Analyzing a Community Development Needs Index

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This article reflects the views of the author and does not necessarily reflect the views of the U.S. Department of Housing and Urban Development.

Abstract

The Community Development Block Grant formula has not changed since 1982. As a program that allocates billions of dollars each year, it is important that those funds be targeted as efficiently as possible to the places with the greatest community development needs. To first understand how well the current formula targets funds to these needs and then to identify better ways of targeting the funds, each community must have a score to represent its relative level of community development need. Because community development need is a function of many different things, it requires using a dozen variables or more to construct the score.

Since 1976, HUD has developed, and published in a series of reports, a community development needs index using the statistical procedure factor analysis. The first index was developed with 1970 data and subsequent indexes have used 1980, 1990, and 2000 census data. Factor analysis can be used in different ways to reduce many variables into a few variables that measure different patterns of distress. This article compares two approaches using 2000 census data and reaches the same basic conclusions about which key variables are important for demonstrating community development need. A wide range of policy choices on how to weight those variables exists, however, regarding what types of need are higher priorities for funding than others. It is in the weighting of the variables used in the Bush administration's proposal in 2006 for changing the formula, rather than the formula variables themselves, that the debate on improving the formula should focus.

Introduction

Established in 1974, the Community Development Block Grant (CDBG) formula program at the U.S. Department of Housing and Urban Development (HUD) has allocated roughly $116 billion[1] through fiscal year (FY) 2006 to cities, counties, and states to make improvements to distressed communities and improve the living conditions for low- and moderate-income households. The funds are allocated through a dual formula that was first fully implemented in 1981. The formula has remained substantially unchanged for 25 years. In 1976, 1979, 1983, 1995, and 2005, HUD developed indexes of community development need to rank cities, counties, and states by their relative level of community need and compare these levels against their CDBG formula allocation.

This article takes a second look at the needs index developed for the 2005 report and shows how the needs index might be improved and also shows a method for better informing policymakers about the policy choices imbedded within the needs index.

History of the CDBG Program

Title I of the Housing and Community Development (HCD) Act of 1974 terminated several categorical grant programs and replaced them with the new CDBG program. The Urban Renewal and Model Cities programs, open space land and beautification grants, neighborhood facilities grants, basic water and sewer facilities grants, and public facility loans were terminated and consolidated into the CDBG program.

Between 1949 and 1974, the federal government reviewed, approved, and financed proposals submitted by local governments for these categorical programs designed to improve downtown areas and revitalize distressed urban neighborhoods (HUD, 1995). With this funding system, specific projects were funded under categories that limited their scope to activities specified at the federal level. Grants were awarded on a competitive basis and required detailed applications for requesting funding. Matching funds were often required under the categorical grant system for participating cities.

Large-scale dissatisfaction with many components of categorical grant programs led to discussions about how federal community development funds should be allocated. As part of the Nixon administration's New Federalism, enactment of the HCD Act of 1974 marked the beginning of a new era in relations between the federal government and units of general local government (HUD, 1975). Title I of this legislation created the CDBG program, which replaced existing grant-in-aid programs. Under the CDBG program, funds go directly to general local governments. Observers believed that giving more decisionmaking power to local governments was an important aspect that was missing from previous community development programs. The belief was that local level officials could better assess community development needs.

The underlying purpose of Title I of the HCD Act is to increase the viability of urban communities by addressing housing needs and creating healthy living environments by expanding economic opportunity primarily for low- and moderate-income people. Furthermore, Title I objectives are met in many different ways, including stabilizing neighborhoods, increasing available public

services, vastly improving housing options and conditions, eliminating slums and blight, and meeting urgent community needs.

To increase localities' flexibility in carrying out community development activities, CDBG funds may be used anywhere within a local government's jurisdiction to serve the needs of low- and moderate-income people, address urgent needs, or eliminate slum and blight (HUD, 1975). For the first time, block grants offered an unprecedented degree of local control over allocating funds to programs and activities, which provided city and county officials broad discretion for funding housing, economic development activities, social services, and infrastructure (HUD, 1975).

Initially, the HCD Act specified the following seven national objectives:
1. Eliminating slums and blight.
2. Eliminating detrimental conditions.
3. Conserving or expanding the housing stock.
4. Expanding and improving services.
5. Facilitating more rational use of land and better arrangement of activity centers.
6. Reducing the isolation of income groups within communities.
7. Facilitating restoration and historic preservation.

In 1978, two additional purposes for the program were added (42 U.S.C. 5301(c)):
1. Stimulating private investment.
2. Conserving energy resources.

The formula-based design of the CDBG program gives local governments advanced knowledge of approximate annual funding amounts. This knowledge provides local governments with maximum planning opportunity.

CDBG Formula Creation

The primary purpose of Title I, to create a suitable living environment for people of low and moderate income, served as the driving force in designing the needs formula (Bunce, 1976). The belief behind the original formula was that a city's need for community development funds could be measured by three variables: population, poverty (weighted twice), and overcrowded housing, which were chosen as indicators with reliable data that would give an equitable measure of community development need and serve as the original formula factors.

Previously, under categorical grant programs, funds were distributed by competitive application procedures. This process may have meant that communities with similar needs would get very different grant amounts. To decrease the impact of a sharp drop in funding for communities that were receiving funds because of their greater success at obtaining funds under the competitive grant programs, compared with other similarly needy places, a "hold-harmless" provision was included in the 1974 CDBG legislation. The hold-harmless amount was the sum of the average of each amount received under the displaced categorical programs, not including the Model Cities and Urban Renewal programs, during FYs 1968–72 and the average annual grants received before July 1, 1972, under the Model Cities and Urban Renewal programs (Bunce, 1976).

In FYs 1975–77, entitlement communities having received higher levels of funding under displaced categorical grant programs than under the new formula grant would be held harmless and continue to receive the higher amounts (Bunce, 1976). For the next 3 years of the hold-harmless provision, 1978–80, these cities would see their excess funding dollars decreased by one-third in each program year. After the 3 years, all entitlement communities would receive a grant amount based on the CDBG formula, and communities in nonentitlement areas would compete for the funds allocated to their state nonentitlement areas (Bunce, 1976).

As the CDBG program began, many questions were raised about how well the program would function and whether the program should be continued. To provide for congressional reconsideration of methods for distributing funding assistance, Congress required that the Secretary of HUD submit a report by March 31, 1977, containing the Secretary's recommendations for modifying, expanding, and applying provisions related to the funding method, fund allocation, and basic grant entitlement determination (Bunce, 1976). The study of the formula required that methodology and results determine how funds could be distributed with the maximum extent feasible by objective standards.

Before the study was conducted, a series of objectives, including the following, were put into place to ensure meaningful results (Bunce, 1976):

- Developing criteria to measure the multidimensional variation in community development needs among entitlement cities.
- Evaluating and comparing the distribution of funds under the hold-harmless continuation of the displaced categorical programs and the existing CDBG formula.
- Designing alternative formulas that increase the emphasis on those dimensions of community development need ignored by the existing CDBG formula.
- Evaluating CDBG allocations under alternative formulas and comparing them with the hold-harmless continuation of the displaced categorical distribution with the current formula and with each other.

The HUD study had both significant and meaningful findings. First, the study reported that the hold-harmless distribution had a weak relationship with community development need. Second, study results suggested that the existing formula was highly responsive to the poverty dimensions but unresponsive to the nonpoverty dimensions of community development need. The study identified two variables related to community development need that were responsive to nonpoverty dimensions of community development need:

- The number of housing units constructed before 1939 was identified as having a significant correlation with housing abandonment and substandard housing and was a proxy for both government repair costs of sanitation facilities and sewage lines and housing maintenance costs (Bunce, 1976).
- Cities losing population exhibited far higher levels of community development need and fiscal strain than did fast-growing cities.

