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Targeting Aid to Distressed Rural Areas

Indicators of Fiscal and Community Well-Being

Richard J. Reeder
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Abstract

Improving the targeting of aid programs is a high priority among Federal and State policymakers. Commonly used indicators of fiscal and community well-being, such as unemployment, tax effort, and population size, disproportionately favor urban over rural areas. More care in the selection of targeting indicators would improve program efficiency and equity. Greater attention to program details, such as matching requirements, technical assistance, and the statistical properties of the targeting indicators, would also help tailor programs to rural conditions. Use of fiscal capacity indicators, such as per capita income, would keep program costs down by targeting aid to rural areas that cannot afford to help themselves.

Keywords: Fiscal indicators, socioeconomic indicators, targeting, fiscal stress, fiscal capacity, community distress, rural development.

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Summary

Targeting aid has become a high priority for the Federal Government. In an era of tight Federal budgets, the "spreading around" of Federal funds to as many jurisdictions as possible is no longer the favored means of garnering political support for aid programs. Some of the most prominent Federal programs that geographically "spread the money around" have already been eliminated and many other programs have come under increasing pressure to improve their targeting in order to reduce program costs and eliminate criticism.

Many programs, both Federal and State, target aid to needy or distressed places. A variety of indicators are used to do this. Most existing programs use population, poverty, income, unemployment, and other types of socioeconomic indicators to target aid. In recent years, however, Federal, State, and local officials have been calling for increased targeting on fiscal capacity.

The growing support for use of fiscal capacity indicators in aid formulas derives in large part from the new federalism of the 1980's, which involved a substantial shift of responsibilities from Federal to State and local governments. Many believe that those places with low fiscal capacities are suffering from this shift, and that their local governments have been forced to make expenditure cuts or tax rate increases, in some cases resulting in inadequate public services and disincentives for local economic development. Economic events of the 1980's have only aggravated this situation.

Rural areas would benefit from greater use of fiscal capacity measures in targeting programs for two reasons. First, most rural areas have relatively low fiscal capacities compared with urban areas. While some other indicators, such as unemployment, have favored rural areas in their aid allocations in recent years, this rural advantage may be only temporary. In contrast, the rural-urban gap in fiscal capacity, as measured by per capita income, has persisted for many years and is unlikely to disappear in the foreseeable future. Second, many of the indicators currently used to target aid, including population size, unemployment, and tax effort, have a distinct urban bias in that they tend to disproportionately overstate the extent of urban distress relative to rural distress.

The correlation analysis presented in this report suggests that the selection of indicators can make a big difference in aid allocations. Hence, more care in the selection of targeting indicators can substantially improve program efficiency and equity, in addition to holding down program costs. Greater attention to program details, such as matching requirements, technical assistance, and the statistical properties of targeting indicators, can also make a big difference in tailoring programs to rural conditions.
Targeting Aid to Distressed Rural Areas

Indicators of Fiscal and Community Well-Being

Richard J. Reeder

Introduction

Rural America attracted national attention in the 1980’s, as the rural economy diverged from an overall pattern of national economic growth. Farm financial difficulties attracted much attention. Federal and State officials responded with a variety of policies, most notably with aid to distressed farmers, including price subsidies, farm loans, and retraining programs. But farmers make up less than 10 percent of the population of rural America. Nonfarm industries, including manufacturing, mining, and energy, account for a much larger percentage of the population and employment, and these industries also experienced slow growth or declines during the 1980’s. As the immediate effects of the farm crisis have diminished, policymakers are increasingly focusing their attention on problems endemic to all rural communities, not just farming communities.

The most pressing problems in most urban areas are related to growing congestion. Many urban areas, especially the older central cities, face a variety of problems, ranging from deteriorating infrastructure, violent crime, drug addiction, underemployment, poverty, high school dropout rates, and high infant mortality. Many rural communities suffer from the same problems, though rural areas are more likely to suffer from population decline than from congestion.

What really makes rural areas stand out from urban areas, however, is the fact that most rural governments have less financial resources (per capita) to deal with their problems. This is a particular problem considering the trend toward fiscal decentralization that has characterized the Nation’s Federal system of governments since the late 1970’s. Under “new federalism,” Federal aid to local governments has declined, transferring more and more fiscal responsibility to the State and local levels of government. While this transition has been viewed optimistically by the public as a way to bring government closer to the people and to promote greater efficiency in government, it could adversely affect those rural States and localities with little fiscal capacity to make up for lost Federal aid dollars.

To address these socioeconomic and fiscal problems, Federal and State policymakers have been moving toward targeting the remaining aid dollars to distressed State and local areas. The proposals differ on what is meant by distress and how to measure it, reflecting confusion over how best to target aid to address the various socioeconomic and fiscal needs of distressed communities. Past studies have concluded that most Federal and State aid has been poorly targeted to places in need of
fiscal assistance (13, 26, 28, 30, 40, 44). To improve upon this record, policymakers must venture into a minefield of targeting issues involving both political and technical considerations.

Among the questions that must be answered are: (1) whether to target the funds to needy people or to needy places, (2) whether to address economic problems, social problems, or governmental/fiscal problems, and (3) whether to make all areas eligible for funds, or restrict funds to a particular region, or to places that fit a particular rural or urban definition. After answering these questions, policymakers still have to decide upon the individual targeting indicators to be used in allocating the aid. In addition, there are numerous technical considerations, such as the type of formula to be used and the form in which the indicators appear in the formula.

One of the most perplexing problems is the need to make these formulas responsive to rural conditions. For example, most existing programs that target aid to fiscally distressed areas are aimed at combating urban decay and other forms of urban distress that were prevalent in the 1960's and 1970's. There is no convenient precedent to follow in targeting aid to rural areas.

The fiscal issues of urban and rural areas are quite different. Whereas the older urban central cities face problems associated with decaying rapid transit and water and sewer systems, many rural areas do not even have this type of infrastructure because construction and maintenance costs are prohibitive for small communities. In contrast, many rural areas have difficulty maintaining numerous farm-to-market roads. Many rural communities also face relatively high costs in the finance of education, due to diseconomies of scale in maintaining schools for extremely small student populations. In addition, many rural areas have very low tax bases--lower than any central city's--and most have relatively little fiscal expertise.

Proper consideration of proposals to target aid to distressed rural communities requires that policymakers understand the nature of rural local fiscal stress and the strengths and weaknesses of alternative indicators (or formula factors) for targeting aid to distressed rural areas. However, most research involving local fiscal distress is urban-oriented. Information on the appropriateness of various indicators for rural areas is scarce.

Purpose of Report

This report furnishes information on methods of targeting aid to distressed rural areas. It is primarily concerned with characteristics of key economic, social, and fiscal indicators, and the urban/rural implications of using these indicators to target aid to distressed areas. One key question is: which indicators are biased against rural areas? Note that the word "bias" is used here in the sense that an indicator understates, either intentionally or unintentionally, the extent of rural difficulty relative to urban difficulty. Another key question, given the growing consensus that aid should be targeted to places with fiscal difficulty, is what are the fiscal implications for targeting aid using nonfiscal indicators, such as economic or social indicators? The report also attempts to demonstrate the importance of technical elements in a targeting formula, such as the tendency in simple aid formulas for indicators with small variations to be dominated by indicators with large variations.

Main Findings

The findings of this report may be separated into two categories: policy findings and technical findings. Policy findings involve important changes in the policy environment which are leading to greater emphasis on targeting aid to distressed places, and in particular, to places with inadequate

Underscored numbers in parentheses refer to items cited in the References.
fiscal capacity. The technical findings involve important details in the design of allocation formulas which can make the difference between a well-targeted program and a poorly targeted program.

The main policy findings are as follows:

- The conventional wisdom that programs must spread money around evenly in order to be politically acceptable appears to be no longer operational, as the decline in Federal aid has forced Federal and State policymakers to allocate scarce aid dollars to places where the money can do the most good.

- Targeting aid to distressed places is only one approach being considered. Some approaches target aid to needy people rather than needy places. Others target aid to industries, entrepreneurs, or places thought to be most capable of achieving economic growth. The choice of targeting approach can make a big difference in the program's results and in how the program will be received by the public.

- An increasingly popular approach has been to target aid to distressed places. This can be achieved using a variety of economic, social, and fiscal indicators. Given the current trend toward fiscal decentralization, the rural and urban communities that are most vulnerable to recent economic difficulty are those with the least fiscal capacity to help themselves. This suggests that policymakers should more seriously consider using fiscal capacity indicators, such as per capita income, in aid formulas.

- Rural economic difficulties in the 1980's have prompted Federal and State governments to provide additional aid to rural areas. Much of the aid currently going to rural areas is targeted using indicators, such as population size and unemployment rate, that tend to be biased against rural areas. This has led to growing criticism and scrutiny of aid formulas.

The main technical findings are as follows:

- Though most distress indicators are intercorrelated to some extent, the correlations tend to be fairly low, meaning that it makes a big difference which indicators are used in an aid formula. In some cases, the indicators may actually work against each other in an aid formula, because one indicator signals greater distress when another signals less distress. Population change is the indicator that most often worked in the opposite direction of other distress indicators.

- Federal aid formulas that provide block grants to States have the potential to use much better distress indicators because of the superior data available at the State level. This is particularly important with respect to some sophisticated fiscal capacity measures that are available only at a State level.

- Officials should be wary of employing sophisticated local aid formulas that are derived from urban-oriented fiscal needs studies, since these tend to be based on urban fiscal needs, which are much different than rural fiscal needs. The most common problem with such formulas is their tendency to associate high local expenditures with high population density in urban areas. The exact reverse is true in rural areas, where there are diseconomies of scale for small governments.

- Some indicators, due to their relatively small variations, tend to be dominated by other indicators in aid formulas. Policymakers should be aware that the most commonly used fiscal capacity measure, per capita income, has only about one-tenth the variation of some
other measures of distress. Hence, there is a good chance that it will be dominated by other indicators in many aid formulas, unless precautions are taken in the design of the aid formula.

- An increasingly common device is to require matching funds to be raised by local governments that apply for aid. Aside from conserving increasingly scarce Federal aid dollars, such matching requirements may be beneficial to the extent that they increase local accountability in the expenditure of the funds. Policymakers should recognize, however, that unless matching requirements vary with local fiscal capacity, they may actually prevent program participation by the very low-income rural and urban communities that most need assistance.

- Small rural governments often lack the managerial capacity to formulate project plans and apply for project grants. Without technical assistance, the rural governments most in need of developmental assistance may never receive program funds.

More research is needed to develop better indicators that are more tailored to rural needs. We need better measures of labor distress which would incorporate underemployment at the local level. Research is also needed on fiscal indicators. To effectively account for public expenditure needs, aid formulas should be designed to incorporate the nonlinear relationships between public service costs and population size and density. More research is also needed on fiscal capacity indicators that would adequately reflect the unique revenue-raising problems of low-income communities and of communities that pay taxes to other jurisdictions.

Policy Environment

Before one can design a program that targets aid to distressed places, one must understand the conditions that create the distress and the intergovernmental context in which Federal and State governments are responding to that distress.

Rural Difficulties and Prospects for Targeted Assistance

The economic difficulties that rural areas experienced in the 1980’s are sometimes called "restructuring" problems. This refers to the often difficult adjustments that must be made in response to a changing economic environment. The rural economic environment has changed in two important ways. First, the world economy is now much more competitive than in the past, especially in manufacturing and in the production of agricultural, energy, mining, timber, and other resource-related products characteristic of rural economies. This has caused a drop in prices, production, and jobs in rural areas that specialize in these industries.

Second, rural areas have lost some of their competitive edge with urban areas due to the revival of some of America’s largest cities, especially those in the Northeast. Many of these cities experienced economic difficulties in the 1960’s and 1970’s, but by the 1980’s they had successfully made the transition from smokestack to service industries. The exit of heavy industry helped clean up the urban environment in many cities. This, together with urban renewal efforts and other developments, appears to have helped to make urban areas more attractive as places to live or work. As urban areas have become more attractive, rural areas have had more difficulty attracting urban residents, including footloose urban residents (those whose jobs do not require them to stay in their current place of residence), such as retirees. This may have contributed to the return of net outmigration and population loss in many rural areas, including some rural retirement counties (1). This, in turn, leads to reduced demand for rural goods and services and reduced employment and income in affected areas.
Rural economic difficulties contribute to a variety of State and local government problems. For example, the decline in farmland values often results in stagnant or declining tax bases and higher tax rates for rural firms and residents. This may have important long-term effects on the competitive position of the local economy, because higher tax rates tend to discourage firms and individuals (such as retirees) from locating in the area. If voters resist tax increases, or if legal restrictions on tax rates or debt effectively prevent taxes from rising, then State and local governments must reduce spending. This may come either in the form of delayed or canceled infrastructure projects or in reduced spending on education, health, police and fire protection, and other services. Spending cuts can have adverse, long-term consequences for a jurisdiction's ability to attract or retain firms and residents that demand a minimum level of public services and infrastructure. This is a particular problem for lightly populated areas that may have to close schools and other public facilities because they lack sufficient population and resources to maintain them. Even economic development efforts may have to be cut, despite the acute need for such activities during times of economic restructuring.

The extent of recent rural economic difficulties has been well documented. Agricultural counties experienced declining employment throughout most of the 1980's. Nonmetro manufacturing counties mainly had problems during the recession in the early 1980's. Since then, they have grown but not nearly at the rate of metro manufacturing counties. Mining and energy counties appear to have been hit hardest in terms of employment decline, this mainly occurring during the mid- and late-1980's. Among nonmetro counties, both those adjacent to metro areas and those nonadjacent to metro areas had slower employment growth than metro areas, though adjacent areas performed somewhat better than nonadjacent areas.

The extent of fiscal difficulties for rural local governments has not been well documented, due to the lack of timely data on the fiscal conditions of rural governments. What data exist are from surveys of rural local governments. One such survey, covering most rural and urban county governments, found that about one-sixth of the rural counties (defined as those with less than 50,000 population) had "no increase" in county government revenues from 1981 to 1986. With State and local government costs rising 28 percent during this period, no increase in revenues implies these places either had to reduce their government spending (in real dollars) or use up accumulated surpluses. The same survey found only 4 percent of the urban counties (over 50,000 population) with no increase in revenues. Insufficient tax base, limited ability to increase user fees, and Federal aid cuts were all cited as being bigger problems in rural areas than in urban areas.

Another recent survey, this one covering municipalities in 1986-87, found that more than half of the 100 small cities (less than 10,000 population) responding to the survey indicated their general revenues had declined from the previous year. Only 8 percent of 37 large cities (over 300,000 population) indicated such revenue declines. Over one-fourth of small cities had spending reductions, compared with 5 percent for large cities. Over one-third of small cities were expecting a shortfall in revenue; 8 percent of large cities expected shortfalls. The relatively more severe fiscal situation of small cities compared with large cities suggests that rural municipalities—which mainly consist of small cities—have had more fiscal difficulties recently than urban municipalities. While this was a

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2 Although taxes are not as important as some other factors in influencing location decisions of firms, they do have an effect. In the past, most empirical studies were unable to detect this effect, but as studies have become more sophisticated, they have increasingly been finding that taxes do have a dampening effect on immigration of firms and on economic activity in general (26 and 51).

3 At the time of this writing, the most recent available data on all rural local governments are from the 1982 Census of Governments. The 1987 Census of Governments data will provide ample information for documenting rural government fiscal trends during the mid-1980's.
rather small, nonrandom sample, these findings are consistent with expectations, given the more severe economic problems in rural areas.

Census data indicate that rural State governments have also had significant fiscal problems in recent years. For example, in the year ending in March 1987, State government tax collections actually declined in Alaska (-36 percent), North Dakota (-12 percent), Oklahoma (-11 percent), Louisiana (-8 percent), and Texas (-7 percent). Only small increases in tax collections occurred in Mississippi (0.4 percent), Oregon (0.7 percent), South Dakota (1.4 percent), Arkansas (1.6 percent), Minnesota (2.9 percent), and West Virginia (3.1 percent) (49). All of these States are heavily dependent on rural industries such as agriculture, energy, mining, and lumber, industries that have experienced economic difficulty in recent years.

Facing these economic and fiscal problems, many rural officials have called for additional Federal and State aid. But, under considerable pressure to reduce the large Federal budget deficit, Federal aid has actually declined in recent years, and few expect major increases in such aid in the near future. Little relief is expected from State governments either, since State fund balances are at their lowest levels in years, especially in rural States with economic troubles.4

For distressed rural (and urban) areas, there may be a silver lining in these dark clouds. Ironically, this optimism is derived from the very need to curtail Federal spending. The chief selling point of proposals to improve targeting is that targeted aid programs claim to do more with less. Hence, as fewer funds are available, targeting becomes more popular and "spreading around" funds to all jurisdictions becomes less popular. Targeting also helps focus aid on a more specific, well-defined group of recipients that can be expected to lobby hard to resist future aid cuts. Not surprisingly, many program sponsors have supported modifications in existing programs to improve their targeting performance. While such modifications may not guarantee a program's survival--the most recent example being the demise of Urban Development Action Grants (UDAG)--they may increase the likelihood of program survival in this era of tax restraint and deficit reduction.

Targeting Alternatives

Targeting aid to distressed or needy places is only one approach available to policymakers. Instead of targeting aid to needy places, aid could be targeted to needy people. Alternatively, one could target aid to distressed industries. Programs designed to facilitate economic growth may target aid to growth places, or to growth industries. Aid could also be targeted to individuals, such as entrepreneurs, who are thought to be most capable of stimulating economic growth.

