1	53	42	47	12,700,651	22
Mixed rural metro	467	59,132,936	61	12	109	27	15,974,876	27
Mixed urban nonmetro	11	175,003	0	79	593	21	36,328	0
Mixed urban metro	147	40,931,317	82	3	446	15	6,081,653	10
Urban metro	171	125,926,501	97	1	1,560	2	3,000,617	5

have absolutely no urban residents. Likewise, the 1,022 mixed rural counties include 467 metropolitan counties, which house 16 million rural residents, 27 percent of the nation's total. In all, 36 percent of the nation's rural population is in those rural and mixed rural counties that are metropolitan. Ignoring them or treating them as urban does not contribute to good rural research designs or effectively targeted rural policy.

The two systems match far more closely for the urban and mixed urban counties. All 171 urban counties are metropolitan, as are all but 11 of the 158 mixed urban counties. The 11 are special cases with only 175,000 residents in total. Ten are independent cities of Virginia, too small to qualify as metropolitan cores with only 4,000 to 24,000 residents (and densities of 800 to 3,500 people per square mile). The 11th is an island between Seattle and Vancouver with 72,000 residents, half urban and half rural—too few urban residents to qualify as a metropolitan core and too little commuting across the water to qualify as metropolitan through integration with the larger metropolitan area. Their population densities make all 11 counties mixed urban instead of mixed rural.

Delving into the other categories, some counties with major cities are mixed urban because of their low population density (<500) or large rural populations (>10 percent). The character of these counties is, in fact, mixed. Most populous among them is Maricopa County, Arizona, which includes Phoenix and 90,000 rural residents; it is 97 percent urban by population but has a density too low to be urban, 334 people per square mile. Wake, North Carolina, home of Raleigh, has an urban density, but its 74,000 rural residents prevent it from meeting the 90 percent urban requirement. Worcester, Massachusetts, has 607,000 urban residents and 144,000 rural residents, more rural residents than any other mixed county, and too low a density to qualify as urban. Many other mixed counties fit these three prototypes, missing the requirements for density, urban percentage, or both.

Some counties with major cities are mixed rural for the same reasons, but their density is below 340, the dividing line between mixed urban and mixed rural. The five most populous among them are all in the West: San Bernardino, California (population density of 85); Riverside, California (214); Clark, Nevada (174); Pima, Arizona (92); and Fresno, California (134). The first two adjoin Los Angeles, and the others house Las Vegas, Tucson, and Fresno, respectively. They have 800,000 to 1.7 million residents and 32,000 to 106,000 rural residents. They range from 6,000 to 20,000 square miles each, meaning they are the equal to or larger than Hawaii, New Jersey, Massachusetts, New Hampshire, Vermont, or Maryland, which have 6,000 to 10,000 square miles. The largest, mixed rural county, San Bernadino, is almost the size of West Virginia (24,000 square miles). That such sprawling counties are mixed urban and rural should not be surprising. Illustrating with the Grand Canyon once more, its home county, Coconino, Arizona, has a population density of 6 people per square mile. The county is metropolitan by virtue of the Flagstaff urbanized area with 57,050 residents. They live on 32 of the county's 18,000 square



**FIGURE 1. The Rural-Urban Density Typology**

miles. Paying attention to land use and density, the county is indeed mixed rural. It has a city, but it is predominantly rural.

Highest density among the mixed rural counties and, therefore, closest to qualifying as mixed urban are the home counties of Portland, Maine; Asheville, North Carolina; and Spartanburg, South Carolina. They have urbanized areas of about 150,000 people and densities of 312 to 318 people per square mile, but about a third of their populations are rural, 60,000 to 90,000 people.

The most populous rural county is Navaho, Arizona, with 41,000 urban and 57,000 rural residents. It does not qualify as mixed urban because it has no urban area of 10,000 or more; Winslow, its largest, has 8,700 residents. To qualify as rural, a county had to have either 90 percent of its population in rural areas (which 791 do) or lack an urban area of 10,000 (which all 1,790 do). Within 30 people of meeting that urban cluster requirement and qualifying as mixed rural are Hoke, North Carolina (which has part of the Fayetteville urbanized area); Routt, Colorado (Steamboat Springs); and Manistee, Michigan (Manistee). In all, 35 rural counties are within 500 people of an urban cluster of 10,000, which would qualify them as mixed rural.<sup>9</sup>

Figure 1 shows the rural-urban density typology for the continental United States. The darkest shading is urban counties, followed by mixed urban and mixed rural, with rural in white. Noteworthy are (1) the major urban areas from Boston to Washington, on both Florida coasts, from Los Angeles to San Diego, the San Francisco Bay Area, Seattle and Portland, Chicago, St. Louis, Atlanta, and within

Texas; (2) the characterization as mixed of many metropolitan areas; and (3) the large portion of the nation that is rural or mixed rural, 96 percent of the land area.

### COMPARING RURAL-URBAN CONTINUUM, URBAN INFLUENCE, AND RURAL-URBAN DENSITY CODES

Anyone proposing a new typology ought to explain its relationship to existing typologies and make clear its merits.<sup>10</sup> Thus far, the claim of merit has rested on three legs: use of nonmetropolitan as rural misses more than half the rural population; separation and integration are distinct dimensions; and the assertion, to be demonstrated in the next section, that interesting insights come from probing poverty, place, and policy with the new typology. Yet every taxonomy, every disaggregation scheme, will produce some new insight. Why add another typology? Specifically, what do the rural-urban density codes offer that the rural-urban continuum codes (“Beale code”) or the urban influence codes do not already capture?

The rural-urban continuum codes distinguish nonmetropolitan counties by their urban populations and their adjacency to metropolitan counties and distinguish metropolitan counties by the population size of their metropolitan areas. Thus, they go beyond metro/nonmetro to consider adjacency in describing integration, and they consider the urban population within nonmetro counties in describing their urban-rural character. Its nine categories, three metro and six nonmetro, are listed in Table 5. There are three thresholds in characterizing urbanization within nonmetropolitan counties: urban population of 20,000 or more, urban population of 2,500 to 19,999, or no urban population. They are matched with two dimensions of integration—adjacent to a metropolitan county or not adjacent—to create the six nonmetropolitan types. Adjacency is a measure of integration because it is defined by ERS as not only abutting the metro area physically but also having 2 percent of employed workers commuting there—a considerably lower level of integration than the 25 percent that adds a county to a metropolitan or micropolitan area, but integration nonetheless.