A separate study conducted by The Brookings Institution concluded that, compared with the categorical programs, full funding under the 1974 formula would have reduced funding most in the larger cities, especially those located in the Northeast and Midwest regions characterized by older housing stocks (Bunce and Goldberg, 1979). Both studies revealed that the major flaw of the 1974 formula was its unresponsiveness to the severe physical, social, and fiscal problems of older, deteriorating metropolitan cities (Bunce, 1976).

Questions concerning the allocation of block grant funds were critical community development legislative issues in 1977. At the time, HUD argued that an age variable, supplemented by a growth-lag variable, was needed to guarantee funding to cities experiencing the most severe physical and economic problems (Bunce and Goldberg, 1979). After much debate, a dual-formula system, with the second formula including growth lag and pre-1940 housing to target declining cities with older infrastructure, was adopted to replace the single-formula system. The 1977 amendments adopted a dual formula, which was first used in FY 1978 and greatly increased the formula allocation of funds to many jurisdictions, particularly the declining central cities of the Northeast and Midwest (Dommel et al., 1980).

The original 1974 CDBG single formula called for 20 percent of the CDBG funds to be set aside for nonmetropolitan area nonentitlement areas. The remaining 80 percent of funds were distributed to entitlement communities in metropolitan areas (MAs) and the nonentitled balance of MAs. The funds allocated based on the nonentitled balance of MAs were then to be administered by HUD through a categorical competition for nonentitled MA communities. Similarly, the nonentitlement set-aside was to be administered by HUD for the non-MA nonentitlement areas (Bunce, 1976). This system continued through FY 1981, even after switching to a dual formula in FY 1978.

Beginning in FY 1982, HUD offered states the opportunity to administer the CDBG Small Cities program. In doing so, the formula was modified so that the total state nonentitlement areas, including both non-MA and MA areas, would receive a 30-percent share of the CDBG allocation, with the remaining 70 percent being allocated exclusively to entitlement communities (Bunce, Neal, and Gardner, 1983).

Although several minor adjustments have been made to definitions over the years that have affected allocations for a few grantees, the major elements of the formula have remained unchanged since 1982.

Current Formula Mechanics

At the core of the current formula is the "dual formula." As noted above, this "dual formula" was created in reaction to the analysis of 1970 data that indicated problems associated with poverty to be very different than the problems associated with aging infrastructure and general population and economic decline.

The mechanics of the current "dual" formula are really two sets of dual formulas—one that allocates 70 percent of the funds among eligible metropolitan cities and counties (referred to as entitlement communities) and the other that allocates 30 percent of the funds among the states to serve nonentitled communities. It is worth noting that although the research that led to the dual

formula allocation was based on the different needs among cities, no similar research argued that the same approach would be applicable for the nonentitled areas served by states. Nonetheless, the states also have a dual formula.

The dual formulas are known as Formula A and Formula B. Exhibit 1 shows that for entitlements, Formula A allocates funds to a community based on its metropolitan shares of (1) population, weighted at 25 percent; (2) poverty, weighted at 50 percent; and (3) overcrowding, weighted at 25 percent, multiplied by appropriations. Formula B allocates funds to a community based on (1) its metropolitan shares of growth lag,[2] weighted at 20 percent; (2) its metropolitan shares of poverty, weighted at 30 percent, and (3) pre-1940 housing, weighted at 50 percent, multiplied by appropriations.

HUD calculates the amounts for each entitlement jurisdiction under each formula. Jurisdictions are then assigned the larger of the two grants. That is, if a jurisdiction gets more funds under Formula A than Formula B, its grant is based on Formula A. With this dual formula system, the total amount assigned to CDBG grantees has always exceeded the total amount available through appropriation. To bring the total grant amount allocated to entitlement communities within the appropriated amount, HUD uses a pro rata reduction. In FY 2006, for example, the pro rata reduction was 11.66 percent.

Exhibit 1

The Community Development Block Grant Formula Factors and Weights

Entitlement Communities

Formula A:

$$\left[0.25\ \frac{\text{Pop (a)}}{\text{Pop (MA)}} + 0.5\ \frac{\text{Pov (a)}}{\text{Pov (MA)}} + 0.25\ \frac{\text{Ocrowd (a)}]}{\text{Ocrowd (MA)}}\right] \times 70\%\ \text{of approp}$$

Formula B for cities:

$$\left[0.2\ \frac{\text{GLag (a)}}{\text{GLag (MC)}} + 0.3\ \frac{\text{Pov (a)}}{\text{Pov (MA)}} + 0.5\ \frac{\text{Age (a)}]}{\text{Age (MA)}}\right] \times 70\%\ \text{of approp}$$

Formula B for urban counties:

$$\left[0.2\ \frac{\text{GLag (a)}}{\text{GLag (ENT)}} + 0.3\ \frac{\text{Pov (a)}}{\text{Pov (MA)}} + 0.5\ \frac{\text{Age (a)}]}{\text{Age (MA)}}\right] \times 70\%\ \text{of approp}$$

States (Nonentitlements)

Formula A:

$$\left[0.25\ \frac{\text{Pop (a)}}{\text{Pop (NEnt)}} + 0.5\ \frac{\text{Pov (a)}}{\text{Pov (NEnt)}} + 0.25\ \frac{\text{Ocrowd (a)}]}{\text{Ocrowd (NEnt)}}\right] \times 30\%\ \text{of approp}$$

Formula B:

$$\left[0.2\ \frac{\text{Pop (a)}}{\text{Pop (NEnt)}} + 0.3\ \frac{\text{Pov (a)}}{\text{Pov (NEnt)}} + 0.5\ \frac{\text{Age (a)}]}{\text{Age (NEnt)}}\right] \times 30\%\ \text{of approp}$$

where:

- *(a)* is the value for the jurisdiction.
- *(MA)* is the value for all metropolitan areas.
- *(MC)* is the value for all entitlement cities.
- *(ENT)* is the value for all entitlement jurisdictions (cities and urban counties).
- *(NEnt)* is the value for all nonentitled areas nationwide.
- *Pop* is the total resident population.
- *Pov* is the number of people below the poverty level.
- *Ocrowd* is the number of overcrowded housing units.
- *Age* is the number of housing units built before 1940.
- *GLag* is the population growth lag.

As an example of this process, exhibit 2 shows the FY 2006 calculation for the Providence, Rhode Island CDBG grant.

The formula for the nonentitled areas of states generally operates like the entitlement formula. Two key differences exist, however: (1) Formula B uses population instead of growth lag, and (2) jurisdiction share is based on the state nonentitlement total rather than the metropolitan or nonmetropolitan total. As with entitlement communities, HUD calculates the amounts for each state under each formula and then assigns the larger of the two grants. To bring the total grant amount to states within the appropriated amount, HUD uses a pro rata reduction. In FY 2006, the pro rata reduction for states was 17.74 percent.

Exhibit 2

Example of the Current Community Development Block Grant Formula Mechanics

Step 1. Formula A and Formula B proportional allocation:

	Providence	Metropolitan or National Denominator	Providence's Share	National Appropriation	Providence's Base Grant ($000)
Formula A					
Population	178,126	247,680,575	0.0007192	0.25 * $3.704 billion	$466
Poverty	46,688	28,652,008	0.0016295	0.50 * $3.704 billion	$2,112
Overcrowding	5,225	5,668,390	0.0009218	0.25 * $3.704 billion	$597
Formula A "Base" Grant					$3,176
Formula B					
Growth lag	119,193	29,184,122	0.0040842	0.20 * $3.704 billion	$2,118
Poverty	46,688	28,652,008	0.0016295	0.30 * $3.704 billion	$1,267
Pre-1940 housing	31,950	13,350,260	0.0023932	0.50 * $3.704 billion	$3,103
Formula B "Base" Grant					$6,488

Step 2. Select the larger grant of the two and then use the pro rata adjustment:

The grant for Providence is larger under Formula B than Formula A and thus its base funding would be based on the $6.488 million Formula B grant. When all entitlement grants are summed together, however, the total amount of $2.935 billion exceeds the $2.593 billion appropriated by 11.66 percent. This leads to an across-the-board reduction of 11.66 percent:

Providence's final allocation is $6,488,000 * (1 – 0.1166) = $5,731,000.