Targeting to distressed places can be justified on several grounds. First, distress may be the result of some kind of market failure, such as deficient information flows in the capital market, or it may be the result of defective public policy that fails to provide adequate local protection from monopolies (railroads, buses, public utilities, and others) or from inadequate public services (such as education and health) and infrastructure (such as Federal and State highways). Assisting distressed places may, therefore, be viewed as a way to improve the efficiency of the National and State economy by compensating local economies for these market deficiencies. Second, economic stabilization policy may be more effective if aid is automatically directed to places experiencing temporarily adverse economic fluctuations. Third, equity considerations may justify providing all people, regardless of

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4 A 1988 survey of State fiscal conditions, published by the National Association of State Budget Officers, found that the size of the general fund ending balances expected for fiscal year 1989 were at their lowest point in the 12 years covered by the survey (24).
where they live, with an acceptable minimum standard of living. Targeting aid to State and local governments in distressed areas is a way to guarantee that minimal public services will be provided.

From a political point of view, targeting to needy or distressed places has an additional advantage in helping to ensure a Federal program's survival in today's political environment. It helps to ensure a program's survival in two ways: (1) it allows overall program funding to be cut without reducing assistance to the most needy areas, and (2) it reduces criticism associated with allowing precious Federal funds to be allocated to wealthy communities. These political advantages may offset the traditional political disadvantage of targeting policies—the difficulty in obtaining broad political support for a program that targets aid to a fraction of the country at any given point in time.

Targeting aid directly to needy people, regardless of where they live, is another appealing approach in today's political environment. This approach, however, is susceptible to criticism that many wealthy communities can afford to provide for their own poor people without requiring additional funding from Federal and State governments. Since the wealthiest places are also among the most populous places, they may have many needy people within their jurisdictions. Programs that include all places, including wealthy places, will therefore cost much more to fund than programs that target only to needy places. This makes targeting to needy people less appealing than targeting to needy places.

Traditional farm price supports are an example of targeting aid to distressed industries. As with targeting to distressed places and distressed people, this targeting approach may be justified on various economic grounds, including efficiency, stabilization, and equity considerations. However, in recent years, these approaches have come under increasing criticism as the level of assistance is sometimes much larger than is deemed necessary to maintain economic efficiency. Excessive subsidies can actually have the opposite effect from what is desired of crop stabilization policies. In addition, farm subsidies have been criticized as being inequitable because wealthy farmers receive the bulk of the aid. Farm assistance is not alone in receiving this kind of criticism. Many other industries, such as the oil and real estate industries, have benefitted from subsidies imbedded in the Federal income tax code. Many of these subsidies were recently eliminated by tax reform legislation because of perceived inequities and the large cost to the Treasury.

Growth targeting approaches are more commonly employed by economic development policies. For example, targeting aid to growth industries, such as hi-tech firms, is seen as a way to get "more bang for the buck" in creating jobs. More generally, this industrial targeting approach—sometimes called "industrial policy"—has been defended as a way to regain the Nation's competitive edge. The idea is that well-informed and objective policymakers can spot industries that have untapped growth potential and target aid to these industries to spur on their growth. Presumably, such growth will have a beneficial overall effect on the economy, helping poor and rich alike. The main criticism of this approach is that policymakers probably lack the capability of identifying growth industries except on an ex post basis. Poor models and inadequate data hamper such an identification process. Ultimately, subjective judgments must be made about the likelihood of industry success, and these

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5 The 17 most populous metropolitan areas all had incomes above the national average in 1986: The wealthiest of the 47 largest metropolitan areas were Washington, DC (137 percent of national average), San Francisco-Oakland, CA (137 percent), and New York-Northern New Jersey-Long Island (131 percent).

6 Targeting to people rather than to places has been defended as the only way to assure that poor people receive assistance in wealthier jurisdictions. Traditionally, discriminatory policies of certain State and local governments have limited the assistance provided to poor neighborhoods (pockets of poverty) within wealthier jurisdictions. Since the civil rights movement of the 1960's, however, political reforms have occurred that tend to weaken this argument. Nevertheless, some still argue that pockets of poverty within wealthy jurisdictions would suffer disproportionately from withdrawal of Federal aid targeted directly to needy people.
judgments are susceptible to political pressures. Over the long run, such policies could be quite wasteful and disappointing.

The most popular recent attempts to use growth targeting for rural areas are those policies that reward small businesses and entrepreneurs who are thought to have much potential in promoting economic growth. This may be viewed as targeting to growth individuals, rather than to growth industries, since such aid is usually not restricted to any particular industry. Although this approach seems more promising than the industrial targeting approach, it faces many of the same conceptual problems.

Policies that direct aid to growth places (also referred to as growth centers) have been used by the Appalachian Regional Commission with some success. The idea is to direct aid only to places with characteristics conducive to growth. This avoids wasting money on places that are unlikely to grow, no matter how much money is spent on them, and it focuses assistance where it can do the most good (7). According to this view, assistance to lagging or declining places should be in the form of relocation assistance so that unemployed or poorly paid individuals may migrate to where the good jobs are. Although there may be some merit in this argument, many rural residents are reluctant to leave, limiting the effectiveness of such approaches.

Federal Targeting Activity

Improved targeting is now being sought at the Federal level by both the legislative and the executive branches of the Federal Government. A wide variety of approaches have been advocated. Not all involve targeting to needy communities.

For example, many proposals for new Federal programs would direct funds to needy individuals. Education vouchers would go only to the disadvantaged or illiterate. Child care would go to middle- and lower-income families. Improved targeting to low-income individuals has been a key to the debate of programs for the elderly, such as the Older Americans Act, Social Security, and Medicare.

Some proposals require current recipients to behave in such a way as to reduce the number of recipients. For example, the recently passed welfare reform legislation (The Family Support Act of 1988–PL 100-485) requires mothers with children over a specified age to obtain training and seek a job in order to receive benefits. This requirement is meant to reduce the number of people on the welfare roles. The same legislation requires States to add to the welfare rolls needy families with unemployed fathers. This follows the typical pattern of improved targeting in recent years: eliminate funds for those that do not need them; add funds to needy individuals who have been left out.

Growth targeting approaches have also been pursued—particularly for Federal economic development programs—but these have faced difficulties in some cases. For example, UDAG was modified (before it was terminated) to set aside a pool of funds that would go only to the projects with the greatest employment creation potential, regardless of the level of community distress. Such programs may result in a kind of "de facto" targeting to places that are relatively well off, since distressed places are generally viewed as risky places to foster job creation.

Other methods for revising programs to get "more bang for the buck" may suffer from similar drawbacks as far as targeting aid to needy places is concerned. For example, the Environmental Protection Agency (EPA) wastewater construction grant program was recently replaced by a revolving loan program. This reduces costs to the Federal Government, because many communities with only marginal demands for new or improved facilities may be expected to drop out of the application pool rather than accept liability to repay loans for the projects. Similar matching or cost-sharing
provisions have been instituted or increased for other programs, reducing costs to the Federal Government and having the effect of narrowing down the potential group of recipients.

While these "more bang for the buck" approaches may be cost-effective in terms of pure job creation, such programs may have the perverse\(^7\) effect of creating jobs for people and places that do not really need them, while disqualifying some of the neediest jurisdictions. Many of those disqualified could be small, rural jurisdictions. Distressed places may require special assistance just to start up a project, including employee training and technical assistance. They tend to be viewed as poor investment prospects by the private sector because of poor economic performance. Moreover, they often cannot afford the matching requirements, or cannot afford to pay back loans.

Many proposals for economic and community development, however, do involve improved targeting to needy communities. For example, the Office of Management and Budget (OMB) recommended improved targeting for Community Development Block Grants (CDBG) in a way that cuts out benefits going to the better off places. Other proposals for improved targeting include one that would require Economic Development Administration (EDA) funds go only to distressed places (40 percent of the country instead of 80 percent). Rental rehabilitation grants of the Department of Housing and Urban Development (HUD) have been modified to provide more funds to poor communities. HUD's new enterprise zones are designated "entirely on rank order of distress." There have also been several proposals for targeted fiscal assistance, which would replace the now defunct revenue-sharing program with general purpose fiscal assistance that goes only to places that need it.

Some Federal programs have recently been revised specifically to direct more assistance to distressed rural areas. EDA has announced it will "give special consideration to proposals to address the needs of rural communities, particularly economic diversification."\(^8\) The Small Business Investment Act has been revised "to place greater emphasis on the needs of rural areas...and to develop a greater outreach of procurement and export trade seminars in such areas." Section 130 of the act stipulates that Federal agencies "having substantial procurement or grantmaking authority...(should)...develop rural area business enterprise plans" (23).

The Farmers Home Administration (FmHA), as part of the U.S. Department of Agriculture's (USDA) rural development initiative, has strengthened the targeting provisions for its water and wastewater disposal grants and loans, increasing the importance of low income in the rating system. Targeting to low-income areas has also been improved for the other FmHA programs, including business and industry loans and community facility loans and grants.

School aid and job training are particularly important programs for rural development in the 1980's. Targeting to poor places has been a key issue in recent reform of Federal aid to elementary and secondary schools. For example, the U.S. Department of Education pushed for a new Chapter 1 school aid formula "that would shift money away from richer school districts to poor districts." Many of these poor places are rural.\(^9\) Similarly, the U.S. General Accounting Office (GAO) criticized the Perkins Vocational Education Act for providing funds to wealthy students in wealthy school districts. To redress these problems, GAO proposed improving the targeting of this program (52). Another important development program, the Job Training Partnership Act (JTPA), has come under criticism for shortcomings in targeting to needy rural areas. JTPA has also been criticized for

\(^7\)The word "perverse" is used here to mean that the allocation mechanism may have the exact opposite effect from what is generally deemed desirable.

\(^8\)In recent years, much of EDA's funds have gone to rural areas; 80 percent of EDA discretionary public works funds and 68 percent of EDA economic adjustment funds went to rural areas in 1987 (21).

\(^9\)The House voted to concentrate new funds on poorer schools but leave the current formula intact (56).
failing to get funds to the neediest individuals. The Bush administration has been looking into ways to improve the targeting of this program.

Perhaps most significant is the recent spate of rural development bills. These bills include aid that is targeted not only to needy places, but to all small/rural places. The most recent such bill was the Rural Partnership Act of 1989, S1036. The proposed aid ranges from business and infrastructure assistance to aid in building leadership capacity (capacity building) for rural local governments. Targeting comes in two forms: interstate and intrastate. The first involves the interstate formula, which decides how much funds each State receives. This is where much of Federal targeting, or lack of targeting, occurs. Intrastate targeting occurs when the Federal Government specifies which localities within a State may receive funds. As with most Federal aid going to local governments in the form of State-administered block grants, however, Federal control over this intrastate targeting is limited to guidelines or broad restrictions placed on the States, leaving the States with considerable flexibility to affect the way the aid is targeted.

**State Targeting Activity**

States have been moving in the direction of improved targeting. Part of this is a result of the consolidation of Federal categorical programs into State-administered block grants. Federal guidelines and restrictions associated with these programs often require the States to target aid to needy localities. This appears to be an evolving process, and some of these programs, such as CDBG and JTPA, are in the process of being revised, partly under pressure from the Federal Government to improve the targeting. But States also are moving on their own to develop targeted aid policies of various types. They are aided in their efforts because they have access to unique, detailed data at the State level. They also have some data long before Federal data collecting agencies get it.

Some States have recently enacted targeted general fiscal assistance. In some cases this is required to provide stopgap assistance to redress revenue shortfalls associated with Proposition 13-type tax limitations. In other cases, the aid is filling the gap left by the termination of the Federal general revenue-sharing program. Some of these programs are highly innovative and deserve a closer look. However, most general purpose State aid to local governments is not targeted to needy places. Much of this aid consists of sales or property taxes that are merely returned to the locality where they were raised.

State education aid is of particular concern to rural areas. Court-imposed education aid formulas tend to favor rural areas that have relatively low incomes. However, some States have never fully complied with these requirements, and much progress can be made to improve the targeting of this aid. Recent examples, including Kentucky and Tennessee, indicate that poor rural communities can successfully sue the State to obtain improved targeting of State education aid to needy rural areas.

Economic development assistance is also being targeted to distressed rural areas in many States. This comes in various forms, ranging from grants to revolving loan funds. Most States make use of the Federal income tax subsidy of tax-exempt industrial development bonds, and some target these to distressed places (47). Some States have impact assistance programs that provide State aid to meet the development needs of mining and energy areas. However, many of these were designed for the growth situation of these places during the 1970’s, and they are now no longer appropriate. In addition, some States have developed rural development programs that specifically address the needs of rural areas, including maintaining rural roads, water systems, technical assistance to rural local governments, and business assistance. In recent years, such programs have been increasingly targeted to distressed places (38).
Groups Supporting Targeting to Distressed Communities

There has been widespread support behind the concept of targeting in recent years, not only by the Federal Government, but also by State and local government officials, researchers, and groups of private citizens. This support no doubt has contributed to the success of recently enacted targeting improvements.

Administration support for improved targeting of Federal aid is articulated in an extensive 1985 study by the U.S. Department of the Treasury, which concluded that current formulas for allocating Federal aid to the States are "seriously flawed" because they do not adequately reflect State fiscal capacity (54). This research, along with other Federal Government studies, laid the groundwork for the Reagan administration's effort to improve targeting formulas for various programs as they come up for renewal (29).

Congress has been at the forefront in supporting targeting efforts, especially those involving recent Federal rural development initiatives. Rural and smalltown interest groups have been firmly behind these proposals. This support was evident in the case of S1729 and other rural development legislation considered in the House and the Senate in 1987-88, and in the 1989 Rural Partnership bill, S1036. These groups have also supported other legislation, such as the Durenburger bill for targeted fiscal assistance to needy local governments which received support from the National Association of Towns and Townships (NATaT). Another rural group, the Rural South in Crisis Conference, recommended targeting assistance to those in slow growth and low-income areas. Several prominent governors of rural States have also lent their support to targeting proposals (22, 4).

It is not very surprising that rural interest groups would favor improved targeting to needy places during a time of perceived rural difficulty. What is somewhat surprising to see is the same kind of support from urban and State government interest groups.

At a 1987 meeting of the State-Local Relations Task Force of the National Conference of State Legislators (NCSL), delegates from groups representing cities, such as the U.S. Conference of Mayors and the National League of Cities (NLC), joined in with the rest of the task force in recommending changes in the way States provide for local fiscal needs. In advocating that the States should grant broad revenue-raising powers to local governments, the NLC delegation argued that "this should not preclude state responsibility for general financial support of local governments that equalizes fiscal resources and needs through state revenue sharing or school support programs."10

In 1988, the NLC joined the U.S. Conference of Mayors, the National Association of Regional Councils, and the National Association of Counties in issuing a statement on direct Federal-local relations including a commitment to targeting Federal aid to needy places. The statement read as follows:

A resolve to shape federal policies and allocate federal resources to more adequately respond to the inequities and disparities of resources and capacities across state, local and regional levels, and to better meet the needs of vulnerable populations suffering under conditions beyond their control (43).

This support for stronger targeting of Federal aid to needy localities was also found among CDBG administrators, as indicated by a poll conducted following the demise of Federal general revenue sharing. This poll found that "Administrators surveyed... unanimously support stricter targeting,"

10Comments by Pamela Plumb, as cited by Jones (15).
and concluded that "a stronger case for targeting assistance to the needy must be made, if CDBG is to survive in an era of increasingly tight federal budget constraints" (5).

State support for improved targeting to needy places was recognized in the NCSL task force recommendations of August 1986 as follows: "States need to develop sophisticated formulas for distributing local aid, including targeting assistance to jurisdictions with the lowest fiscal capacity" (25). The governors, in their annual meeting in 1987, confirmed this approach in "perhaps the most controversial recommendation—that public and private investment be targeted into 'distressed areas of our country'" (3). The States have backed up these recommendations in recent years by creating several targeted rural economic development programs (38).

Key Considerations for Targeting Funds

In the rush to come up with formulas that target funds to needy places, it is easy to make the mistake of choosing a faulty indicator of need: one which may appear justified on first sight, but which does not hold up to rigorous standards that ought to be required of all Federal or State programs that distribute substantial funds to local areas. Some of these standards should be obvious. Targeting indicators should be fairly accurate in distinguishing among places, and they should be timely or current if they are designed to indicate needs that change rapidly over time. Another important standard, one which is not always scrutinized closely, is that the targeting indicator should not be unfairly biased against any particular region or area of the country, since such a bias will ultimately lead to unmet needs and dissatisfaction with the program.

For example, it may be tempting to respond to a temporary, place-specific economic crisis, such as the recent farm crisis, by enacting a new program to provide special assistance to distressed farmers or farm communities. Such legislation, though benefiting only one region or industry, may be able to garner enough political support in a time of crisis to be enacted, especially if it is designed to spread its benefits over as broad a region or industry classification as can be marginally justified by the current crisis. But this approach has a major drawback: over the long term, conditions are likely to change considerably. If and when the affected region and industry recover economically, the program will lose its political support.

While the end of the program under these circumstances is clearly a desirable event, the amount of resources wasted in the time it takes to terminate the program may be considerable. Moreover, once the program is terminated, no program will be present when the next farm crisis arises. Valuable time may be lost in recreating the program a second time, and the aid may never again materialize if voters remember the problems encountered the last time around.

Urban officials will attest to these problems. Many of the programs created in the 1960's and 1970's were targeted specifically to distressed urban areas. While this targeting method may have made sense at the time, when the "urban crisis" was considered one of the most pressing issues of the day, urban economies improved dramatically in the 1980's (though some social problems, such as poverty, crime, and drug use remain). Hence, many urban-oriented aid programs have lost much of their economic justification, and along with it, their political support. Some have been eliminated by recent Federal budget cuts, the most recent casualty being UDAG. The same fate may be in store for any new rural development programs that might be passed in response to current rural economic difficulties.