A county’s urban-rural separation or character is not considered if the county is metropolitan. There is no distinction between metropolitan counties with no urban population and those that are entirely urban. Both types are at the upper end of the rural-urban continuum, at the very highest level if their metropolitan area has more than a million residents. As whenever metro/nonmetro is considered synonymous with urban/rural and all metropolitan counties are treated as wholly urban, the majority of rural people remains hidden in the metropolitan categories. The continuum’s main contribution is distinguishing among nonmetropolitan counties: “The codes allow researchers working with county data to break such data into finer residential groups beyond a simple metro-nonmetro dichotomy, particularly for the analysis of trends in nonmetro areas that may be related to degree of rurality and metro proximity” (<http://www.ers.usda.gov/briefing/rurality/RuralUrbCon/>).



**TABLE 5. Categories of the Rural-Urban Continuum Codes**

## Metropolitan counties

1. Counties in metro areas of 1 million population or more
2. Counties in metro areas of 250,000 to 1 million population
3. Counties in metro areas of fewer than 250,000 population

## Nonmetropolitan counties

4. Urban population of 20,000 or more, adjacent to a metro area
5. Urban population of 20,000 or more, not adjacent to a metro area
6. Urban population of 2,500 to 19,999, adjacent to a metro area
7. Urban population of 2,500 to 19,999, not adjacent to a metro area
8. Completely rural or less than 2,500 urban population, adjacent to a metro area
9. Completely rural or less than 2,500 urban population, not adjacent to a metro area

The urban influence codes have as their main premise: "An area's geographic context has a significant effect on its development. Economic opportunities accrue to a place by virtue of both its size and its access to larger economies. . . . These relationships among economies are basic concepts of the central place theory commonly studied in regional economics. Population size, urbanization, and access to larger communities are often crucial elements in research dependent on county-level data sets" (<http://www.ers.usda.gov/briefing/rurality/UrbanInf/>). Like the rural-urban continuum, the urban influence code distinguishes metropolitan counties only by the population of their metropolitan area, in this case whether they have a million residents. The codes divide nonmetropolitan into micropolitan and noncore. Micropolitan counties are classified by whether they are adjacent to a large metropolitan area, a small metropolitan area, or neither; and noncore counties whether they are adjacent to a large metro, small metro, micro, or none. Thus, adjacency with the 2 percent threshold is a key component of the access to larger economies and economic opportunities that underlie the urban influence codes. Recognition of three different types of adjacency, large metro, small metro, and micro, is one way this typology differs from the rural-urban continuum, which considers only one type, adjacency to metro. In the language of this article, the urban influence code has seven levels of cross-county integration: part of a large metro, part of a small metro, part of a micro, adjacent to a large metro, adjacent to a small metro, adjacent to a micro, and not adjacent. The two metropolitan, three micropolitan, and seven noncore categories are listed in Table 6.

A county's internal urban-rural separation is not considered if the county is metropolitan or micropolitan, so again there is no distinction between entirely rural and densely settled counties that are within metropolitan or micropolitan counties. Metro and micro counties are treated implicitly as urban, influencing the noncore counties through adjacency and themselves influenced by the urban areas that lie within some of them. The urbanization of noncore counties is distinguished only by whether they do or do not have a town with at least 2,500 residents. Thus, the urban influence codes are more explicit in measuring integration and less explicit in

**TABLE 6. Categories of the Urban Influence Codes**


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Metropolitan counties
1. In large metro area of 1 million residents or more
2. In small metro area of less than 1 million residents
Nonmetropolitan counties
3. Micropolitan adjacent to large metro
4. Noncore adjacent to large metro
5. Micropolitan adjacent to small metro
6. Noncore adjacent to small metro with own town
7. Noncore adjacent to small metro no own town
8. Micropolitan not adjacent to a metro area
9. Noncore adjacent to micro with own town
10. Noncore adjacent to micro with no own town
11. Noncore not adjacent to metro or micro with own town
12. Noncore not adjacent to metro or micro with no own town

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measuring separation than the rural-urban continuum codes, but the majority of rural people remains concealed within metropolitan counties or, stated more positively, living in the counties with the most urban influence.

The new typology offered here, the rural-urban density codes, is unique in classifying all counties by their internal urban-rural composition. It does so by the percentage of the county's population that is urban or rural, the presence or absence of urbanized areas of 50,000 or more and urban areas of 10,000 more, and the population density of the county. It attempts to measure urban-rural separation as well as possible within counties—which is not the goal of either the rural-urban continuum or urban influence codes that take as their starting point the metropolitan counties. Only the rural-urban density code allows for the existence of rural counties within metropolitan areas.

The main purpose of the rural-urban density code is to distinguish between urban and rural, and it can be combined with any system that measures integration, such as metro-nonmetro, the five integration levels of the rural-urban continuum codes, or the seven integration levels of the urban influence codes. It can also be combined with an integration system based entirely on commuting patterns, for example, a set of commuting thresholds that measure degrees of integration between the 25 percent OMB metropolitan and metropolitan threshold and the 2 percent ERS adjacency threshold. The options to pair the rural-urban density codes with urban-rural integration measures are many and worth exploring.