CDBG Formula Studies, 1976–2005

In addition to undergoing the 1976 study noted above that led to the dual formula, the CDBG formula has undergone four other major assessments:

1. Bunce and Goldberg (1979). A followup report in 1979 discussed the targeting of the newly created formula.

2. Bunce, Neal, and Gardner (1983). With the introduction of new census data into the formula in 1980, HUD performed followup studies to determine whether the CDBG formula continued to target well to community development need. The studies showed that targeting to need had declined as new census data were introduced into the formula, but, in general, the formula still provided considerably more dollars per capita to needier communities than it did to less needy communities.

3. Neary and Richardson (1995). This study examined the impact that introducing 1990 census data would have on CDBG formulas' targeting to community development need. It documented the trends first identified by Bunce, Neal, and Gardner that the formulas' targeting had declined. It noted in particular the dramatic amount of demolition of pre-1940 housing that occurred in the 1980s, resulting in a shift in funds from needy communities demolishing those homes to wealthier communities rehabilitating their older homes.

4. Richardson (2005). This report continued in the tradition of the earlier reports, assessing how well the formula allocated toward community development need following the full introduction of 2000 census data into the formula. This report also provided several alternative formulas for improving targeting to community development need.

Developing a Community Development Needs Index

All of the studies from 1976 to 2005 developed community development needs indexes using the most current available data. Those indexes have been measuring sticks for assessing how well the CDBG formula allocates to need. In a broader sense, the indexes are also helpful for determining which communities are the most distressed in the country.

To assess how well the CDBG formula targets to the community development need of 2000, the Richardson (2005) report created two indexes: one capturing a range of community development needs among entitlement grantees and another capturing the community development needs of nonentitled areas served by states. This study made some advances on the earlier work of Bunce (1976), Bunce and Goldberg (1979), Bunce, Neal, and Gardner (1983), and Neary and Richardson (1995) by including urban counties[3] in the needs index for entitlements (prior studies had looked only at cities) and creating a separate needs index for nonentitlement areas of states.

As with the previous needs indexes, Richardson (2005) developed a needs index based on the statutory objectives of the CDBG program. The objectives are broad and, as such, the variables used for creating the index encompass many different elements—housing quality, infrastructure, economic development, poverty, tax base, and others. To account for these dimensions of need, the needs index is intended to serve as a "best estimate" of the actual level of community development need. For entitlements, the needs index developed for the Richardson (2005) study comprises 17 variables identified as indicators of one or more dimensions of community development need.[4] Exhibit 3 shows the variables used for the entitlement needs index along with a brief explanation about why each variable was selected. The variables are separated within the broad category of CDBG purpose, specifically targeting toward (1) low- and moderate-income people, (2) places in need of decent housing, (3) places without a suitable living environment, and (4) places with a lack of economic opportunities.

Factor analysis condenses the 17 variables listed in exhibit 3 into only a few variables. Factor analysis groups variables that appear to relate to each other and create a factor score for the patterns of variance common among variables. In past studies of the CDBG formula, three distinct patterns of variance have emerged, resulting in factors relating to problems associated with (1) poverty, (2) aging communities, and (3) communities in decline (Bunce, 1976; Bunce, Neal, and Gardner, 1983; Neary and Richardson, 1995). These different patterns of need between high-poverty communities and communities whose housing is aging and economy is declining drove the creation of the dual formula.

Exhibit 3

Variables for Measuring Community Development Need Among Entitlement Communities

Variable	Justification
1. Low- and Moderate-Income People	
People in poverty living in families or elderly households	The first CDBG formula study identified the importance of poverty as a measure of community development need because poor people have a high reliance on city government for basic necessities. This study uses people in poverty living in families or elderly households instead of simply people in poverty because the people in poverty variable from the census includes off-campus college students, who often receive support from their families that is not recorded by the census.
Percentage point change in poverty rate between 1990 and 2000	Jurisdictions with growing numbers of people in poverty have special community development needs associated with the jurisdictions' capacity to address a growing impoverished population. Research has demonstrated, for example, that every 1-percent increase in a city's poverty rate reflects a 5.5-percent increase in per capita expenditure on police services. Similar effects exist for fire protection costs (Ladd and Yinger 1989).
Jurisdiction per capita income relative to metropolitan per capita income	This is a new variable for this study. Rather than use per capita income alone, this measure takes into account the metropolitan context of that per capita income. It extends research conducted by Rusk (1993) showing that "the city-suburb per capita income ratio is the single most important indicator of an urban area's social health." Conceptually, it takes into account the relationship between the cost of providing services, which is driven by metropolitan area incomes (the employment and services market), and the tax base to pay for those services, which is driven by local incomes. The lower this ratio, the more difficult it is for a community to provide a level of service that can compete with the level of service provided in other communities in the metropolitan area.
Net change in per capita income from 1989 to 1999	This variable measures the economic growth of a community. Rising per capita income reflects a growing economy and a stronger tax base. Declining or relatively slow per capita income growth suggests a struggling economy and a waning tax base relative to rising costs for a jurisdiction.
Concentrated poverty	The sixth objective of the CDBG statute calls for the "reduction of the isolation of income groups within communities." A number of recent studies have documented the extent of poverty concentrations in the United States (Jargowsky, 1996; Rusk, 1999) and the consequences of ghetto poverty (Blank, 1997; Brooks-Gunn, Duncan, and Aber, 1997; Wilson, 1987). Recent research on the impact of moving poor families from high-poverty to lower poverty neighborhoods demonstrates significant effects for women and girls in terms of increased safety, reduced incidence of psychological disorders, and less obesity (Orr et al., 2003). Generally, the social cost of poor people living in high-poverty neighborhoods appears to be higher than the cost of just having poor people, in terms of public safety and healthcare costs.

CDBG = Community Development Block Grant.

Exhibit 3

Variables for Measuring Community Development Need Among Entitlement Communities (continued)

Variable	Justification
Female-headed households with children	This is a group seen to have daycare needs and consume more in public services than it returns in taxes. In addition, communities with large segments of single-parent households are often correlated with neighborhood instability and substandard housing (Bunce, 1976). This variable is also a good supplement to the poverty measure because it captures a high number of households that are just above the poverty threshold. According to census 2000 data, 49 percent of female-headed households with children in the United States have incomes of less than $20,000 compared with just 8 percent of married families with children. Very few female-headed households with children have higher incomes; only 4 percent nationwide have incomes greater than $60,000.
People with lower education levels	Lack of high school education is correlated with high crime rates, unemployment, and social problems. Individuals without a high school education also often live in declining neighborhoods. Not having a high school education increases the likelihood a person is dependent on public support (Bunce, 1976).
2. Decent Housing	
Occupied housing units that are pre-1950 and occupied by a poverty household Occupied housing units that are pre-1970 and occupied by a poverty renter	Earlier studies found that housing built before 1940 was an indicator of substandard housing and a good proxy for "government repair and maintenance costs of older sanitation facilities and sewage lines." Older housing was also associated with housing abandonment (Bunce, 1976). As needier jurisdictions have demolished their pre-1940 housing stock over time and less needy jurisdictions have renovated their pre-1940 housing stock, pre-1940 housing has steadily lost this targeting ability (Bunce, Neal, and Gardner, 1983; Neary and Richardson, 1995). Age of housing remains a good proxy for an older infrastructure, the costs of maintaining that infrastructure, and a need for historic preservation. Ladd and Yinger (1991) found that cities with older housing had higher operating costs than cities with newer housing did. It is highly desirable to capture the concept of age without overly rewarding communities that have aged gracefully. The 2000 census data do not have a perfect proxy for inadequate housing. Analysis of 2001 American Housing Survey data shows that, nationally, 6.3 percent of the nation's housing stock is inadequate. Older housing is indeed more likely to be substandard, with housing built before 1940 nearly twice as likely (11.1 percent) to be substandard than on average nationally. Poor people are also more likely to live in inadequate housing (12.1 percent). Combining poverty with old housing substantially improves targeting toward inadequate housing. Approximately 18 percent of pre-1950 housing units occupied by people in poverty have housing quality problems. Tenure is also a good measure of housing inadequacy and even more so when combined with income and age of housing. Nineteen percent of poverty renters of pre-1970 housing live in inadequate housing.
Housing units with more than 1.01 people per room	Overcrowding has increased between 1990 and 2000 and is closely associated with a growing immigrant population, which puts a unique strain on local government resources. Studies of the states of California and New Jersey commissioned by the National Academy of Sciences found that immigrants, particularly the low-skilled immigrants with larger families that reflect overcrowding, contribute less to local and state revenues than they consume (Smith and Edmonston, 1997).