To avoid these problems, what may be required is a program that aids all distressed communities, regardless of region or industrial character, targeted by objective indicators of current community distress. To be successful, this program would have to be capable of redirecting funds automatically to whichever communities are experiencing the most distress. To do this, its targeting indicators must
be timely, accurate, and unbiased with respect to various regions and industries. This may require policymakers to screen out or modify many of the community distress indicators used in past programs. A particular concern of this report is the issue of urban bias, since many past and present aid programs employ urban-oriented indicators that are inappropriate for allocating funds across both urban and rural areas.

In today's era of New Federalism, another important issue to consider when choosing a targeting indicator is whether economic or social need necessarily translates into fiscal need (the State or local government's need for funds to address the problem). In other words, a place may have significant socioeconomic problems (such as congestion, crime, and unemployment), but these problems may not merit aid if more than enough fiscal resources (tax capacity) are present to deal with the problems locally. More in need of aid would be a place with only average socioeconomic problems but having insufficient fiscal capacity to deal with the problems.

Consideration of the fiscal needs and capacities of the State and local governments may have been of only secondary importance 20 or 30 years ago, when many Federal aid programs originated. At that time, the Federal Government was awash in revenues, with the un-indexed Federal income tax collections growing by leaps and bounds. In contrast, most State and local governments at that time relied heavily on sales and property taxes, which grew too slowly to deal with the needs of the baby boom population explosion and the widespread poverty problems. To redress this fiscal imbalance, the design of aid programs required little more than "spreading the money around" to be effective.

Today, the situation has reversed. State and local government revenue systems have become more productive, while the Federal tax base has been restrained through indexation of the Federal income tax. With Congress struggling to reduce the Federal deficit, programs that "spread the money around," such as general revenue sharing, are among the first to be cut. The challenge now is to design programs that funnel scarce Federal aid dollars into the places which are not enjoying generally good economic conditions and which have insufficient capacity to raise revenues. This requires more targeting. Specifically, if aid formulas are to be made more cost-efficient and yet continue to provide adequate assistance to those communities that need it the most, then the formulas must be modified to restrict aid to places with both low fiscal capacity and significant economic and social problems.

Several techniques that can be used to achieve this goal will be discussed later in this report. But before going into this topic in detail, the strengths and weaknesses of some of the most popular indicators of economic and community well-being will be examined. These may be separated into three groups: economic, social, and fiscal. In view of the recent increase in the incidence of rural difficulties, the issue of urban bias will receive particular emphasis in this analysis.

Indicators of Economic Well-Being

Economic indicators consist primarily of employment and income measures; both have been important in targeting economic development aid. Hence, they are likely to play a key role in the policy debate over the best way to target aid to economically distressed rural areas. There are some major differences in how rural and urban areas fare under alternative economic indicators. Policymakers should be aware of these differences before they invest too much political capital in any proposed formula.

Employment Measures

The unemployment rate is perhaps the single most familiar measure of economic well-being. Not only is it well known, it is an easily understood and intuitively appealing indicator. It has another
important practical advantage: it is available at the county level on a monthly basis from the Bureau of Labor Statistics (BLS). For these reasons, it is not surprising that it is used in targeting many economic development programs. However, the unemployment rate has come under increasing criticism for its failure to measure the economic problems that today's programs address (33).

Unemployment rates have two notable weaknesses when used to target aid for economic development purposes. The first weakness concerns all interlocal or interstate comparisons of unemployment rates. Unemployment rate differences between one place and another may reflect both economic and social differences. The economic-related unemployment differences may reflect both short-term (such as occurs during a recession) and long-term structural unemployment due to "restructuring" of the local economy (as occurred in many Northern cities in the past 20 years as they shifted from manufacturing to service economies). This ambiguity concerning the economic causes of unemployment may make unemployment rates somewhat questionable as targeting factors. In addition, social factors, such as education and attitudes toward being unemployed, may cause residents of some localities to be less likely to apply for unemployment compensation or less likely to remain unemployed than residents of other localities.

The second weakness of unemployment rates, more important for the purposes of this report, is that unemployment rates are biased indicators when it comes to comparing rural and urban economic difficulty. Past studies have shown that rural residents are more likely than urban residents to be "discouraged workers" who have dropped out of the labor force and hence are not counted as unemployed. Rural workers are also more likely to rely on two or more part-time jobs rather than one full-time job. Hence, if they lose one job, they remain officially employed even though their economic situation has deteriorated (27, 42). Self-employed farmers represent a clear problem for unemployment statistics because their employment status is unlikely to change in good or bad times, though their income fluctuates substantially with farm price fluctuations. Their wealth also fluctuates rapidly with changes in farmland values, and this is not reflected in unemployment rates. In addition, social considerations, such as the oft-observed "stigma" that rural residents perceive in reporting for welfare or other public benefits, may add to the urban bias associated with unemployment rates.

The change in employment or unemployment over time may be preferable to the actual unemployment rate for measuring short-term economic difficulty. The change in employment may be more of an improvement because it tends to reduce the urban bias somewhat. For example, during the recent farm crisis, unemployment rates did not noticeably rise in farm-dependent counties, though these places did experience negative employment growth (table 1).

However, if one really wants to minimize the urban bias in employment data, some measure of underemployment is desirable. A reasonably comprehensive measure of underemployment should include not only those who are unemployed but also those who are discouraged workers, involuntarily part-time employees, and those forced to accept extremely low-paying full-time jobs though they are qualified for better jobs. Considerable progress has been made in recent years to develop such measures, but this is still in the experimental stage and it is liable to be somewhat controversial (especially with respect to the overqualification aspect) if used in program formulas. There is the matter of how one "weights" the various components of such a measure, since it would be unfair to count a part-time employee the same as an unemployed person. In addition, there may be problems in getting timely local-area data for some components of underemployment.

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11At the Federal level, it has been used in a variety of programs, including Economic Development Administration (EDA) programs, Community Development Block Grants (CDBG), Urban Development Action Grants (UDAG), and the Job Training Partnership Act program (JTPA). For a summary of major Federal program aid formulas and data sources for formula factors, see (50). For State programs assisting distressed areas, see (47).
Table 1--Employment and unemployment by type of county, 1979-86

<table>
<thead>
<tr>
<th>County type</th>
<th>Employment change, average annual rate</th>
<th>Unemployment rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro</td>
<td>0.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Nonmetro</td>
<td>-.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Farm-dependent</td>
<td>-.1</td>
<td>-.1</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>-1.4</td>
<td>1.7</td>
</tr>
<tr>
<td>Mining and energy</td>
<td>1.3</td>
<td>-3.4</td>
</tr>
</tbody>
</table>

Percent


BLS publishes monthly and quarterly statistics on adjusted (weighted) unemployment statistics which take into account part-time job seekers, involuntarily part-time employed, and discouraged workers (53). Information is also available on self-employed individuals. But this is national-level data; accurate local area data for adjusted unemployment rates are not available from the Federal Government.

One recent attempt at coming up with a comprehensive measure of labor distress estimated that labor distress cost per labor force participant in 1985 was $1,735 in metro areas compared with $1,885 in nonmetro areas (60). This approach included discouraged workers, unemployed, part-time workers, the working poor, and employment-education mismatches in its total labor distress measure. Of all the components, unemployment was the component that most favored urban areas, accounting for 38 percent of metro labor distress costs.

In nonmetro areas, the working poor accounted for the largest portion of labor distress, 35 percent, and unemployment accounted for only 33 percent of nonmetro labor distress. This measure was also computed for each of the 50 States. However, data limitations precluded the local area estimates.

There is little doubt, however, that some such measure would be a major improvement in eliminating the urban bias in employment indicators. For example, during the mid-1970’s, metro unemployment rates were significantly higher than nonmetro unemployment rates. However, a 1979 study found that when unemployment rates were adjusted to reflect metro and nonmetro differences in self-employed worker status, the 1975 gap between metro and nonmetro unemployment rates fell from 1.6 percentage points to 1.0 percentage point. When involuntarily unemployed and discouraged workers were also included, the gap between metro and nonmetro unemployment rates was eliminated entirely.12 If adjusted local area unemployment data had been available and used in Federal programs during the 1970’s, this would have eliminated the urban bias in funding for Federal Government countercyclical assistance programs, which used unemployment rates as the principal targeting factor.

12See tables 2 and 3 in (27).
Whether this urban bias in economic aid programs made a difference in the rate of recovery is difficult to determine. But urban economies have done better in the 1980's than rural economies. By the time of the last recession, nonmetro unemployment rates (unadjusted for underemployment problems) exceeded metro unemployment rates by 1.8 percentage points. Rural areas continue to have higher unemployment rates than urban areas today, though the difference has fallen considerably.

The fact that nonmetro unemployment rates are now higher than metro unemployment rates may suggest, to some, that the need to adjust unemployment rates to reduce the urban bias in aid programs has diminished since the 1970's. However, such an adjustment is still desirable. This is clear from recent adjusted and unadjusted unemployment rates for metro and nonmetro areas. The unadjusted nonmetro unemployment rate for the third quarter of 1988 was 5.8 percent, only 0.5 percentage point higher than metro areas. The adjusted nonmetro unemployment rate for the same quarter was 9.6 percent, compared with 8.0 percent for metro areas. The metro-nonmetro unemployment rate difference is three times as large using adjusted unemployment rates (58).

That Congress is aware of this urban bias associated with unadjusted unemployment rates and its consequences for rural America is clear from a recent report by the Joint Economic Committee, which found the following:

Allocation of Federal program funds...reveals an urban bias. Despite the fact that nonmetro unemployment and underemployment rates exceed metro measures by a third to a half, nonmetro areas receive only about 13 percent of employment and training funds. Federal procurement programs also show a pronounced urban leaning..... Another illustration of implicit Federal discrimination is the funding formula for the Job Training Partnership Act of 1982. Two-thirds of the funding was allocated according to unemployment figures of little relevance to the rural employment picture...Because of under-reporting of unemployment and the way the formula was designed, rural areas were denied over $100 million in funding from 1983 through 1985, according to a preliminary analysis by the General Accounting Office (14).

Income Measures

One aspect of economic difficulty that employment and unemployment data cannot detect is the relatively low income levels in rural areas. The income gap between urban and rural areas is substantial and persistent, though it has varied somewhat over time. In 1986, real per capita income was $15,642 for metro areas and $11,323 for nonmetro areas, about 72 percent that of metro areas. This represents a decline in nonmetro incomes, relative to metro incomes, from 1979, when nonmetro incomes were about 77 percent of the metro income level. But the 1986 income difference was roughly comparable to that in 1969, when nonmetro incomes were 71 percent of metro incomes.13

Incomes vary by degree of urbanization. In 1979, median family income was over $22,000 for large metro counties containing central cities and around $20,000 for medium and small metropolitan areas. Nonmetro areas averaged about $17,000, ranging from $18,000 for the most urbanized nonmetro areas to $14,000 for totally rural counties. Thus, while the family incomes were 21 percent higher in metro than in nonmetro counties, they were 40 percent higher in large metro counties than in totally rural areas (20).

To a large extent, rural-urban income gaps reflect the fact that rural Americans tend to work in low-paying industries that require few skills (27). However, to some extent, they may reflect cost-of-living differences. Urban areas generally have higher land costs and are commonly thought to have higher costs of living overall than in rural areas. If this were true, this would mean that urban employers would have to pay higher wages than rural employers in order to attract comparable employees.14

Whether or not nationwide urban-rural cost-of-living differences exist remains an open question. While it is tempting to make subjective judgments about the obviously high cost of living in some cities, such as New York, Boston, and San Francisco, it is much more difficult to make inferences about urban and rural areas in general. Little empirical work exists to identify urban-rural cost-of-living differences for the simple reason that there are no data available that can be used to make interlocal cost-of-living comparisons.15 Recent survey research suggests that urban-rural cost differences, if they exist at all, may be quite small. For example, one study, based on a 1982 survey in Wisconsin, found a 6-percent urban-rural difference in the amount households claimed was necessary to make ends meet (10). This suggests that most of the income gap between urban and rural areas represents a real difference in economic well-being.

The form of the income variable (level versus change) chosen to target aid ought to vary, depending on the nature of economic difficulty the program is meant to address. Because per capita income can fluctuate rapidly from year to year, the change in per capita income may be a better indicator of short-term economic difficulty than the level of per capita income. One strength of the change in income as a measure of current economic change is that, unlike unemployment rates, income is not a lagging indicator; it changes almost simultaneously with fluctuations in the business cycle and other short-term economic phenomena.

Unfortunately, the change in income suffers from one rather important drawback: State and local income data are available only after a 1-2 year lag. This time lag can create problems for aid formulas. For example, due to the time lag in providing income data, the general revenue sharing program was criticized for cutting back payments to some places at the very time that their incomes and tax bases were declining.

Because rural-urban income differences are based on fundamental structural differences in their respective economies, they can be expected to continue indefinitely. Thus, allocating aid using the level of per capita income (as opposed to the change in per capita income) will generally benefit rural areas, especially poor rural areas in the South (table 2). In any given year, however, per capita income levels may provide a misleading picture of long-term economic well-being for some places due to year-to-year fluctuations in the local economy.16 If a program is designed to address long-term economic difficulties, this can present a problem. It is especially problematic for rural manufacturing, mining, or farm-dependent counties that rely heavily on one relatively unstable industry. Urban economies tend to be more diversified; hence, this is a greater problem for targeting aid to rural areas than to urban areas. This can be remedied somewhat by using weighted averages covering the past several years.

14The wage differences induced by cost-of-living differences may be one reason why many low-wage industries have moved from urban to rural areas.

15The consumer price indices prepared for individual metropolitan areas are designed to measure inflation over time for individual places, and are not meant to be used for interlocal comparisons.

16Income data also fluctuate a lot from year to year due to revisions in the data.
Table 2--Per capita income, by region, 1979-86

<table>
<thead>
<tr>
<th>Region</th>
<th>Real per capita income</th>
<th>Change in real per capita income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro</td>
<td>13,963</td>
<td>13,963</td>
</tr>
<tr>
<td>Nonmetro</td>
<td>10,767</td>
<td>10,415</td>
</tr>
<tr>
<td>Nonmetro region:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>11,058</td>
<td>11,190</td>
</tr>
<tr>
<td>North Central</td>
<td>11,705</td>
<td>10,962</td>
</tr>
<tr>
<td>South</td>
<td>9,659</td>
<td>9,577</td>
</tr>
<tr>
<td>West</td>
<td>12,397</td>
<td>11,582</td>
</tr>
</tbody>
</table>


Policymakers might consider per capita earnings as an alternative to per capita income measures. Earnings differ from income in that they exclude unearned income (such as dividends, interest, rent, and transfer payments). This makes earnings less appropriate for measuring the overall economic well-being but more appropriate for measuring the level of economic activity within the local area. A change in earnings might be particularly interesting if one were interested in a program that responds to changes in local economic activity. In this sense, a change in earnings is similar to change in employment. But, unlike change in employment, change in earnings takes into account the value (or quality) of the job. Like the income variables, earnings will favor rural areas in aid formulas, due to the low-wage jobs in rural areas, and it also may be slightly biased in favor of rural areas due to cost-of-living differences.

**Indicators of Economic Structure**

Economic structure was at the center of much of the Federal aid debate during the 1980’s. For example, "industrial policy" entails examining the structure of the economy, identifying potential growth industries, and providing aid to stimulate the growth in these industries. A variant of this is to provide aid to growth places, places that have economic structures favorable for growth in the future. This approach has come under considerable criticism because of the difficulty of predicting with any level of accuracy which industries or places are most likely to grow rapidly in response to receiving aid.

The more traditional approach to industrial policy is to assist those industries or places with industries thought to be experiencing particularly difficult economic times. This approach is consistent with

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17Wages and salaries constitute the chief component of earnings and is easily estimated from administrative records. This might be used instead of earnings in general, because the self-employed earnings component is more difficult to estimate and is less reliable.

18Targeting to growth industries or places is also criticized sometimes for providing aid to people and places that do not need the aid, with much of the aid thought to result primarily in higher stock and land prices for current stockholders and landowners.
farm price supports and other forms of agricultural assistance that make up much of the Federal assistance to rural areas. Some proposed rural development programs would provide aid to nonfarm rural businesses and local governments using farm employment decline or some other industry-specific variable in order to target aid to places affected by recent farm difficulties. A variant of this approach has also been used for urban programs. For example, change in manufacturing employment was one of the factors used in allocating UDAG funds to cities with ailing economies.

Although these two approaches are opposites in many respects, they both target aid to particular firms, industries, or places with a particular industrial or economic structure. They both have one major drawback: they assume that current or past trends for a particular industry are necessarily associated with general economic trends over the long run. Urban and rural economies are usually too complicated for such assumptions to be meaningful, especially in view of the fluctuating world market to which all local economies belong.

For example, a decline in a city’s manufacturing employment might in itself be viewed as an undesirable occurrence that industrial policy might want to avert, because fewer high-paying manufacturing jobs and less "exporting" of goods to other regions are generally thought to result in local economic decline. But such a view ignores pollution and other negative aspects of manufacturing that over the long run may prevent other industries from forming in the community. Thus, some cities such as Pittsburgh and Baltimore have prospered in recent years, not by propping up their manufacturing base, but by facilitating the conversion from manufacturing to service industries.