To illustrate the usefulness of the complementary natures of the rural-urban density codes and the rural-urban continuum and urban influence codes, Table 7 provides statistics for a cross-tabulation that features integration measures derived from the urban influence codes. It reveals the kinds of places in which rural people live, considering both separation and integration. The majority of rural people live in mixed rural counties within micropolitan areas (22 percent), mixed rural counties within small metropolitan areas (19 percent), and rural counties adjacent to

TABLE 7. Cross-Tabulation of Rural-Urban Density and Integration Based on Urban Influence, 2000

Separation	Integration	Number of Counties	Population	Percentage of U.S.		Farm Population	Percentage of U.S.	
				Rural Population	Rural		Farm Population	Farm
Rural	Not adjacent	312	3,246,747	2,372,530	73	165,487	5	6
Rural	Adjacent to micro	399	4,541,008	3,413,884	75	286,610	6	10
Rural	Adjacent to small metro	538	9,704,209	7,423,437	76	481,879	5	16
Rural	Adjacent to large metro	121	2,350,148	1,743,178	74	117,093	5	4
Rural	In micro	116	1,533,154	1,190,895	78	78,554	5	3
Rural	In small metro	202	4,116,642	3,207,935	78	189,230	5	6
Rural	In large metro	102	2,472,544	1,926,484	78	96,346	4	3
Mixed rural	In micro	555	27,291,697	12,706,423	47	658,413	2	22
Mixed rural	In small metro	348	42,307,602	11,451,914	27	490,405	1	16
Mixed rural	In large metro	119	16,825,334	4,519,364	27	161,835	1	5
Mixed urban	In small metro	86	24,048,079	3,710,570	15	122,124	1	4
Mixed urban	In large metro	60	16,285,603	2,308,257	14	58,060	0	2
Urban	In small metro	40	12,883,550	644,506	5	18,924	0	1
Urban	In large metro	132	113,640,586	2,407,694	2	62,121	0	2

small metropolitan areas (13 percent). Thus, they live in counties with substantial rural character, commingled with urban populations to varying degrees, with access to city jobs and services. The majority of the farm population also lives in those three types of counties, and another 10 percent lives in rural counties adjacent to micropolitan areas and, hence, with access to city jobs and services, too.

The cross-tabulation has rural policy implications; Table 7 shows the varied combinations of rural-urban separation and integration that rural people face. Only 4 percent of the rural population and 6 percent of the farm population live in rural counties that are not adjacent to a metropolitan or micropolitan area. Those 2.4 million rural folks are in a markedly different rural development policy context than the 5.1 million rural residents of rural counties within metropolitan areas. Although both sets of counties are more than 70 percent rural by population, they face different challenges if they are isolated or integrated. Then there are the 2.4 million rural residents of densely settled urban counties living amidst the largest metropolitan areas; they are in a very different context again, a small minority, only 2 percent, within the urban large metro population. Note the declining percentages of rural and farm populations moving down the columns.

#### ANALYZING PLACE, POVERTY, DISTRESS, AND PROSPERITY

A fair test of the rural-urban density typology is whether it gives us new insights. This section presents an illustrative analysis of the spatial incidence of poverty, hardship, and prosperity. Its goal is to gain a better understanding of conditions in the places rural people live. The rural-urban density code and metropolitan/nonmetropolitan are used together. As seen, they measure different dimensions and are complementary. The more detailed integration dimensions of the urban influence or rural-urban continuum codes are not presented here because of space limitations. Use of counties means that most rural people are within places that contain urban people, so we must recognize at the outset that we cannot separate urban and rural as perfectly as if we had data for urban and rural areas.

#### *DEFINING HARDSHIP*

Picking indicators of hardship brings us again face to face with fuzzy concepts, varied governmental practices, and choices constrained by data and politics. The indicators are diverse, but common tendencies exist. The Economic Development Administration defines distress and program eligibility on the basis of poverty and per capita income. The Appalachian Regional Commission, a federal-state agency, identifies distressed counties using poverty rates, unemployment rates, and per capita market income (total income net of transfer payments). The USDA defines eligibility for the Rural Empowerment Zones and Enterprise Communities program in terms of “pervasive poverty, unemployment, and general distress.” The

regulations explain the latter by examples: "Below average or decline in per capita income, earnings per worker, per capita property tax base, average years of school completed, outmigration and population decline, a high or rising incidence of crime, narcotics use, abandoned housing, deteriorated infrastructure, school drop-outs, teen pregnancy, incidents of domestic violence, incidence of certain health conditions, and illiteracy are examples of appropriate indicators of general distress" (<http://www.ezec.gov/About/7CFRPart%2025-1998.pdf>). The U.S. Department of Housing and Urban Development allocates community development funds to cities on the basis of poverty, population growth lag (relative to the national rate), crowded housing, and age of housing. The U.S. Census Bureau has identified a set of "selected conditions" for housing: "(1) lacking complete plumbing facilities, (2) lacking complete kitchen facilities, (3) with 1.01 or more occupants per room, (4) selected monthly owner costs as a percentage of household income in 1999 greater than 30 percent, and (5) gross rent as a percentage of household income in 1999 greater than 30 percent" (SF3, Table HCT28, Tenure by Selected Physical and Financial Conditions, available via <http://factfinder.census.gov>).

The measures used for particular governmental programs depend on the purpose of the program, its geographical coverage, the data available for that geography, the timeliness of the data, and the need to make enough places eligible to secure the necessary political support. A recent study concluded that "most measures of distress use some combination of high unemployment, high poverty, and low income to determine distressed status. Other indicators that may be used include population loss, outmigration, poor housing conditions, or low educational attainment" (Glasmeier, Wood, and Fuellhart 2002, 4). Selected results from analysis of all these indicators are presented here.

#### *POVERTY, UNEMPLOYMENT, AND INCOME*

Nonmetropolitan America has higher poverty rates, higher unemployment rates, and lower per capita income than metropolitan America. These facts are well known and can be seen in Table 8, whose numbers result from aggregating census data over the 3,141 counties. Table 8 also shows (again) that the majority of the rural population and 40 percent of the farm population are not in nonmetropolitan America and that 41 percent of the nonmetropolitan population is not rural. Therefore, nonmetropolitan statistics are limited in helping us understand rural conditions or gaps. Yet the differentials do tell us something important: people who live in areas whose economies are integrated with a large population center have on average lower poverty and unemployment rates and higher per capita incomes. Since the majority of rural people live in those economically integrated metropolitan areas, they live in the better off category of places. Yet they are only 13 percent of the population there, so we do not know to what extent they share in the relative prosperity. Nonmetro residents are more likely to be rural, but even the nonmetro

**TABLE 8. Selected Distress Indicators, Metropolitan and Nonmetropolitan, 2000**

Type	Poverty Rate	Unemployment Rate	Per Capita		Rural Population	Farm Population	Percentage in Rural
			Market Income	Population			
Nonmetro	14.8	6.2	\$16,798	48,841,966	28,886,873	1,788,486	59
Metro	11.9	5.7	\$22,592	232,579,940	30,176,724	1,199,045	13

statistics cannot reflect rural people accurately since those numbers are “contaminated” by their 41 percent urban composition.