Exhibit 3

Variables for Measuring Community Development Need Among Entitlement Communities (continued)

Variable	Justification
3. Suitable Living Environment	
Number of murders, assaults with weapons, incidents of nonnegligent manslaughter, and robberies per 1,000 people in 2001	Communities with higher crime rates are confronted not only by the need for greater police enforcement but also the social cost associated with higher crime, including substantial health costs (Orr et al., 2003). Crime also is a "push" factor that provides a strong incentive for people with a choice, generally the people contributing most to a jurisdiction's tax base, to leave the community (Skogan, 1990).
Number of people per square mile in 2000	Research by Ladd and Yinger (1991) demonstrated that higher general service costs are associated with both high- and low-density communities. According to Ladd and Yinger, "Cities with low densities face high transportation and coordination costs, whereas cities with high densities face severe congestion."
Level of minority segregation in metropolitan area multiplied by the percentage of the minority population	This study uses a metropolitan level dissimilarity index. This index measures the proportion of the population in the metropolitan area that would need to move for the minority population to be evenly represented in all census tracts. Zero represents complete integration and 1 is complete segregation. The index is then multiplied by the percentage of the minority population in a particular jurisdiction. In previous studies, the percentage of the population that is minority has been used as a separate indicator because urban blight and abandonment were found to be concentrated in minority neighborhoods. Areas with high minority concentrations were associated with overcrowded housing, a higher infant mortality rate, greater welfare dependency, substandard housing, and high rates of unemployment (Bunce, 1976). Minorities are also more likely to have extended stays in poverty (Blank, 1997). More recent research indicates that these problems are much more concentrated in metropolitan areas with high degrees of segregation (Rusk, 1999). Racial segregation has also been found to have a high correlation with fiscal inequality and urban sprawl, defined as decreases in population density in the urbanized area (Orfield, 2002). This observation could be driven partly by the substantial wealth gap between minorities and Whites (Oliver and Shapiro, 1995). From this evidence, this study concludes that jurisdictions with the highest percentages of minority populations in a racially segregated metropolitan area are likely to have relatively high levels of distress in terms of fiscal revenue capacity and loss of population density in favor of urban sprawl.
4. Economic Opportunities	
Population loss between 1960 and 2000	The 1960 census marked the population height for many older, industrial central cities. The growth of interstate highway systems and housing finance systems that favored suburban development over central city housing, along with the decline in the number of manufacturing jobs located in central cities, contributed a great deal to this population loss (Oliver and Shapiro, 1995). Cities with significant population loss are often confronted by the costs associated with managing abandoned housing, an aging infrastructure that is larger than needed or that it can support, and usually an older and larger poverty population than growing cities confront. As a result, these cities have higher than average numbers of municipal employees per 10,000 residents and tend to levy a higher combined state and local tax burden (Moore and Stansel, 1993). Even those jurisdictions that stabilized their population between 1990 and 2000 still retain the higher costs noted above.

Exhibit 3

Variables for Measuring Community Development Need Among Entitlement Communities (continued)

Variable	Justification
Population loss between 1990 and 2000	Some jurisdictions with populations that continued to grow between 1960 and 1990 have begun to experience population loss. These "newer" declining cities and urban counties, many of them inner-ring suburbs, are beginning to experience population decline and some of the stresses noted in the previous section for the older cities with population loss.
Population age 16 to 64 that was employed in 2000	The smaller the segment of a working-age population that is employed, the greater the social distress for a community. This variable is a measure of the extent that the primary generators of income for a community are idle, unemployed, or dependent on services. High rates of idleness are often related to higher crime and dependence on community services without contributing to the tax base.
People age 16 or older in the labor force who were unemployed in 2000	This variable is a direct measure of economic distress for a community. High numbers of unemployed people who are looking for work is reflective of a troubled regional economy or a mismatch between the skills of the people and the jobs available in the region.

Richardson's factor analysis likewise creates three factors, but the factors are different than those in previous studies (Richardson 2005). His 2005 study notes that a single factor now captures most of the variance associated with the variables of poverty, age of housing, and population decline, suggesting that a single formula could now capture those three elements, reducing the justification for the current dual formula. Richardson (2005) also highlights two new patterns of variance that arise in 2000—patterns that were not evident in 1970, 1980, or 1990: (1) a factor representing fiscal stress associated with immigrant growth (as shown by a factor that correlates highly with overcrowding and population growth) and (2) a factor reflecting low-density places with high-poverty concentrations but declining poverty rates.

Richardson (2005), using a different approach to the factor analysis than used in previous studies, employed an approach that seeks to have the first factor account for as much of the variance as possible; that is, choosing not to do any "rotations."[5] Previous studies had used Varimax rotation of the data, which is intended to "simplify" the factor solution. Both methods provide the same degree of fit between the data and the factor structure (Kim and Mueller, 1978).

This approach raises the question about whether the needs index developed in Richardson (2005) would be much different than a needs index developed using a Varimax rotation with Kaiser normalization.[6] To test this question, exhibit 4 compares the factor score correlations against the 17 variables in the needs index for both the unrotated factor scores and the rotated factor scores.

Exhibit 4

Comparing Factor Scores

	Factors Without Rotation				Factors With Varimax Rotation			
	U1	U2	U3	U4	R1	R2	R3	R4
Percent of variance explained	**45.5**	**15.6**	**8.8**	**5.9**	**25.1**	**24.6**	**16.1**	**10.0**
Correlation of variables to factors								
Percent of people living in families or elderly households in poverty	**0.913**	0.049	0.284	– 0.042	**0.607**	0.399	0.490	0.389
Percentage point change in poverty rate between 1990 and 2000	0.018	0.315	**– 0.644**	– 0.075	0.111	– 0.056	0.156	**– 0.693**
Jurisdiction per capita income relative to metropolitan per capita income	**– 0.668**	– 0.142	0.223	0.479	– 0.251	– 0.251	**– 0.774**	0.147
Net change in per capita income from 1989 to 1999	**– 0.676**	– 0.238	0.108	**0.578**	– 0.271	– 0.133	**– 0.875**	0.059
Percent of people in poverty living in census tracts of more than 40 percent poverty	0.489	– 0.058	**0.602**	0.146	0.393	0.181	0.087	**0.657**
Percent of households female-headed with children	**0.740**	– 0.454	0.032	– 0.139	0.136	**0.727**	0.401	0.255
Percent of the population age 25-64 with less than a high school education	**0.781**	0.464	0.077	– 0.041	**0.752**	0.073	0.508	0.065
Occupied housing units that are pre-1950 and occupied by a poverty household	**0.734**	– 0.491	– 0.250	0.028	0.173	**0.863**	0.261	– 0.008
Occupied housing units that are pre-1970 and occupied by a poverty renter	**0.855**	– 0.305	– 0.173	0.046	0.373	**0.776**	0.338	0.035
Percent of housing units with more than 1.01 people per room	0.479	**0.780**	– 0.026	0.179	**0.848**	– 0.265	0.234	– 0.161
Homicides, assaults, and robberies per 1,000 people (2001 UCR)	**0.711**	– 0.110	0.170	0.133	0.465	0.467	0.215	0.290
People per square mile	0.430	0.326	**– 0.557**	0.420	**0.633**	0.241	– 0.058	**– 0.562**
MA dissimilarity index multiplied by the percent of the population that is minority in the jurisdiction	**0.715**	0.401	0.004	0.337	**0.857**	0.174	0.146	– 0.003
Population lost between 1960 and 2000 (negative or 0)	**– 0.516**	**0.643**	0.242	– 0.151	– 0.008	**– 0.872**	– 0.019	– 0.006
Population lost between 1990 and 2000 (negative or 0)	– 0.429	**0.616**	0.178	– 0.139	0.032	**– 0.782**	0.011	– 0.048
Percent of population age 16 to 64 that is employed	**– 0.835**	– 0.206	– 0.172	– 0.052	**– 0.688**	– 0.287	– 0.404	– 0.229
Percent of population older than age 16 in the labor force that is unemployed	**0.864**	0.022	0.130	– 0.035	**0.552**	0.436	0.460	0.242