Among rural areas, farming and energy industries seemed to have had a firm future 15 years ago. During the 1980’s, these industries experienced considerable difficulty. By the end of the 1980’s, the farm economy had recovered in most places; the energy industry was still depressed. This unpredictability of industrial structure as a predictor of general economic well-being makes it hazardous to employ economic structure variables in aid formulas.

In recent years, policymakers have advocated economic diversification to stimulate economic development. This approach is designed to alter local economic structure so as to reduce reliance on any particular industry and hence avoid large negative short-term fluctuations in the local economy. Aid formulas could conceivably use some measure of economic diversification to target aid to places with the greatest need to diversify their economies. But this could run into problems, because economic diversification may be impossible or even undesirable for many rural communities whose futures are tied to a particular place-specific industry.

Programs which use economic structure indicators to target aid encounter an additional problem in that Census and Bureau of Economic Analysis (BEA) data for many industries in rural areas are often unavailable to the public due to confidentiality restrictions. This makes it difficult to envision such data being used to allocate public funds on anything but a State or large metropolitan area basis.

There are large urban-rural differences in economic structure. Hence, depending on the approach taken and the industry involved, targeting aid using such indicators may favor either urban or rural areas. Equally important, however, is the tendency of such programs to favor some places over others, regardless of their urban or rural status.

\[\text{For a discussion of various measures of diversification, see (17).}\]

\[\text{Recent unpublished research by ERS has found that diversified places are only slightly better off than nondiversified places.}\]

\[\text{Because counties with small populations have few firms in any given industry, BEA data is withheld from the public.}\]
Social Indicators

Social indicators reflect conditions or characteristics of individuals or groups of residents. They generally focus on hardcore, intransigent problems, such as poverty, crime, illiteracy, and inadequate health and housing. Long-term economic difficulties, such as long-term unemployment and persistent low per capita income are related to social conditions. For example, a poor, illiterate, individual with no phone and no means of transportation will have a hard time finding a job, even in an economy with many job opportunities. Hence, besides directly measuring the various social needs of local residents, social indicators also indirectly measure things that contribute to State and local economic conditions.

Poverty Rate

Many social indicators are based on the concept of identifying the percentage of individuals or families that fall below a given, somewhat arbitrarily determined, standard of well-being. The poverty rate is just such an indicator. Once the Census Bureau establishes a dollar amount of income as the poverty level, the percentage of individuals or families falling below that level can be computed.

The main advantage of the poverty rate is that it is accepted by the public as a meaningful indicator of community distress. Moreover, it is generally accepted for use in aid formulas due to the common notion that the public should assist poor people and poor communities. Among the Federal programs that use (or have used) poverty to target aid are CDBG, UDAG, JTPA, FmHA water and waste disposal grants and loans, and aid to the educationally deprived.

The main disadvantage of the poverty rate, as well as most social indicators, is that local data for rural areas are available only once every 10 years from the decennial census. The lack of timely data is a particular drawback in cases where States or localities experience dramatic local economic change or where there is rapid migration of individuals to or from the area. Like the unemployment rate, the poverty rate changes from year to year, especially in times of economic boom or bust (12). Changes in poverty rates tend to be a bit more gradual, though, and, unlike the case of unemployment rates, nonmetro areas have consistently had greater rates of poverty than metro areas.

Variations among different types of metro and nonmetro areas are significant. Central cities have consistently had higher poverty rates than the metro average (table 3). The poverty rate of central cities has slightly exceeded the nonmetro average since 1975, though the two were about the same in 1986. Still, many rural areas probably benefit from the use of poverty in aid formulas. Farming areas may benefit most from using this indicator. Historically, the farm population has experienced higher poverty rates than the nonfarm population (though this was not the case in 1987).

Poverty measures the distribution of income, not the average level of income. This is an important distinction when considering how aid is allocated among urban and rural areas. For example, central cities have significant poverty populations, yet they also have concentrations of wealth and relatively high per capita incomes. Hence, such cities stand to benefit, relatively speaking, from having poverty instead of per capita income in the aid formula. Rural areas, in contrast, are characterized by lower average income and wealth than that of the big city, but their poverty rate is roughly comparable. Thus, rural areas tend to benefit from having per capita income instead of poverty in the aid formula.

22 Other examples include percentage of population below a minimum education level, percentage with substandard housing, percentage with weak family structure (single parent with children).
Table 3--Poverty rate by type of area and industry, 1967-87

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Area:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro total</td>
<td>10.9</td>
<td>10.3</td>
<td>10.4</td>
<td>13.7</td>
<td>12.5</td>
</tr>
<tr>
<td>Central cities</td>
<td>15.0</td>
<td>14.7</td>
<td>15.4</td>
<td>19.9</td>
<td>18.6</td>
</tr>
<tr>
<td>Nonmetro total</td>
<td>20.2</td>
<td>15.3</td>
<td>13.9</td>
<td>17.8</td>
<td>16.9</td>
</tr>
<tr>
<td>Industry:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>25.9</td>
<td>14.9</td>
<td>17.1</td>
<td>22.1</td>
<td>12.6</td>
</tr>
<tr>
<td>Nonfarm</td>
<td>13.5</td>
<td>11.7</td>
<td>11.3</td>
<td>14.8</td>
<td>13.5</td>
</tr>
</tbody>
</table>


This is not to say that an unequal distribution of income and wealth is not a problem in many rural areas. Quite the contrary, many poor places, such as those in the South, have been characterized by a concentration of wealth in the hands of a few politically powerful families, whose leadership restrains economic growth in order to preserve the status quo (19). Income inequality is not viewed as having the same drag on local economies in urban areas, where the wealthy are often viewed as being more interested in pursuing local development. During the 1950’s and 1960’s, the influx of poor people was seen as a destructive force, driving out wealthy residents and leaving the city in a weakened overall condition. However, in recent years, this pattern seems to have stabilized or reversed, and poverty is now viewed as less of a threat to the city’s economic future.

Education Indicators

Educational improvement has become one of the most popular rural development strategies in the decade of the 1980’s. Whereas the prevailing strategy of the 1960’s and 1970’s assumed that a low-cost, unskilled, and undereducated labor force helped to attract industry from urban areas in the United States, this strategy is no longer viewed as being viable. Foreign competition has made it more difficult for U.S rural areas to compete in many of the older industries requiring unskilled labor. Meanwhile, the rise of “high-tech” industries has increased the domestic demand for skilled, highly educated workers.

To adjust to this changing industrial environment, rural development strategies are increasingly relying on upgrading the education of local high school and college students in order to make the transition from old-technology production to high-technology production and to stave off economic stagnation and decline. The challenge is a major one for rural areas, due to their relatively low levels of educational achievement compared with urban areas (table 4).23 However, the solutions may vary depending on the nature of local difficulties. In the South, the main problem is the poor quality of education and the lack of a literate and skilled labor force, and improvements in the basic education and vocational education are crucial for economic growth (41). Elsewhere, especially in the West and Northeast, the problem seems to be one of retaining recent college graduates due to a lack of good

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23Part of the rural-urban difference in education achievement levels is due to nonmetro areas having larger concentrations of the elderly, who tend to have had fewer years of schooling.
Table 4—Education indicators, 1980 and 1986

<table>
<thead>
<tr>
<th>Area</th>
<th>Adult average years of education</th>
<th>Age 16-21, high school dropout rate</th>
<th>Adult percentage of college educated¹</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1980</td>
<td>1980</td>
<td>1980</td>
</tr>
<tr>
<td></td>
<td>Years</td>
<td>Percent</td>
<td>Years</td>
</tr>
<tr>
<td>Metro</td>
<td>11.6</td>
<td>15.0</td>
<td>12.8</td>
</tr>
<tr>
<td>Nonmetro</td>
<td>10.9</td>
<td>16.9</td>
<td>9.2</td>
</tr>
</tbody>
</table>

Nonmetro adult education levels, 1986

<table>
<thead>
<tr>
<th>High school graduate, but not college</th>
<th>1985-86</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some college</td>
<td></td>
</tr>
<tr>
<td>Not high school graduate</td>
<td></td>
</tr>
<tr>
<td>Percent</td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>30.4</td>
</tr>
<tr>
<td>Midwest</td>
<td>25.8</td>
</tr>
<tr>
<td>South</td>
<td>22.6</td>
</tr>
<tr>
<td>West</td>
<td>37.5</td>
</tr>
</tbody>
</table>

¹Four years or more of college.

Source: ERS computations based on data from the Bureau of the Census, U.S. Department of Commerce.

jobs (table 4). In most rural areas, retraining farm and energy workers to work in other disciplines, including high-tech industries, is a major objective (42).

A variety of indicators of educational achievement is needed to identify different types of problems. One drawback to these indicators is that much of the data are available only from the decennial census. This may not be much of a problem overall since education levels are not thought to change rapidly as a rule. However, in some places, where there is a high rate of migration in or out of the area, the education level of the current population may change more rapidly. Differential rates of migration can also make for problems in interpreting the data. For example, a place can have a relatively low dropout rate, but if almost all of its graduates leave the area, the remaining adult population will be characterized by a relatively high percentage of high school dropouts.

There may also be a problem if one wants to distinguish among rural local governments in their efforts in recent years in upgrading their education, because there are currently no data to assess trends since the 1970's. Other limitations with the data on educational achievement include the fact that census data do not include much beyond the years of education completed. For instance, the data do not identify fields of study or grade point averages. College aptitude test scores, which can be obtained for different States, are hard to compare across States because different tests are given to the students in different States.

Education aid formulas have long been controversial with respect to their urban-rural allocation differences, both at the Federal and at the State levels. The courts have required most States to revise
their aid programs in order to provide more assistance to poor places that cannot afford on their own to provide an adequate education. In most States, this means that rural areas have made some progress in increasing education spending. Given the decline or stagnation of rural tax bases in the mid-1980's, this pattern may have reversed in recent years. Hence, once again, there is pressure to improve State aid formulas to assist distressed rural school systems.

Education achievement measures might be added to education formulas in order to target aid to places where education achievement is most lacking. For example, States might target aid to places with high dropout rates or low test scores. Some States might also experiment in the future with performance-based formulas that reward schools that decrease their dropout rates and increase their test scores. However, such approaches may run into difficulties if they violate the equity requirements that the courts have enforced with respect to aid to places with low tax bases. Whichever approaches are used, policymakers should be aware of the limitations of the local area data.

Other Social Indicators

Federal and State policymakers should be aware of the special problems of using some social indicators, including crime, population density, and housing characteristics, to allocate funds among rural and urban areas. Like the poverty and education indicators, these social indicators suffer from the lack of timely data for rural areas. In addition, they suffer because they do not take into consideration the nature of current community distress in rural areas.

The crime rate, for example, is based on reported crimes and ignores unreported crimes (understandably, since there are no data on this phenomenon). However, this may lead to an urban bias in crime rate data, since recent research suggests that some crimes are more likely to go unreported in rural areas than in urban areas.

Age of housing has been an important factor used in several Federal aid programs, including CDBG and UDAG. The idea behind this is that older housing (pre-1940) is correlated with urban decay and slum living conditions. This may be true in some of the larger distressed cities in the Northeast and elsewhere. However, in other cities such as those in the "sunbelt" and in many rural areas, there is little in the way of older housing. This does not mean that there are not housing problems or slum living conditions in these rural areas. It means only that there are different types of housing problems in rural areas than in urban areas. Failure to recognize this probably results in an urban bias in the aid formula.

In research of urban distress, high population density is commonly used as an indicator of various congestion problems. Rural areas do not ordinarily have such congestion problems, and, if they do, they cannot be measured by population density. Rural areas suffer from the other side of the equation: low population density leads to a whole set of problems ranging from isolation to diseconomies of scale in the provision of public services (to be discussed in more detail in the following section). Because population density means something different for urban and rural areas,

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24 In fact, per capita education spending has increased more, in inflation adjusted dollars, in rural areas than in urban areas throughout most of the 1970's (34, 35).

25 The most recent data available indicate that old housing is more common in urban areas than in rural areas. In 1980, 56 percent of urban housing was over 20 years old, while only 48 percent of rural housing was over 20 years old (16).

26 For example, substandard housing is much more common in rural areas than in urban areas (18).

27 For example, congestion sometimes occurs in mountainous rural areas where people must crowd together in narrow valley areas. While the population density of the settlement area may be large, the population density of the county as a whole tends to be small. Hence, it fails to measure the degree of congestion difficulty.
no simple linear relationship between population density and community distress should be assumed to exist, as is implicit in some aid formulas. Aid formulas that focus only on the problems of high population density will unfairly favor urban areas over rural areas due to this urban bias.

State and Local Fiscal Indicators

Fiscal indicators measure the fiscal condition of State and local governments. The use of State and local fiscal indicators to target aid seems to be more in keeping with the spirit of "New Federalism" than is targeting aid to distressed people or industries, because fiscal targeting explicitly recognizes the role of State and local governments in providing essential services in the Federal system. Three types of fiscal indicators may be used to identify distressed States or communities: fiscal need indicators, fiscal capacity indicators, and fiscal effort indicators.

Fiscal Need Indicators

Economic and social difficulties create problems for State and local governments in providing public services. Where crime is especially high, the need for police protection is high. Where unemployment and poverty are high, the need for education, training, and housing tends to be high. Where there is much congestion, the need for mass transit is high. Where the population is spread far and wide, the need for highway transportation is high. State and local governments must come up with additional funds to finance the public services associated with each of these public service needs. Fiscal need indicators attempt to measure the funds required to meet these needs.

Fiscal need indicators can take several forms. They can be simple economic or social indicators thought to be related with expenditure needs, or they can be more complicated measures based on a regression model designed to explain variations in local government spending.

The simple indicator (or an index of several such indicators) approach is the more common of the two, having the advantage of being intuitively appealing for programs that provide assistance for a particular purpose or service. Thus, for example, the unemployment rate may be used as a fiscal need indicator to target assistance to local governments with a particularly great need to provide employment and training assistance.

The regression-based approach tends to be more comprehensive, covering total fiscal needs of the State or locality. Typically, this approach uses a variety of social and economic indicators as "causal" or "explanatory" factors in a regression analysis that "explains" variations in government expenditures over a cross section of States or local governments. This is more desirable for the purpose of providing general fiscal assistance. However, it is more difficult to understand, and it may be harder for the public to accept.

Fiscal need indicators have some major deficiencies, regardless of the form of indicator chosen. First, there are no universally accepted standards for local services. What is basic and essential for some places may be viewed as an unnecessary luxury service to another community. Second, costs of providing services may vary considerably from place to place. Some costs are beyond local control, such as the high cost of providing water supply on the top of a mountain. Others are not so clearly beyond local control—such as collectively bargained public employee compensation—and it is difficult to determine where need ends and where political expedience begins. Third, because all fiscal need indicators are based on social and economic need indicators, they can be expected to pick up the inaccuracies and distortions of these indicators, including any urban or rural bias such indicators might have.
Urban bias is a natural problem for fiscal need indicators because much of the literature on fiscal need has concerned urban fiscal difficulties. Understandably, such research has dwelt on problems that are primarily urban in nature, particularly the problems associated with high poverty and congestion costs in the most distressed central cities. Urban-oriented programs that employ such indicators of fiscal need as age of housing and population density to allocate funds to States and localities may make sense when allocating funds among the larger cities, but not among rural areas. The fact that this point is not generally recognized among the public finance researchers, much less among the public as a whole, is evident in the recent Treasury study of State and local government fiscal conditions, which constructed State level needs indicators based on "eight variables widely viewed as indicators of need." Included among these are the overall crime rate, which is probably biased against rural areas, and the percentage of population in metro areas, which is clearly biased in favor of urban States (54).

The potential for urban bias may be particularly present in programs that use the more complicated regression methods of estimating fiscal need. For example, a recently enacted aid program in Massachusetts employed a sophisticated regression analysis to estimate costs and fiscal needs of local governments. The analysis, derived in large part from urban studies, used a group of urban distress variables to estimate public service costs for both urban and rural areas (2). As a consequence, there was a distinct urban bias in the resulting aid formula. Although this bias was reduced somewhat when State policymakers diverted from the analysis's findings and dropped the crime rate (which favored urban areas) and added road miles per vehicle (which favored rural areas) to the formula, the resulting aid formula still provided relatively few funds to rural local governments and has been criticized for urban bias (8).

One of the greatest sources for urban bias in such approaches is the tendency for regression analyses to equate high levels of per capita spending with high costs of inputs rather than with high levels of input quality typical of urban government services. For example, urban schools typically pay higher teacher salaries than do rural schools. The salary difference may be interpreted by regression approaches as a difference in costs, and hence in fiscal needs. However, the reason for the salary difference is more likely to lie in the fact that rural schools cannot afford to pay salaries as high as those in urban schools. For this and for other reasons, rural schools often must settle for less qualified teachers. Hence, rural schools' lower salary levels may reflect lower education service levels rather than lower costs of providing public services and ought not to be reflected in fiscal needs indicators.

Which type of area, urban or rural, faces higher costs of providing public services? This remains an open question. Clearly, rural governments face some obvious cost advantages, such as their relatively lower cost of land. However, as discussed earlier under the topic of social indicators, the cost of providing and delivering services (both public and private) to places with small and/or scattered populations is high in many rural areas. Some public services cannot be provided at all in rural areas, due to the prohibitive per capita costs associated with diseconomies of small population size and density. In effect, many rural areas are priced out of the market for such services as public transportation, libraries, sewage treatment, and professional sports and entertainment centers. In many places, even local schools are ruled out. While this may result in higher observed per capita spending levels in urban than in rural areas, the costs of providing a given level of public services may actually be higher in rural areas than in urban areas.