The statistics for the rural-urban density typology are similar to the conventional ones in that rural and mixed rural counties have the highest poverty rates and lowest per capita market incomes (Table 9). Unemployment rates for urban, mixed rural, and rural counties are the same, however, and income is the only indicator that rises monotonically as counties become less rural. Mixed urban counties, home to 10 percent of the rural population, have the lowest poverty and unemployment rates, yet even the rural county statistics are not perfect rural people measures because they are contaminated by their 24 percent urban content, chiefly residents of small towns.

Combining the two typologies makes the analysis more interesting. Rural counties within metro areas do better than rural counties outside them. Their poverty rate is 12 percent, not 16 percent; their unemployment 4.9 percent, not 6.2 percent; and their per capita income 10 percent higher. Both groups have very similar percentages of rural population, 78 and 76 percent, so, having classified counties by their urban and rural populations and settlement density, we find that metro status makes a big difference. Rural counties that are economically integrated with an urban population center have the lowest unemployment rate and the second lowest poverty rate among all six county categories (Table 10). The same tendency holds for mixed rural counties. Integration reduces hardship in rural areas.

Income, poverty, and unemployment all have limitations as economic indicators. Income is ill suited to compare urban and rural hardship because we lack cost of living information.<sup>11</sup> The federal poverty thresholds also do not consider geographical differences in cost of living.<sup>12</sup> Unemployment statistics ignore discouraged workers who leave the labor force and underemployed workers. Therefore, in the next section we examine additional measures.

#### DEMOGRAPHY, EDUCATION, AND HOUSING

The importance of integration with urban areas for rural places is evident with these indicators, too. Rural nonmetro counties grew 8 percent in population between 1990 and 2000, but rural metro counties grew 18 percent. Rural metro counties have proportionally more people in the middle labor force ages, twenty-five

TABLE 9. Selected Distress Indicators, Rural-Urban Density, 2000

Type	Poverty Rate	Unemployment Rate	Per Capita Market Income	Population	Rural Population	Farm Population	Percentage in Rural
Rural	14.9	5.9	\$16,347	27,964,452	21,278,343	1,415,199	76
Mixed rural	12.8	5.9	\$18,976	86,424,633	28,677,701	1,310,653	33
Mixed urban	10.3	5.0	\$22,311	40,508,685	6,055,353	180,634	15
Urban	12.2	5.9	\$24,296	126,524,136	3,052,200	81,045	2

TABLE 10. Selected Distress Indicators, Urban-Rural and Metro-Nonmetro, 2000

Type	Poverty Percentage	Unemployment Percentage	Per Capita Market Income	Population	Rural Population	Farm Population	Percentage in Rural
Rural nonmetro	15.8	6.2	\$15,959	21,375,266	16,143,924	1,129,623	76
Rural metro	12.0	4.9	\$17,607	6,589,186	5,134,419	285,576	78
Mixed rural nonmetro	14.0	6.2	\$17,440	27,291,697	12,706,423	658,413	47
Mixed rural metro	12.2	5.8	\$19,685	59,132,936	15,971,278	652,240	27
Mixed urban metro	10.3	5.0	\$22,324	40,333,682	6,018,827	180,184	15
Urban metro	12.2	5.9	\$24,296	126,524,136	3,052,200	81,045	2

through forty-four, and fewer elderly. They have proportionately fewer high school dropouts among their teenagers, too, and more college graduates among their young adults, twenty-five through thirty-four. They also have proportionately fewer households with more than one person per room, fewer renters paying more than 30 percent of their income in rent, and fewer households with one more of the Census's selected housing conditions (crowding, incomplete plumbing or kitchen, or expenditure more than 30 percent of income), but the differences are 0.6 percentage point or less. Table 11 provides details.

Mixed rural metro counties have a similar relationship to their nonmetro counterparts, but there are exceptions. The mixed rural metro counties grew faster, have more young adults, fewer elderly, fewer high school dropouts, and more college graduates, but their housing situation is worse.

Other noteworthy patterns exist. Urban metro counties have net domestic out-migration, 3.3 million people between 1995 and 2000. All the other county types, including the rural ones, gained population from the urban counties through net domestic in-migration. Mixed rural metro counties gained the most, 1.8 million people net. Foreign-born residents who arrived between 1990 and 2000 account for 7.3 percent of the 2000 population of the urban counties but fewer than 1 percent of the rural counties, whether metro or not. Housing conditions are worst in the urban counties. The high school dropout rate is higher in urban counties than anywhere except rural nonmetro counties. The only indicator with a monotonic relationship, increasing from rural nonmetro through urban, is young college graduates.

#### COMPOSITE MEASURES

The aggregate indicators tell us nothing about variation within the county categories and the incidence of hardship among them. This section examines the numbers of distressed and prosperous counties within each county category. The starting point is criteria used by the Appalachian Regional Commission to identify distressed counties.<sup>13</sup> To quote from *The ARC Code* (2004, Sec. 7.5),

The Commission recognizes that there are counties within Appalachia with persistent, long-term problems that have resulted in extraordinary levels of economic and human distress. . . . The following criteria shall be used to designate distressed counties, and will be adjusted annually to reflect current data:

1. (a) per capita market income no greater than 67 percent of the U.S. average; (b) poverty rate at 150 percent of the U.S. average or greater; and (c) three-year unemployment rate at 150 percent of the U.S. average or greater; or
2. Twice U.S. poverty rate and either (a) or (c) above.