MA = metropolitan area.
UCR = Uniform Crime Reports.

As noted in Richardson (2005), the *unrotated factor* score creates the following:

- UFactor 1—Correlates most strongly with poverty and has very high correlations with 12 of the 17 variables in the needs index, including pre-1950 housing occupied by a poverty household, female-headed households with children, unemployment, and, to a lesser extent, population loss. This factor was defined as places with problems associated with poverty, age, and population decline.[7]
- UFactor 2—Correlates very strongly with overcrowding and places not losing population. This factor was categorized as representing places with growing immigrant populations.
- UFactor 3—Correlates with areas with high poverty concentration, declining poverty rates, and low poverty. This factor was defined as places with problems associated with poverty concentration and improvement.
- UFactor 4—Correlates with income growth during the 1990s.[8] This factor was defined as places with income improvement.

To create a single "needs score" for each grantee, Richardson (2005) weighted the Ufactors as follows: UFactor 1 at 80 percent, UFactor 2 at 15 percent, UFactor 3 at 5 percent, and UFactor 4 at 0 percent. The rationale for these weightings were that UFactor 1 captured most of the previously accepted priorities for the CDBG program; UFactor 2 represented immigrant growth, a growing source of fiscal stress on select communities; and UFactor 3 represented concentrated poverty but also, perhaps, an anomaly of declining poverty rates in the 1990s. UFactor 4 was not seen as representing any need at all.

By rotating the factors using the Varimax rotation approach, instead of creating a single factor strongly associated with poverty, four factors are created that each have a modest correlation to poverty and unemployment and strong correlations as follows:

- RFactor 1—Correlates most strongly with overcrowding, segregation, and low education levels.
- RFactor 2—Correlates most strongly with places with population loss, older housing occupied by poor people and renters, and female-headed households with minor children.
- RFactor 3—Correlates very strongly with places that have declining or slow-growing incomes and very low per capita incomes relative to their metropolitan areas.
- RFactor 4—Similar to UFactor 3 in the unrotated factor analysis, this factor correlates with areas with high poverty concentration, declining poverty rates, and low poverty. This factor was defined as places with problems associated with poverty concentration and improvement.

The advantage of this second approach is that it essentially ignores poverty as a factor to distinguish among the variations of other types of needs; that is, most of the communities that score high on the four RFactors also tend to have high poverty rates. It is evident, however, that, in addition to making policy decisions about poverty, we can make policy decisions regarding whether these four other factors—segregated communities with overcrowding and low education levels (RFactor 1), older urban areas with population decline (RFactor 2), places with income

decline in the 1990s (RFactor 3), or communities with concentrated poverty but decreasing poverty rates (RFactor 4)—are a higher priority.

With the unrotated approach, it is easy to conclude that the poverty/age/decline variable (UFactor 1) should be the most important. With the rotated approach, it is more difficult to decide how to weight the factors. RFactor 1 and RFactor 2 both represent about 25 percent of the variance, followed by RFactor 3 (16 percent) and RFactor 4 (10 percent). Of course, because any rotated factor solution explains exactly as much covariation in the data as the initial solution (Kim and Mueller, 1978), by regressing the needs score created on the unrotated factors against the factors created by using the Varimax rotation, it is possible to determine what weights could be applied to the rotated approach to create a needs index that has a perfect (1.000) correlation with the needs score using the unrotated approach. Doing this analysis finds that the rotated factors would be weighted as follows to match the needs index in Richardson (2005):

- RFactor 1—41-percent weight.
- RFactor 2—22-percent weight.
- RFactor 3—29-percent weight.
- RFactor 4—8-percent weight.

In other words, this analysis is another way to understand the *policy priorities* associated with the needs index used in Richardson (2005). Segregated communities with high rates of overcrowding and low rates of high school education attainment receive a 41-percent weight, communities with aging or dilapidated housing and population loss receive a 22-percent weight, communities with declining incomes and highly disadvantaged relative to their neighbors receive a 29-percent weight, and communities with concentrated poverty but declining poverty rates receive an 8-percent weight.

Clearly, how the factors are weighted matters enormously in terms of how a grantee might be ranked. Exhibit 5 shows the 20 most needy cities with populations of more than 100,000 according to the needs index and how the cities rank on each of the individual factors, both from the unrotated factor score and the rotated factor score. If, for example, the needs index had a greater weight on UFactor 1 of the unrotated factor score or on RFactor 2 of the rotated factor score while reducing the weights on the other factors, Buffalo and St. Louis would move up to being near the top of this list and El Monte, California, and Brownsville, Texas, would move toward the middle of the list.

Comparing Targeting of the Current Formula and the Administration's Proposed Formula

The analysis of the unrotated and rotated factors provides us with some tools to understand how well the current formula targets to different dimensions of community development need. In Richardson (2005), a fairly simple approach was used to show how the formula targeted against the needs index as a whole. It demonstrated this formula targeting both through a simple regression of the needs score against per capita grants and through graphic representation, as shown in exhibit 6.

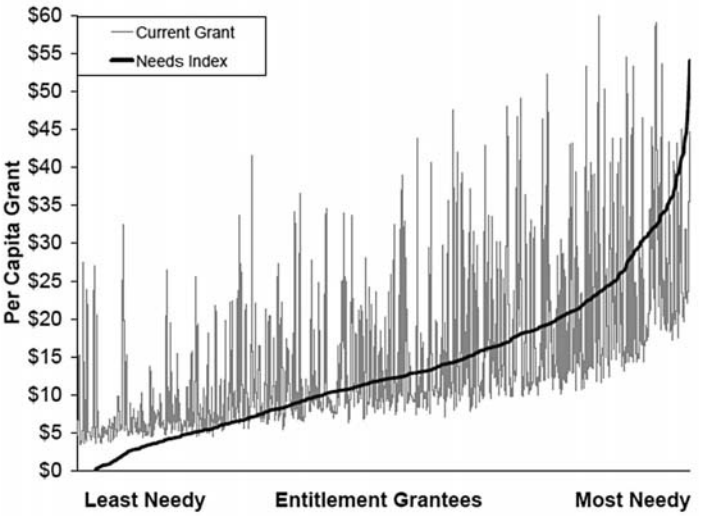
Exhibit 5

Twenty Most Needy Cities With Populations of More Than 100,000, by Needs Score and Ranks on Individual Factors

City and State	Need	Unrotated Factor Score			Rotated Factor Score			
		1	2	3	1	2	3	4
Newark, NJ	1	2	120	214	13	18	35	163
Hartford, CT	2	1	230	199	33	6	13	86
El Monte, CA	3	11	2	230	1	228	15	239
Brownsville, TX	4	15	20	1	6	243	77	1
Detroit, MI	5	3	236	72	25	3	201	24
Miami, FL	6	10	27	26	4	60	164	36
Paterson, NJ	7	8	17	244	12	40	18	244
Inglewood, CA	8	16	9	208	5	91	74	222
Santa Ana, CA	9	26	1	224	2	244	14	240
San Bernardino, CA	10	21	24	27	26	153	2	39
Pomona, CA	11	29	4	185	8	226	11	215
Cleveland, OH	12	6	238	156	65	4	134	50
Baltimore, MD	13	7	233	213	45	8	189	116
New Haven, CT	14	12	221	226	69	17	22	181
St Louis, MO	15	5	243	216	74	2	202	87
Buffalo, NY	16	4	244	239	114	1	142	188
Hialeah, FL	17	39	5	192	7	225	65	223
Flint, MI	18	9	239	67	79	9	153	20
New York, NY	19	22	32	243	3	29	235	242
Providence, RI	20	17	173	241	50	21	20	231

Exhibit 6

Current Entitlement Formula: Targeting to the Needs Index



Note: R-square: 0.323; Slope: 7.311.