Because unit costs of producing and delivering many public services vary with population size and density, population—one of the most common indicators of need (fiscal or otherwise) used in Federal and State programs—is a flawed measure of fiscal need. Programs that simply allocate aid uniformly on a per capita basis are likely to be biased against highly rural areas, which suffer from diseconomies associated with small populations, and also biased against large cities, which suffer from
diseconomies associated with congestion problems. Population size and density measures may be useful in aid formulas, but only if the formula recognizes rural diseconomies associated with small population size and density as well as urban diseconomies of large population size and density.

Another problem with population as an indicator of rural fiscal need is the time lag in local population estimates. Unlike urban areas, rural areas can experience large percentage population changes in a short period of time. In extreme cases, such as oil and mining areas, their populations can double in only a few months. Although the Bureau of the Census provides annual population estimates at the county level, the 1- to 2-year time lag may result in a serious lag between the time when the local government needs assistance in increasing public services and the time when additional Federal or State aid arrives. To minimize this difficulty, some rural governments have gone to the extreme of paying for a special census to provide more current data. However, most rural areas make do with out-of-date data.

Another problematic population-based indicator of fiscal need is population decline. For rural governments, population decline often presents major fiscal problems. Fewer people means fewer taxpayers to bear the burden of State and local taxes. Also, due to diseconomies associated with low population size and density, highly rural areas may face prohibitive costs in maintaining schools and other public services as population declines. Difficult decisions—either to cut services or increase tax rates—must be made to balance government budgets.

A much different situation faces large urban areas. When population declines, large cities may actually benefit over the long run from economies of scale due to reduced congestion costs. While population decline may in some cases be associated with declining incomes and employment, signifying increased fiscal needs, in other cases, population decline is associated with improved overall conditions in the city, as occurs with gentrification.

In addition, the short-term adjustment process, though sometimes controversial, is usually much less painful in heavily urban areas because large cities have more options available in cutting services than do rural areas. For example, when school enrollment declined during the recent "baby bust" period, large cities could selectively close some schools, while keeping others open. This option is not available to rural areas with only one school. Consequently, population decline may indicate considerable fiscal need for highly rural areas, while the same decline may be relatively insignificant, or in some cases beneficial, for highly urban areas.

Perhaps more problematic is the use of slow population growth to target aid, as occurred in the case of the UDAG program. While slow population growth may not be the most desirable situation for the real estate industry, for local governments this may be the ideal situation. Slow population growth means few difficult fiscal adjustments are necessary. For cities, this is clearly preferable to rapid population growth because the latter contributes to greater fiscal problems associated with congestion.

Population change indicators also can suffer from timing problems. In the case of the UDAG program, fund allocations during the mid-1980’s were based on population changes during the 1970’s. While this may have seemed appropriate when the program first started (population change during the mid-1970’s may have been correlated with other problems in the cities), this time lag problem became a source of criticism for the program in its later years.

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28 A recent study identified 60 Federal programs in FY1987 that "relied in part on population or population characteristics for the distribution of 69 billion dollars." Half of these programs were 100-percent population determined (S).

29 Local population estimates have been criticized for their accuracy. The undercount problem associated with illegal aliens and minorities has been a major source of contention for urban areas and some Sunbelt States.
Fiscal Capacity Indicators

Most interested parties in recent years have recommended targeting aid to States and localities with the lowest fiscal capacities. The main rationale behind this approach is, as noted previously, that scarce Federal and State aid should not go to places that can afford to provide for their own needs, but rather, it should go to places with insufficient resources to meet their needs. This approach may also be most effective in directing resources to distressed rural areas, because rural areas have generally lower fiscal capacities than urban areas.

Per capita income is probably the most widely used measure of fiscal capacity. All taxes are paid out of income (even property taxes); hence, income is a simple and intuitively appealing measure of a jurisdiction's tax base. The fact that per capita income is also used as a measure of economic and social well-being and may be viewed as a measure of fiscal need as well as of fiscal capacity adds to its popularity. Per capita income is also convenient for targeting aid, because income and population data are readily available on a State- and county-level basis from Census and BEA with only a 1- to 2-year lag.

There are several drawbacks which limit but by no means rule out the use of per capita income as a measure of fiscal capacity. The first drawback concerns the cost of living issue. To the extent that rural areas have lower costs of living than urban areas, per capita income favors rural over urban areas, overstating the urban-rural gap in fiscal capacity. However, as noted previously, this may not be that big a problem because cost-of-living differences may be smaller than previously believed.

The second drawback involves the tax shifting (tax exporting) issue. Tax shifting occurs when jurisdictions impose taxes that are paid, either directly or indirectly by residents of other jurisdictions. The ability to shift taxes to nonresidents enhances a jurisdiction’s fiscal capacity. Jurisdictions that shift a large proportion of their taxes to nonresidents may have substantial fiscal capacity, even though their residents may have only average incomes. Per capita income tends to understate the fiscal capacity of these tax-exporting jurisdictions, many of which are rural.

Energy and mining States are among the most significant rural tax-exporting jurisdictions, because they can impose substantial severance and royalty taxes that are easily "passed on" to residents of other States who consume the product or who are stockholders in the company. Tourism and recreation are another major source of rural tax exporting. Many rural State and local jurisdictions impose taxes on tourists through a variety of hotel, transportation, and amusement taxes, thereby enhancing their fiscal capacities. In many tax-exporting jurisdictions, a good portion of local property taxes may also be "passed on" to nonresidents, either directly through taxes on property owned by nonresidents or indirectly through higher prices paid by nonresident consumers of locally produced goods and services.

Metropolitan areas are also major tax exporters. Metropolitan areas are places of employment and shopping for residents of adjacent rural areas. This means that a significant portion of the taxes that urban areas impose on local businesses and individuals is passed on to rural residents, either directly (in the form of sales, excise, and commuter taxes) or indirectly (in the form of property taxes passed on to rural residents through higher product prices to rural shoppers or through lower wages to rural residents who work in metro areas). Thus, rural jurisdictions that are adjacent to metro areas may be viewed as "tax importers." In such places, per capita income overstates the fiscal capacity of the rural jurisdiction.

A similar form of tax shifting occurs among nonmetro areas that serve as regional shopping and service centers to adjoining nonmetro areas.
A third drawback is that per capita income overstates the fiscal capacity of places where businesses and tax-paying individuals have the ability to leave the area to avoid high tax rates. In jurisdictions which are on the border line in terms of losing their tax base to neighboring areas, this can effectively limit their ability to raise taxes, regardless of their level of per capita income. In the 1960's and 1970's, this was seen as one of the main causes of fiscal stress for central cities of major metropolitan areas in the Northeast, where much of the tax base left for the suburbs to avoid high taxes.

In recent years, this problem may have abated somewhat in urban areas, as evidenced by the gentrification process. However, rural areas continue to suffer from limited fiscal capacity due to such fiscal instability. Many rural areas have only the most tenuous hold on relatively footloose firms that bargain among neighboring areas for the lowest taxes available. This limits the fiscal capacity of rural local governments, as evidenced by the common practice for rural local governments to offer tax concessions to retain or attract firms. Similarly, many rural areas possess only marginally profitable industries, such as agriculture or textiles; in these places, higher taxes might result in the industries closing permanently. Given the recent economic difficulties in many rural areas, additional tax concessions are often requested just to stay in business; hence, just maintaining current tax levels may be impossible in many rural areas.

Many States use property value instead of, or in addition to, per capita income as a measure of fiscal capacity. High property value often accompanies tax-exporting industries, is associated with tourist and recreation areas, and generally signifies the lack of fiscal instability. Hence, adding property value as an indicator of fiscal capacity can help to get around some of the biases associated with per capita income. Property value is a particularly relevant indicator of fiscal capacity for local governments since, historically, the property tax has been the most important tax for local governments.

However, property value data have not been used to target Federal aid to local governments. The problem is one of data availability. Most States provide fairly uniform property value data for rural and urban jurisdictions within the State, though perhaps not on an annual basis. But State data are not comparable from one State to another. Each State has its own method of assessing property values for taxation, and assessed values are often only a fraction of their true market values, this fraction varying over time and varying from State to State.

The only property value data available that is consistent across States come from the Bureau of the Census, whose periodic surveys of property value cover only large counties and metropolitan areas. Rural areas are for the most part excluded from these surveys, due to the high costs involved in data collection and because of the difficulty of obtaining accurate sales price information in rural areas where relatively few sales of property occur in any given year.

More sophisticated measures of fiscal capacity have been formulated for targeting Federal aid to States. Perhaps the most notable is based on the Representative Tax System (RTS). The RTS was developed by the Advisory Commission on Intergovernmental Relations (ACIR). It employs State income, property value, and other measures to serve as proxies for the tax base associated with each State and local tax. RTS tax capacity is estimated for each State, assuming that the national average

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31 The lessening of fiscal difficulty in central cities in the Northeast may be owed at least in part to reduced tax rates, especially residential property taxes and income taxes that were borne primarily by middle- and high-income residents. These tax reductions can only have encouraged the gentrification process to occur.

32 There are other measures that could be discussed but were excluded because of limited space. One such measure is the Total Taxable Resources. This measure was recently included as a targeting factor in the Alcohol and Mental Health Block Grant program. For a discussion of this and other measures, see (45, 54).
tax rate (which differs from one tax to another) is applied to each of the State's tax bases. The total RTS tax capacity is the sum of the tax capacities of the individual taxes.

State-by-State estimates are usually presented as index numbers, with 100 corresponding to the national average. Another, more comprehensive version of the RTS is the RRS (Representative Revenue System), which includes not only taxes but user charges as well.

Table 5 shows that rural States have significantly lower fiscal capacities than urban States, whether one measures fiscal capacity by per capita income or by the RTS measure. However, the urban-rural fiscal capacity gap is slightly smaller using the RTS measure, perhaps reflecting the relatively large fiscal capacities of some resource rich rural States in the West, such as Wyoming. This table also shows that RTS measures favor farm States over rural States in general. Although farm States had per capita incomes slightly higher than the rural State average in 1982, RTS fiscal capacity was substantially lower in farm States than in rural States in general.

RTS also appears to be more responsive to changes in the rural and urban economies. Table 5 shows that from 1982 to 1985, rural State per capita income declined 3 percentage points relative to the U.S. total, while rural State RTS declined 6 percentage points. During the same period, urban State per

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All States average</td>
<td>95.4</td>
<td>100.0</td>
<td>99.9</td>
<td>94.1</td>
<td>98.1</td>
<td>97.7</td>
<td>96.6</td>
</tr>
<tr>
<td>Rural</td>
<td>87.3</td>
<td>97.7</td>
<td>99.0</td>
<td>84.5</td>
<td>92.0</td>
<td>92.3</td>
<td>94.1</td>
</tr>
<tr>
<td>Urban</td>
<td>105.9</td>
<td>107.9</td>
<td>106.8</td>
<td>106.6</td>
<td>109.4</td>
<td>108.4</td>
<td>99.3</td>
</tr>
<tr>
<td>Other</td>
<td>94.7</td>
<td>95.2</td>
<td>94.6</td>
<td>93.1</td>
<td>94.3</td>
<td>93.6</td>
<td>96.9</td>
</tr>
<tr>
<td>Farm</td>
<td>89.8</td>
<td>94.5</td>
<td>93.7</td>
<td>85.6</td>
<td>87.3</td>
<td>86.8</td>
<td>98.0</td>
</tr>
<tr>
<td>Poverty</td>
<td>77.1</td>
<td>78.3</td>
<td>77.1</td>
<td>75.4</td>
<td>76.1</td>
<td>75.4</td>
<td>91.1</td>
</tr>
<tr>
<td>Retirement</td>
<td>93.8</td>
<td>110.0</td>
<td>111.5</td>
<td>91.7</td>
<td>106.3</td>
<td>105.0</td>
<td>85.4</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>98.6</td>
<td>94.6</td>
<td>94.5</td>
<td>100.0</td>
<td>98.6</td>
<td>98.0</td>
<td>100.2</td>
</tr>
<tr>
<td>Mining</td>
<td>91.2</td>
<td>120.5</td>
<td>126.2</td>
<td>82.5</td>
<td>104.2</td>
<td>106.8</td>
<td>93.4</td>
</tr>
<tr>
<td>Government</td>
<td>99.5</td>
<td>106.3</td>
<td>111.5</td>
<td>99.5</td>
<td>104.5</td>
<td>106.3</td>
<td>93.1</td>
</tr>
<tr>
<td>Federal land</td>
<td>96.5</td>
<td>116.3</td>
<td>118.1</td>
<td>92.6</td>
<td>108.7</td>
<td>109.0</td>
<td>94.1</td>
</tr>
<tr>
<td>Ungrouped</td>
<td>99.4</td>
<td>97.1</td>
<td>96.8</td>
<td>102.2</td>
<td>100.4</td>
<td>100.3</td>
<td>102.2</td>
</tr>
</tbody>
</table>

1 U.S. Advisory Commission on Intergovernmental Relations.
2 Representative Tax System.
3 Representative Revenue System.
4 Unweighted average.

Source: ERS analysis based on data from the U.S. ACIR.
capita income rose by less than 1 percentage point relative to the U.S. total, but urban State RTS rose by 1.5 percentage points. This suggests that, if RTS had been used instead of per capita income in Federal-to-State aid formulas, the formula would have been more responsive to rural fiscal difficulties of the mid-1980's.

Although the RTS and the RRS are imperfect measures, they are clearly superior to per capita income as measures of fiscal capacity. Their reliance on a variety of measures of tax base (income, property, sales, etc.) helps to eliminate the bias associated with tax shifting that occurs when per capita income is used by itself to measure fiscal capacity. Their use of different tax rates for different types of tax bases also helps in this regard.

The RRS is probably preferable to the RTS because it is more comprehensive and recognizes the growing importance of user charges. This is particularly advantageous for measuring fiscal capacity for rural local governments, many of which get a large percentage of their revenues from user charges. As table 5 shows, however, when computed on a State level, rural States have slightly higher fiscal capacities using RRS compared with RTS. Urban States have slightly lower fiscal capacities using RRS compared with RTS.

Both the RTS and the RRS fiscal capacity measures are only made available for States (State and local governments combined). Current limitations on availability of uniform property value data and other tax base measures for rural areas means RTS and RRS estimates are not possible for rural local governments. However, there have been a number of proposals to use the State-level RTS or RRS indicators in interstate formulas to target Federal block grants to the States with the least fiscal capacity. And some States have produced RTS-type tax capacity measures for within-State use.

Fiscal Effort and Gap Measures

Fiscal need and fiscal capacity may be viewed as representing opposite ends of the fiscal stress spectrum. One identifies need for public services, the other identifies the availability of funds to pay for public services. The most ambitious attempts to measure fiscal difficulty try to take into account both need and capacity. Fiscal effort and gap indicators fall into this category.

Fiscal effort is usually expressed as the percentage of local fiscal capacity actually used to raise revenues. This percentage may be interpreted in several ways. First, it is a relative measure of tax burden: taxes relative to tax capacity. Places with high tax efforts are thought to be vulnerable to fiscal instability such as occurred in the 1970's with the so-called "tax revolt." The change in effort is also used in the sense of measuring rising or falling tax burdens. Second, as the word "effort" suggests, it may be viewed as a measure of the local commitment to public services; communities that are willing to tax themselves heavily in order to support public services will show up as having high tax efforts relative to those who are less committed to the public sector. Third, fiscal effort reflects the tax burden associated with fiscal needs forced upon the community, such as occurs in connection with Federal and State mandates and unavoidable costs associated with basic services, such as education. It is in this last sense that effort is viewed as encompassing both capacity and need.

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33 For a discussion of the problems with these measures, see (37).

34 ACIR once provided estimates of RTS tax capacity for metropolitan areas, but no metropolitan estimates have been provided in recent years (46).

35 For example, the 1987 Sasser bill ($1840) and the 1987 Durenburger bill ($660).

36 For example, see (59).
The effort indicators used in aid formulas tend to be effective tax rates, such as the property tax rate, or taxes divided by income. The latter, sometimes referred to as simple tax effort, was used in the Federal general revenue sharing program. More sophisticated measures have been proposed, including some that would use RTS measures of fiscal capacity in computing effort. While this has the advantage of compensating for distortions associated with tax exporting and differential tax rates on different tax bases, data are lacking for this to be used on a within-State basis in any uniform way, as discussed in the previous section.

Many rural areas have relatively large fiscal efforts, as illustrated by table 6, which shows simple tax and revenue efforts. The places with the highest efforts are the totally rural areas, especially those that are independent of (not adjacent to) metropolitan areas. These places had higher efforts than core metro counties despite their restricted range of public services. This apparent paradox may be explained by the high costs of providing the most basic and essential public services, such as public education, in totally rural areas. However, it may also be partly due to more tax exporting (or less tax importing). In contrast, dependent (adjacent) nonmetro areas tend to have lower efforts than independent (nonadjacent) areas, probably due to their greater level of importing taxes from neighboring metro areas. This illustrates the bias in favor of nonadjacent areas and metropolitan areas at the expense of metro adjacent areas that results from the use of a biased measure of fiscal capacity (income) in the effort measure (37).

Two additional problems affecting both the simple and the more sophisticated effort indicators create an urban bias for formulas that allocate funds using these factors. One problem is that fiscal effort ignores other forms of effort that communities make to provide public services, volunteer effort in particular. For example, rural areas are noted for their continued reliance on volunteer firemen and other forms of volunteer-provided public services. Since these people are paid little or nothing for their services, the community is not credited with making much of an effort for these services. Consequently, fiscal effort indicators generally understate the real burden of public services on rural communities, as well as understating rural communities' commitment to public services.