*The ARC Code* also identifies two sets of "economically strong counties." "Competitive" counties have per capita market income at least 80 percent of the national



TABLE 11. More Socioeconomic Indicators, Urban-Rural and Metro-Nonmetro, 2000

Type	Net Migration, 1995-2000	Foreign Born After 1990	Population Growth Rate, 1990-2000	Population Aged 25-44	Population Aged 65 or Older	High School Dropouts, Ages 16-19	College Grads, Ages 25-34	More Than One Person per Room	Rent > 30 Percent of Income	Housing Problem Condition Present
Rural nonmetro	41,934	0.9	8	26.7	15.8	10.4	13.4	3.2	28.9	24.6
Rural metro	313,329	0.8	18	28.9	12.9	9.9	14.6	2.9	28.4	24.0
Mixed rural nonmetro	181,137	1.5	10	27.5	14.3	9.8	17.2	3.4	33.2	25.7
Mixed rural metro	1,818,703	2.8	19	29.3	12.0	9.4	22.0	4.9	37.2	29.0
Mixed urban metro	984,525	3.1	17	30.3	12.1	9.4	28.6	3.9	36.1	27.7
Urban metro	-3,341,483	7.3	11	31.9	11.7	10.1	33.7	7.8	38.4	34.6

**TABLE 12. Distressed, Competitive, and Attainment Counties, Urban-Rural, 2000**

<i>Type</i>	<i>Number of Counties</i>		<i>Percentage Distressed</i>		<i>Percentage Competitive</i>		<i>Percentage Attainment</i>
	<i>Distressed</i>	<i>Attainment</i>	<i>Distressed</i>	<i>Competitive</i>	<i>Competitive</i>	<i>Attainment</i>	<i>Attainment</i>
Rural	1,790	291	16	157	9	27	2
Mixed rural	1,022	88	9	250	24	75	7
Mixed urban	157	4	3	86	55	53	34
Urban	172	4	2	99	58	85	49

level and poverty and three-year unemployment rates no higher than the national rates. "Attainment" counties equal or outperform the nation on all three indicators.

Applying these criteria to all the counties in the nation reveals that rural and mixed rural counties are more likely to be distressed and less likely to be competitive or attain the national averages. Almost one of six rural counties is distressed, 291 rural counties in all, while only one of fifty attains the national averages for all three indicators. Only 4 urban counties are distressed. They are Bronx and Kings (Brooklyn) within New York City, El Paso in Texas at its border with New Mexico and Mexico, and the independent city of Danville, Virginia, at the North Carolina border. Similarly, only 4 mixed urban counties are distressed: two more southern Virginia cities (Martinsville and Radford) and two more Texas border counties (Cameron and Hidalgo at the southern tip), with the cities of Brownsville, Edinburg, Harlingen, and McAllen. Table 12 provides details.

The picture is reversed when the focus is on the number of attainment counties, those that match or do better than the nation in unemployment, poverty, and per capita market income. Only 27 rural counties, 2 percent, are attainment counties, while almost half the urban counties are. The most difficult of the three criteria for rural counties to meet is the national per capita market income. Only 35 of the 1,790 rural counties reach the national per capita market income; yet 682 rural counties have poverty rates at or below the national level and 754 have unemployment rates at or below the national rate. The competitive designation drops the income criterion to 80 percent of the national income, and another 130 rural counties qualify, but still merely 9 percent of rural counties qualify compared to 58 percent of urban counties. In short, any indicator that depends on income will find more hardship and less prosperity in rural areas, maybe incorrectly so given our inability to control for spatially varying costs of living.

The same argument holds for poverty rates, which are based on geographically invariant income thresholds: 62 percent of rural counties have poverty rates higher than the nation compared to 50 percent of mixed rural counties, 25 percent of mixed urban counties, and 35 percent of urban counties. Knowing how much of the measured rural hardship is real is difficult when dollar amounts are not corrected for different costs and styles of living.

**TABLE 13. Incidence of Hardship and Prosperity, Urban-Rural and Metro-Nonmetro, 2000**

<i>Type</i>	<i>Number of Counties</i>	<i>Percentage</i>		<i>Percentage</i>		<i>Percentage</i>	
		<i>Distressed</i>	<i>Distressed</i>	<i>Competitive</i>	<i>Competitive</i>	<i>Attainment</i>	<i>Attainment</i>
Rural							
nonmetro	1,486	264	18	86	6	12	1
Rural metro	304	26	9	71	23	15	5
Mixed rural							
nonmetro	555	68	12	91	16	15	3
Mixed rural							
metro	467	20	4	159	34	60	13
Mixed urban							
metro	146	3	2	85	58	53	36
Urban metro	172	4	2	99	58	85	49

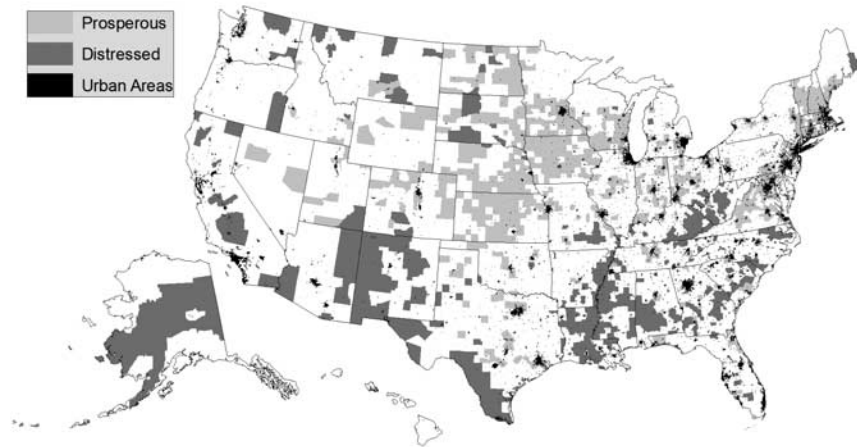
Integration with cities matters for all the composite indicators. One of five rural nonmetro counties is distressed, but only one of ten rural metro counties is so. Rural metro counties are almost four times as likely to be competitive than their nonmetro counterparts. On every hardship or success measure, the rural and mixed rural counties integrated with city economies do better than their counterparts (Table 13). Per capita market income remains the nemesis, the key determinant. The percentages of counties that equal or exceed the national per capita market income almost matches perfectly the attainment county percents: 1 percent of rural nonmetro counties equal or do better than the nation, 5 percent of rural metro counties, 3 percent of mixed rural nonmetro counties, and 16 percent of mixed rural metro counties, in contrast to 41 percent of mixed urban and 64 percent of urban counties.