The chart in exhibit 6 orders entitlement grantees left to right from least needy to most needy based on the needs index. The solid line represents how many dollars a jurisdiction would get on a per capita basis if the grant funds were allocated using the needs index. The "bouncing" line represents how many dollars jurisdictions get on a per capita basis with the current formula. A number of very low-need grantees on the left side of the chart get high per capita grants relative to their need under the current formula. Some very needy grantees on the right side of the chart receive relatively low per capita grants. More striking is that a great number of grantees with similar need, as demonstrated by each "spike," receive very different grant amounts. These spikes essentially represent the r-square. The higher the r-square, the greater the fairness in the allocation. Graphically, as the r-square increases, the "spikes" on the chart would get smaller.

Another measure of targeting is characterized by the "slope" of the allocation. With regression analysis, the slope implies how much a per capita grant increases for each standard deviation difference in need. That is, on average, a grantee funded under the current formula who is one standard deviation from the mean gets $7.31 more per capita than a grantee with average need gets. The needs index line shown on the chart in exhibit 5 represents a slope of 12. That is, if the needs index were used to allocate funds, a grantee with one standard deviation of need greater than the mean gets $12 more per capita than the average grantee gets. Setting the slope of 12 for the needs index line in the chart is a policy decision to set an aggressive goal for differentiating grants between the more and less needy.

The goal behind developing an alternative formula is to both improve fairness (r-square) and slope. In May 2006, the Bush administration proposed to Congress that it consider adopting a formula that would do both.

Exhibit 7 shows the proposed formula. A single formula rather than a dual formula, the proposed formula uses variables identified through the factor analysis as having the strongest targeting to the needs index, and it eliminates the 70/30 split between entitlements and nonentitlement grantees, with the full appropriation allocated to all grantees under this single formula.

The proposed formula is calculated in three steps. The first step is to allocate the funds based on each community's proportional share of the four variables representing community distress. That is, 50 percent of the appropriated funds would be distributed to grantees based on each grantee's proportional share of the national population in poverty, 30 percent to grantees based on each grantee's proportional share of housing 50 years or older and occupied by a poverty household, 10 percent on female-headed households with minor children, and 10 percent on overcrowded housing units. The second step is to increase or decrease the resulting "base" grant using the ratio of a metropolitan area's per capita income relative to an entitlement community's per capita income.[9] The rationale for the per capita income adjustment is two-fold. It makes general adjustments for cost-of-living differences between metropolitan areas and it adjusts for fiscal capacity differences between communities.[10]

The third step is to apply a pro rata adjustment if the resulting grants are more or less than total appropriations. Exhibit 8 uses the grant calculation for Providence, Rhode Island, as an example of how the proposed formula works mechanically.

Exhibit 7

The Bush Administration's Proposed Formula*

Entitlement Communities and States (Nonentitlements) Under a Single Formula

$$\left[0.5\ \frac{\text{Povncol (a)}}{\text{Povncol (ALL)}} + 0.1\ \frac{\text{FHHKIDS (a)}}{\text{FHHKIDS (ALL)}} + 0.1\ \frac{\text{Ocrowd (a)}}{\text{Ocrowd (ALL)}} + 0.3\ \frac{\text{Agepov (a)}]}{\text{Agepov (ALL)}}\right] \times \text{total appropriation}$$

The calculation is then adjusted by the ratio of per capita income (PCI) of the metropolitan statistical area (MSA) divided by the PCI for the jurisdiction (PCIMSA/PCILocal), with caps such that no grant is adjusted either upward or downward by more than 25 percent. All state grants are assigned a PCIMSA/PCILocal ratio of 1. Pro rata reduction is used to bring the total grant into line with appropriation.

Where—
- *(a)* is the value for the jurisdiction.
- *(ALL)* is the value for all 50 states, the District of Columbia, and Puerto Rico.
- *Povncol* is the number of people living in poverty excluding college students.
- *Ocrowd* is the number of overcrowded housing units.
- *Agepov* is the number of housing units 50 years or older and occupied by a poverty household.
- *FHHKIDS* is the number of female-headed households with children under the age of 18.

** The administration's proposal also includes a minimum funding threshold. Specifically, an entitlement grantee must receive a formula grant in excess of 0.058 percent of appropriation or lose entitlement status. The argument for this is administrative: roughly $500,000 (which represents approximately 0.058 percent of appropriation in fiscal year 2006) is the minimum grant needed to run an efficient program. As such, for purposes of maintaining an "apples to apples" comparison, this discussion of relative community needs does not drop grantees from this analysis who fall below the threshold.*

In Richardson (2005), the variables used for the allocation were identified by examining UFactors 1 and 2 and identifying variables, particularly within UFactor 1, that might represent unique characteristics of need not captured by poverty. In Richardson (2005), female-headed households with children under 18 and housing 50 years or older occupied by a poverty household are identified as variables within UFactor 1 representing some unique characteristics of need independent of poverty. As it turns out, by rotating the factor analysis, we get the same result. RFactor 2 shows housing 50 years or older and occupied by a poverty household and female headed households with children under 18 representing a unique dimension of need that has only a modest correlation with poverty. Further, the rotated factor analysis reinforces the importance of overcrowding as a measure of need through its strong association with other measures of need in RFactor 1. Finally, RFactor 3 gives support for using the per capita income adjustment factor (the per capita income of the metropolitan area divided by the per capita income of a local jurisdiction) as a means to target community development needs.

As shown on the chart in exhibit 9, the administration's proposal relative to the overall needs index does substantially improve fairness—the r-square improves from the current 0.323 to 0.733 as demonstrated by the smaller spikes among similarly needy places. The slope increases from 7.131 to 10.151; so, on average, the more needy grantees receive an increase in funding relative to the funding the less needy grantees receive.

Exhibit 8

Example of the Bush Administration's Proposed Formula Mechanics

Step 1. Proportional allocation:

	Providence	Nation	Providence's Share	National Appropriation	Providence's Base Grant ($000)
Poverty (excluding college students)	41,463	33,497,806	0.001238	0.5 * $3.704 billion	$2,292
50-year-old housing with poverty householder	8,517	3,301,057	0.002580	0.3 * $3.704 billion	$2,867
Female-headed households with minor children	8,748	7,462,421	0.001172	0.1 * $3.704 billion	$434
Overcrowding	5,225	6,252,299	0.000836	0.1 * $3.704 billion	$310
"Base" Grant total					$5,903

Step 2. Per capita income adjustment:

	Providence	Providence Metropolitan Area	Ratio (Metro Area PCI/ Local Area PCI)	Base Grant ($000)	Adjusted Grant ($000)
Per capita income	$15,525	$21,448	1.38 (capped at 1.25)	$5,903	$7,379

Step 3. Pro rata adjustment:

The total dollar amount for all adjusted grants is $3.900 billion, but appropriations are only $3.704 billion. As a result, every community's grant is multiplied by the ratio of $3.704 billion divided by $3.900 billion or 0.949704.[a] This is a reduction of 5 percent for all grantees.