The other problem concerns the extremely low incomes (capacities) that characterize many rural areas in the South in particular. In such places, local fiscal capacity may be insufficient to provide even the most basic of public services. Hence, even though their needs would be deemed extremely high by any reasonable measure of fiscal needs, their efforts will not reflect these needs. Moreover, people with low incomes must spend most of their money on essentials. Hence, low-income communities cannot be expected to spend the same percentage of their incomes on public services as do high-income people.

The fact that efforts are generally higher in high-income places than in low-income places underscores this imperfection in the effort indicator, and it gives rise to an urban bias as well, since rural areas have generally lower incomes than urban areas.

In theory, this last problem may be avoided by using fiscal gap measures. Here, the term fiscal gap refers to the gap between fiscal capacity and fiscal need. The advantage of gap measures is that they focus on the difference between need and capacity, which is the most intuitive concept of fiscal distress.37

In practice, gap measures are problematic because they require dollar value estimates of both capacity and need. Most indicators of need and capacity are proxy measures (such as income and population).38

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37 There are other variations of the gap measure. For example, one could look at the gap between fiscal capacity and actual revenues, or one could look at the gap between actual revenues and fiscal needs.

38
Table 6--Fiscal effort and capacity measures, by areas, 1982

<table>
<thead>
<tr>
<th>Type of area</th>
<th>Tax effort</th>
<th>Own general revenue effort</th>
<th>Fiscal capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Dollars</td>
<td></td>
</tr>
<tr>
<td>Independent:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large core</td>
<td>4.3</td>
<td>6.9</td>
<td>12,174</td>
</tr>
<tr>
<td>Medium</td>
<td>3.2</td>
<td>5.4</td>
<td>9,794</td>
</tr>
<tr>
<td>Small</td>
<td>3.1</td>
<td>5.6</td>
<td>9,675</td>
</tr>
<tr>
<td>Nonmetro--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanized</td>
<td>3.3</td>
<td>6.5</td>
<td>9,279</td>
</tr>
<tr>
<td>Less urbanized</td>
<td>3.7</td>
<td>6.8</td>
<td>8,723</td>
</tr>
<tr>
<td>Totally rural</td>
<td>4.8</td>
<td>7.5</td>
<td>8,619</td>
</tr>
<tr>
<td>Dependent:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro, large fringe</td>
<td>3.7</td>
<td>5.7</td>
<td>11,283</td>
</tr>
<tr>
<td>Nonmetro--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanized</td>
<td>3.3</td>
<td>5.8</td>
<td>9,411</td>
</tr>
<tr>
<td>Less urbanized</td>
<td>3.3</td>
<td>5.9</td>
<td>8,586</td>
</tr>
<tr>
<td>Totally rural</td>
<td>3.9</td>
<td>5.9</td>
<td>8,148</td>
</tr>
</tbody>
</table>

1Local taxes as a percentage of resident personal income.
2Local own source general revenues as a percentage of resident personal income.
3Resident personal income per capita.

Sources: ERS computations based on data from Bureau of the Census and Bureau of Economic Analysis, U.S. Department of Commerce.

and are not directly convertible into dollar values. Thus, most gap measures are derived from regression models that estimate State and local revenues and expenditures based on interstate or intercity variations in capacity and need indicators. Because these models tend to have an urban- or State-level focus, they tend to be highly inaccurate or biased when applied to rural areas. In addition, most gap approaches are innovative and insightful, but they are relatively untested, have not yet been subjected to widespread criticism, and they may suffer from large statistical error. Hence, they should be viewed as experimental. To date, they have seen little use in allocating aid.

Implications of Selecting and Combining Indicators

Thus far, the merits and demerits of individual indicators have been discussed in terms of how well they measure what they are intended to measure. The actual implications of choosing one indicator

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38The RTS and RRS measures of capacity are exceptions. However, as noted before, these are not generally available for local area analysis.
39The Massachusetts aid formula is a notable exception (2).
over another in a formula have not been discussed. For example, how much difference does it make to use one indicator rather than another to target aid to economically distressed areas? Would rural or urban areas gain by making such a substitution? Would rich or poor places gain the most? And what happens when two or more indicators are combined in one formula? To what extent will one indicator dilute or even negate the effect of another in the formula?

The implications of substituting one indicator for another are particularly important in light of the findings earlier in this study, which suggest that some measures currently used in aid formulas, such as the unemployment rate, are biased against rural areas. The logical solution to this problem is to substitute a less biased indicator of economic activity. For example, many State policymakers have instituted, or are contemplating, targeting aid to places experiencing current economic difficulty. It is important to ask how alternative indicators, such as unemployment rates, change in unemployment rate, employment growth, or change in per capita income, would affect different types of areas.

Perhaps the most important questions for Federal policymakers in today’s era of “fend for yourself federalism” involve the interrelationship between fiscal and socioeconomic indicators. Proposals have been made for adding fiscal capacity and fiscal effort indicators to existing aid formulas to reduce costs to the Federal treasury by cutting aid to fiscally wealthy places that do not need the funds. A natural question to ask in such a policy context is what types of areas would be affected the most by such a change?

Definitive answers to these questions can be found only by performing simulations of individual programs using the actual formula and data elements for alternative indicators. This kind of detailed program-specific analysis is beyond the scope of this report. However, an examination of correlation coefficients and other statistics for selected targeting indicators provides some useful insights and at least partial answers to some of the questions likely to be raised by many policymakers in search of improved targeting.

Correlation Analysis

This analysis begins by examining the two principal fiscal indicators available at the county level, per capita income and revenue effort, and their relationship to selected socioeconomic indicators, including four economic indicators and four social indicators. Next, correlations with measures of population settlement, percentage rural and population density, are examined for each fiscal and socioeconomic indicator. Then correlations among the socioeconomic indicators are examined.

Simple Pearson correlation coefficients were computed based on data for all U.S. counties (or census-defined county areas). Additional coefficients were separately computed for metro and nonmetro counties. All of the data elements for the indicators included in the analysis come from the 1977-82 period. This period reflects the most recent years for which Census of Governments data on local government revenues could be obtained. Although more recent data are now available for some other indicators, 1982 data were used for these variables to be comparable with the Census of Governments data. In cases where the only available data were from the decennial census, 1979 or 1980 data were used.

Correlation coefficients are simple measures of the direction and strength of the relationship between two indicators. The direction may be either positive or negative. A positive coefficient implies greater values of one indicator are associated with greater values of the other indicator. A negative coefficient implies greater values of one indicator are associated with lesser values of the other.

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40 A few counties were excluded, including those in Alaska, because they were "outliers" on some measures.
indicator. The strength of the relationship is indicated by the magnitude of the coefficient, which ranges from -1 to +1: the closer the coefficient is to zero, the weaker the relationship.

Both the direction and the strength of the relationship are important for understanding the implications of adding or substituting one indicator with another in an aid formula. How they are interpreted depends on the indicators involved in the correlation. This will be illustrated in the following section.

Per Capita Income Correlations

Table 7 shows the correlation coefficients for the relationships between fiscal and socioeconomic indicators. Those interested in adding per capita income (a fiscal capacity measure) to a formula targeted to places with high unemployment rates would focus on the sign and the magnitude of the correlation coefficient for the two variables, -0.42 for all U.S. counties.

The negative sign indicates that places with high unemployment rates tend to have low incomes. This means that most places that are considered economically distressed (high unemployment) would also be considered fiscally distressed (low income) using this two-factor formula. In this case,

Table 7--Correlation coefficients for fiscal indicators

<table>
<thead>
<tr>
<th>Selected indicators¹</th>
<th>Per capita income</th>
<th>Revenue effort</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>United States</td>
<td>Metro</td>
</tr>
<tr>
<td>Economic:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>0.42</td>
<td>-0.30</td>
</tr>
<tr>
<td>Unemployment rate change</td>
<td>-0.31</td>
<td>-0.22</td>
</tr>
<tr>
<td>Employment change %</td>
<td>0.26</td>
<td>0.19</td>
</tr>
<tr>
<td>PCI change²</td>
<td>0.39</td>
<td>0.41</td>
</tr>
<tr>
<td>Social:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty rate, 1979</td>
<td>-0.59</td>
<td>-0.49</td>
</tr>
<tr>
<td>Population change %</td>
<td>-0.06</td>
<td>-0.19</td>
</tr>
<tr>
<td>High school graduate %</td>
<td>0.58</td>
<td>0.61</td>
</tr>
<tr>
<td>College graduate %</td>
<td>0.50</td>
<td>0.64</td>
</tr>
<tr>
<td>Fiscal:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Revenue effort²</td>
<td>0.18</td>
<td>0.18</td>
</tr>
</tbody>
</table>

¹Unless otherwise indicated, all "level" indicators are for 1982 and all "change" indicators are for 1977-82.
²Actual change in real per capita income (1982 constant dollars).
³Locally raised general revenues of all local governments within the county, divided by county resident personal income, 1982.

Sources: Bureau of the Census and Bureau of Economic Analysis, U.S. Department of Commerce.
therefore, the negative sign implies a direct relationship between economic and fiscal distress, as measured by these two variables.

Such a direct relationship between two indicators of distress means that the two indicators can be combined in a formula without much fear that one indicator will totally negate the effect of the other in determining aid allocations. In other words, the majority of places receiving aid from a formula based on these two indicators will score relatively high on both indicators. For those who might propose substituting one indicator for another in a single-factor formula, the direct relationship implies that the resulting aid allocation will still favor most places scoring high on the factor being replaced.

Returning to the correlation between per capita income and unemployment rate, the magnitude of the coefficient is about midway between zero and 1, indicating that adding this fiscal capacity measure to the formula will make a substantial difference in the allocation, either by excluding places with relatively high fiscal capacities and high unemployment rates, or by including places with low fiscal capacities and low unemployment rates, or both. If the coefficient had been larger (closer to -1) in magnitude, a smaller difference in aid allocations would result from the formula modification. If the coefficient had been closer to zero, this would result in a larger difference in aid allocation. The difference between the coefficients for metro and nonmetro counties, -0.30 and -0.46, suggests that adding per capita income to an unemployment rate targeting formula would make a bigger difference in aid allocations among metro counties than among nonmetro counties.

Roughly the same conclusions can be drawn by looking at the correlations between per capita income and most other economic and social indicators. In all but one case, the signs (positive or negative) of the coefficients imply a direct relationship between fiscal stress and socioeconomic stress. The negative signs for the coefficients for change in unemployment rate (1977-82) and the level of poverty (poverty rate 1979) imply that most places that have low per capita incomes (fiscally distressed) had rising unemployment rates and high levels of poverty (economically and socially distressed). The positive signs for employment change (percentage change, 1977-82) and change in real per capita income (1977-82 change in 1982 dollars) indicate that places with low incomes (fiscally distressed) also tend to have slow growth or decline in employment and income (economically distressed). The positive signs for the education variables (percentage of population 25 and older having completed high school or college) indicate that places with low incomes (fiscally distressed) also have low levels of education (socially distressed).

Only the correlation coefficient between per capita income and population change exhibits an inverse relationship between fiscal and socioeconomic distress: that is, places with increasing populations tended to have lower incomes, as indicated by the negative sign of the coefficient, -0.06. This means that policymakers should be aware of the danger of combining population change and per capita income in one targeting formula. Since they tend to negate each other as measures of distress, one might overpower or dilute the effect of the other in the formula. Whether or not this happens depends on the magnitudes of the coefficients and on other factors, such as the statistical properties of each indicator (mean, standard deviation) and the weight applied to each indicator in the formula. This topic will be discussed in greater detail later on in this report.

From the signs and magnitudes of the these coefficients, one would not generally expect that adding per capita income to an aid formula employing these socioeconomic indicators of distress would

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\(^{42}\)Total negation is more likely in this example if the correlation coefficient is positive and close to 1.00.

\(^{43}\)Note, this is a very weak relationship. It is possible that the sign of this coefficient has changed in recent years, as many of the nonmetro places that grew during the 1970's have begun to decline in population.
violate the targeting objectives of the other indicators in the formula. It would make the most
difference when the formula involved population change, because of the inverse relationship observed
between fiscal and social stress in this case. It would make the least difference when the poverty rate
or high school graduation indicator was being used as a targeting indicator, due to the relatively large
magnitude of their coefficients. But none of the coefficients was very close to 1 in magnitude, hence
a substantial difference in the allocations could be expected in all cases.

Revenue Effort Correlations

The fiscal indicator that is usually mentioned in connection with aid formulas is revenue effort.
Revenue effort, which is more comprehensive than the tax effort indicator, is examined in this
analysis. Revenue effort is not as highly correlated with socioeconomic indicators as is per capita
income. In addition, for rural (nonmetro) areas, revenue effort tends to be inversely related to most
indicators of socioeconomic distress; places deemed fiscally distressed (high revenue efforts) tend not
to be economically or socially distressed.

For example, the correlation coefficients for nonmetro areas suggest that revenue efforts tend to be
higher for nonmetro counties with low and declining unemployment rates, rising employment, and
rising per capita incomes: that is, counties that are not economically distressed. Revenue effort was
negatively correlated with poverty and education achievement measures in nonmetro areas.

Among metro areas, this inverse relationship between fiscal distress, as indicated by revenue effort,
and socioeconomic distress is less pronounced. Only two of the four economic indicators, change in
per capita income and change in unemployment rate, were found to demonstrate an inverse
relationship between economic distress and fiscal distress, and these relationships were quite weak
(-0.06 and 0.02). The positive correlation between metro unemployment rate and revenue effort
indicates a direct relationship between these two measures of distress in metro areas, where an inverse
relationship existed in nonmetro areas. Metro areas exhibited a direct relationship between
population decline (social distress) and high revenue efforts (fiscal distress). Although both metro and
nonmetro areas exhibited a positive relationship between educational achievement and revenue effort,
the coefficients were smaller in magnitude for urban areas. Thus, the inverse relationship between
fiscal and social distress was not as pronounced in metro areas.

To summarize, adding revenue effort to aid formulas tends to benefit rural counties that are not
particularly experiencing economic or social distress, as measured by the indicators selected for this
analysis. Revenue effort would have a different effect as a targeting indicator for urban areas. Metro
counties with high unemployment rates and population decline would receive more aid with the
addition of revenue effort to the aid formula; metro areas experiencing other forms of socioeconomic
distress will lose aid. The big gainers in both metro and nonmetro areas would be counties with high
education levels. This should raise a red flag for those who do not wish to see a major erosion in the
targeting of aid to places with socioeconomic distress.

The contrast between revenue effort and per capita income is made clear by their correlation
coefficient, 0.18, which indicates that high revenue efforts are weakly associated with high incomes, a
point made earlier in this report. The coefficient is larger, 0.26, in nonmetro areas.

The two fiscal stress variables tend to work in opposite directions. This provides policymakers with
two very different measures of fiscal difficulty to choose from. If per capita income is used alone in
a formula, places with high revenue efforts are likely to receive relatively little aid. If revenue effort
is used alone in a formula, places with low incomes are likely to receive relatively little aid. Using
the two in tandem will present a mixed result, which may or may not achieve a desirable result from
a policy perspective.
Fiscal Indicators and Rurality Measures

From the discussion above, it would seem that per capita income is the better measure if one desires to add a fiscal indicator to a program that aids socioeconomically distressed rural areas. However, one might still consider adding revenue effort to a formula on the theory that this would allocate more aid to rural areas with high public service costs associated with low population density. This may be a desirable objective for some programs assisting rural local governments.

As is seen in table 8, revenue effort has a negative correlation (-0.08) with population density in nonmetro areas. Thus, high revenue efforts are associated, at least mildly, with low population densities. However, the statistical association is relatively small. A more efficient approach for getting aid to places with low population density would use population density directly as a factor in the formula.

This raises a more general question: if one wants a program that favors rural areas over urban areas, without overtly excluding urban areas and without explicitly including an indicator of rurality in the formula, which distress indicator achieves this purpose the best? Of the 10 distress indicators

Table 8—Correlation coefficients for indicators of rurality

<table>
<thead>
<tr>
<th>Selected indicators$^1$</th>
<th>Share of county population in rural areas</th>
<th>Population density$^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>United States</td>
<td>Metro</td>
</tr>
<tr>
<td>Economic:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>0.09</td>
<td>0.14</td>
</tr>
<tr>
<td>Unemployment rate change</td>
<td>.09</td>
<td>.18</td>
</tr>
<tr>
<td>Employment change %</td>
<td>-.11</td>
<td>-.07</td>
</tr>
<tr>
<td>PCI change$^3$</td>
<td>.05</td>
<td>-.16</td>
</tr>
<tr>
<td>Social:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty rate 1979</td>
<td>.31</td>
<td>.03</td>
</tr>
<tr>
<td>Population change %</td>
<td>-.09</td>
<td>.20</td>
</tr>
<tr>
<td>High school graduate %</td>
<td>-.34</td>
<td>-.45</td>
</tr>
<tr>
<td>College graduate %</td>
<td>-.47</td>
<td>-.48</td>
</tr>
<tr>
<td>Fiscal:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI</td>
<td>-.42</td>
<td>-.57</td>
</tr>
<tr>
<td>Revenue effort$^4$</td>
<td>.02</td>
<td>-.28</td>
</tr>
</tbody>
</table>

$^1$Unless otherwise indicated, all "level" indicators are for 1982 and all "change" indicators are for 1977-82.
$^2$Population per square mile, 1975.
$^3$Actual change in real per capita income (1982 constant dollars).
$^4$Locally raised general revenues of all local governments within the county, divided by county resident personal income, 1982.

Sources: Bureau of the Census and Bureau of Economic Analysis, U.S. Department of Commerce.
included in this analysis, college education in the United States has the largest (in magnitude) correlation with percent of county population in rural areas (-0.47). Per capita income is a close second (-0.42), followed by high school education (-0.34) and poverty (0.31). While none of these indicators is even close to being 100-percent correlated with rurality, the use of several together may come close enough to be appealing to policymakers.