A reasonable alternative is to reduce the dependence on unadjusted, unadjustable income measures by dispensing with per capita income entirely and substituting the high school dropout rate and housing conditions.<sup>14</sup> The dropout rate is for 16- to 19-year-olds, so it measures current outcomes, just as poverty and unemployment rates do. The housing measure is the absence of any of the adverse "selected conditions" defined by the U.S. Census Bureau (and listed earlier). To be designated "prosperous," a county must be doing better than the nation in terms of poverty, unemployment, housing conditions, and keeping its kids in school. Approximately one of five rural and mixed rural counties meets all four criteria, as do 40 percent of the mixed urban and 30 percent of the urban counties.

Integration matters again: 30 percent of rural metro counties are prosperous and 27 percent of mixed rural metro counties compared to 16 or 17 percent of their nonmetro counterparts (Table 14). Most striking, however, is that rural metro counties are as likely to be prosperous as the urban counties. Recall that urban counties have relatively high incomes but relatively poor schooling and housing outcomes (Tables 9 and 11). Housing costs relative to income considers both cost of living

**TABLE 14. Prosperous Counties, Urban-Rural and Metro/Nonmetro, 2000**

<i>Type</i>	<i>Number of Counties</i>	<i>Prosperous</i>	<i>Percentage Prosperous</i>	<i>Percentage Rural Population</i>
Rural nonmetro	1,486	244	16	75
Rural metro	304	92	30	78
Mixed rural nonmetro	555	96	17	47
Mixed rural metro	467	126	27	27
Mixed urban	146	62	42	15
Urban	172	51	30	2



**FIGURE 2. Distressed and Prosperous Counties, 2000**

and income, but there is also an investment component in housing expenditures. That component probably is higher in those urban areas where the population is more likely to move and housing values more likely to increase. Thus, again a measure has flaws, this time perhaps with an antiurban bias. We can conclude that urban-rural composition, urban-rural integration, and the choice of indicators matter when seeking an understanding of place, distress, and prosperity.

A regional dimension is evident in the incidence of distress and prosperity, too. Space does not allow more tabulations here, but Figure 2 provides a summary. The distressed counties (shaded darkly) are for the most part in regions that are the foci of federal programs and congressional initiatives.<sup>15</sup> Central Appalachia, the lower

Mississippi Delta and the black belt, Alaska, the Mexican Borderlands, and Indian Country in the four corners area, the Pine Ridge Reservation, and several northern states stand out, as does a relative newcomer to such maps, the agricultural Central Valley of California. The black dots are urban areas; they are conspicuous in their distance from distressed counties.

The prosperous counties (based on poverty, unemployment, housing conditions, and high school retention) are in lighter gray and also form regional patterns. One belt of prosperous places runs from New England through Virginia. Another centers on Wisconsin, southern Minnesota, Iowa, the Dakotas, Nebraska, Kansas, and eastern Colorado. A prosperous farmbelt runs from Ohio through Indiana and Illinois into Iowa. Also noteworthy are the prosperous counties near cities, including Dallas, Austin, San Antonio, Houston, Denver, Detroit, St. Louis, Kansas City, Charleston, South Carolina, and elsewhere. Sometimes the urbanized area is so extensive that it covers its counties on the map; for example, two prosperous mixed urban counties have parts of the Atlanta urbanized area.

The incidence of distress merits examination by the number of people affected and its concentration in particular places, too. Following along the first row of Table 15, almost 4 million people live in the 266 distressed rural nonmetro counties; 1 million of them are in poverty, and 146,000 are unemployed. Almost one of five rural nonmetro residents lives in a distressed county. Those distressed counties have 19 percent of the rural nonmetro population but 31 percent of the rural nonmetro poor and 25 percent of the rural nonmetro unemployed. Thus, among rural nonmetro counties, poverty is 65 percent more concentrated within the distressed counties and unemployment 32 percent more concentrated.<sup>14</sup>

People living in the other types of counties are less likely to be in a distressed place; only 4 percent of urban and 2 percent of mixed urban residents are. Yet the four distressed urban counties have more poor people than the 266 distressed rural nonmetro counties combined. Urban poverty is more concentrated within those four counties, too; they have 4 percent of the people in urban counties but 8 percent of the urban poor. The higher the concentration, the greater the burden poverty and unemployment put on the people of a distressed place relative to other counties of their type.

## IMPLICATIONS

Separation and integration are two different dimensions that should remain distinct. One focuses on the urban-rural character of a place, and the other focuses on its relationship with other places. Our mental map of rural America should include the rural metropolitan counties, where 9 percent of all rural people live, and the mixed rural metropolitan counties, where another 27 percent live. The first is rural in character, the second is mixed, and both are integrated with urbanized areas. Paying attention to the two dimensions changes our understanding of rural conditions and recovers people and places often left out. Making nonmetropolitan synony-

**TABLE 15. Incidence of Hardship and Prosperity, People in Distressed Counties, 2000**

Type	Number of Counties	Number of Distressed Counties	Population in Distressed Counties	Poor in Distressed Counties	Unemployed in Distressed Counties	Percentage Population in Distressed Counties	Percentage Poor in Distressed Counties	Percentage Unemployed in Distressed Counties	Location Quotient of Poverty	Location Quotient of Unemployment
Rural nonmetro	1486	266	3,969,348	1,000,233	145,809	19	31	25	1.65	1.32
Rural metro	304	25	468,451	108,877	16,318	7	14	11	1.99	1.50
Mixed rural nonmetro	555	68	2,879,744	710,712	118,565	11	19	15	1.84	1.41
Mixed rural metro	467	20	2,929,605	626,530	130,945	5	9	8	1.81	1.59
Mixed urban metro	146	3	920,549	315,253	39,156	2	8	4	3.40	1.70
Urban metro	172	4	4,526,009	1,173,830	210,648	4	8	6	2.17	1.58

mous with rural ignores too much of rural America—defining 30 million rural people as outside the territory of interest. It can lead to incorrect analyses of rural welfare because the majority of rural people are excluded from the data.