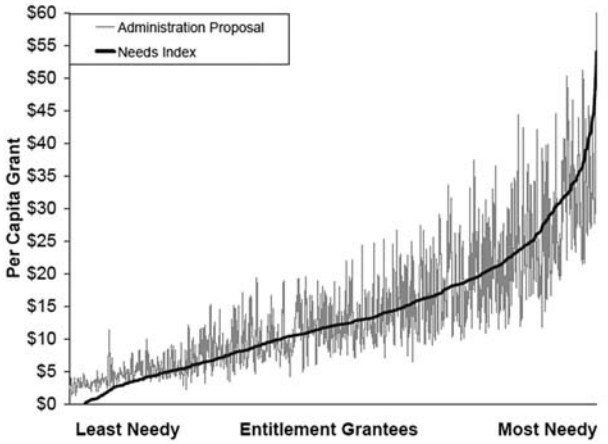
Providence's final allocation is $7,379,000 * 0.949704 = $7,008,000.

PCI = per capita income.

[a] The pro rata adjustment has the effect of reducing grants overall. Thus, if a community's PCI adjustment factor is 1, its grant does not change under Step 2, but, because overall Step 2 increases allocations more than it reduces allocations, the pro rata reduction results in a real decrease of 5 percent for grantees with PCI ratios of 1.

Exhibit 9

The Bush Administration's Proposed Formula: Targeting to the Needs Index



Note: R-square: 0.733; Slope: 10.151.

What Types of Need Are Better Targeted?

On the needs index developed for Richardson (2005), the administration's proposal clearly improves targeting to needs. It comes at a significant cost, however. More than half of entitlement grantees would have reductions in funding, some quite dramatically, if the administration's proposal were implemented. So the question is, on average, what types of needs are being targeted better?

One way to answer this question is to look at the individual factors created through both the unrotated and rotated factor analyses discussed previously. Exhibit 10 shows how the regression results change when the individual unrotated factors are regressed as independent variables against the per capita grants of the current formula and the administration's proposed formula. Exhibit 11 shows the same information for the factors created using the Varimax rotation.

Exhibit 10 shows that, compared with the current formula, the administration's proposal increases targeting on all three of the unrotated factors. Its targeting to UFactor 1, poverty/age/decline, increases from $7.19 per standard deviation to $8.94 per standard deviation and, although UFactors 2 and 3 continue to have a negative relationship to the formula, the negative targeting is less so than under the current formula. This concept of reducing the negative targeting on UFactor 2 is a bit difficult to conceptualize. The Varimax rotated factor analysis might help resolve this conceptualization a bit because RFactor 1 captures the overcrowding associated with distress without capturing the overcrowding associated with growth observed with UFactor 2. The administration's proposal substantially improves targeting to this factor. In contrast, with RFactor

Exhibit 10

Comparing the Current Formula With the Bush Administration's Proposed Formula on the Factors Generated Through the Unrotated Factor Analysis

UFactors	Current Formula	Administration's Proposal
Constant	14.916	13.971
UFactor 1—poverty/age/decline	7.194	8.944
UFactor 2—overcrowding and growth	– 4.903	– 2.284
UFactor 3—concentrated poverty and declining poverty rates	– 3.046	– 1.179

Note: R-square for the current formula is 0.774; 0.927 for the administration's proposal.

Exhibit 11

Comparing the Current Formula With the Bush Administration's Proposed Formula on the Factors Generated Through the Varimax Rotated Factor Analysis

RFactors	Current Formula	Administration's Proposal
Constant	14.920	13.970
RFactor 1—overcrowding/segregation/low education	2.048	4.194
RFactor 2—old housing and population loss	8.864	7.151
RFactor 3—declining incomes/high deprivation relative to metropolitan area	1.790	4.166
RFactor 4—concentrated poverty and declining poverty rates	– 0.639	0.737

Note: R-square for the current formula is 0.787; 0.927 for the administration's proposal.

2 of the rotated factor results, the old housing and population loss factor actually has a reduction in targeting compared with the current formula, while RFactor 3 on declining incomes and high deprivation relative to the metropolitan area has a very large increase. This change in emphasis in targeting between RFactor 2 and RFactor 3 is a direct result of moving away from growth lag in the current formula to the per capita income adjustment factor in the proposed formula.

Are There Other Policy Choices?

Embedded within the analysis in Richardson (2005) are a number of policy choices:

1. Selecting variables for the needs index.
2. Using the factor analysis method.
3. Weighting the factors.
4. Selecting variables for alternative formulas.
5. Weighting alternative formulas.

Richardson (2005) attempts to discuss and justify each of those choices. Nonetheless, there is always room for other ideas and improvements. The Government Accountability Office has begun a project (in the fall of 2006) to update and improve on the needs index used in Richardson (2005) and likely suggest some other improvements. To that end, here are some thoughts about possible improvements.

Variables Selected for the Needs Index

Concerns about variables used in the needs index generally focus on what needs may not be accounted for in the index, including better measures of abandoned buildings, high housing costs, economic decline, and poverty adjusted for different costs of living. In addition, for the nonentitlement needs index, better measures of infrastructure needs would be highly desirable.

The need index for Richardson (2005) was developed in 2003. Since that time, the combination of new data becoming available and legitimate criticisms of the current index point toward the following potential changes to the needs index:

1. In place of the "people in poverty living in families or elderly households" variable, use the special tabulation of census 2000 data, "people in poverty less unrelated college students."
2. In place of "population loss between 1960 and 2000" (and "population loss between 1990 and 2000"), use "number of households lost between 1960 and 2000."
3. Take advantage of the new economic census and add new measures for change in retail and manufacturing employment between 2002 and 2007.
4. Use a new data set created for HUD by the U.S. Postal Service on "vacant addresses" to proxy abandoned housing.
5. Explore using fair market rents to adjust poverty counts for cost-of-living differences between communities.

The Factor Analysis Method and Weighting the Factors

The analysis in this article suggests that using several different factor analysis methods can be useful for refining the policy choices and helping to decide how to weight the resulting factors. The unrotated factor analysis can provide one very strong factor and thus reduce the need to make difficult policy decisions on how to weight the data. A rotated factor analysis, however, creates more distinct groups and gives greater flexibility in making deliberate policy choices about what types of need the CDBG program should target as priorities.

Selecting Variables for Alternative Formulas

The analysis in this article also demonstrates that using multiple methods of factor analysis can help narrow what variables to consider for alternative formulas. This article reinforces the choices made in Richardson (2005) to include poverty, housing 50 years or older and occupied by a poverty household, overcrowding, and female-headed households with children under 18 as the base variables. It also reinforces the use of the per capita income adjustment factor in an alternative formula.

Nonetheless, if modifications are made to the needs index, other variables may be identified as better variables or additions to the ones proposed in Richardson (2005).

Weighting Alternative Formulas

The weights in the formula, just as the weights on the factors, are clear policy choices about how funds should be distributed. This article shows that poverty is an excellent measure of general community distress, overcrowding targets toward growth/immigration/segregation, housing 50 years older and occupied by a poverty household and female-headed households with children under 18 target toward aging communities with population loss, and the per capita income adjustment factor targets toward income decline. By simply adjusting the weights on the administration's proposal for formula reform to Congress, one can shift the targeting to focus more strongly on one of those items over another.

Conclusion

The CDBG formula has not changed since 1982. As a program that allocates billions of dollars each year, it is important that those funds be targeted as efficiently as possible to the places with the greatest community development needs. To first understand how well the current formula targets to these needs and then to identify ways to better target the funds first require giving each community a score to represent its relative level of community development need. Because community development need is a function of many different things, it requires using a dozen variables or more to construct such a score.