Per capita income has the largest overall correlation with U.S. population density (0.24), followed closely by college education (0.22). Thus, if one is more interested in getting money to distressed nonmetro areas with low population densities, this might lead one to use per capita income or college education in the formula. However, per capita income does not correlate as highly with population density among nonmetro areas as it does among metro areas. The indicator that best proxies for population density for nonmetro areas is revenue effort, and revenue effort has some undesirable properties. In the end, none of these variables is very highly correlated with population density, so that it is difficult to replace population density in an aid formula.

If population density is used in the aid formula, however, one should recall a point made earlier in this report: some proxy measures of local distress may make sense for urban areas but not for rural areas. The example of population density was mentioned in this context because population density is sometimes presumed to be correlated with fiscal distress. This is problematic because high population density is correlated with high levels of fiscal distress in metro areas, but it is correlated with low levels of fiscal distress in nonmetro areas. Here, in table 8, we see that almost all of the signs of the correlation coefficients for population density tend to be different for metro areas than for nonmetro areas. This underscores the notion that policymakers ought be careful when using distress indicators such as population density that were developed in urban studies, because these indicators may have a perverse effect if applied uniformly to formulas that target aid to both urban and rural areas.

It may also be noted from the correlation coefficients for metro areas that population density probably is not a very good proxy of urban distress, at least for the 1977-82 period. Although population density was directly associated with some measures of distress for metro areas (revenue effort, employment and population change, and poverty), it was inversely related with other measures of distress (unemployment rate, change in unemployment rate, change in per capita income, high school and college education, and per capita income).

The fact that population density in metro areas is positively related both to per capita income and to the poverty rate underscores another point made earlier in this report: poverty and per capita income are not the same thing, especially in large central cities of metro areas that often have concentrations of rich as well as poor people as residents. The more densely populated the city, the more apparent this income inequality becomes.

Correlations Among Socioeconomic Indicators

The selection of a targeting indicator makes a big difference for programs targeted to socioeconomic distress. Many of the indicators of socioeconomic distress are only slightly related to each other, and, in some cases, they also may be inversely related. This means that a sincere effort to target aid to places suffering one form of economic distress will mean less funds for places suffering another form of economic distress. Before an appropriate targeting formula can be developed, policymakers must become aware of these statistical tradeoffs in order to decide which form of socioeconomic distress is more deserving of assistance. Correlation coefficients for selected social and economic indicators help illustrate the important differences among these measures (table 9).

The indicators selected were the unemployment rate, change in unemployment rate, percent change in employment, real change in per capita income, poverty rate, percent population change, percent high
Table 9--Correlation coefficients for socioeconomic indicators

<table>
<thead>
<tr>
<th>Selected indicators and county type</th>
<th>Unemployment rate</th>
<th>Unemployment change</th>
<th>Employment change</th>
<th>PCI change</th>
<th>Poverty rate</th>
<th>Population change</th>
<th>High school graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment change:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>0.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro</td>
<td>.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonmetro</td>
<td>.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment change %:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>-.28</td>
<td>-.39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro</td>
<td>-.50</td>
<td>-.49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonmetro</td>
<td>-.23</td>
<td>-.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI change:</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>-.35</td>
<td>-.35</td>
<td>0.28</td>
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<td></td>
</tr>
<tr>
<td>Metro</td>
<td>-.48</td>
<td>-.47</td>
<td>.50</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Nonmetro</td>
<td>-.33</td>
<td>-.32</td>
<td>.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty rate, 1979:</td>
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<tr>
<td>Metro</td>
<td>.14</td>
<td>-.04</td>
<td>-.13</td>
<td>-.09</td>
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</tr>
<tr>
<td>Nonmetro</td>
<td>.14</td>
<td>.01</td>
<td>-.12</td>
<td>.01</td>
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<td></td>
</tr>
<tr>
<td>Population change %:</td>
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</tr>
<tr>
<td>United States</td>
<td>-.01</td>
<td>-.07</td>
<td>.59</td>
<td>.11</td>
<td>-.12</td>
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</tr>
<tr>
<td>Metro</td>
<td>-.24</td>
<td>-.24</td>
<td>.71</td>
<td>.06</td>
<td>.02</td>
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</tr>
<tr>
<td>Nonmetro</td>
<td>.05</td>
<td>-.01</td>
<td>.53</td>
<td>-.16</td>
<td>-.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school graduate %:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>-.28</td>
<td>-.23</td>
<td>.20</td>
<td>.08</td>
<td>-.67</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Metro</td>
<td>-.29</td>
<td>-.21</td>
<td>.25</td>
<td>.16</td>
<td>-.58</td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>Nonmetro</td>
<td>-.27</td>
<td>-.21</td>
<td>.14</td>
<td>.07</td>
<td>-.65</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>College graduate %:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>-.30</td>
<td>-.32</td>
<td>.29</td>
<td>.14</td>
<td>-.35</td>
<td>.17</td>
<td>0.69</td>
</tr>
<tr>
<td>Metro</td>
<td>-.48</td>
<td>-.37</td>
<td>.31</td>
<td>.29</td>
<td>-.24</td>
<td>.05</td>
<td>.73</td>
</tr>
<tr>
<td>Nonmetro</td>
<td>-.27</td>
<td>-.29</td>
<td>.23</td>
<td>.10</td>
<td>-.29</td>
<td>.18</td>
<td>.66</td>
</tr>
</tbody>
</table>

1Actual change in rural per capita income (1982 constant dollars).
Sources: Bureau of the Census and Bureau of Economic Analysis, U.S. Department of Commerce.

Some were fairly highly correlated with others, yet none had correlation coefficients greater than 0.80 in absolute value. Even among those that are fairly highly correlated with each other, such as the U.S. unemployment rate and the change in the unemployment rate (0.78), or high school graduates versus college graduates (0.69), the selection of one of these over the other can make a difference.

Two social indicators, poverty rate and population change, appear to be most different from the other socioeconomic indicators. Poverty is strongly correlated to the high school graduation rate, and fairly

4Per capita income (level as opposed to change) was discussed earlier and hence was excluded in this section.
strongly correlated to college graduate rate, but it is only slightly correlated with unemployment rate, change in employment, and change in population. Poverty rate displays almost no correlation with change in unemployment rate and change in per capita income. Population change is correlated strongly only to employment change and displays almost no correlation with unemployment rate and change in unemployment rate.

Policymakers should be aware that in some cases the sign of correlations differs between metro and nonmetro areas. For example, population change is correlated -0.24 with unemployment rates for metro areas, but the correlation is a small but positive 0.05 among nonmetro areas. Similar metro/nonmetro sign reversals are observed for population change's correlations with unemployment rate change, per capita income change, and poverty rate. As noted previously, this metro/nonmetro difference may be due, at least in part, to the notion that declining population is not necessarily bad for many central cities, where a healthy economy may require the displacement of some residents by commercial activity. For suburban metropolitan counties, population growth is often opposed since it causes congestion. In many cases, the people leaving the cities for the suburbs these days have lower incomes than existing suburban residents. The reverse is more likely to be the case in rural areas. New migrants often bring higher incomes to rural areas, especially if they come from urban areas. Thus, population growth is looked upon more favorably in rural areas. In contrast, population decline is more likely to be directly related to economic distress in rural areas, where displacement is less of an issue and where population decline creates diseconomies of scale problems for rural businesses with shrinking markets.

As a general rule, economic indicators tend to be correlated more with other economic indicators than with social indicators. Likewise, social indicators tend to be correlated more with other social indicators than with economic indicators. These correlations also tend to be stronger or weaker depending on whether metro or nonmetro areas are involved.

Economic indicators (unemployment rate, change in unemployment rate, and change in employment) tend to be more highly correlated (with each other and with social indicators) among metro areas than among nonmetro areas. For example, among metro areas, the unemployment rate is correlated about -0.50 with employment change and -0.48 with college graduation rates. The magnitude of these correlations is only about half this among nonmetro areas. Thus, deciding which economic indicator is chosen for inclusion in an aid formula makes a much bigger difference for nonmetro areas than for metro areas.

The reverse is true for social indicators, which tend to be more highly intercorrelated among nonmetro areas than among metro areas. For example, poverty and high school graduates are particularly correlated in nonmetro areas (-0.65). In metro areas, population change displays little correlation with other social indicators, while in nonmetro areas these correlations are stronger, though still relatively weak. However, the highest correlations among social indicators are mostly recorded for neither metro nor nonmetro, but rather for metro and nonmetro combined. This suggests that metro-nonmetro differences in one social variable are related with metro-nonmetro differences in another.⁴⁴

⁴⁴The exception to this involves the college graduation rate, which is slightly more correlated with population change in nonmetro areas than in all areas combined, and is more correlated with high school graduates in metro areas than in nonmetro or in all areas combined.
Correlations Using State-Level Data

Federal programs often involve first giving money to the States, and then requiring States to distribute the funds to local areas. Accordingly, Federal targeting mechanisms involve not only how funds are allocated among localities (interlocal) but also how funds are allocated among the States (interstate). The interstate formulas can use different targeting indicators from interlocal formulas, because more comprehensive and more timely data are available for States than for localities.

Because they are more highly aggregated, State-level economic or social indicators data may hide evidence of distress occurring in certain areas within States. This can be a problem where States have very different rural and urban economies, such as in Arizona or South Carolina, where the rural portion of the State has suffered from high unemployment, while the urban portion of the State is booming. State-level fiscal indicators may make more sense. Local revenue and spending responsibilities vary significantly from State to State. This makes it difficult to allocate Federal funds to States or localities based on local fiscal stress measures that are sensitive to differences in local responsibilities, such as local tax effort. These problems disappear if the aid is allocated first to the States using aggregate State-level data, and then each State allocates aid to its localities in a way suitable to that State’s division of State and local government responsibilities.

ACIR’s fiscal capacity measures are among the more sophisticated State-level measures that have been suggested for targeting increasingly scarce Federal funds to States with the least ample fiscal resources. Correlations for ACIR’s fiscal capacity measure demonstrate the empirical significance of using these sophisticated State-level fiscal measures instead of the more conventional per capita income measure (table 10). In 1982, ACIR’s State tax capacity (this includes the capacity of both State and local governments) was correlated only 0.57 with State per capita income, indicating that it makes a big difference which measure is used in the formula.

The ACIR tax capacity measure was more highly correlated with unemployment, percent change in employment, and population change than was the per capita income measure. Per capita income was more strongly correlated with change in unemployment rate, change in per capita income, and the poverty rate. This means that substituting ACIR tax capacity for per capita income in aid formulas would have benefited States with high unemployment rates, and poor employment and population growth. States with rising unemployment rates, declining per capita incomes, and high poverty rates would suffer from switching to the ACIR measure.

The ACIR tax effort measure was strongly correlated only with population and employment change: places with slow growth had high tax efforts. ACIR tax effort was positively correlated with per capita income and negatively associated with poverty, indicating once again its chief drawback as a measure of distress.

There are some notable differences between State-level and local-level correlations. If one compares per capita income correlations between tables 9 and 10, one observes sizable differences in the correlations with poverty and change in per capita income. It should be noted, however, that some of the differences are due to the use of different measures in the two tables. The sign of the correlation coefficient differed for the high school variable because the high school dropout rate was used in table 10 as opposed to the high school completion rate in table 9. The college variable used in the two tables was also somewhat different.

45The positive 0.56 correlation between per capita income and change in per capita income reflects the diverging State income pattern occurring during the 1977-82 period (table 10).
Table 10--Fiscal versus socioeconomic, State-level correlations, 1977-82

<table>
<thead>
<tr>
<th>Selected indicators</th>
<th>1982 ACIR tax</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacity¹</td>
</tr>
<tr>
<td>Economic:</td>
<td></td>
</tr>
<tr>
<td>Unemployment rate, 1982</td>
<td>-0.40</td>
</tr>
<tr>
<td>Unemployment rate change, 1977-82</td>
<td>-.32</td>
</tr>
<tr>
<td>Employment change, % 1977-82</td>
<td>.62</td>
</tr>
<tr>
<td>PCI change, 1977-82</td>
<td>.34</td>
</tr>
<tr>
<td>Social:</td>
<td></td>
</tr>
<tr>
<td>Poverty rate, 1979</td>
<td>-.41</td>
</tr>
<tr>
<td>Population change, 1977-82</td>
<td>.57</td>
</tr>
<tr>
<td>High school dropout, 1980</td>
<td>-.50</td>
</tr>
<tr>
<td>Some college, 1980</td>
<td>.48</td>
</tr>
<tr>
<td>Fiscal:</td>
<td></td>
</tr>
<tr>
<td>PCI, 1982</td>
<td>.57</td>
</tr>
</tbody>
</table>

¹An index of the ability to collect taxes.
²An index of the extent to which a State is taxing relative to its ability to collect taxes.

Sources: U.S. Advisory Commission on Intergovernmental Relations; and Bureau of Economic Analysis and Bureau of the Census, U.S. Department of Commerce.

The importance of using up-to-date data can be seen in table 11, which is identical to table 10, except that it covers the more recent 1982-85 period for the economic variables and fiscal variables. Most of the social indicators, which cannot be updated until the 1990 census, exhibited declines in their correlation with updated measures of economic and fiscal distress. This underscores the problem of using out-of-date data for targeting aid programs. In some cases, such as with the correlation between fiscal capacity and the change in unemployment rate, the correlation coefficient actually changes in sign from one period to another, indicating that the advantages of using one factor versus another in an aid formula may depend on what is currently happening to the economy.

Table 12, which employs 1986 data, demonstrates the advantages of using sophisticated State-level measures of labor distress. The unemployment rate was correlated only 0.51 with underemployment rate in 1986, indicating the difference between the two measures. It was more closely correlated (0.77) with a comprehensive measure of labor distress, which included both unemployed and underemployed. Note that the labor distress measure was correlated more with per capita income and poverty measures than was the unemployment rate. Or to put it differently, low-income areas would benefit if labor distress were to replace unemployment rates in aid formulas. The unemployment rate, however, was more highly associated with the high school dropout rate than was the labor distress measure.

Importance of an Indicator's Variance in the Design of Aid Formulas

The extent to which an indicator varies from one place to another affects the extent of targeting that will result when the indicator is used in an allocation formula. Indicators with relatively little
Table 11—Fiscal versus socioeconomic, State-level correlations, 1982-85

<table>
<thead>
<tr>
<th>Selected indicators</th>
<th>1985 ACIR tax Capacity¹</th>
<th>Tax effort²</th>
<th>PCI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>Economic:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployment rate, 1985</td>
<td>-0.33</td>
<td>0.05</td>
<td>-0.50</td>
</tr>
<tr>
<td>Unemployment rate change, 1982-85</td>
<td>.19</td>
<td>-.15</td>
<td>.31</td>
</tr>
<tr>
<td>Employee change %, 1982-85</td>
<td>.43</td>
<td>-.23</td>
<td>.32</td>
</tr>
<tr>
<td>PCI change, 1982-85</td>
<td>.10</td>
<td>.13</td>
<td>.68</td>
</tr>
<tr>
<td>Social:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Poverty rate, 1979</td>
<td>-.56</td>
<td>-.23</td>
<td>-.68</td>
</tr>
<tr>
<td>Population change, 1982-85</td>
<td>.23</td>
<td>-.50</td>
<td>-.08</td>
</tr>
<tr>
<td>High school dropout, 1980</td>
<td>-.54</td>
<td>-.12</td>
<td>-.42</td>
</tr>
<tr>
<td>Some college, 1980</td>
<td>.55</td>
<td>-.01</td>
<td>.42</td>
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<td>Fiscal:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PCI, 1985</td>
<td>.64</td>
<td>.16</td>
<td>1.00</td>
</tr>
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</table>

¹See footnotes, table 10.
Sources: U.S. Advisory Commission on Intergovernmental Relations; Bureau of Economic Analysis and Bureau of the Census, U.S. Department of Commerce.