The deliberate, pragmatic strategy of trying to distinguish counties by their urban and rural character has merit. It provides a better logic for many research and policy purposes than using a typology meant to measure integration, and it can help us achieve a richer empirical understanding of rural. Recognizing that most rural people live in mixed counties is fundamental. We ignore only 15 percent of rural people if we focus on rural and mixed rural counties or only 5 percent if we include all but urban counties, both are better than ignoring 51 percent when considering nonmetropolitan counties only. Better yet is to understand the diverse contexts within which people live and ignore no one. Counties vary in the degree to which they are rural, and the rural-urban density system can be adjusted by varying the rural percentage and population density to identify counties that match specific research and policy purposes. For example, there are 737 counties that are entirely rural, perhaps ideal candidates for certain kinds of rural studies or programs, 175 counties with more than 50,000 rural residents each, a very different context, and those 3 million rural folks living in densely settled urban counties. There is no need or excuse to treat counties as a black box assigned to either rural or urban. Most are mixed, which creates a rich research laboratory and a wide variety of policy contexts.

This article and its findings have four action implications. First, some important rural and regional research based on nonmetropolitan counties ought to be redone. This article stops short of replicating such research and proving that the rural-urban density code will change results. The original authors can replicate the research far more readily with a few added lines of computer code and the rural-urban density codes (provided upon request).

Having found that urban-rural integration and character are two important dimensions, we can measure both on the county level with continuous variables such as the proportion of employed residents who commute to metropolitan counties, the proportion of the population that is rural, and the density of population settlement. All should be useful right-hand-side variables. Relationships can be expected to differ across county types, suggesting the value of analyzing each type separately. For example, employment growth in mixed urban counties is less likely to stimulate population growth of adjoining counties than employment growth in already densely settled urban counties. Hence, the county growth research that builds on Carlino and Mills (1987) might find different results with more careful attention to county type.

Second, we should review policy regulations to make sure we are reaching the people the policy is meant to serve. Establishing public policy to address rural problems but defining eligibility by nonmetropolitan status would disqualify millions of

rural people. An incomplete Internet survey shows that program regulations vary (see the appendix) and focus more on population size and density of subcounty units than on whole counties. Some programs make eligible all but urbanized areas of 50,000 or more, meaning 36 percent of the U.S. population qualifies (Table 1), and some pick 10,000 or 20,000 as the cutoff. Others start with nonmetropolitan areas but add parts of metropolitan areas such as the census tracts or zip codes identified by the rural-urban commuting area (RUCA) codes or all census tracts with less than 20 people per square mile.

The situation seems to have improved since Morrill, Cromartie, and Hart (1999, 729) wrote, "From a public policy standpoint, the frequent use of county-based metropolitan definitions results in significant policy inequity and discontent. For example populations who are clearly rural do not qualify for (rural) federal programs and funds because they are located in counties whose boundaries include urban areas." A thorough study might identify programs whose targeting can and ought to be improved through better definitions of rural. OMB (2000b, 82229) has recommended this very action strongly: "OMB urges agencies, organizations, and policy makers to review carefully the goals of nonstatistical programs and policies to ensure that appropriate geographical entities are used to determine eligibility for and the allocation of Federal funds." OMB points out specifically that "programs that base funding levels or eligibility on whether a county is included in a Metropolitan or Micropolitan Statistical Area may not accurately address issues or problems faced by local populations, organizations, institutions, or governmental units," and it uses as an example programs that seek to strengthen rural economies.

Third, we should continue to enliven our county typology discussions to get rural as right as we can, focusing on the two dimensions of separation and integration. There are a gaggle of possibilities, but all will bring us face to face with the logical limits of any county system: counties are not ideal for measuring urban and rural separation or integration, but counties are the smallest units for which comprehensive data are regularly available.

Fourth, and perhaps most important, we should advocate for the ideal data system. Today's data transfer and management technologies, geocoding, and institutional arrangements make possible the creation and dissemination of comprehensive statistics for meaningful subcounty geographies and even continuous space. These data will enable us to study rural separated from urban and learn what rural America is, and they will enable us to learn more about the integration of urban and rural, the dynamics of change, and urban-rural transitions. The better statistical system, better informed public policy, and better allocation of public funds are in the national interest.



## APPENDIX

## Illustrative, Incomplete Survey of Rural Program Eligibility Rules

*Farm Security and Rural Investment Act of 2002*: “the terms ‘rural’ and ‘rural area’ mean any area other than (i) a city or town that has a population of greater than 50,000 inhabitants; and (ii) the urbanized area contiguous and adjacent to such a city or town.” (General); “the terms ‘rural’ and ‘rural area’ mean a city, town, or unincorporated area that has a population of no more than 10,000 inhabitants” (water and waste disposal grants); “(i) outside a standard metropolitan statistical area; or (ii) within a community that has a population of 50,000 inhabitants or less” (rural business investment); “all the territory of a state that is not within the boundary of any standard metropolitan statistical area” and “all territory within any standard metropolitan statistical area within a census tract having a population density of less than 20 persons per square mile” (National Rural Development Partnership; regional planning organizations).

*Social Security Act*: “the term “large urban area” means . . . an urban area which . . . has a population of more than 1,000,000 . . . ; and the term “rural area” means any area outside such an area or similar area” (payments to hospitals).

*U.S. Department of Agriculture, Forest Service*: “Rural communities . . . with a total population of 10,000 or less, . . . county, special district, and/or other local unit of government that is not contained within a Metropolitan Statistical Area” (rural community assistance grant).

*U.S. Department of Agriculture, Rural Development*: “Home must be located in a non-metropolitan area. Non-metropolitan area includes rural areas and communities of less than 20,000 persons” (rural housing repair and rehabilitation); “any area other than a city or town that has a population of greater than 50,000 inhabitants and the urbanized area contiguous and adjacent to such a city or town” (rural business enterprise grants); “community being served has a population less than 4,000” and population density is “not more than 20 persons per square mile” (rural broadband access loan); priority to “Exceptionally Rural Area, area not within a city, village or borough,  $\leq 5000$  population, . . . Rural Area, incorporated or unincorporated area,  $>5000$  and  $\leq 10,000$  population, . . . Mid-Rural Area, Incorporated or unincorporated area,  $>10,000$  and  $\leq 20,000$  population” (distance learning and telemedicine).