Since 1976, using the statistical procedure factor analysis, HUD has developed and published in a series of reports a community development needs index. The first index was developed with 1970 data and subsequent indexes have used 1980, 1990, and 2000 census data. Factor analysis can be used in different ways to reduce many variables into a few variables measuring different

patterns of distress. This article compares two approaches with the 2000 census data and reaches the same basic conclusions about what key variables are important for demonstrating community development need. A wider range of policy choices on how to weight those variables exists, however, regarding what types of need are higher priority for funding than others. It is in the weighting of the variables used in the Bush administration's proposal for changing the formula, rather than the formula variables themselves, that the debate on improving the formula should focus.

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Notes

1. $196 billion in 2006 dollars.
2. Growth lag is the shortfall in population that a city or county has experienced when comparing its current population with the population it would have had if it had grown at the rate that all metropolitan cities have grown since 1960. If a city or county grew at a rate greater than the rate for all metropolitan cities, it receives a growth-lag value of 0. Cities receive growth-lag funding based on their share of total growth lag for all cities, while urban counties receive growth-lag funding based on their share of total growth lag for all entitlements (urban counties and cities).
3. Under the Community Development Block Grant (CDBG) program, the balance of counties, after excluding CDBG entitlement cities and other jurisdictions not wanting to participate with the county with populations greater than 200,000, receive grants under the CDBG program.
4. The state needs index, not discussed in detail in this article, includes 10 variables.
5. The solution is obtained using principal component analysis with no rotation. The extract is restricted to eigenvalues greater than 1. The solution is orthogonal.
6. In both cases, a factor must have an eigenvalue of 1 or greater to be included. This eigenvalue restriction is intended to limit the number of factors created.

7. Bunce, Neal, and Gardner (1983: 57) noted using 1980 data that "poverty is now a much broader indicator of community development problems than in 1970." They observed that the "poverty rate fell in many growth areas and increased in many older declining areas; now it is a better proxy for problems such as unemployment and slow growth in retail sales." These trends have clearly continued and made poverty an even stronger indicator of community need.

8. Richardson (2005) does not discuss this factor due to the factor correlating with economic improvement and no indicator of decline.

9. The per capita income adjustment is capped so that it cannot be more than 1.25 or less than 0.75. This "cap" is intended to prevent the adjustment from creating serious anomalies in allocations relative to similarly needy places. In the current formula, the "growth lag" variable was developed to allocate large shares of money to the most needy places. Because growth lag has no cap, however, it has created serious anomalies between similarly needy places.

10. Cost-of-living adjustment between metropolitan areas = metro area per capita income/ national per capita income. If the community is in a metropolitan area with relatively higher per capita incomes, it is presumed that the cost for the grantees in the metropolitan area to provide services is higher in this area. Also, it presumes that the cost to poor people to buy goods and services is higher in these metropolitan areas.

    Fiscal capacity adjustment between communities = national per capita income/entitlement community per capita income. If the community has lower per capita income than the nation as a whole, it is presumed that it has relatively less ability to raise revenues to address its needs.

    By combining these two adjustments, national per capita income cancels itself out, leaving the ratio of metro per capita income / entitlement community per capita income.

References

Blank, Rebecca M. 1997. *It Takes a Nation: A New Agenda for Fighting Poverty*. Princeton, NJ: Russell Sage Foundation.

Brooks-Gunn, Jeanne, Greg J. Duncan, and J. Lawrence Aber, eds. 1997. *Neighborhood Poverty*. New York: Russell Sage Foundation.

Bunce, Harold L. 1976. *An Evaluation of the Community Development Block Grant Formula.* Washington, DC: U.S. Department of Housing and Urban Development.

Bunce, Harold L., and Robert L. Goldberg. 1979. *City Need and Community Development Funding.* Washington, DC: U.S. Department of Housing and Urban Development.

Bunce, Harold L., Sue G. Neal, and John L. Gardner. 1983. *Effects of the 1980 Census on Community Development Funding.* Washington, DC: U.S. Department of Housing and Urban Development.

Dommel, Paul R., Victor E. Basch, Sarah F. Liebschutz, and Leonard S. Rubnowitz. 1980. *Targeting Community Development.* Washington, DC: U.S. Department of Housing and Urban Development.

Jargowsky, Paul. 1996. *Poverty and Place: Ghettos, Barrios, and the American City*. New York: Russell Sage Foundation.

Kim, Jae-On, and Charles W. Mueller. 1978. *Introduction to Factor Analysis: What It Is and How To Do It.* Thousand Oaks, CA: Sage Publications.

Ladd, Helen F., and John Yinger. 1991. *America's Ailing Cities: Fiscal Health and the Design of Urban Policy.* Baltimore: The Johns Hopkins University Press.

Moore, Stephen, and Dean Stansel. 1993. *The Myth of America's Underfunded Cities.* Washington, DC: Cato Institute.

Neary, Kevin, and Todd Richardson. 1995. *Effect of the 1990 Census on CDBG Program Funding.* Washington, DC: U.S. Department of Housing and Urban Development.

Oliver, Melvin L., and Thomas M. Shapiro. 1995. *Black Wealth/White Wealth.* New York: Routledge.

Orfield, Myron. 2002. *American Metropolitics: The New Suburban Reality.* Washington, DC: The Brookings Institution Press.

Orr, Larry, Judith D. Feins, Robin Jacob, Erik Beecroft, Lisa Sanbonmatsu, Lawrence F. Katz, Jeffrey B. Liebman, and Jeffrey R. Kling. 2003. *Moving to Opportunity: Interim Impacts Evaluation.* Washington, DC: U.S. Department of Housing and Urban Development.

Richardson, Todd. 2005. *CDBG Formula Targeting to Community Development Need.* Washington, DC: U.S. Department of Housing and Urban Development.

Rusk, David. 1999. *Inside Game/Outside Game: Winning Strategies for Saving Urban America.* Washington, DC: The Brookings Institution Press.

———. 1993. *Cities Without Suburbs.* Baltimore: The Johns Hopkins University Press.

Skogan, Wesley G. 1990. *Disorder and Decline: Crime and the Spiral Decay of American Neighborhoods.* Los Angeles: University of California Press.

Smith, James P., and Barry Edmonston, eds. 1997. *The New Americans: Economic, Demographic, and Fiscal Effects of Immigration.* Washington, DC: The National Academies Press.

U.S. Department of Housing and Urban Development (HUD). 1995. *Overview of Major Federal Urban Policy Initiatives 1949–1995.* Washington, DC: U.S. Department of Housing and Urban Development.

———. 1975. *Community Development Block Grant Program: A Provisional Report.* Washington, DC: U.S. Department of Housing and Urban Development.

Wilson, William Julius. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy.* Chicago: The University of Chicago Press.

Additional Reading

Housing and Community Development Act of 1977. Public Law 95-128. Washington, DC: U.S. Government Printing Office.

Housing and Community Development Act of 1974. Public Law 93-383. Washington, DC: U.S. Government Printing Office.

Jargowsky, Paul. 2003. *Stunning Progress, Hidden Problems: The Dramatic Decline of Concentrated Poverty in the 1990s*. Washington, DC: The Brookings Institution Press.

Louis, Thomas A., Thomas B. Jabine, and Marisa A. Gerstein, eds. 2003. *Statistical Issues in Allocating Funds by Formula.* Washington, DC: The National Academies Press.

Omnibus Budget Reconciliation Act of 1981. Public Law 97-35. Washington, DC: U.S. Government Printing Office.

Richardson, Todd, Robert Meehan, and Michael Kelly. 2003. *Redistribution Effect of Introducing Census 2000 Data Into the CDBG*. Washington, DC: U.S. Department of Housing and Urban Development.

U.S. Census Bureau. 2002. *American Housing Survey for the United States: 2001*. Current Housing Reports H150/01. Washington, DC: U.S. Government Printing Office.