Table 12—Underemployment and labor distress, State-level correlations, 1985-86

<table>
<thead>
<tr>
<th>Selected indicators</th>
<th>1986 Under-employment¹</th>
<th>Labor distress²</th>
<th>Unemployment rate</th>
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<tbody>
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<tr>
<td>Economic:</td>
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<tr>
<td>Unemployment rate, 1986</td>
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<td>1.00</td>
</tr>
<tr>
<td>Unemployment rate change, 1985-86</td>
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<td>.45</td>
<td>.49</td>
</tr>
<tr>
<td>Employment change %, 1985-86</td>
<td>-.46</td>
<td>-.54</td>
<td>-.54</td>
</tr>
<tr>
<td>PCI change, 1985-86</td>
<td>-.56</td>
<td>-.63</td>
<td>-.66</td>
</tr>
<tr>
<td>Social:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty rate, 1979</td>
<td>.63</td>
<td>.66</td>
<td>.55</td>
</tr>
<tr>
<td>Population change, 1985-86</td>
<td>-.20</td>
<td>-.33</td>
<td>-.31</td>
</tr>
<tr>
<td>High school dropout, 1980</td>
<td>.21</td>
<td>.27</td>
<td>.33</td>
</tr>
<tr>
<td>Some college, 1980</td>
<td>-.16</td>
<td>-.26</td>
<td>-.32</td>
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<tr>
<td>Fiscal:</td>
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<td></td>
</tr>
<tr>
<td>PCI, 1986</td>
<td>-.78</td>
<td>-.81</td>
<td>-.62</td>
</tr>
</tbody>
</table>

¹Percent of labor force consisting of involuntarily part-time, discouraged, working poor, and job-skills mismatch. (Note; unemployed are excluded from this definition.)
²A cost estimate of forgone wages associated with unemployment and underemployment.
Source: Merv Yetley, ERS, and Bureau of Economic Analysis and Bureau of the Census, U.S. Department of Commerce.
Table 13--Variability of county level indicators

<table>
<thead>
<tr>
<th>Selected indicators</th>
<th>Mean(^1) (A)</th>
<th>Standard deviation (B)</th>
<th>Coefficient variation (B/A)</th>
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<tbody>
<tr>
<td>Economic:</td>
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</tr>
<tr>
<td>Unemployment rate</td>
<td>10.24</td>
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<td>0.46</td>
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<tr>
<td>Unemployment change</td>
<td>3.84</td>
<td>3.52</td>
<td>.91</td>
</tr>
<tr>
<td>Employment change %</td>
<td>6.60</td>
<td>14.82</td>
<td>2.24</td>
</tr>
<tr>
<td>PCI change</td>
<td>279.07</td>
<td>1,082.89</td>
<td>3.88</td>
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</tr>
<tr>
<td>Poverty rate, 1979</td>
<td>15.78</td>
<td>7.27</td>
<td>.46</td>
</tr>
<tr>
<td>Pop change %</td>
<td>7.79</td>
<td>11.90</td>
<td>1.52</td>
</tr>
<tr>
<td>High school grad %</td>
<td>59.23</td>
<td>12.34</td>
<td>.20</td>
</tr>
<tr>
<td>College grad %</td>
<td>11.42</td>
<td>5.41</td>
<td>.47</td>
</tr>
<tr>
<td>Fiscal:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI</td>
<td>9,069.63</td>
<td>2,156.15</td>
<td>.23</td>
</tr>
<tr>
<td>Revenue effort</td>
<td>6.34</td>
<td>3.11</td>
<td>.49</td>
</tr>
</tbody>
</table>

\(^1\)See footnotes from table 7.

Variation, such as per capita income and percent college graduates, usually have relatively little targeting effect (table 13). Indicators that have large variations, such as most change variables, have large targeting effects. Recognition of the importance of these variations is crucial if policymakers are to obtain the desired effects of targeted aid policies.

For example, if one wishes to have a highly targeted aid program to assist low-income places, the relatively low variance of the per capita income measure (as measured by its coefficient of variation) makes the standard form for the targeting factor (a simple ratio indicator, such as the national average per capita income divided by the local per capita income) inappropriate. To achieve a greater targeting effect using the same per capita income indicator requires using some transformation of this variable that affects its variance, such as per capita income "squared," or some cutoff approach (e.g., provide no aid to any jurisdiction with per capita income above 80 percent of the national average). Such approaches are not generally needed when the indicator is of the change form and has a large variance to begin with.

Modifying formulas to adjust for variances of indicators is particularly important when dealing with formulas using more than one indicator. Such formulas often represent compromises whereby policymakers settle for a formula intended to give equal weight to several different indicators. However, because the variance of one factor may be much larger than another, the formula may actually be dominated by the factor with the larger variation. For example, a formula that rewards places that have lower than average employment change and lower than average per capita incomes
(PCI) might be a simple multiplicative form, including two distress factors, per capita income and percent change in employment, as follows:

Per capita dollar grant, $G = kxAxB$

where $k$ = some constant per capita dollar amount (computed so as to exhaust annual program funds);

$A = \text{national average PCI/local PCI}$; and

$B = \left(\frac{\text{national average percent employment change - local percent employment change}}{\text{national average percent employment change}}\right)$

Failure to recognize that the per capita income variable has only about one-tenth the variance of the employment change variable will result in the employment change variable dominating the per capita income variable in determining aid allocations.

To adjust for this unintended imbalance in the aid formula, the income variable ($A$) could be squared to give more weight to income in the formula:

$G = kxAxAxB$.

However, such an ad hoc approach does not necessarily lead to equal weighting of the two factors, $A$ and $B$, in the formula and it can lead to additional unintended effects. Squaring $A$ will lead to disproportionate aid allocations, since a 10-percent reduction in local income will result in a much larger percentage increase in aid allocation. This can lead to extremely large allocations for the lowest income places. For example, a place with half the average income ($A = 2$) will receive $2x2$ or four times the allocation of the average income place (other things being equal); a place with one-third the average income will receive $3x3$ or nine times the average allocation. This may be exactly what was intended. If unintentional, however, such large differences in aid allocations may lead to criticism.

Another way to increase the variation or weight of a variable in an aid formula is to use eligibility cutoffs, such as defining $A$ to be zero if local income is greater than 80 percent of the national average. This approach, however, creates inequities where one place may have only slightly higher income than another place, but as a result of just missing the income cutoff, it receives no aid, while the other place may receive considerable aid. In addition, this approach would eliminate many jurisdictions from the program entirely, which might create political problems in some cases.

One way to avoid these unintentional problems is to use more sophisticated transformations of the targeting indicators in the aid formula. One such transformation is to "normalize" the factors. This is achieved by subtracting the mean and dividing by the standard deviation for each indicator. In other words, instead of using $A$ and $B$ in the formula, one would use $(A - \text{national average } A)/(\text{standard deviation of } A)$ and $(B - \text{national average } B)/(\text{standard deviation of } B)$. This assures that $A$ and $B$ have an equal weight in the aid formula, provided $A$ and $B$ have normal distributions.\footnote{This method was suggested by Peggy Cuciti (6).}

The main disadvantage of this approach is that it may be too complicated, conflicting with the rule of thumb that one should keep formulas as simple and intuitively appealing as possible.
Other Problems to Avoid in Constructing Aid Formulas

To obtain greater program participation, and hence greater political support for a program, legislators may broaden the scope of a program to cover a variety of forms of community distress. One way to do this is to allow places to qualify for aid by scoring high on any one or two of a group of distress indicators. Unfortunately, this can result in the "Beverly Hills" problem, whereby even the most prosperous communities may find themselves eligible on some indicator or another. This is especially problematic since some indicators, such as age of housing, tax effort, and population change, may indicate stress in some contexts and not in others, as discussed earlier. When many alternatives are allowed for eligibility, the use of multiple eligibility criteria can result in almost all communities qualifying for aid. Hence, caution is required to avoid situations where the eligibility process achieves little if any targeting of program funds and may actually serve as a sounding board for critics of the program.

Another potential problem concerns matching criteria. In an effort to improve the success of a program, while at the same time reducing Federal or State costs, local funding is sometimes required to "match" Federal or State funding. The local match may be viewed as a guarantee that the community is willing to sacrifice some of its own resources in order to participate in the program. Hence, it is meant to eliminate waste and generate more local input. Some programs also require leveraging from the private sector; that is, aid is awarded only if some local company has already agreed to help finance part of the project. The problem with such "matching" or "leverage" provisions is that they may effectively eliminate funding for many small or rural communities that cannot afford the matching funding or have deficient private sectors for meeting leveraging requirements.

A related problem occurs with programs that require grant applications to receive funding. Many small rural governments do not have the expertise to apply for the grants, and may not even have knowledge of the program availability. Hence, they do not compete on an equal footing with each other and with larger urban jurisdictions.

To assure equitable treatment of rural areas, matching requirements should be avoided, or some sliding scale of matching requirements should be allowed that requires little if any funds from poor places. Private sector participation requirements might also be relaxed for places with minimal private sectors.

While requiring grant applications may be desirable for some programs, "outreach" provisions should be included so that small communities are provided with technical assistance and other information needed to compete for funds.

Targeting Federal Aid to Rural Areas:
Some Key Considerations for Federal Policymakers

The perfect allocation formula may look simple and obvious to the casual observer, but is neither simple nor obvious in its construction. A basic caution in developing formulas is to exercise care and attention to detail, and to focus clearly on program objectives.

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4The UDAG program recently made the news because Beverly Hills qualified for the program under UDAG's multiple eligibility criteria; though it was not awarded a grant, this was used as an argument against the rationality of the program.
General Issues

Both policy and technical factors affect the way an allocation formula distributes public monies among communities. While policymakers emphasize policy factors, other technical issues such as the structure of the formula, how the indicators are weighted, their statistical properties, and the effects of matching provisions and eligibility cutoffs also affect the eventual distribution of funds. Unless care is taken, these factors may easily undermine a program’s intent. Thus, attention should be given to both.

Policy Considerations

Individual indicators reflect differing objectives. To target funds precisely, indicators should be chosen to reflect the problem the program is intended to address and the strategy it employs.

- Formula indicators can measure either a level at one point in time or a trend over time. Indicators that measure levels will allocate funds differently from indicators of trends. Levels are usually best for measuring long-term, underlying problems, while trends best reflect temporary setbacks. Although the period measured by trend indicators can be lengthened from very recent changes to trends over 10 years or more, even long-term trend indicators will not measure differences in level.

- Funds can be allocated among all urban and rural counties based on conditions in those areas, or to rural counties exclusively. If the focus is on rural areas rather than specific problems that affect all places, restricting aid to rural areas would be appropriate.

- Most grant formulas concentrate on need indicators, such as population size and economic performance, that measure the extent and severity of the problem addressed by the program. Equally important, though often overlooked, is recipients’ ability to contribute funds to solving the problem. Lack of local government fiscal capacity—their ability to pay for their own programs—is not necessarily correlated with need. Adding fiscal capacity indicators, such as per capita income, to need-based aid formulas can reduce Federal program costs while assuring that Federal funds go to places that need them the most.

- Matching provisions that require local taxpayers to pay some program costs can encourage a more efficient allocation of funds by increasing the level of accountability to local taxpayers. Fixed matching requirements are common, but discriminate against poorer places with less ability to finance the match. To compensate, the matching share can be varied to allow recipients with fewer resources to contribute a smaller share.

- Targeting funds according to need implies a "worst most" strategy. But these areas do not always have the best capacity to effectively use aid. Providing technical assistance to some of these localities (which often include low-income and small rural governments) or shifting funds to less disadvantaged areas may help maximize results per program dollar. Some believe that needs of residents of "worst" places can best be met by encouraging development in nearby better off places, often in metro areas, that serve as "growth centers."

Technical Considerations

Inattention to technical details can undermine the effectiveness of an otherwise sound program. Chief among the problems to be avoided are unintended biases or inequities in fund allocations.
Some indicators have biases that favor urban over rural areas, farming over nonfarming areas, and vice versa. Unemployment rates, for example, are biased toward urban areas, since rural residents are more likely to be discouraged workers or underemployed, forms of labor distress not counted in unemployment totals. Biases can be minimized by using less biased indicators, or balancing biased indicators with others that compensate.

The definition of "rural" is important for programs that allocate funds exclusively to rural counties. One approach is to define rural as nonmetropolitan counties. A narrower definition is nonmetro areas outside communities with populations of 2,500 or more. Many other definitions are possible, though little data may be available for them. It may be necessary to accept some imperfection in definitions in exchange for more timely data and greater ease in program administration.

Although all rural counties may share in the need for funds, it may be desirable to limit funding to those places that meet a minimum requirement on one or more critical indicators. However, such eligibility cutoffs, if used, should be graduated so that large amounts of funds are neither gained nor lost on the basis of small differences.

Two-stage formulas that allocate shares first to States and then distribute those shares among local areas are possible. These allow using more precise indicators for interstate allocations that take advantage of the more plentiful and accurate data available at this level.

Complex allocation formulas tend to obscure what is being done, and both analysts and the public may have a hard time understanding their goals. The preferred rule is: keep formulas simple.

If one indicator has a much larger mean or variation than another indicator, it can dominate the formula. Adjusting indicators for differences in mean or variation, or weighting them differently, can compensate for these differences in statistical properties.

Formulas can create incentives for recipients to change their behavior superficially to qualify for larger shares of funds. The revenue sharing program's use of tax effort, for example, may have encouraged some local governments to substitute taxes for user charges in order to increase their aid allocations. Unless behavioral changes are desired, indicators that avoid such incentives should be chosen.

Characteristics of Individual Indicators

Most indicators can be classified as economic, social, or fiscal. Each has strengths and weaknesses which are highlighted below.

Economic Indicators

Economic indicators are sometimes misunderstood, and, therefore, misused in program formulas.

Unemployment rate. Although popular and readily available, the unemployment rate is biased against rural areas, particularly farming areas, because it fails to measure underemployment which particularly characterizes these areas. The unemployment rate is a comprehensive indicator that reflects both economic and social characteristics of a community and both long-term and short-term economic conditions. If a program seeks to target areas suffering from recent economic changes, change in unemployment rate would be a better measure.
o **Change in employment.** This measure is probably better than unemployment since it seems less biased against farming areas. However, it strictly measures short-term economic change and is unable to indicate long-term economic difficulties. It also does not reflect change in job quality.

o **Per capita income.** Low income (whether measured in per capita terms or as median family income) is universally accepted as a sign of economic difficulty. Per capita income is one of the most comprehensive measures of economic well-being. It includes earnings from fully employed and underemployed individuals, as well as unearned income from interest, rents, dividends, and government transfer payments. Income levels reflect long-term economic conditions, differences in community behavior such as willingness to save and invest, and differences in levels of State contributions to transfer payment programs. Per capita income is biased against some urban areas where costs of living are especially high. Although it is commonly believed to be at least slightly biased in favor of rural areas in general, empirical research has not established this as fact, due to the lack of comparable local area cost-of-living data.

o **Change in income.** Income change is a better measure of short-term economic conditions than the level of income. Change in per capita income is also a better measure of change in overall economic well-being than the change in employment, because it reflects changes in compensation as well as job-holding.

o **Per capita earnings.** Earnings levels better represent an economy’s ability to generate income for local residents, because they exclude government transfer payments, interest receipts, and other income that accrue largely from assets existing outside of the community. Earnings also reflect the wages and salaries of workers. Like per capita income, earnings indicators may be biased toward rural areas where costs of living may be lower.

o **Change in earnings.** Change in earnings is better than change in income as a measure of shifts in the ability of an economy to generate income for local residents.

**Social Indicators**

Most social indicators come from the decennial Census of Population, which makes timely indicators hard to get. Still, some social indicators, such as the poverty rate, are used in formulas to target aid to places with significant social problems.

o **Poverty rate.** Although local data on poverty are available only once every 10 years, the poverty rate is one of the more popular indicators of need for social programs, and it is used in many aid formulas. While overall poverty rates are higher in rural than in urban areas, urban central cities have relatively high rates of poverty.

**Fiscal Indicators**

Since the termination of general revenue sharing, local government finance data for rural areas are available only every 5 years from the Census of Governments. Programs to assist local governments generally use proxy variables to indicate public service needs and local fiscal capacities.

o **Population.** Population size is used to measure public service need; the more residents, the greater the need for public services. Population is the most widely used and probably the single most important targeting indicator in Federal aid formulas. However, it is biased against low-density rural areas, whose services cost more per unit due to diseconomies of
scale associated with low population density. Population is also biased against some large central cities, where congestion and commuting costs are understated by resident population totals. Special variations of population measures, such as rural population, are sometimes used in rural-oriented programs.

- **Population change.** The proper interpretation of population change is complicated, and the measure may best be avoided in allocation formulas. Several situations are possible. Some local areas may have slow population growth. While this may indicate a less vigorous economy than faster growing areas, slow growth does not indicate distress for local governments that have expanding revenues but only modestly expanding service demands. Areas with rapid population growth face more serious adjustment problems, but since these accompany rising tax bases, they probably do not merit special aid (other than planning assistance or short-term loans for capital projects). Population decline usually implies fiscal stress for rural governments, but may be a misleading cover for improved conditions in some places such as in some central cities where gentrification is occurring.

- **Fiscal effort.** Effort indicators, usually local taxes as a percentage of income, have been used in Federal and State revenue-sharing formulas. Some of the lowest density rural areas have relatively high efforts and tend to benefit from this indicator. However, many large and prosperous central cities collect substantial taxes from outlying areas, and thus, give effort indicators an overall urban bias. Poor rural areas tend to have the lowest efforts. Since the Federal revenue-sharing program was terminated, local effort data are available only every 5 years.

- **Fiscal capacity.** Per capita income is generally accepted as a measure of local capacity to finance public services. A drawback is that income may understate the fiscal capacity of places that export taxes to other jurisdictions (by taxing tourists, commuters, or oil and minerals). This bias can be overcome in interstate allocation formulas that can use more sophisticated measures of fiscal capacity.

### Criteria for Choosing Indicators

Four criteria are especially pertinent: (1) Is the indicator well-known and generally accepted? (2) Are data available at an appropriate (for example, county) geographic level? (3) Are current data available? (4) Is there an obvious rural or urban bias? The table below compares key indicators on these criteria.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Well-known and generally accepted?</th>
<th>Data available at county level?</th>
<th>Current data (within 2 years)?</th>
<th>Urban or rural bias (U=favors urban (R)=favors rural)?</th>
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<tbody>
<tr>
<td>Unemployment rate</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>U</td>
</tr>
<tr>
<td>Change in employment</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>U</td>
</tr>
<tr>
<td>Per capita income</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>R?</td>
</tr>
<tr>
<td>Change in income</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>R?</td>
</tr>
<tr>
<td>Per capita earnings</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>R?</td>
</tr>
<tr>
<td>Change in earnings</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>R?</td>
</tr>
<tr>
<td>Poverty rate</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>U</td>
</tr>
<tr>
<td>Population</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>U</td>
</tr>
<tr>
<td>Population change</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>U</td>
</tr>
<tr>
<td>Fiscal effort</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>U</td>
</tr>
<tr>
<td>Fiscal capacity</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>U</td>
</tr>
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*Y = Yes.*
References


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