*U.S. Department of Health and Human Services*: “all counties that are not designated as parts of Metropolitan Areas are considered rural” and “Census tracts with RUCA codes 4 through 10 are considered rural” (rural health grants).

*U.S. Department of Housing and Urban Development*: “A place having fewer than 2,500 inhabitants, a county with an urban population of 20,000 inhabitants or less, territory, persons and housing units in the rural portion of ‘extended cities,’ open country that is not a part of or associated with an urban area, any place with a population not in excess of 20,000 inhabitants and not located in a Metropolitan Statistical Area” (rural housing and economic development).

*U.S. Department of Transportation, Federal Transit Administration*: “nonurbanized areas, less than 50,000 in population” (rural transit assistance).

## NOTES

1. Cortright and Reamer (1999) used the term Big Three in their review of data sources and uses.
2. This section builds on Isserman (2002), which also discussed biases, such as understating rural growth, and definitions of rural regions.
3. The system and its evolution are described in detail in U.S. Department of Commerce (2001a, 2001b, 2002).
4. The history, evolution, rationales, and details of this system are described in Office of Management and Budget (1998, 1999, 2000a, 2000b).
5. Morrill, Cromartie, and Hart (1999) demonstrated that some metropolitan areas are overbounded and others underbounded. By using census tract commuting data instead of county data, they identified the parts of counties integrated with urban cores. This more detailed analysis of integration underlies the rural-urban commuting area (RUCA) codes used for funding and eligibility rules of many health programs. Applying the same concepts used to define metropolitan and micropolitan, the current RUCA codes combine separation and integration on the census tract level (see <http://www.ers.usda.gov/briefing/Rurality/RuralUrbanCommutingAreas/>).
6. Integration of urban and rural, "population in and around the city," was emphasized from the outset: "For many types of social and economic analysis it is necessary to consider as a unit the entire population in and around the city whose activities form an integrated social and economic system" (U.S. Department of Commerce 1953).
7. The "suburbs" in the State of the Cities Data Systems (SOCDS) classification are actually the metropolitan areas minus the central cities. Therefore, all rural areas within the metropolitan areas are suburbs, including any wholly rural counties—another example of mislabeling terminology that can mislead the public, researchers, and policy makers. From the outset, a joint venture by the U.S. Department of Housing and Urban Development (HUD) and the U.S. Department of Agriculture (USDA) could define central city, urban, suburban, and rural accurately and consistent with popular uses and understanding of those words.
8. The use of the adverb *readily* is deliberate. Sophisticated users can construct nationwide urban and rural county data directly from Census DVDs or FTP files, for example, by aggregating over urban and rural portions of thousands of census tracts.
9. When an urban area spills over county boundaries, its population is an estimate based on the proportion of its area in each county. More precise estimates based on block data are possible and would change the classifications of some rural and mixed rural counties.
10. Ghelfi (2002) provided an overview of the influential county typologies developed by the Economic Research Service, USDA. They include the rural-urban continuum codes and the urban influence codes.
11. Kurre (2003) provided an overview of the situation and estimates for urban areas in urban and rural counties in Pennsylvania. The average resident of an urban area in urban counties pays about 6 percent more than an urban resident of rural counties (defined as having half or more of their populations outside urban areas). The difference reaches 12.7 percent for housing costs. Most noteworthy is the range: 27 percent among urban counties and 3 percent among rural counties. The proprietary ACCRA cost of living index ranges from 137 for Morris County, New Jersey, to 91 in Fort Bend and Montgomery, Texas, among the twenty counties with the highest cost adjusted incomes in 2003 (<http://www.coli.org/pdf/prhincomeadjustedcoli.pdf>; I derived the index from the cost adjusted and unadjusted median incomes).
12. Using data on food insecurity and hunger collected by the Census Bureau, Nord (2000) found that "it costs about 16 percent less, on average, to live in rural than in urban areas. This implies that the official poverty rate overstates rural economic hardship compared with that in urban areas." (Urban/rural here was metro/nonmetro in the research.)

13. See Wood and Bischak (2000); Feser and Sweeney (2003); and Lake, Leichenko, and Glasmeier (2004) for comprehensive analyses and discussions of hardship measures, changes in hardship over time, and issues associated with their use.

14. The Appalachian Regional Commission (ARC) formerly used “very strong” to designate counties with poverty and unemployment rates 75 percent or less of the national rates and per capita market income 80 percent or more of the national (Glasmeier and Fuellhart 1999; Glasmeier, Wood, and Fuellhart 2002). Lower per capita incomes were accepted in exchange for better unemployment and poverty rates. Compared to attaining the national outcome on all three measures, the trade-off away from income in the very strong criteria qualifies more rural and mixed rural counties and fewer mixed urban and urban counties: fifty-five additional rural counties, thirty-four additional mixed rural counties, eight fewer mixed urban counties, and forty-two fewer urban counties. Nevertheless, only 5 percent of the rural and 11 percent of the mixed rural counties are very strong compared to 29 percent of the mixed urban counties and 25 percent of the urban counties.

15. The National Association of Development Organizations (2003) provided an overview of existing and proposed federal-state partnerships modeled on the ARC. Isserman and Rephann (1995) presented an empirical evaluation of the ARC as well as a discussion of its history and programs. Numerous research reports can be found at [www.arc.gov](http://www.arc.gov).

16. The location quotients (LQ) in Table 15 are the distressed counties' share of their type's poor or unemployed divided by their share of the type's population. Hence, the LQ of 1.65 means that the distressed rural nonmetro counties have a 65 percent larger share of poverty than population. In other words, poverty is 65 percent more concentrated in the rural nonmetro distressed than the rural nonmetro counties as a whole, and they have a 65 percent higher poverty rate.

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